

## 5. MODERATED POSTER SESSIONS

Thursday, 8 November, 16:20–17:20

### A.2. PUBLIC HEALTH AND DIFFERENT DIAGNOSES

#### Increasing anti-pneumococcal vaccination coverage rate: barriers and strategies

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#### Background

Anti-pneumococcal vaccination is an important public health strategy addressed to children, at risk adults and elderly people. Health professionals, particularly General Practitioners (GPs), play a key role in spreading and conveying information among target population, addressing services demand and administering vaccination. This study has been aimed to investigate the main barriers to anti-pneumococcal vaccination, mainly in adult and elderly population, in order to identify the possible future public health strategies to increase vaccine coverage levels.

#### Methods

A scientific literature review was performed by using the following electronic databases: PubMed, Cochrane Library and Embase. Italian institutional websites were also examined and grey literature was consulted through the search engine “Google Scholar” and other general purpose search engines. Specific key words and MeSH terms were used.

#### Results

The main barriers to anti-pneumococcal vaccination are: the lack of knowledge among population or health professionals and the lack of information received from GPs/specialists/pharmacists. In a survey on a sample of 400 subjects aged  $\geq 65$  years only 13% of respondents said that they were aware of anti-pneumococcal vaccination and 49% said that they would agree to be vaccinated if it had been recommended. A study carried out on a sample of 500 GPs showed that only 17.1% of them give correct information to their patients about the population groups to which anti-pneumococcal vaccination is recommended. A survey on a sample of GPs and specialists showed that 81% of the former and 64% of the latter strongly recommend pneumococcal vaccination in the elderly. Other evidences showed that physicians considered the increase in vaccination coverage rate depending on an outpatient management of vaccination and the promotion of vaccination efficient campaigns.

#### Conclusions

Several public health strategies to increase coverage vaccination levels could be implemented, such as: appropriate training programs for GPs and all health professionals involved in the vaccination process; the empowerment of the patient/citizen through specific training and education programs, the strengthening of the planning process and the effective delivery of vaccines in Primary Care.

#### Differences in treatment and outcomes of patients with acute coronary syndrome with ST segment elevation

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#### Background

Percutaneous coronary intervention (PCI) and fibrinolysis are the two different reperfusion treatments for patients with acute coronary syndrome with ST segment elevation (STE-ACS). We seek to ascertain epidemiologic differences, related to care and results, of patients with STE-ACS depending on whether or not the hospital has a hemodynamic unit (HU).

#### Methods

This is a retrospective cohort study with an analysed population of 11,122 patients with STE-ACS attended in Andalusian public hospitals and included in ARIAM Register during the period 2005–2009. A descriptive analysis was carried out, along with a bivariate analysis and a logistic multivariate regression analysis. Variables analysed were epidemiologic characteristics of patients, type of hospital, reperfusion strategy, complications during hospitalisation, and mortality rate.

#### Results

Of the total registered patients, 5,728 (51.5%) were attended in hospitals with HU, compared to 5,394 (48.5%) in hospitals without it. From the first group, 1,891 (33.02%) patients underwent some type of PCI, while 2,052 (35.84%) were treated with fibrinolytic drugs. Regarding patients attended in hospitals without HU, 349 (6.5%) were given PCI and 2,665 (44.81%) ( $p < 0.001$ ) received thrombolytic treatment. Concerning complications, statistically significant differences were found in post-infarction angina, heart failure, and number of hospital readmissions being higher in hospitals without HU. Nevertheless, we found a higher percentage of metabolic and infectious complications in patients treated in hospitals with HU. The multivariate analysis showed that factors associated with an increased risk of mortality are age OR 1.063 [1.053–1.074], female sex 1.462 [1.187–1.800], diabetes OR 1.2 [0.985–1.463] and Killip class III-IV OR 9.042 [7.320–11.169]. Patients with anterior location also have greater risk of death OR 1.421 [1.173–1.721] and the extension Q, OR 2.685 [1.896–3.801] as well. The hemodynamic unit acts as a protective factor OR 0.748 [0.619–0.904]; the risk of death of patients treated at hospitals without HU is 1.33 times higher.

## Conclusions

There are differences in health outcomes of patients with STE-ACS who have initial access to hospitals with hemodynamic unit, both in treatment and prognosis.

## A systematic review about thyroid effects of Endocrine disruptors

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Endocrine disruptors (EDs) are several widespread compounds, either natural or artificial, that can alter the physiological homeostasis of the natural blood born substances and which actually represent a controversial environmental topic for public health. This study is a systematic review about the relationship between EDs and thyroid dysfunctions in order to clarify the dispute or actualize the problem.

PubMed and the Cochrane Library were searched systematically for English, Italian and Spanish publications on the EDs human health effect on thyroid function. All in vivo study designs were included. Two reviewers conducted the research independently, in February 2012, using the specific keywords/mesh terms.

At the end of the review process were selected 98 primary studies and 61 reviews of 1581 (and 239 reviews) initially found. 78 of them were already described in the five most recent reviews (2008–2010) about this topic; the reviews had been summarized and updated with the 20 studies not included in them.

Our study underlines a relationship between EDs exposure and FT3, FT4 and TSH alteration, especially for polychlorinated biphenyl, polybromophenyl ether, perchlorate, Dioxins/dioxin-like and compounds like bisphenol-A. However no study shows a significant relationship with any pathological and clinical expression of thyroid disease, mainly due to several confounding variables in the observational studies, both environmental and genetic factors. Major risk conditions are represented by pregnancy status and breast-feeding for the importance of the thyroid hormones in fetal neurodevelopment.

Despite all studies need further research about this topic to settle the relationship between EDs and thyroid disease, most authors are worried about the potential health effects on several endocrine targets and in frail conditions. They recommended a precautionary and integrated approach based on primary prevention activities, through screening and health education campaigns, and the reduction or elimination of these substances as suggested by international conferences. This opens scenery of innovative collaboration between medical research, hygiene prevention and international legislation in the hope to set up in future a new dimension of the approach to many diseases.

## Phalangeal bone mineral density predicts incident fractures; a prospective cohort study on men and women. Results from the Danish Health Examination Survey 2007–2008 (DANHES 2007–2008)

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## Background

Osteoporosis and osteoporotic fractures are highly prevalent in the elderly population. Bone mineral density (BMD) is a good predictor for fractures and can be measured by dual-energy X-ray absorptiometry (DXA). Central DXA is accepted as the “gold standard” in the diagnosis of osteoporosis. In most countries, including Denmark, a case-finding strategy has been adopted recommending that general practitioners (GPs) refer persons with one or more risk factors to central DXA. Current evidence, however, suggests that this strategy does not perform well. Indeed, osteoporosis is under-diagnosed and under-treated in Denmark and probably also elsewhere. The purpose of this study was to evaluate the ability of a compact and portable scanner using radiographic absorptiometry (RA) to predict major osteoporotic fractures.

## Methods

This prospective study included a cohort of 15,542 men and women aged 18–95 years, who underwent RA in DANHES 2007–2008. BMD at the middle phalanges of the 2nd, 3rd and 4th digits of the non-dominant hand was measured using RA (Alara MetriScan<sup>®</sup>). These data were merged with information on incident fractures retrieved from the Danish National Patient Registry (NPR). Follow-up was 27–45 months. Major osteoporotic fractures (vertebral fractures, humerus fractures, forearm fractures and hip fractures) were used in the analyses. Fracture events were calculated as “persons with fracture” and evaluated using survival analysis.

## Results

A total of 307 (1.98%) of the participants had experienced a new fracture during follow-up. BMD was significantly lower in subjects with fracture (0.32 vs. 0.34 g/cm<sup>2</sup>;  $p < 0.001$  adjusted for age, gender, prevalent fractures, height, weight and smoking). In both women and men a 1 SD decrease in BMD was associated with an increased risk of fracture when adjusted for age and prevalent fractures (women: HR = 1.38, 95% CI = 1.24–1.54,  $p < 0.001$ ; men: HR = 1.47, 95% CI = 1.20–1.78,  $p < 0.001$ ).

## Conclusions

Phalangeal BMD as measured using RA predicts the incidence of major osteoporotic fractures. This bone density system may be helpful in fracture risk prediction and could offer guidance at the point-of-care to detect and select individuals at high risk of fracture with the need of further examination.

## C-reactive protein is associated with fracture risk: European Prospective Investigation into Cancer Norfolk Study

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## Background

Serum C-reactive protein (CRP) is a marker of general systemic inflammation and is suggested to be a marker of the age-related chronic inflammatory state, a phenomenon known as “inflammaging”. The association of CRP and fracture risk has not been studied thoroughly in large cohort studies. Investigating the association of CRP and fracture risk, in addition to risk prediction purposes, helps in better understanding the underlying pathophysiology of osteoporosis and fractures.

## Methods

Men and women aged 40–79 were recruited, from 1993–97, to the European Prospective Investigation into Cancer in Norfolk (EPIC-Norfolk) study. Among 18,560 men and women with

available serum CRP measurement at baseline, 792 incident fractures (291 hip fractures) were observed after 261,563 person-years of follow up (mean follow up was 14 years). Association of CRP (categorized using clinical cut-points) and fracture risk (all-types and hip fractures) was tested using Cox-proportional hazards regression analyses adjusted for age, sex, body mass index, height, smoking, alcohol intake, past history of fracture, Steroid medication use, menopausal status and hormone replacement therapy.

### Results

The lowest risk of fracture was observed for men and women in the CRP category 1.1–2 mg/L. Above 1 mg/L, CRP was positively and significantly associated with risk of all-fractures. However, participants in CRP categories below 1 mg/L had higher risk of fracture compared to the 1.1–2 mg/L category, representing a U-shaped association for CRP and fracture risk. Hazard ratios (95% CI) of all-types of fracture for participants with CRP levels 0.1–0.5; 0.6–1; 1.1–2; 2.1–3; 3.1–10; and above 10 mg/L were 1.29 (1.01–1.64); 1.20 (0.97–1.50); 1.00 (referent category); 1.06 (0.83–1.36); 1.24 (1.01–1.53); and 1.34 (0.95–1.88). Corresponding hazard ratios for hip fractures were 1.10 (0.74–1.64); 0.87 (0.61–1.26); 1.00 (referent category); 0.89 (0.60–1.34); 1.14 (0.82–1.58); and 1.45 (0.86–2.44).

### Conclusion

Above 1 mg/L, CRP is positively associated with fractures of all-types and hip fractures. The increased risk of fracture observed at lower levels of CRP require further exploration, confirmation in other populations, and investigation into potential biological mechanisms.

## Impact of risk factors on hypertensive disorders in pregnancy, in primiparae and multiparae

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### Background

Hypertensive disorders complicating pregnancy increase the risk of adverse perinatal outcomes. We aimed to assess the impact of age, education, family history of cardiovascular disease, prepregnancy body mass index and weight gain during pregnancy on hypertensive disorders in a pregnancy resulting in a live birth, among primiparous and multiparous mothers.

### Methods

In a birth cohort study, puerperae were consecutively recruited at all public maternities of Porto, Portugal (2005–2006). In the current analysis, 6952 women with singletons and complete data on key variables were included. Hypertensive disorders included chronic hypertension, gestational hypertension or preeclampsia/eclampsia. Prevalence ratios were computed using Poisson regression and population attributable fractions were calculated.

### Results

In this study of Portuguese puerperae, 5% of primiparous and 4% of multiparous women had a hypertensive disorder in a pregnancy that resulted in a live birth. Hypertensive disorders were associated with older age, lower education, family history of cardiovascular disease and excessive weight before and during pregnancy, similarly in primiparae and multiparae. Approximately 50% of hypertensive disorders among primiparae were attributable to the joint effect of pregnancies after 34 years of age, education below 12 years, family history of cardiovascular disease, overweight/obesity before pregnancy and excessive weight gain during pregnancy, while almost 70% of cases among multiparae were attributable to these factors.

### Conclusions

The risk factors explained a high proportion of hypertensive disorders during pregnancy. Despite the relatively low prevalence of these conditions, the severity of short- and

long-term consequences for both mother and child emphasizes the importance of control of this outcome from the clinical and public health perspectives. Excessive weight before and during pregnancy, putatively the most modifiable of all factors considered, had a very large contribution, particularly among primiparae. The substantial joint effect of the risk factors suggests that interventions focusing on these risk factors should be part of pre-conceptional and prenatal care in order to prevent maternal and offspring complications.

## Temporal and spatial variations of cardiovascular health care in Switzerland, (2003–2007)

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### Background

Health care research has shown considerable geographical and temporal variation in cardiovascular health care. It is not clear to what extent this variation is due to differences in the prevalence of underlying diseases, or due to patient or provider driven deviations from evidence-based practice. The objectives of the study were the description of the volume of in- and outpatient care for cardiovascular disease (CVD) and the identification of regional disparities and sources of spatio-temporal variation in Switzerland for 2003–2007. The focus was on the density of supply and structural characteristics of care provision in different regions and its impact on the utilization of CVD related care or mortality.

### Methods

We created 86 utilization based hospital service areas (HSA's) of acute care hospitals. A HSA consists of several MedStat regions, which are defined by the Swiss Federal Statistical Office (BFS) and implies that the majority of the residents of the area are treated at a hospital located in the HSA. For analyzing the inpatient care hospitalization data (e.g. patient demographics, place of residence, comorbid conditions, Diagnosis Related Groups (DRG), cost weights) from the BFS were used. The Swiss Medical Association, insurances and physicians provides data of ambulatory care. Furthermore population and mortality data were included into the multi-level statistical models to quantify the variability across the regions and to investigate associations between utilization and supply.

### Results

Overall CVD mortality in terms of rates was 3.2 deaths per 1000 population and fell by 6.4% between 2003 and 2007. Particularly high CVD related mortality was observed in rural and mountainous areas. The variation of large cardiovascular procedures with complications and comorbid conditions was almost five-fold for the hospitalisation rate and more than 20 fold for cost weights per population between the 86 HSA. The data imply inconsistent higher use of inpatient care for CVD in areas with high density of primary care physicians and hospital based physicians.

### Conclusion

The study will add to understand the determinants of resource utilization. This information is necessary for policy makers to increase the efficiency of the Swiss health care system.

## The effects on length of stay of introducing a fast track patient pathway for myocardial infarction: a before and after evaluation

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The aim was to assess whether the implementation of a fast-track patient pathway (FTPP) at an invasive treatment ward

(ITW) could reduce the length of hospital stay (LOHS), among patients with non-ST Elevation Myocardial Infarction (NSTEMI). A before-and-after study was carried out, based on historical data from a total of 202 patients with NSTEMI admitted to a coronary ITW during two inclusion periods each lasting 100 days (Period I, 2004, no fast track, 95 consecutive patients; Period II, 2005, fast track implemented, 107 consecutive patients). Patients were followed during 180 days as concerns the total LOHS. A total of 33 patients passed through the FTPP. Their mean total LOHS was significantly

shorter (3.3 days reduction; 95% CI 1.7, 5.5 days) as compared with all Period II patients. In total, Period II patients, however, spent significantly more days (mean, 1.7 days more; 95% CI 0.2, 3.3 days) in hospital than Period I patients. Thus, the implementation of FTPP reduced the mean LOHS for patients selected for the FTPP, but the mean LOHS for other patients rose and so the overall mean LOHS turned out to be significantly prolonged. The implementation of FTPP appears a complicated matter; changing one component has consequences for the wider health-care system.

## B.2. POPULATION HEALTH

### Workplace health promotion; views from managers at small companies

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#### Background

Workplace health promotion leads to better health, high morale, increased productivity and reduced absenteeism among employees. The role of leadership is vital when creating strategies for workplace health promotion. Small companies (less than 50 employees) have increased need for health promotion, as they often lack knowledge and resources to manage health and safety problems. Moreover, small companies have less access to occupational health service. The aim of this study was to describe how managers at small companies perceive their company as an arena for health promotion.

#### Methods

A sample of ten managers (four females) was strategically selected using maximal variation in terms of branch of industry. Semi-structured interviews were conducted. The interviews were transcribed and analyzed using qualitative content analysis. The analysis comprised of both manifest and latent content and triangulation between the authors was used.

#### Results

Three main categories emerged from the analysis; sees the workplace as a possible arena, sees the opportunity to promote employees health and sees a need for external support. More in-depth analysis resulted in six subcategories. The latent content of these categories is described by the theme; Health promotion leadership in order to perceive the company as a health promotion arena. A key factor for workplace health promotion was the manager's view of health promotion as a beneficial factor for the company. Furthermore, the managers expressed that they could promote employees' health by organizing health promotion activities and promote a positive psychosocial work environment. The findings showed a need for easily accessible external support to assist managers in their work with health promotion. It is essential that the external support contributes with inspiration and knowledge of health promotion activities, for example by highlighting good practice from other small companies.

#### Conclusions

Using the manager's view about the workplace as an arena for promoting health can be a step towards strategies for implementing workplace health promotion. However, for the development of healthy organizations it is necessary to have a comprehensive strategy in which employers, employees and society is pursuing the same goal.

### Social factors of sickness absences and the significance of the nature-culture interplay in coping

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#### Introduction

The rate of sickness absence is a serious problem in Scandinavia as a whole. Individuals' sense of coping coincides with their ability to develop a stronger self, sustaining control over everyday problems, hence their own progress

#### Aims

The aim of this study was to focus on and to discuss how social factors influence sickness absence. There were two aims of this study: a) To explore and reveal the absentees experiences and perceptions of sickness absence in daily life b) To explore and reveal the absentees own perceptions and experiences of coping while being on sickness absence.

#### Methods

Qualitative method through a pragmatic synthesis of elements of ethnography and grounded theory were used. The sample from the county of Oppland, Norway (n = 30) had a mental or a musculoskeletal diagnosis in accordance with the ICD-10 medical classification system.

#### Results

The interplay between working conditions and private life burdens has an impact on the development of illness and sickness absence, reinforcing the perception of a total life burden situation for women; including caring responsibilities. Two aspects related to how women coped with their illness and life situation; to what extent they had a supportive and caring network at work or in private life, and to what extent they had meaningful activities. Men experience stress and conflicts at work, mostly from the leadership. These social processes at work seem to be followed by lack of motivation for work by the employees. The majority of the sample used different techniques and strategies to cope with their illnesses, highlighting the significance of the Nature-Culture-Health interplay (NaCuHeal).

#### Conclusion

The whole life situation must be considered in order to understand gender differences in sickness absence. The importance of being involved in daily activities, and feelings of belonging to a social network and salutogenic activities were important for both men and women.

### Effects of Work- and Personal-related Factors on Mental Health in the Teaching Profession

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#### Background

The teaching profession is characterised by an above-average rate of psychosomatic and mental health impairment due to work-related stress. This situation is reflected in particular in a high percentage of early retirements. The aim of this study was to find out differences in health components as well as work, and personal factors between teachers who are mentally

impaired from those who are not, and to detect predictor effects of mental health.

#### Methods

A sample of 986 male and female teachers (average age  $47 \pm 7$  years) was investigated in extended occupational medicine examinations. The sample was classified into a group of mentally fit (G0:  $n = 794$ ) and mentally impaired teachers (G1:  $n = 192$ ) according to the case classification of GHQ-12 ( $\geq 5$  G1). There are no differences regarding age, gender or marital status. The work-related factors included conditions of employment (e.g. class size, class number, lessons, weekly work time) and duties (e.g. additional functions, preparation and post processing, extracurricular activities). The components of physical health were examined by medical conditions and cardiovascular risk factors (blood pressure, body-mass-index, waist-hip-ratio, fitness). Personal-related factors were captured by an anamnesis-questionnaire, the work ability index (WAI), the effort-reward-ratio (ERI-Q), the incapacity of recovery (FABA), and health behavior (e.g. eating habits, smoking, sports).

#### Results

The working conditions at school of the two groups differ from each other significantly, however, the differences have no practical relevance. The highest correlation coefficients were determined for the GHQ-12 with WAI, the number of physical complaints and the ER-Ratio ( $r = .40-.43$ ). As expected, these three factors prove to be relevant predictors of mental health and elucidate a variance of 27%. Calendrical age does not prove to be a predictor of mental health among teachers.

#### Conclusions

Working conditions make hardly any contribution to the variance elucidation of mental health. Personal-related factors and individual attributes are more relevant factors for analysing risks and resources of teachers' health. These factors should become a part of preventive arrangements for the conservation of health in teachers' in the future.

### Physical activity and healthy diet: Perceptions of groups with a low socio-economic status from different ethnicities in The Netherlands

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#### Background

Individuals with low socio-economic status (SES) are less likely to be physically active or follow a healthy diet. In particular, individuals from Turkish and Moroccan origin living in The Netherlands are at increased risk of developing obesity, diabetes and cardiovascular disease. This study aimed to explore which barriers and enablers influence the diet and physical activity (PA) behaviour of low SES adults from different ethnicities in order to tailor lifestyle interventions to their needs.

#### Methods

In this study, 14 focus group interviews were held with female and male groups of Moroccan, Turkish and Dutch ethnicity with low SES. The recruitment took place through community workers and chairmen of mosques in disadvantaged neighbourhoods. Participants were encouraged to share their perceptions and their considerations regarding barriers and enablers for healthy eating and PA behaviour.

#### Results

Differences in perception of barriers and enablers between ethnic groups were small. In all groups uncertainty about

what constitutes a healthy diet and sufficient PA was reported. Participants described lack of willpower and lack of a supportive environment as barriers for healthy eating or physical activity. On the other hand, social support was frequently mentioned as important enabler for a healthy lifestyle. Furthermore, participants indicated that absence of stress and moments of pleasure are relevant factors contributing to their health. Participants seem to struggle in their attempt to balance the perceived obligation to live healthy with other (enjoyable) moments of daily life.

#### Conclusions

Our results stress that lifestyle is deeply embedded in an individual's social context, which can make changes difficult regardless of a person's ethnic origin. Furthermore, feelings of conflict between seeking pleasure and health behaviours should be addressed in lifestyle interventions targeting at low SES individuals with different ethnic origin. Emphasising these personal issues in the design of lifestyle interventions may improve successful long term behaviour change.

### Country level cultural indicators and self-rated health in 21 European countries

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#### Background

Social capital or its dimension of generalized trust is granted the mediating role in the hypothesized positive health impact of participation in cultural and arts activities. The present study centered on the relative importance of individual level socio-demographic factors and country level cultural factors for self-reported health status and self-reported generalized trust of individuals and on the impact of cultural variables on self-related health.

#### Methods

Individual level data for 25–64-year-old respondents ( $N = 24\,887$ ) on self-rated health (outcome) and socio-demographic characteristics in the European Social Survey (ESS 2006) were individually linked with country level data on the frequency of participation in selected cultural activities and the volume of the production of cultural goods. Cultural statistics (21 items) were taken from the Internet. Generalized trust was measured on individual and country level. Linear multilevel regression analysis was used to analyze the relative association of individual and country level explanatory variables with self-rated health. The impact of Gross Domestic Product (GDP) was controlled.

#### Results

Three cultural variables were statistically significantly and positively associated with self-rated health when controlling for the individual level variables. When controlling for country level generalized trust, only imports of cultural goods retained the statistical association. Five cultural variables were statistically significantly and positively associated with generalized trust when controlling for the individual level variables. No statistically significant associations remained after controlling for GDP.

#### Conclusions

Selected cultural variables were positively connected with self-rated health and generalized trust, a dimension of social capital. Generalized trust may in part mediate meaning or significance of the cultural investments and activities in a country for health. And finally, both cultural variables and generalized trust may merely be concomitants of the general prosperity of the society.

## Joint associations of sleep duration and insomnia with subsequent sickness absence among Finnish public sector employees in 2000–2006

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### Background

Short and long sleep and insomnia symptoms are associated with subsequent ill-health and sickness absence, but the joint associations of sleep duration and insomnia are likely stronger than their individual effects. We examined the joint association of sleep duration and insomnia symptoms with subsequent sickness absence of various lengths.

### Methods

The participants were 40–60-year-old employees of the City of Helsinki, Finland (N=6845). The baseline surveys were conducted in 2000–2002. These survey data were prospectively linked with employer's personnel register data comprising all self-certified (1–3 days) and medically certified sickness absence spells (4–14 days, 15+ days, 60+ days). Average follow-up time was 4.1 years. Sleep duration, insomnia symptoms, and covariates (sociodemographics, working conditions, and somatic and mental health) were derived from the baseline questionnaires. Poisson regression analysis was used (risk ratios, RR, and their 95% confidence intervals, CI).

### Results

After adjusting for sex and age, short (5 h or less, RR 2.06, 95% CI 1.65–2.58) and long sleepers (9 h or more, RR 1.78, 95% CI 1.24–2.56) who reported insomnia symptoms had a higher risk for medically certified sickness absence spells of 4–14 days as compared to 7-hour sleepers without insomnia symptoms. Also seven hour sleepers had a higher risk for such sickness absence, if they reported insomnia (RR 1.38, 95% CI 1.21–1.57). A corresponding risk was equally found for 6 hour and 8 hour sleepers with insomnia. The longer the sickness absence, the clearer were the U-shaped associations. In addition, similar albeit weaker associations were found for self-certified sickness absence. Adjustments for covariates attenuated the associations, but they mainly remained. Short and long sleep duration was associated with sickness absence also among those without insomnia, but the magnitude of the associations was weaker.

### Conclusion

Short and long sleepers with insomnia were at higher risk for sickness absence. Although the joint association was dominated by insomnia, U-shaped associations were found suggesting both sleep duration and insomnia symptoms need

to be jointly considered to prevent sickness absence and promote maintenance of work ability among employees.

## Sleep Quality in people with Fibromyalgia

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### Background

The sleep quality is one of the factors that influence the recovery of the organism. It is also crucial for the wellbeing of the individual and for the functioning of his organism. Therefore the non-restorative sleep plays a key role in all of the manifestations of fibromyalgia, because this complex disease is characterized by musculoskeletal pain, which is, somehow, sleep disorders, fatigue and morning stiffness.

### Objectives

This study aimed to accurate the sleep quality in people with fibromyalgia and also explains which is the impact that the sociodemographic variables and pain have in people with fibromyalgia.

### Methods

The nature of this cross-sectional study is observational and it is based on a descriptive analysis. It was developed with a non-probabilistic sample of 77 people with fibromyalgia who are followed in a hospital, in the center of Portugal. The average profile shows female patients (98.7%) with an average age of 49 years, married (90.9%), employed or on sick leave (59.7%), unskilled workers (51.9%) and with prevalence of the primary education (1st cycle) and higher education (26%). It was used the Analog Visual Scale of pain-EVA-(PORTUGAL, 2003), the Sleep Quality Index of Pittsburgh-PSQI-(BUELA-CASAL; SANCHEZ, 2002) and the Fibromyalgia Impact Questionnaire-FIQ-P (ROSADO et al., 2006).

### Results

It was found poor sleep quality in 97.4% of respondents. In the sociodemographic variables, only employment status has an influence on sleep latency ( $p = 0.015$ ), standard sleep efficiency ( $p = 0.035$ ) and global sleep quality ( $p = 0.014$ ). The pain and morning fatigue intensity proved to be predictive of sleep quality, explaining the 32% and 13.7% of its variability, respectively.

### Conclusions

The evidences of this study indicate that the employment situation influences the sleep quality; and the pain intensity and the morning fatigue are predictive of poor sleep quality. Measures to promote the good sleep quality in people with fibromyalgia should give priority to the strategies related to pain and overcome the negative impact of fibromyalgia.

## C.2. BEING PHYSICALLY ACTIVE

### Factors that influence on leisure physical activity. Results from the IPEN (International Physical Activity and the Environment Network) in Pamplona (Spain)

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### Background

Environmental and policy interventions are the most promising strategies for improving physical activity (PA), eating, and obesity. The evidence base on environmental and policy factors is deficient. The IPEN study is a study that it is been realized in North America, Europe and Australia. Its main objective area to find accurate estimates of the strength of associations association between built environments and PA as well as

weight to give guidance about specific attributes of the built environment most likely to be effective interventions

### Methods

A random sample of 905 people aged 18 to 65 from Pamplona metropolitan area stratified by health centre area was chosen. The IPEN questionnaire that contains the NQLS (Neighbourhood Quality of Life Study) questionnaire and the International

### Physical Activity Questionnaire (IPAQ)

The questionnaire was back translated into Spanish and piloted. Physical activity in Mets was computed using the Guidelines for Data Processing and analysis of the IPAQ Long Form. Physical activity in leisure time was divided in quartiles and the upper and lower quartile were compared with the rest using non conditional logistic regression, controlling by age, gender, area and Socio Economic Status.

## Results

Contrary to the belief that a busy life precludes physical activity, Physical activity during leisure time was related with having a very busy social life OR = 1.49 (95%CI 1.21–1.82), planned ahead a time OR = 1.93 (95% CI 1.48–2.53) and doing exercise with friends OR = 1.26 (CI 95% 1.18, 1.35). Those people who encouraged their friends or family to exercise were also in the upper quartile with odds ratio of 1.18 (95% CI 1.07–1.31) and 1.25 (95% CI 1.09–1.43). For those people in the lower quartile the main reason for not doing physical activity were that they didn't enjoy the activity OR = 1.29 (95% CI 1.11–1.51) The absence of good weather was used also as reason for not doing any outdoor physical activity OR = 1.34 (95% CI 1.10–1.63).

## Conclusion

Programs to increase physical activity in leisure time should encourage people to plan ahead a date and a

## Socioeconomic differences in the perceptions on healthy eating, physical activity and lifestyle advice: opportunities for lifestyle interventions tailored to individuals with low socioeconomic status

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## Background

People with low socioeconomic status (SES) in general have worse health and shorter life expectancy than people with higher SES. The difference can (partly) be explained by a less healthy lifestyle. This makes the low SES group an important target group for lifestyle interventions. Successful lifestyle interventions for this group are however scarce and little is known about possibilities to tailor a lifestyle intervention to low SES groups. The aim of this study was to get insight into socioeconomic differences in perceptions on healthy eating, physical activity and lifestyle advice in order to provide leads for tailoring lifestyle interventions to individuals with low SES.

## Methods

Data were gathered with semi-structured focus group interviews among low SES (4 pre-existing groups) and high SES adults (5 pre-existing groups) in two different regions in The Netherlands. The group size varied between four and nine participants. The main themes that were discussed during the interviews were the daily practice of eating, meaning of food, definition of (un)healthy food, determinants of healthy eating, advice on healthy eating, determinants of physical activity, advice on physical activity, relation lifestyle and health, and factors important for a healthy life.

## Results

Low SES participants were cure oriented rather than prevention oriented, had a stronger focus on their own experiences associated with physical illness, and were more affected by price in their daily practice of eating compared to high SES participants. Low SES participants interested in nutrition-related lifestyle advice would rather receive such advice in groups than individually. For physical activity, low SES participants prefer to be physically active together with persons of the same age, gender or illness.

## Conclusions

To increase participation of low SES individuals in lifestyle interventions, it is necessary to trigger their sense of urgency for behaviour change by emphasizing the individual's susceptibility to get a disease and their own potential to influence this susceptibility. For better adherence, lifestyle interventions should use the supportive effect of (peer)groups and should take participant's price concerns into account.

## Yoga and its impact on physical fitness und emotional well-being in patients with breast cancer

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Breast cancer counts for 14% of all cancer diagnoses in Europe (Ferlay et al. 2007). Often the diagnosis of breast cancer hits women as a surprise and is immediately followed by a straining therapy. In our study we examine if yoga practiced after breast cancer surgery can support patient's physical and psychosocial rehabilitation. 108 women took part in the study and were randomly divided into two groups: an intervention group (ig) practicing yoga a day after the surgery and a waiting group (wg) starting five weeks later.

Prior to and after ten yoga classes participants answered two self-reporting standardized questionnaires with good reliability, validity and sensitivity to changes: Functional Assessment of Cancer Therapy in breast cancer patients questionnaire (FACT-B4) and the European Organization for Research and Treatment Quality of Life Questionnaire (EORTC QLQ-C30) to assess the quality of life (qol). Additionally, the women were asked if the practice of yoga changed their kinesic behaviour. The yoga classes took place twice a week-each one lasted about 75 minutes. The participants were asked to take part in ten classes during approximately five weeks. The classes were conducted by two certified yoga teachers: one showing yoga postures (asanas), the other teacher assisting with props and finding the individual variation of the shown asana.

In the ig the improvement of the qol in the global and the functional scales was highly significant ( $p=0.002$  resp.  $p=0.005$ ) whereas in the wg the improvement was much smaller and reached significance only in the decrease of symptoms ( $p=0.01$ ). The ig reported more often that their kinesic behaviour has changed.

The results indicate that it is helpful to offer yoga classes in an early stage of disease and that the time following surgery and during further treatments should be used for a regular yoga practice to improve the physical strength and psychosocial well-being. Patients respond very well to the low-threshold yoga class where modified postures were offered to serve the need of the women recovering from surgery. Yoga classes can easily be integrated into the treatment following breast cancer surgery.

## Effectiveness of the programme "3000 steps and more" in municipal settings

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The World Health Organisation has identified physical inactivity as one of the greatest risk factors for global mortality. Current levels of physical activity in industrialised countries are insufficient. A predominantly inactive lifestyle is one of the main risk factors for cardiovascular diseases. Comparisons within the EU suggest the level of physical activity among the Austrian population is below average. Within the remit of the project "Gemeinsam gesund im Bezirk Oberwart", the "3000 steps and more" programme was implemented. Target groups and settings for this programme were pupils at five secondary schools, citizens of nine municipalities as well as employees of six companies (the latter already providing, or having recently provided, work place health promotion).

The aim of this initiative was to document and improve general activity levels. The settings approach, generally considered the most important strategy for health promotion, was applied. Schools, municipalities and workplace settings were chosen to facilitate the targeting of measures. The programme lasted 4 weeks in total and was divided into two

phases; “analysis of current situation” and “increasing steps”. During the first phase (lasting seven days) participants were required to count their steps with a pedometer. During the following 21 days, participants were encouraged, by incorporating steps into their daily routine, to increase their daily number of steps by 3000. The participants documented the number of steps in a protocol and completed a questionnaire. A total of 1023 persons returned the questionnaire. 89% of participants were able to increase their number of steps during the programme and thus make an important contribution to their levels of health and fitness. This relatively high improvement rate demonstrated the success of this settings-oriented project, focussing on easily accessible interventions for the promotion of physical activity. We conclude that evidence of their current levels of inactivity may have motivated relatively inactive participants to improve their situation whilst relatively active persons were encouraged to develop more affinity towards sports.

### Case study (1997–2011) from Finnish physiotherapy education as a regional promoter of physical activity in special populations

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#### Background

According to European policy, several actors should participate in physical activity promotion. The roles of the actors must be clarified to enhance collaboration. The aim of this study was to describe the role of physiotherapy education in physical activity promotion of persons with extra need for support in active participation.

#### Methods

This research collates two studies carried out in physiotherapy education at Satakunta University of Applied Sciences. The first study [RI] focused on bachelor's theses dealing with adapted physical activity [APA] published in 1997–2009. The second study [RII] focused on projects created as a part of student work in courses of APA in 2010–2011. In both studies, analysis was carried out by qualitative content analysis of written documents [abstracts, project documents] complemented by frequency counting.

#### Results

In all, 57 bachelor's theses and 39 projects were eligible. Social services and health care was most often the collaborative partner: RI 39% of the theses (n=22) and RII 54% of the projects (n=21). Moreover, eighteen efforts collaborated with an organization. Nearly 80% of the partners were from Satakunta region. Both researches included national and international collaboration (n=11). The most popular fields were recreation (RI 39%, RII 64%) and rehabilitation (RI 56%, RII 38%). Some cases covered multiple fields. The elderly was the most popular target group in theses (30%, n=17). Projects favoured working-aged adults and children. Some projects covered multiple age groups. Nearly 40% (n=23) of the theses had a target group with specific diagnosis, for example Cerebral palsy (n=5), and Parkinson's disease (n=3). In projects, diagnosis was most often intellectual disability (n=16) or physical impairment (n=13). Moreover, physical activity promotion related to alcohol abuse and unemployment were dealt with.

#### Conclusions

Education seems to have primary impact in regional development and in regional service provision. The topics of theses and projects focused on physical activity in its broadest sense. Physiotherapy education offers a diverse tool to collaborate in a variety of ways with local service providers and thus to develop participation in physical activity in several populations and settings.

### Differences in physical activity patterns among women and men with and without children

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#### Background

Due to health effects from participating in physical activity (PA) it is from a public health perspective important to study how participation PA may change over a lifetime and how different life events impact on the participation. Although studies in the field are sparse, parenthood has been found to be a life event associated with decreased PA, especially among women. We studied physical activities performed among women and men with and without children.

#### Methods

This study includes data for from parents-to-be, 224 women and 208 men, from Karlskrona municipality, situated in the south eastern part of Sweden. Data collection was carried out during 2008–2009. When contacting the antenatal clinics in the municipality all expectant parents were asked by the midwife about participation in the study. Respondents completed a questionnaire about age, socioeconomic status, level of education, previous children, smoking and alcohol habits, Body Mass Index, self estimated health, and participation in different kinds of outdoor and indoor recreational PA. We measured the self-reported amount of outdoor recreational PA undertaken during the last year.

#### Results

Both women and men without children performed more outdoor and indoor PA compared to those who had children. Women walked significantly more (p=0.017) than men irrespective of whether or not they had children. Women with children participated in significantly more gardening (p=0.009) and winter sports (p=0.013) than women without children, and women without children participated in significantly more PA indoors (p=0.001) than women with children. Men with children participated in significantly more gardening (p=0.001) than men without children, and men without children participated in significantly more PA indoors (p=0.006).

#### Conclusions

Becoming a parent is a life event that affects participation in PA, both concerning duration and the kind of activities performed. To gain deeper understanding and more insight about reasons for these changed patterns of PA as well as the effects on the outcome of the parents health in a short- and long term would be important to follow prospectively.

### Life Satisfaction and Psychological Well-Being of Portuguese Women: Influence of Physical Exercise

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#### Background

The promotion of physical exercise has been the subject of concern to institutions and professionals from health and education. In this assumption, this study's main objective was to evaluate the effect of physical exercise on satisfaction with life, psychological well-being and expression of affect in a sample of Portuguese women, were also considered the effect of age and marital status.

#### Method

The sample was constituted by 120 women, in which 57 practice and 63 do not practice physical exercise, with ages between 19 and 63 years of age. The variables were measured by Portuguese valid scales: Physical Activity Measures, to evaluate the practice of physical exercise; Scale of satisfaction



with life (SWLS) used to evaluate the satisfaction with life, Scale of well being (EBEP) used to evaluate psychological well being and the scale of affects (PANAS).

### Results

The analysis showed significant differences ( $p < 0.010$ ), the psychological well-being among practitioners and non-exercising, and the practitioners have a higher degree of psychological well-being (in the domain of the dimensions and objectives life) compared to non-practicing. There is a significant effect of physical exercise on the perception of affect ( $p < 0.001$ ) in relation to assigned negative, whereas the non-exercising have higher levels of negative affections. There is a significant association

(negative) between age and perception of positive affect and negative in non-practitioners ( $p < 0.001$ ). There are significant differences in satisfaction with life on account of civil status ( $p < 0.010$ ), which found that married and unmarried women, compared to single women, have better life satisfaction regardless of whether practicing or not practicing physical exercise.

### Conclusion

This study reinforces the importance of physical exercise to a positive psychological functioning, then the evidence found in the invite, in the broadest sense, the creation and reflection on strategies that facilitate the promotion of an active lifestyle in order to maintain health Portuguese women

## D.2. MEASURING NEEDS AND DEMANDS

### Differences in variously measured physical fitness between education groups

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#### Background

Those with higher socioeconomic position (SEP) are often healthier, have healthier behavioral patterns and are physically more active than those in lower SEP. Higher SEP is also associated with better objectively measured physical performance. Associations between education and self-estimated physical fitness have not been studied much. The purpose of this study was to examine educational differences in physical fitness in working age population using different measures of physical fitness.

#### Methods

The Health 2000 Survey was carried out by the National Institute for Health and Welfare, Finland, in 2000–2001. For our analyses, 30–54 years old participants were selected ( $n = 4589$ ). The participation rate was 81%. Participants' highest educational degree was obtained from Statistics Finland. Self-estimated physical fitness and ability to run 500 m; physician's estimation of the participant's work capacity to work as a construction worker; and trunk extensors' endurance test were used to estimate physical fitness. The analyses were adjusted for age, physical activity, health behaviors and chronic diseases. Multivariate logistic regression analysis and analysis of covariance were applied.

#### Results

Poor self-estimated physical fitness was most common among the middle educated men, while the other measurements indicated that poor physical fitness was most common among the low educated men. The low educated men and women had about twice more often difficulties to run 500 m and poor working capacity than the highly educated men and women. The trunk extensors' endurance was weaker in the lower educated men and women. Physical activity and health behaviors had the strongest contribution to the differences in physical fitness among men and women.

#### Conclusions

People with higher education had better physical fitness. The educational differences were dependent on the measurement method. Our findings suggest that educational differences in physical fitness are similar to those in health behaviors. More research is needed to understand the determinants of educational differences in physical fitness and how the differences could be prevented.

### I feel like I'm? A comparison of objective and subjective measures of health in general practitioners' patients

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#### Background

Health Related Quality of Life (HRQL) have been demonstrated to be influenced by the coexistence of multiple chronic diseases. Additional studies are needed to clarify this association especially because few researches investigated the influence of severity of disease.

#### Aim

To investigate the influence of comorbidities and severity of disease on HRQL.

#### Methods

In 2009/10 the questionnaire SF36- 8 scales scored 0–100: physical functioning (PF), physical role (PR), pain (PN), general health (GH), vitality (VT), social functions (SF), emotional role (ER), mental health (MH)- was distributed to 887 patients of general practitioners (GP) in Siena's province, Tuscany-Italy. Information from GP were gathered to calculate Charlson Index (CI) and Cumulative Illness Rating Scale (CIRS) for each patient. CI produces a comorbidity index summing diseases' associated weights and adding one point for each decade after 40 years. CIRS produces a severity score as the mean weight of severity (5 levels) of coexisting illnesses. Information about gender, age, marital status, employment, BMI, smoking were collected. We used Spearman's rho to study the correlation between SF36 scales, CI and CIRS scores. Association between SF36 scales, CI and CIRS was studied using multivariate nonparametric quantile regression adjusting for above confounders.

#### Results

Females were 63.7%, mean age 58.7. SF36 higher mean score was in PF scale (82.3 SD = 23.3), lower in VT (59 SD = 19.6). CI and CIRS mean scores were 3.5 SD = 3 and 0.23 SD = 0.25. CI and CIRS were inversely correlate mainly with physical scales of SF36 (respectively, PF rho = -0.5 and rho = -0.4); CI and CIRS were highly correlated (rho = 0.8). After multivariate analysis CI resulted associated with CIRS (coeff. = 5.7,  $p < 0.001$ ), PF scale (-1.7,  $p < 0.001$ ), PR (-1.7,  $p = 0.013$ ), GH (-1.4,  $p = 0.039$ ); CIRS was associated with PF scale (-13.3,  $p < 0.001$ ), PR (-33.9,  $p < 0.001$ ), PN (-35.5,  $p < 0.001$ ), GH (-16.3,  $p = 0.011$ ), VT (-10.5,  $p = 0.006$ ), MH (-14.9,  $p = 0.004$ ).

#### Conclusions

In an adult population of primary care patients, comorbidity and severity of disease adversely influenced HRQL. Comorbidity seems to influence scales which describe physical characteristic of HRQL, severity is also associated to emotional/mental aspects. Comorbidity and severity resulted highly correlated.

## Importance of socio-demographic and lifestyle aspects in measuring subjective and objective health

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### Background

Attention to subjective measures of health has grown. Several indices have been developed to describe objective health measured as comorbidity or severity of illness. A relationship between severity/comorbidity and perceived health has been confirmed but additional studies are needed to clarify it.

### Aim

To investigate similarities/differences in the way subjective and objective measures of health are related to socio-demographic/lifestyle indicators.

### Methods

In 2009/10 the questionnaire SF36 -8 scales scored 0–100: physical functioning (PF), physical role (PR), pain (PN), general health (GH), vitality (VT), social functions (SF), emotional role (ER), mental health (MH)- was distributed to 887 patients of general practitioners (GP) in Siena's province, Tuscany-Italy. Information from GP were gathered to calculate Charlson Index (CI) and Cumulative Illness Rating Scale (CIRS) for each patient. CI produces a comorbidity index summing diseases' associated weights and adding one point for each decade after 40 years. CIRS produces a severity score as the mean weight of severity (5 levels) of coexisting illnesses. Information about gender, age, marital status, employment, BMI, smoking were collected. We investigated how SF36 scales, CI and CIRS were influenced by socio-demographic/lifestyle variables using multivariate nonparametric quantile regression.

### Results

Females were 63.7%, mean age 58.7. SF36 higher mean score was in PF (82.3; SD = 23.3), lower in VT (59; SD = 19.6). CI and CIRS mean scores were 3.5 (SD = 3) and 0.23 (SD = 0.25). All SF36 scales were influenced by gender; males showed higher scores than female for PN (coeff. = 15.4,  $p < 0.001$ ), ER (coeff. = 33,  $p < 0.001$ ) and MH (coeff. = 10.0,  $p < 0.001$ ). Age was inversely associated with all SF36 scales except ER and MH. BMI was inversely associated with PF, PN and GH. CI and CIRS were associated with age (respectively coeff. = 0.1, coeff. = 0.004,  $p < 0.001$ ) and type of job (manual jobs showed worst scores). CIRS was associated to BMI (coeff. = 0.003,  $p = 0.041$ ).

### Conclusion

Subjective and objective health seems influenced by different socio-demographic/lifestyle aspects: gender seems to be the most important factor for subjective health, age for objective health. Higher BMI was associated with higher severity and worst SF36 physical scales' scores.

## Students exploring their health: School-based health reporting by and for peers

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Health reports are not only a source of epidemiological data, but also a valuable communication platform, and as such, act as an important interface between science and the public. Health reporting of specific target groups can encompass participatory and democratic principles, which in turn

empower individuals to make healthy choices. This may also find relevance in the school environment to conduct effective health promotion projects, tailored to student's requirements. This project aims for students aged 15–17 years from four Styrian Agricultural and Nutrition schools to produce health reports which are primarily oriented on their interests. Through the disciplines of sport sciences, dietetics and social sciences, students collected data on their health status and health behaviours. The school-specific results were compared to self-assessed health status that was collected at the beginning of the project and discussed with the students in a World Café format. This discussion formed the basis of exercise, nutrition and mental health recommendations by and for peers.

Through the use of data collection and analysis methods suitable for the target group, students became aware of their own health status and behaviour. The participative model employed enabled the students to work collaboratively to actively steer the project. Student-written health reports which included recommendations for personal behaviour change as well as improvements to school life were produced at each school.

The participative approach taken here is an example of target group health reporting by and for peers. The project closely links the topics of exercise, nutrition and mental health with the student's daily life at school and at home, employing methods and concepts accessible to the target group. Through the approach employed by this project, youth are challenged to actively examine their own health needs. Peer-group health reports based on target group collected data can be an effective tool for developing interventions which are both highly specific and acceptable.

## Household Health Survey in Republic of Srpska (Bosnia and Herzegovina)

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### Background

The follow-up health survey in Republic of Srpska (Bosnia and Herzegovina) provided precious data on social and economic health determinants, health status based on self-assessment of individuals, lifestyles, functional abilities, use of health care services and expenditures associated with health care.

### Method

The Household health survey was conducted as a cross-sectional study in 2010, and it included 1779 households (4178 inhabitants). The survey was based on a random sample with a two-stage sampling design. Primary sampling units were enumeration districts, whereas the ultimate sampling units were households. The survey instrument was developed on the basis of the internationally recognized questionnaires tested in different countries through similar researches. The survey also included the following measurements: weight; height; waist/hip circumference, blood pressure, and laboratory analyses: total cholesterol; triglycerides and glucose.

### Results

More than half of the population (54.4%) assessed own health as good. However 38% of the population stated that their oral health is very bad. Almost one third of the Republic Srpska residents have a long-term illness or health care problem (30.6%); the percentage being significantly higher for women (34.4%; CI:31.4–37.5) than for men (26.1%; CI:23.1–29.1). Each fifth resident of the Republic of Srpska (18.1%; CI:15.8–20.3) has serious physical and auditory/visual restrictions (more often present in older persons). 44.5% of the population of Republic Srpska state that they have been exposed to a certain form of stress/pressure during the previous month,

women significantly more (49.5%; CI:45.7–53.2) compared to men (38.7%;CI: 35.1–42.3). More than half of all interviewed (56.7%) are satisfied with the health care service in general.

### Conclusions

The survey results enable evaluation of policies and programs in the period between two surveys, identification of priority problems and implementation of pertinent measures and activities for health promotion and health care of the population. It also enables formulation of health policy objectives and definition of the health system development strategy in order to provide efficient and quality health care for longer life and better quality of life.

## Romanian consumers' perspective on medical services payments

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### Background

Burden of patient direct payments is a criterion for assessing health systems and their reform especially in developing countries. To measure the patterns of use, behaviors regarding the formal and informal payments and their correlates it is important in order to design and select the appropriate interventions in the area of medical service payments.

### Methods

Focus group discussions (pensioners, employees, students, mothers, disabled and chronic patients) collected in June-July 2009 and questionnaire administered by operators in July 2010 on 1000 subjects nationally selected. Spearman correlation and non parametric tests were applied.

### Results

On last 12 months period of study, 63% of respondents have used health services, 18% were hospitalized. Among the users paying formally and informally for outpatient or hospital services, 55–72% paid informally. 22–35% had to borrow to

cover formal or informal payment. In the last 12 months, 29% of respondents did not visit a physician at all even needed and 9% have been referred to a hospital but have not gone at all because could not afford to pay either for healthcare or for transportation/travel. In regard to the quality or access to health services, 62% were satisfied with outpatient services, while 48–52% with hospital care received. 73% had a negative attitude towards informal payment and 66% towards giving gifts in kind. 54% would prefer to use private medical services instead of paying informally for public medical services. If would have severe health problems, 63% would be ready to pay as much as they would have in order to get better medical services. But 29% think that informal cash payments and 35% that gifts in kind are an expression of patient gratitude for services received. 34% considered that informal cash payments and gifts in kind are inevitable because of the low level of healthcare sector funding. However 76% considered that cash or gifts in kind should be eradicated.

Emergency care, health services for children, severely disabled and poor people should be definitively exempted from copayments. The level of formal and informal payment depends mostly on the intensity of use, number of chronically sick persons per household, disease type (high correlation coefficients) and less by the attitudes of patients.

### Conclusions

Revealed patterns of use, unmet needs and patient behaviors regarding formal and informal payments could be used in tailoring the strategies for copayments, reducing informal payments and filtering the access to healthcare.

### Note

All data has been projected, collected and analyzed within the collaborative research project FP7 ASSPRO CEE 2007 funded by CE, "Assessment of patient payment policies and projection of their efficiency, equity and quality effects. The case of Central and Eastern Europe" (<http://www.assprocee2007.com/index.html>)

Comparative data are available from the other 5 countries partners in the research project.

## E.2. ACCESS AND EQUITY

### Short-term sick leave and future risk of sickness absence and unemployment-the impact of health status

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### Background

Studies have found sick leave to be a predictor of future sick leave, unemployment and disability pension. However, few studies have been aimed at disentangling the effect of sick leave and of the underlying illness. This study aims to investigate whether short-term sick leave (STSL) increases the risk of future long-term sick leave, disability pension, and unemployment and to explore the impact of health status on the associations.

### Methods

Data were gathered from the Stockholm Public Health Cohort (SPHC), restricted to 11,156 employed individuals aged 18–59, without long-term sick leave, disability pension or in-patient care the year before inclusion (2002). Exposure to STSL was based on self-report data of the number of sick-leave spells and the number of sick-leave days in the 12 months prior to answering the baseline questionnaire. Respondents were

followed-up with regard to unemployment in 2006, and long-term sick leave and disability pension in 2007, in administrative registers. Odds ratios (OR) with corresponding 95% confidence intervals (CI) were estimated by logistic regression, adjusting for socio-demographic factors and six different self-reported and register-based self-reported and register-based measures of health status.

### Results

Participants with more than one short-term sick-leave spell had an increased OR of long-term sick leave (OR 2.12; CI 1.67–2.67). No increased OR were found for long-term unemployment (OR 0.56; CI 0.26–1.18) and disability pension (OR 0.74; CI 0.42–1.33). Adjusting for health status only slightly changed the effect estimates.

### Conclusions

The results points to the importance of paying attention to short-term sick leave in order to prevent subsequent long-term sick leave.

## Inequities in utilization of prenatal care: A population-based study in Manitoba, Canada

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### Background

The Marmot Review, “Fair Society, Healthy Lives,” emphasizes the importance of ensuring high quality maternity services that meet needs across the social gradient. Previous research has revealed wide variations in rates of inadequate prenatal care (PNC) across the province of Manitoba, despite having a universal health care system. The purpose of this population-based study was to determine predictors of inadequate PNC in Manitoba, Canada.

### Methods

We used administrative databases in the Repository housed at the Manitoba Centre for Health Policy: population registry, hospital discharges, physician claims, midwifery care, prescription drug use, Census, social assistance, and Families First program screen (to identify social risk factors). We studied Manitoba women giving birth from 2004/05 to 2008/09 (N = 65,274). The proportion of women receiving inadequate PNC was calculated using a PNC utilization index (R-GINDEX). Multivariable logistic regression analysis was used to determine adjusted odds ratios for a variety of predictors, after checking for multicollinearity.

### Results

Overall, 11.8% of women had inadequate PNC. Statistically significant predictors of inadequate PNC included northern or rural residence, young maternal age, lone parent, parity 4 or more, short inter-pregnancy interval, young age (<20) at first birth, living in a low income neighborhood, and being on social assistance. Medical conditions served as protective factors; women with psychological distress, multiple birth, hypertensive disorders, antepartum hemorrhage, and diabetes were less likely to get inadequate PNC. In a second model incorporating Families First screening data (N = 55,153), the previous predictors remained significant, with additional predictors comprising low maternal education, social isolation, and a composite variable of smoking, alcohol, and/or illicit drug use during pregnancy.

### Conclusions

Inadequate PNC is associated with a variety of geographic, socioeconomic, and pregnancy-related factors. Knowledge of these inequities in utilization of PNC will help inform policy makers and program planners about which populations are most at-risk for inadequate PNC and assist with development of initiatives to reduce inequities in utilization of PNC.

## Amputations and socioeconomic position among persons with diabetes

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### Background

A major amputation is a devastating complication of diabetes mellitus. In recent years amputation incidence has declined among diabetic persons in Finland and elsewhere but still there are wide differences in amputation rates between populations. Studies on the relationship of individual's socioeconomic position (SEP) and amputation risk are scarce, especially among diabetic patients. The aim of the current study is to

evaluate the relationship of amputation incidence and SEP among diabetic people in Finland.

### Methods

Our study utilized the FinDM II database including all persons with diabetes in Finland with any record of diabetes in national health and population registers for years 1991–2007. We used three quality indicators to make comparisons between SEP groups: (1) first major amputation, (2) ratio of first minor/major amputations and (3) 2-year amputation free survival after first minor amputation. Income fifths among diabetic persons were used as an indicator of SEP. The data were analyzed using Poisson and Cox regression, and by calculating age-standardized ratios.

### Results

In 1993 the incidence of first major amputations was 600/100 000 person years in the lowest SEP-group and 200/100 000 person years in the highest group. The incidence decreased significantly and the ratio of first minor/major amputations increased steadily during the study period. A systematic SEP gradient was detected by income: the higher the income group the higher the minor/major ratio. This gradient persisted throughout the study period. The 2-year amputation free survival after first minor amputation was 55.8% in the lowest SEP-group and 78.9% in the highest. While there were no statistically significant differences between the three highest income groups, amputation free survival was significantly lower in the two lowest income groups.

### Conclusions

A major amputation is the end-stage of a long lasting disease. Our results suggest that the long-term treatment of diabetes may have been less adequate among lower SEP groups over the years. More attention needs to be paid in to address the poor health behaviour and other risk factors for vascular complications especially among patients from lower SEP groups from the early stages of diabetes.

## Are informal health care payments confined to public facilities? Evidence from Romania

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### Background

Informal health care payments in Central and Eastern European countries have been largely reported as taking place mainly within public facilities. They impact the overall health system performance, which makes them an important topic on research and policy agenda. In Romania, little empirical data exists about the extent of informal payments, and their public/private distribution. This study aims to assess the prevalence of informal payments made outside public institutions, as well as attitudes towards this type of payments.

### Methods

A quantitative strategy of inquiry has been used. A nationally representative sample (n = 1,500) of patients have been interviewed telephonically. A 24-item questionnaire has been designed, collecting socio-demographic data, information about the visits to the physician, informal payments offered and attitudes towards them. For the present analysis, a sub-sample (n = 613) was selected, respondents who have visited a physician during the previous 12 months for an episode of illness.

### Results

83.6% of the respondents addressed to a physician in a public facility, whereas 16.4% addressed to a private one. 110 respondents (17.8%) admitted to have offered informal payments during their last visit to the physician. 15.2% of those who paid informally were visiting a private facility. There was a significant correlation (p < 0.001) between

offering informal payments and the self-perceived severity of disease for which the doctor was visited, as well as between the type of illness that care was sought for and the type of facility attended—public or private. 44.9% of those offering informal payments believed informal payments increase quality of care.

### Conclusions

Informal payments in Romania are not confined to public health care institutions, but they also appear, to a high degree, within private ones. The situation could be explained by (1) the dual practice of most Romanian physicians, and (2) an important socio-cultural determination for informal payments, which are deeply engrained in patients' behavior. However, further research is needed to clarify these hypotheses or to come up with new ones.

### Acknowledgement

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## Analysis of access points to the health care system in a country with free choice of access. Results of a cross-sectional study from Austria

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### Background

The challenges for health care systems become more and more evident both in terms of costs and of healthy life expectancy. Research has provided evidence on benefits of well developed primary health care (PHC) systems concerning better coordination and continuity of care and better opportunities to control costs. In Austria, the development of the PHC sector still holds great potential. It was the aim of this study to assess predictors for consulting a specialist without having consulted a General Practitioner (GP) first, which is possible in the Austrian health care system.

### Method

The database used for this analysis was the Austrian Health Interview Survey 2006–07, with data from 15,474 people. Statistical analyses included descriptive statistics as well as multivariate logistic regression models. Having consulted a specialist without having consulted a GP was defined as dependent variable and age, sex, country of birth, education level, number of chronic diseases and self-rated health as independent variables.

### Results

In the last 12 months 81.8% of women and 75.6% of men had consulted a GP and 79.8% of women and 54.0% of men had consulted a specialist at least once. After excluding the preventive check-up specialist visits, still 15.2% of men and 11.7% of women had consulted a specialist without visiting a GP first. This proportion was especially high in the youngest age group (22.4% and 16.5% in 15–34 year old men and women), in subjects with tertiary education (20.4% in men and 16.3% in women), and in subjects that had migrated from non-European countries (30.8% in men and 24.8% in women). In multivariate regression models, adjusted for self-rated health and chronic disease, lower age and migration background were significantly associated with a higher chance of having been to a specialist without having seen a GP for both sexes, as was living in the capital Vienna (the only major city in Austria) for the men.

### Conclusion

For the first time, this analysis delineates the patient pathways of access to the Austrian health care system in detail. The overall utilisation of specialists as well as of specialist without GP consultations are high and could be a starting-point for further health care reforms.

## Access barriers of healthcare in the health systems of Brazil and Colombia

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### Background

Brazil and Colombia implemented in the 90's different health systems, despite having the same principles and objectives. Although these reforms access barriers to healthcare are still present. Access barriers can be found since the individual seek healthcare, at the entrance to the healthcare system, along the continuum of care and up to the resolution of the health problem. There are not studies analyzing, in a comparative way, access barriers in these two different models of health systems. The aim of the study is to describe and analyze, in a comparative way, access barriers to healthcare (in seeking care, at the entrance, and during the utilization) among different levels of continuum care in Brazil and Colombia.

### Methods

A cross-sectional study was conducted by means of a structured questionnaire survey with face-to-face interviews among people who have had at least one health problem in the past three months and residing in the areas of study. Areas of the study were two municipalities in Colombia and two in Brazil. Multistage sampling is carried out: primary (census section) sampling units were randomly selected and secondary (individual) sampling units were systematic randomly selected. Sample size was 2,155 individuals in Brazil and 2,163 in Colombia. Dependent variables are access barriers; independent variables are individual and health system characteristics. We performed an univariate and bivariate analysis of access barriers and each one of the independent variables.

### Results

Colombia shows more access barriers in seeking healthcare than Brazil: 30,8% of Colombians with at least one health problem do not seek healthcare versus 22,0% of Brazilians. Regarding access barriers at the entrance to health system, Brazilians suffer more denial attention: 13,6% of people who seek healthcare do not receive it, in Colombia represents 1,4%. In Brazil, reasons for denial attention are related with the insufficient supply of resources such as lack of medical doctors, and in Colombia access barriers are related with poor quality of services and insurance (affiliation problems, authorizations and copayments).

### Conclusion

Access barriers have different patterns in both countries and they are related to the model of health system that each country has implemented.

## Is there equity in the provision of the health care in Republic of Macedonia-analysis of catastrophic health care expenditures 2006–2010

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### Background

Health is defined by WHO as a state of “complete physical, mental and social well-being and not merely the absence of disease or infirmity” and equity as a basic human right is an integral part of Constitutions and mission of health policies in almost all countries in the world, including RM. Protecting the population against financial poverty from medical expenses is an important yet neglected policy concern in the health sector.

The costs of medical care can generate financial risks, income losses due to impaired labour supply and productivity, and can absorb a large share of the household (HH) budget, which may be considered catastrophic in view of the required sacrifice of current consumption and/or the long-term consequences for HH welfare of borrowing or depleting assets to pay for health care.

#### Methods

Data obtained with the 5040 HH Consumption Surveys in RM conducted in 2006–2010 were used for analysis of catastrophic health expenditures. The sample frame include all enumeration districts that contain above 20 HH (data from Census, 2002) and is two-stage stratified (primary sampling units are 210 enumeration districts and secondary sampling units are addresses of HH. Total of 16 strata are created, 8 geographical regions and two contingents within (urban and rural).

#### Results

Average out-of-pocket payment (OOP) for health has increased in the analyzed period, from an average of 10.770 MKD in 2006 to 11.650 MKD in 2010. It has to be noted that over the 5-years period that have been subject of our analysis, the total HH expenditure has been larger than the HH capacity to pay, in all income deciles, with exception of 7th decile in year 2007

#### Conclusions

Reliance on OOP financing of health care in developing countries can create the risk of unforeseen medical expenditures, while illness can result in a difficult choice between diverting resources towards medical care with the risk of long-term deterioration in health and earnings capacity. Our study has documented the scale of catastrophic medical expenditures that HH are exposed to and those actually incurred. A greater likelihood of catastrophic payments in lowest income groups suggests that this population has the greatest need for the development of risk pooling mechanisms of health financing.

### To be or not to be PIGS? The answers to the economic crisis among the Southern European countries

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#### Issue/problem

The effects of the economic crisis on the health status, access to healthcare and health related quality of life have been described in Portugal, Italy, Greece and Spain (PIGS). The authors would investigate which are the main answers those countries are taking into practice to address such problems

#### Description of the problem

As to estimate the health effects of the financial crisis, to describe the main measures to address it and their short/medium term effects is neither simple nor immediate. The main dimensions to be registered ought to be, for each of the PIGS countries:

- main features of the economic crunch
- impact of crisis on health
- impact on access/use of services
- impact on family household
- impacts on inter-regional variability in health status/quality of care

#### Results (effects/changes)

At the present time (April 2012), three PIGS countries have been registering linear expenditure cuts in health and welfare budgets (hospital beds reduced of 35% since 2007 in Italy, public health expenditures not exceeding 6% of GDP in Greece since 2010, the u-turn on health and education budget with a cut of 7 billion Euros since 2012 in Spain). Such cuts did not focus on the activities with lower priority and/or with lower impact on population health. Health politics, under this phase of emergency, should be brave enough to give clear priorities to the system so to dismiss activities of low values, to introduce more limitations to expensive services that may not effective or not cost-effective and to assure that a minimum of resources to sustain innovation are maintained. Current answers would undergo some "boomerang" effects, as a 24% rise in more expensive hospital admissions between 2009 and 2010 in Greece following cuts in accessibility to primary and secondary care.

#### Lessons

We strongly argue not to interrupt investments to make the system more efficient, effective, appropriate and patient-centered. These initiatives include training, pilot experiences about the adoption of measures of appropriateness, investments in information systems, and new organizational forms to integrate primary, secondary and social care and need to be shared among the Southern European countries.

## F.2. ECONOMIC CHALLENGES

### Economic Assessment of Health Promotion

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In the spirit of project-oriented culture of 21st century a growing number of health promotion (HP) work is carried out in temporary projects and sporadic campaigns. However a considerable part of HP work continues to be performed in the framework of permanent, institutional structures. Due to short time horizons, exact information on costs and target population, it has proven to be relatively easy to evaluate the costs and effectiveness of project-related HP work. In comparison, little is known about the costs of budget-funded HP work at the local level. The TEVA-project aims to fill this gap by focusing on the economic assessment of routine HP work in Finnish municipalities. The model of economic assessment is the practice discussed in this presentation.

Aim of the project is to produce comparable information for the purposes of policymaking. Comparability requires detailed

definition of the analyzed issue. Despite the continued efforts to operationalize HP into the level of local organizations, much of the HP work performed by doctors, nurses, social workers, teachers and managers in their everyday work continues to be ill-defined and invisible. The definition of HP work performed at different administrative sectors is an important goal in itself in order to make this work visible, but it is also a first step in the model of economic evaluation developed in this project. Based on the experiences and data received from pilot municipalities, the definition and calculation of inputs, costs, outputs and effects has taken place in 2009–2012.

The developed model consist of five phases: 1) to define HP measures in primary health care, social welfare and basic education, 2) to calculate the amount of measures performed in these sectors, 3) to calculate the costs of human resources, 4) to define and evaluate the outputs and 5) effects of HP work. The lessons learn indicate that economic assessment of HP work is challenging, but possible. Economic evaluation requires that HP work is carefully defined, registration

practices of municipalities are uniform and data collection is supported by information systems. The model cannot be directly transferred into other countries, but might offer inspiration and one possible example on how we can economically evaluate HP.

### Is there an association between long-term sick leave and disability pension and unemployment beyond the effect of health status?

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#### Background

Studies have shown that long-term sick leave (LTSL) is a predictor of disability pension and unemployment. However, few studies have aimed to disentangle the effect of sick leave and of health status. The objective of this study was to investigate whether there is an association between LTSL and disability pension and unemployment, when taking health status into account.

#### Methods

The study was based on the Stockholm Public Health Cohort, restricted to 13,027 employed individuals aged 18–59 in 2002, followed with regard to unemployment during 2003–2006 and disability pension during 2003–2007 in administrative registers. LTSL was defined as the individual reporting >30 sick-leave days in total during the 12 months prior to answering the baseline questionnaire in 2002. Illness-specific LTSL was defined by dividing the group into their stated main reasons for LTSL (i.e. ‘Musculoskeletal’, ‘Mental’, ‘Cardiovascular’, and ‘Other’). Hazard ratios (HR) with 95% Confidence Interval (CI) were estimated by Cox regression adjusting for socio-demographic factors and five measures of health status.

#### Results

LTSL increased the risk of disability pension (HR 4.01; 95% CI 3.19–5.05) and long-term unemployment (HR 1.45; 95% CI 1.05–2.00), after adjustment for health status. The analyses of illness-specific LTSL showed that the increased risk for long-term unemployment was confined to the group with sick leave due to musculoskeletal (HR 1.70 95% CI 1.00–2.89) and mental illness (HR 1.80 95% CI 1.13–2.88)

#### Conclusions

LTSL increases the risks of both disability pension and unemployment even after extensive adjustment for health status. The results support the hypothesis that LTSL may start a process of marginalization from the labor market.

### The impact of health policy: the extreme case of Abruzzo, Italy

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#### Issue

During the decade 2000–2010, the health care system of the Abruzzo Region, Italy faced a financial crash and a subsequent recovery. The extent of both was so large to be a case study, which may help addressing general questions including how much health care supply can be influenced by cost-containment policies; how such strategies may impact on health care appropriateness/efficiency and, in turn, on population health status; finally whether commonly used epidemiological trends based upon hospital discharge data could be reliable in the short-run.

#### Results

The health system of Abruzzo was deeply revised, and reforms spanned from one-off emergency measures to structural long-term policies. The hospitalization rate of the residents increased up to 2004, achieving a plateau in 2005 (+7.2%; 280 admissions per 1000 inhabitants—the highest among Italian regions). By contrast, from 2006 to 2010 the rate decreased by 31.4%, and the admission rates for specific diseases followed the same trend, with some peaks (diabetes; -74.9%). Between 2000 and 2005, the regional per-capita debt for health care almost tripled (+274%; €1586), to decrease by 33.0% from 2006 to 2010 (€1062). Most available health care efficiency/appropriateness indicators improved, and indexes of population health did not substantially change.

#### Lessons

In extremely negative contexts, the impact of health reforms on healthcare services may be impressive even in the short-run, with no or little trade-off between cost-containment and quality. The reliability of epidemiological estimates based upon hospital discharge abstract may be low when substantial variations in health policy occurred.

### The economics of bovine tuberculosis and brucellosis eradication programmes: implications for public health

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#### Background

Bovine tuberculosis (BT) and bovine brucellosis (BB) are serious zoonotic diseases. Because of their potential impact on trade and public health, national eradication programmes co-financed by the European Union are currently in place in several Member States. As the European Commission itself recommends, funding and especially co-funding of programmes should be based not only on epidemiological developments but also on cost-analysis and cost-benefit grounds. The aim of this research is to provide national policy-makers with an insight into the economic implications resulting from the implementation of the BT and BB eradication programmes.

#### Methods

We considered as eligible only cost analysis, cost effectiveness analysis (CEA) and cost benefit analyses (CBA). Furthermore, the included studies had to 1) evaluate any eradication or monitoring programme referred to the control of BT and BB) focus on the high-income countries, and 3) be carried out from the perspective of the societal or the healthcare system. The selection process, data abstraction and quality appraisal were performed following the methodological guidelines provided by the Cochrane Collaboration.

#### Results

We identified only 5 economic evaluations, namely 2 cost analyses and 3 cost-benefit analysis. Out of these 5, 4 studies (i.e. 2 CBAs and the two cost analyses, all reporting results on BB eradication programmes) were from the United Kingdom and just one economic evaluation was carried out in Spain (a CBA of bovine brucellosis and tuberculosis programmes). The methodology of the economic evaluations was of varying quality. For both the BB and TB eradication programmes the cost-benefit ratio was estimated to be under the unity and was primarily influenced by the baseline prevalence of disease in the area under investigation.

## Conclusions

Available evidence does not allow recommendations to be made based on the efficiency of bovine and brucellosis eradication programmes, although the crucial role that long-term national eradication programmes could play in terms of economic benefit to public health protection and trade facilitation. More scientific evidence about the long-term economic efficiency is necessary, with studies performing complete and rigorous economic evaluations.

## Governmental policies for neglected and rare diseases: main economic issues

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### Background

Conventional scientific approaches are not sufficient to deal with rapid evolving strains of vaccines and increasing resistance of traditional treatment such as antibiotics. More studies involve epigenetics to understand the impact of environmental changes on disease causation. This contribution will review main strategic options chosen by governments and types of institutional arrangements to adjust for global challenges.

### Methods

based on a literature review with Pub Med and current contents, a critical review of strategies used by governments and resource allocation options to supply vaccines and drugs on priority populations is provided. A strategic audit of various European countries is presented with their strengths and weakness for preparedness.

### Results

the review helps to identify the cases and types of problems where choice experiments and state choice studies may be an appropriate methodology to be added to policy tasks to quicken the responses of national and European agencies. ENDEPUSresearch technology based on combination of intention and effective data on population and professional surveys is presented as a potential useful prototypical methodology to the selected cases.

### Conclusion

additional migration factors or strains of viruses might require in the future different adjustments of government and European responses with more appropriate vaccines. The research line proposed in this presentation addresses this issue with a methodological development to adjust prospectively supply shortages and demand for vaccines and medical supplies.

## Pharmaceutical costs of social insurance funds in Greece: perceptions of the general population

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### Background

In recent years there has been a rapid increase in public health expenditure in Greece. In this effect contribute the rising pharmaceutical costs of the social insurance funds. Greece holds the third position among the member countries of the “Organization for Economic Cooperation and Development” (OECD) in per capita pharmaceutical expenditure. The lack of cost containment and control mechanisms has resulted in an unfavorable economic situation in the country’s social insurance funds.

### Objectives

The present study aimed to investigate the perceptions of the general population for the pharmaceutical expenditure of social insurance funds in Greece. The study was conducted as part of the national survey “Hellas Health IV”, which was held in autumn 2011. Respondents were selected by means of a

three stage, proportional to size sampling design. The total population of the sample was 1008 adults. The sample was representative of the Greek population in age and residency. The data was collected through personal interviews, and the response rate was 45.8%.

### Results

Over 60% of the respondents reported that the pharmaceutical expenditure of social insurance funds is excessive, while 65% of them believe that the problem caused by physicians. It is remarkable that 63% of the respondents are unaware about generics and only 26% of those who are aware, believe that generics are equally effective as the originals. Furthermore, 92% of the participants reported that usually the physicians do not suggest generics prescription.

### Conclusions

The majority of the general population in Greece believes that the pharmaceutical expenditure of social insurance funds is excessive and physicians contribute to the bulk of the problem via the medication selection. The lack of awareness and the low rate of generic prescribing indicate that there may be large potential to reduce the pharmaceutical expenditure.

## Primary prevention of cardiovascular disease-moderate effect on risk factors but possible high cost effectiveness in saving lives

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### Background

CVD prevention programs appeared to be applicable and effective in reducing exposure to risk factors and incidence of the disease. Broad introduction to everyday practice would have a significant impact for a health care budget and require careful economic considerations.

### Aims

The purpose of this health economic analysis was to assess the potential cost-effectiveness of the nurse lead, comprehensive, cardiovascular disease (CVD) primary prevention program in Poland.

### Methods

A Markov model was developed to compare long term costs and health outcomes of the preventive intervention versus usual care in people at high risk of CHD. The benefits associated with the primary prevention program were assessed using reduction in risk factors observed in patients taking part in Polish part of the EUROACTION project. The individual risk for subsequent cardiovascular events was estimated based on published Framingham equations. Costs of prevention and savings of avoided events were based on country specific data. A willingness to pay threshold of three Gross Domestic Product (GDP) per capita/quality adjusted life year (QALY) was used.

### Results

In Poland, EUROACTION intervention resulted mainly in reduction of prevalence of smoking (by 14% in smokers) and high blood pressure (by 7%). Even less effect on blood lipids was found. Estimated ICERs were below one GDP per capita for men and below three GDP per capita for women (<3 GDP per capita). The program was more cost effective in smokers. Results were the most sensitive to variations in health states utilities and duration of difference in pharmacotherapy after the intervention.

### Conclusion

Nurse led, comprehensive CVD primary prevention programme developed in the EUROACTION project was a cost-effective preventive strategy for high risk persons in Poland.



## The role of laboratory biochemical diagnostics in rationalization of family practice in primary health care centers

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### Introduction

Laboratory medicine, medical-biochemical diagnosis in primary health care is much represented. By organization of family medicine medical-biochemical diagnosis is defined as a branch of diagnostic services in primary health care which received a very large number of requests for medical-biochemical diagnosis.

### Goal

The overall objective of the research is to define a model of efficiency (or effectiveness) of medical-biochemical diagnosis for users with the requirements of units of family medicine (PM) in a representative sample of patients in the unit for the laboratory diagnosis of the Primary Health Care Center: Gracanica by: a) confirm what is the usefulness of the application of laboratory diagnosis in family medicine; b) determine the frequency of the need for laboratory tests in the therapeutic treatment of major diseases; and c) evaluate the need for using laboratory diagnostics to try to prevent major diseases.

### Material and methods

We analyzed the 1000 requests for laboratory tests at the Primary Health Care Centre in Gracanica from primary care units. Based on the requests for laboratory diagnostics advisable diagnoses from primary health care unit in the Primary Health Care Center (PHC) we made an economic analysis of the total required laboratory tests in the requests for laboratory diagnosis. Incorporating the economic analysis of laboratory tests in requests for laboratory diagnosis by doctors in primary health care (PHC) and the economic analysis of laboratory tests by the disease in primary health care.

### Results

The economic value of 5333 laboratory tests was 84 312 points (1 point is 0.80 KM). Of the total value of the index score requirements of GPs are 44, 1%, the requirement of family doctors account for 40% and requirements of other specialists make up 15, 9%. Discussion: In the requests of the PHC units for laboratory tests are required all levels of services: urine, CBC, SE, glucose, bilirubine, ALT, AST, AF, CK, cholesterol, HDL chol., triglycerides, creatinine, urea, uric acid, CRP, fibrinogen, calcium and phosphorus. The following request are the most common laboratory tests: urine, CBC, blood glucose, cholesterol, triglycerides, aminotransferases, creatinine, urea. The doctors in family practice most often requested: blood glucose, urine, CBC, SE, TGL., Chol., ALT, AST, creatinine and urea.

### Discussion

Based on the obtained parameters and results of laboratory tests can be determined: prevalence, benefit, benefits of certain tests (test profile search) laboratory diagnosis: the systematic reviews, for the prevention of health; tests to monitor disease (criteria, standards, i.e. protocols for diagnosis). But it is proved that the laboratory diagnosis is not used rationally. It also suggested better communication and organization of

family medicine and laboratory diagnosis when it comes to common diseases and facilitate the exchange of information with other health care institutions which may be of wider public interest.

### Conclusion

General practitioners were demanding more cholesterol and triglycerides, and family medicine doctors were demanding less cholesterol and triglycerides and more often CRP, fibrinogen, ALT, AST, what from the level of economic cost analysis rises the issue whether this was justified?

## Cost of Health Promotion Work in Primary Health Care

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### Objective

Health promotion is understood to be a part of everyday work in Finnish municipalities, carried out by various administrative fields. There is a considerable body of evidence concerning the effectiveness of specific health promotion interventions. However, little is known about the cost or cost-effectiveness of everyday health promotion work in municipalities. The TEVA- project aims to fill this gap by focusing on the economic assessment of health promotion work in Finnish municipalities. This research, which is part of TEVA -project is a case-study in the city of Oulu. Data was collected in 2008 and 2010.

### Methods

The research is focused on municipal-level services for children, adolescents and families with children. The overall aim of TEVA -project is to create a model of economic assessment of municipal-level health promotion work targeted on 0–16-year-old children and to develop practical tools for evaluating costs, outputs and effects of the work. Furthermore, the aim is to produce comparable data. This paper analyses the costs of health promotion in primary health care in the Finnish city of Oulu (144 000 inhabitants).

### Results

Based on defining the health promotion activities in primary health care, the time used for health promotion was then measured with data from client information systems and national registries. According to preliminary results, the annual cost of health promotion work was EUR 252 in 2008 and EUR 268 in 2010 in 2010 money per 0–16-year-old child. There has not been significant change in the amount of money, but money spent on health promotion work, but the money has been allocated differently in 2008 and 2010. Inputs for school health care have grown, while inputs for prenatal and child health clinics have decreased. Secondly, resourcing of doctor's work has increased, while resourcing on nurse's work has decreased.

### Conclusions

Preliminary results show that an economic evaluation of health promotion is challenging. A careful definition of health promotion activities is required. Due to different administrative structures it has proven difficult to obtain comparable data on costs.

## G.2. PUBLIC HEALTH DATA AND INFORMATION

### Establishing an Environmental Public Health Tracking System in the UK

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### Issue/problem

Historically Europe's public health movement was based on addressing the impact of our environment on individual and community health and well-being. While the quality of our environment has improved considerably over the last few decades, there is abundant evidence that it continues to exert a

powerful effect on public health. While estimates of the impact of the environment on health vary and the nature of environmental stressors changed over the decades, the public has consistently identified basic environmental amenity such as litter, fly tipping, noise, bonfires, housing disrepair, street lighting, and derelict land as being critical 'front-line' issues. These immediate interferences with day to day life have objective impacts on both health and quality of life. However, little is known about interactions between lifestyle and environmental factors, and the role of the contemporary environment in health is complex and multifaceted. This is especially important given the disproportionate exposure of, and effect on, vulnerable populations such as deprived communities and children.

#### Methods

A multi-disciplinary confederation of surveillance, horizon scanning, exposure assessment, research, and integration of data and intelligence on hazards, exposures and outcomes is required. These are the fundamentals of an Environmental Public Health Tracking System established in Sandwell including the routine analysis of public health nuisance, the efficacy of local authority practice, local horizon scanning, and the innovative use of industrial quality control methods to target interventions as well as the routine surveillance of environmental insult and environmentally related disease to generate plausible and focussed hypotheses for research.

#### Results (effects/changes)

The Sandwell system introduced in 2011 has already produced some notable products receiving WHO endorsement, influencing practice, focusing research and is being taken up by other regions in England and Wales.

### Improving road traffic injury surveillance: The importance of data linkage

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#### Background

Road traffic injuries are a major public health concern. It is estimated that road traffic injuries will become the third leading cause of the global burden of disease by 2020. Therefore, efforts should be made in order to reduce the burden of road traffic injuries, one of the key actions being related to proper surveillance systems development.

#### Methods

Secondary analysis was conducted on a sample of road traffic victims treated in the Emergency Department of the Mures County Emergency Hospital, Romania, as part of the European Injury Database (IDB) and linked to the Police Department database. Injury characteristics were detailed in the ED dataset while risk factors, environmental characteristics, and causality of the crash were found in the Police database.

#### Results

764 individuals treated in the ED had suffered a road traffic injury (26.6%), between March 2009 and July 2010. Preliminary results show that men were five times more likely to be injured than women as drivers/riders/operators. Men were also more likely to have an aggressive behavior while driving, to have a reckless driving and to speed.

#### Conclusions

Linking the available databases offers detailed information regarding injury outcomes, road traffic crash characteristics, as well as environmental risk factors and individual risky behaviors, leading to in-depth understanding of the consequences of crashes and accurate estimation of road traffic injuries. Health practitioners and road traffic experts should

work together to develop a sustainable road traffic injury surveillance.

### Towards a comprehensive web-based dietary infrastructure to support international monitoring and epidemiological nutritional studies

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The double nutritional and disease burden observed worldwide requires common methodologies to measure and follow-up dietary exposures, perform risk assessment and evaluate diet-disease associations, as strong scientifically-based evidence to support concerted public health actions across countries.

Through different EU funded projects (EPIC, EFCOSUM, EFCOVAL, PANCAKE, PANEU, EuroFIR-Nexus), a standardized computerized 24-hour dietary recall program (EPIC-Soft<sup>®</sup>) has been successfully developed by the International Agency for Research on Cancer (IARC), validated and used in both international epidemiological studies and monitoring surveys.

However, beside the availability of a common methodology for collecting dietary information across countries, it is equally important to provide a comprehensive framework and technical and managerial infrastructures to support international studies.

In order to respond to these needs, a centralised web-based platform, the dietary e-Standardised Methodologies Platform (e-SMP), is under development at IARC. It will be comprised of 4 main modules: 1) maintenance of the EPIC-Soft<sup>®</sup> databases, 2) interview collection using the EPIC-Soft<sup>®</sup> module, 3) management of collected interview data, and 4) administration.

The step-wise approach used to develop the platform includes 4 successive phases, 1) conceptual design; 2) evaluation by internal and external end users; 3) development of the applications and the web-platform; 4) testing and evaluation of the the applications and web-platform internally, by end users and in real study conditions (i.e. ongoing studies using EPIC-Soft<sup>®</sup>).

Beside the already applied EPIC-Soft<sup>®</sup> module, a first release of this web-platform is expected by the end of 2012 and will facilitate and support international studies, such as the EU Menu project, in terms of implementation, data collection and management of the collected data. This should also facilitate the standardization of dietary methodologies between countries and projects. Communication and data synchronisation/exchange will also be facilitated and e-training facilities will be provided to the different users of the platform.

### Potentials and restrictions in the use of statutory health insurance data

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#### Background

Internationally, routine data are often used in public health research. Their advantages range from large numbers of included individuals to their quick availability. In relation to other countries, the use of routine data in Germany started later. But in the last years their relevance for research increased, mainly the relevance of statutory health insurance (SHI) data. This special kind of data can be used for national research and also for international comparisons, for example of health care expenditures or frequencies of health care utilization. For both it is important to know which data are available and how good

their quality is. Aim of this study is to show the potentials of SHI data and to work out which possibilities researchers have, if they want to use this source.

#### Methods

This work is based on a comprehensive literature search as well as on expert interviews with researchers and employees of a statutory health insurance. First it was identified which information is available in the SHI dataset and which not. After that, specific and overall limitations were discussed.

#### Results

The SHI data involve a multitude of information. Dates, places and providers of health services are available for all service sectors. Other information, such as costs, underlying diagnoses and treatment courses, is only available for few sectors. A third group of information is completely missing: Among others, clinical endpoints and subjective patient information are not included. Some information like the severity of diseases can be measured indirectly, although this is error-prone. For existing information several qualitative limits could be observed. One example is the comparatively long time until some data are available. Furthermore data can be biased by over-, under- and miscoding.

#### Conclusions

SHI data are limited by several qualitative restrictions and cannot be used for every research question. Nevertheless, in many cases they are a good or at least the best possible source, for example for cost related analyses. Above all, SHI data are the only source to map everyday healthcare in Germany. Because of that, with an appropriate research question, SHI data have a high potential as a source for national studies and international comparisons of health care.

### Smart medical information service for chronic disease patients

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#### Issue

Currently, the concept of medical information is changed from hospital to home by increasing important of self-management. Medical information should be able to collect and manage themselves for satisfied right-to-know of consumer.

#### Description of the problem

In Republic of Korea, chronic disease patients are taking prescriptive medicine, But they don't aware exact drug name, Test type, screening date, test results in the hospital. Most of the chronic disease patients take care continuously in a hospital. So, we developed PHR system that can manage medical informations by oneself and contents service of food & exercise for a general hospital.

#### Results

u-CAREnote service is consist of PHR services including food and exercise contents for chronic disease patients. The service interfacing with EMR of hospital be able to view and confirm their medical information using Smartphone, Web, USB and to continuously check customized cautions after discharged through health note of functions. In addition, it enables to send various symptoms and nutrition and fitness record input by oneself and manage oneself by personalized contents. Also, this service provide customized relevance ratio of food and exercise contents according to ICD10 (International classification of diseases).

#### Lessons

u-CAREnote service is specialized service for chronic disease patients developed by Gachon University Gil Hospital which is to provide premium services and various contents to improve patients' quality of life, that will extend it's services to various chronic disease management. PHR has potential to lead disruptive innovation in healthcare industry and will become

customer centric services which satisfies customers' right to know.

#### Acknowledgement

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### Methodological considerations when evaluating the implementation of large-scale electronic health record systems

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#### Background

A commitment to Electronic Health Record (EHR) systems now constitutes a core part of many governments' healthcare reform strategies. The resulting politically-initiated large-scale or national EHR endeavors are challenging because of their ambitious agendas of change, the scale of resources needed to make them work, the (relatively) short timescales set, and the large number of stakeholders involved, all of whom pursue somewhat different interests. These initiatives need to be evaluated to establish if they improve care and represent value for money.

#### Methods

Critical reflections on these complexities in the light of experience of undertaking the first national, longitudinal, and sociotechnical evaluation of the implementation and adoption of England's National Health Service's Care Records Service (NHS CRS).

#### Results

We advance two key arguments. First, national programs for EHR implementations are likely to take place in the shifting sands of evolving sociopolitical and sociotechnical and contexts, which are likely to shape them in significant ways. This poses challenges to conventional evaluation approaches which draw on a model of baseline operations intervention changed operations (outcome). Second, evaluation of such programs must account for this changing context by adapting to it. This requires careful and creative choice of ontological, epistemological and methodological assumptions.

#### Conclusions

New and significant challenges are faced in evaluating national EHR implementation endeavors. Based on experiences from this national evaluation of the implementation and adoption of the NHS CRS in England, we argue for an approach to these evaluations which moves away from seeing EHR systems as Information and Communication Technologies (ICT) projects requiring an essentially outcome-centred assessment towards a more interpretive approach that reflects the situated and evolving nature of EHR seen within multiple specific settings and reflecting a constantly changing milieu of policies, strategies and software, with constant interactions across such boundaries.

### The quality certification of causes of death in the EUH Oran

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**Background**

The quality of mortality statistics is highly dependent on the quality and reliability of information on the causes of death that gives interest to indicators that will be measured and used for planning, assessment and management of public health actions. The evaluation of the quality of information on the causes of death was a central methodological concern of the health information unity SEMEP EUHO.

**Objective**

To evaluate the quality of the information contained in death certificates written by doctors of EUHO between 2009–2010.

**Materials and methods**

This is a prospective descriptive study conducted to gather at the Unity Health Information Service of Epidemiology and Preventive Medicine of the EUH Oran on death certificates issued between 2009–2010. The Consolidation of the rules, performed manually, is to bring to ICD-10 according to rules specified diseases reported on the certificate. After analyzing the content of the attestation of death certificates, we code the underlying cause of death

- upon request, a meeting to finalize and validate if problematic

- frequent contact with doctors to complete the missing information
- validation of forms for data entry on Epi info and registration as a database.

**Results**

- 340 death certificates were evaluated with a sex ratio = 1.5
- Tumors are the leading cause of death (33.2%) followed by diseases of the circulatory system in the second position (21.3%)
- 34.1% of death certificates have been validated, while the rest was returned to service issuers for possible corrections and completeness.
- 14.3% failed the initial cause, while 26.2% contain no intermediate causes.
- The stamp duty was absent on 58.1% of death certificates

**Discussion and Conclusion**

in terms of deficiencies and poor quality of the content of death certificates, care must be taken to improve the training of doctors to the medical certification, both during medical studies in continuing education, while reminding them of the importance of information on causes of death as an indicator of the epidemiological health of populations.

## H.2. HEALTH IMPACT ASSESSMENT

### How to measure the effects of public health programs among the European countries: the results of a systematic review

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**Background**

Effective policies and the adequate allocation of public health resources are likely to improve population health, as evidence-based policy ought to be developed through a continuous process that applies the best available evidence, even on the economic benefits of such programs. We performed a systematic review to identify and classify the evaluations used to measure the effects of public health programs in Europe.

**Methods**

An electronic search was conducted in relevant databases (PubMed, Cochrane Library, Embase, Psycinfo, Cinahl and EconLit) using a combination of specific keywords. In addition, 14 general public health journals and 28 European and national relevant Web sites were identified.

**Results**

The initial search yielded 2,416 articles. After studying titles, abstracts, and full texts, 10 articles met the inclusion criteria. 7 other reports were found on Web sites. 12 studies analyzed national programs, as the most represented countries were Germany, The Netherlands and Italy (3 studies each). 6 studies included a rigorous evaluation design. In 3 the evaluation was quantitative, in 10 qualitative, and in 4 both. Only 2 studies included an economic analysis. As for the most represented issues, 4 included whole public health policies, 3 pediatric programs (including vaccination), 3 programs for the elderly.

**Conclusions**

Our preliminary results show that different methods and tools are used to assess the effects of healthcare programs. When available, the methodological approach is not rigorous and most of the public health issues are not covered. As in most case we can assume that public health policies are based on the best available evidence on efficacy, considerable work is needed to develop appropriate tools to evaluate the effectiveness and cost-effectiveness of programs that that can affect large

populations and to build capacity, arrange for necessary informative systems and promote necessary resources for evaluation studies in Europe.

### Health Impact Assessment (HIA), a cornerstone for Health in All Policies (HiAP) in the Slovak Republic? Results from a study conducted from March-September 2010, with ongoing experience

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The Protection, Support and Development of Public Health Act was adopted in 2007. For the first time in Slovakia, Health Impact Assessment (HIA) was statutory. HIA is a methodology that health-proofs projects, programmes and policies. It has been advocated by the W.H.O. and E.U. as a tool for enabling Health in All Policies (HiAP). The National Public Health Authority (NPHA), and 37 Regional Public Health Authorities, are responsible for approving and assessing HIA cases. Between the 2007 Act and HIA's enforcement from January 2011, the NPHA was responsible for training public health officials in HIA. This study was conducted prior to enforcement, to establish the readiness of regional authorities for HIA.

**Description**

Theoretically, this legislation of HIA is novel and exciting. The placement of HIA within Slovak legislation is unique. However in practice, legislation does not always equate action. This study examined the perspectives of those expected to approve and evaluate HIAs. Questions were posed: what are the expectations and opinions of actors regarding the enforcement of HIA? Was the institutional machinery ready for January 2011? What were the barriers and enablers to the process? A study of data collection was conducted between March and September 2010. 19 in-depth expert interviews were conducted with key informants from state health institutions, international organisations, government ministries and NGOs. An open-ended survey was also concurrently administered to all 37 regional authority directors.

**Results**

Data was analysed using a combination of coding frameworks. Findings suggest that although the safety and hygiene system in Slovakia works smoothly, the readiness of the institutional

infrastructure to operationalise HIA, which is based on a social model of health, is dubious. Lessons: This ongoing research is being conducted at a crucial time in HIA's life-span in Slovakia, as a cornerstone for the development of the HiAP agenda. It is an interesting case for the world to learn from. Debate continues in HIA circles whether legislating for HIA is appropriate or not. The lack of resources and support for HIA are barriers to institutionalisation. The determined attitude of a group of policy entrepreneurs is a facilitator in advancing HIA.

### Impact Assessment for the Health in All Policies process: an action research study in Dutch municipalities

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#### Problem

The Dutch government encourages municipalities to develop 'Health in All Policies' (HiAP). The development of such a policy requires inter-sectoral collaboration, however municipalities show little initiative in this regard. Operating in an advisory role, the regional Public Health Service (PHS) has supported municipalities in South-Limburg in setting up inter-sectoral collaboration. A coaching program for municipal stakeholders was developed and implemented to improve HiAP, using obesity as an example.

#### Method

A participatory action research design was chosen in which intermediary results were given as feedback to the stakeholders for direct broader use. The impact of the coaching program in terms of municipal inter-sectoral collaboration and developing HiAP is evaluated by a pre- and post-test measurement. Civil servants, managers and municipal councilors (N=119) were invited to fill in an Internet questionnaire prior to and at the completion of the program. By means of a log-book all activities were registered in coached municipalities and in-depth interviews were held with municipal managers. Impact Assessments were scored depending on the stage of the HiAP process.

#### Results

Six of the nine coached municipalities showed concrete impact of health proposals in non-health policy sectors. The results show that more support and involvement at each system level stimulates the development of HiAP. The program contributed positively to the implementation of HiAP interventions targeting obesity. The pretest results for coached municipalities were better compared to non-coached municipalities. However, after 30 months of coaching this positive starting position faded away.

#### Lessons

We recommend that the municipal management become more involved in the HiAP process and advise the PHS to increasingly demonstrate their expertise. The PHS should develop an instrument to assess the impact of HiAP on the different policy sectors. Here lies a challenge for municipalities and their regional PHS.

### TEAvisari-A benchmarking tool for health promotion capacity building

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Local authorities are responsible for providing a variety of basic public services. The Declaration on Health in All Policies calls for integrating health consideration in all decision-making. This requires systematic management on local level, yet there has not been any comparable information on health promoting activities in different fields of action in Finnish municipalities.

A nationwide benchmarking tool called TEAvisari was launched in March 2010, consisting of a database of indicators of health promotion capacity building (HPCB) and a user-friendly visual interface. The aim of TEAvisari is to make measures taken by local authorities visible through a theoretical HPCB framework consisting of seven dimensions: commitment, management, monitoring and needs assessment, resources, common practices, participation and other core functions. The tool provides information for the planning, leadership and evaluation of actions that promote better public health on local level.

At the moment TEAvisari covers four municipal fields: primary health care, basic education, promotion of physical activity and municipal management. All data are updated biennially and presented for regions on several different levels as well as for municipalities enabling benchmarking. In addition, school-level data on the promotion of health and welfare in comprehensive schools were published for the first time in May 2012. In order to simplify the interpretation, all data are displayed as scores ranging from zero to 100, 100 standing for a desirable quality. Summary scores are presented for sectors, HPCB dimensions and their sub-categories, and it is always possible to drill down to more detailed information, all the way to the individual indicators.

TEAvisari shows that it is possible to assess organisational HPCB on local level, making it transparent to the residents while serving as a tool for the local government. The web-based user interface provides a quick access to relevant, interpreted information for decision-makers on all levels. However, there is a clear need for research in validating and further developing the indicators. TEAvisari is free of charge and available at <http://www.thl.fi/teaviisari>.

### Developing health promotion and welfare management in Finland

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In municipalities, health promotion should be purposeful, recognized and effective. That is not always the case because the decision-making related to health and wellbeing remains fragmented activity in the policy-making level.

The professionals in health care feel that the management, counseling and coordination of the health promotion are invisible and cause confusion. In turn, the decision-makers need management tools for estimating the state and development of the welfare at the municipal level. The promotion of health and welfare requires a comprehensive management approach and collaboration. In Finland objective of many projects has been to develop the tools to support the welfare management. The aim is to help municipalities to develop the functional arrangements to strengthen the structure of the execution of health promotion and to clarify the position of the welfare management in the municipal administration.

JAMK University of Applied Sciences studied and developed local and regional structures of health promotion and welfare management in the national TEJO project (2001–2009) and in the European PoHeFa-project (2009–2012). Furthermore, in a national HIA training project (IVATEKO 2005–2007) JAMK has trained the university teachers as experts in HIA. The political decision-makers' and administrators' consciousness, dialogue and understanding have increased as well as through

administrative cooperation between the separate sectors of administration. The welfare strategies are directing the operations and the execution of welfare. The monitoring based on local and national indicators of health and welfare. The follow-up of health and welfare has developed and it is regarded as an important basis for decision-making. Tools of the health promotion and welfare such as HIA have been taken into active use in the municipalities.

Plenty of health promotion strategies and programs have been carried out during the last decade. Their objectives do not automatically become operations but they require information, commitment and cooperation in the municipalities and interventions which support the objectives. The project cooperation between municipalities and higher education institutes has proved to be useful in development work of health promotion and welfare.

### Strengthening public health capacities and services in Italy: development of an evidence-based assessment tool for Prevention Plans of Italian Regions

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#### Background

The National Prevention Plan (PNP) 2010–2012 in Italy is a document set up by the Ministry of Health, containing indications to be followed by Italian Regions to elaborate their own Regional Prevention Plans (PRPs). Specific projects should be developed in the four areas of predictive medicine, universal prevention, prevention of population at risk and prevention of complications and recurrence of diseases. The critical assessment of PRPs is an unique opportunity to identify strengths and weaknesses of the Italian public health system and to strengthen public health capacities and services.

#### Methods

Evaluation and monitoring of PRPs is an institutional task carried out by the Italian Center for Diseases Control and Prevention. In addition to this, the Italian Ministry of Health promoted the constitution of a scientific committee with the participation of scientific societies active in the field of public health (Italian Society of Hygiene-SIIt, Italian Association of Epidemiology-AIE, Italian Society of Medical Statistics-SISMEC). The main task of this scientific committee is to develop an evidence-based assessment tool for PRPs.

#### Results

A total of 689 projects were developed by all Italian Regions. Most of them were in the areas of universal prevention (63.9%) and prevention of population at risk (26.1%). The assessment tool for PRPs developed by the Italian public health societies consists of three sections, concerning the descriptive analysis of the projects, the overall analysis of the PRP and the detailed analysis of the single projects. Single projects will be assessed according to criteria not fully contemplated by institutional evaluation, such as for example coherence of the project with the health needs of the population, evidence of effectiveness and cost-effectiveness of the health interventions, set up of appropriate indicators.

#### Conclusion

The preliminary analysis of the PRPs has revealed an huge heterogeneity across the Italian Regions, that may be overcome by adopting common guidelines for the next PNP. The assessment tool currently under development may be useful to improve the prevention planning system in Italy and, more broadly, to strengthen public health capacities and services.

### Health impact assessment of solid waste treatment technologies, Italy, 2012

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#### Background

An important concern of local governments has always been the disposal of solid waste. We tried to estimate the effect on exposed population health of the current situation (landfill) and also of alternative techniques and sites for the disposal of solid waste in an Italian region.

#### Methods

Through a HIA “at desktop” we consider a hypothetical population of 100.000 inhabitants referred to Tuscany in terms of age-gender distribution and density. We take into account scientific information concerning the emission of pollutants (chemical, biological, physical) in different substrates (air, water, soil, food) by different techniques of waste disposal and their health effects. For the incinerator was considered a load of about 90,000 t / a. We apply the relative risks (RR) found in literature to the characteristics of the studied population. We divide the area in concentric rings of distance from the emitting source and than we compare the use of incinerators against landfill.

#### Results

With regard to mechanical biological treatment information collected did not allow reliable comparisons. The results therefore relates to incinerators versus landfills. Cancer: At 1.5 km from the emissive source, regarding cases of all cancers, we obtain a protective effect,  $n^{\circ}/y = -28,14$ ; while for lung carcinoma we obtained an increase in the risk,  $n^{\circ}/y = +6,54$ . At 5 km from the emissive source, regarding cases of all cancers, we obtain a protective effect,  $n^{\circ}/y = -39,5$ ; while for lung carcinoma we obtained an increase in the risk,  $n^{\circ}/y = +2,18$ . Not Hodgkin Lymphoma: At 1 km from the emissive source we have a protective effect,  $n^{\circ}/y = -8,5$ . Congenital Malformations: At 2 km from the emissive source, regarding cases of all congenital malformations, we obtain a protective effect,  $n^{\circ}/y = -3,77$ ; while for palate cleft we obtained an increase in the risk,  $n^{\circ}/y = +29,5$ .

#### Conclusions

The “zero risk” in terms of waste disposal does not exist. From our data, with few exceptions, emerges a protective role of incinerators against landfill. This effect appears greater for new generation incinerators. The optimal localization of a new incinerator should be hypothesized focusing on weather, traffic, infrastructure, residents exposition and water flows.

### Drug substances in urban wastewater: A pilot study

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#### Background

Drugs improve the quality of human life, but, in the production phase first and then, variously metabolized are source of unrecognized pollution with environmental and health effects. In addition, the continuous introduction on the market of new molecules makes it difficult to control their disposal.

#### Objectives

To investigate the presence of drug molecules (DM) and their metabolites, in municipal wastewater of a city quantifying the differences between input and output of purifiers.

**Methods**

The survey was conducted on two purifiers (D1, D2) of a city that serve an area of 118.71 km<sup>2</sup> with about 56,000 inhabitants. The selected DM, on the basis of a literature search and for their environmental persistence and potential impact on human health, were: ibuprofen, erythromycin, lincomycin, amoxicillin, clarithromycin, ciprofloxacin, diazepam, carbamazepine, furosemide, hydrochlorothiazide, ranitidine, bezafibrate, atenolol, enalapril. Three samples of 1 L of waste incoming and outbound from both the purifiers were carried out, in three different times in the same day (h 12, 18 and 24). We proceeded to the extraction of the active principles analyzed by HPLC-MS.

**Results**

All sought active principles have been found, both in entry and exit from D1 and D2. The drugs found in greater

concentration, inlet, were: ibuprofen (D1 7.20 mg/m<sup>3</sup>, D2 2.13 mg/m<sup>3</sup>), hydrochlorothiazide (D1 1.03 mg/m<sup>3</sup>, D2 1.17 mg/m<sup>3</sup>), carbamazepine (D1 0.17 mg/m<sup>3</sup>, D2 0.24 mg/m<sup>3</sup>) and ciprofloxacin (D1 0.15 mg/m<sup>3</sup>, D2 0.12 mg/m<sup>3</sup> D2). The power of pulling down the DM by the two purifiers was varied: enalapril and ciprofloxacin were the most degraded drugs, respectively, with 95.3% (D1), 97.2% (D2) and 94.4% (D1), 89.7% (D2), lincomycin and ibuprofen among the least degraded, respectively, with 3.4% (D1) and 1.4% (D2) and 9.6% (D1) and 4.2% (D2).

**Conclusion**

The results show how different substances are not degraded by current processes of purification of sewage. It will be probably necessary to standardize this type of controls and to develop abatement techniques in order to avoid the potential environmental and health damage.

## I.2. QUALITY, SAFETY AND MEDICAL PRACTICE VARIATION

### The general practitioner's potential role in a population-based screening programme for colorectal cancer

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**Background**

A pilot programme for CRC screening in Flanders was set up in 2009 for average-risk persons aged 50 to 74 years. A stool sampling set (immunochemical faecal occult blood test (iFOBT)) was sent directly by post (direct-mail invitation) or it had to be collected from the GP's practice (invitation through GP). The study aimed to obtain information about the potential role of the general practitioner (GP) on informing and motivating the population about a population-based colorectal cancer (CRC) screening programme.

**Methods**

Simultaneously with the pilot programme, focus group discussions (FGDs) were performed with GPs not participating in the pilot programme to assess in depth how they see their role in such a CRC screening programme, how they would inform their patients and what information tools they need to do so. In addition and by analogy with the pilot programme, GPs were asked about their preference for either the direct-mail invitation or the invitation through GP.

**Results**

In four FGDs perceptions on the GP's role in a population-based CRC screening programme were collected from 38 GPs. GPs address the purpose of CRC screening and the use of the iFOBT as two important issues to be dealt with in a consultation on CRC screening. However, they indicate that individual screening consultations are time-consuming and believe this could be an extra barrier for GPs in motivating the patients to participate. Therefore, GPs had a slightly stronger preference for the direct-mail invitation as opposed to the invitation through the GP. Above all, GPs address that it is of primordial importance to convince first and foremost the GPs of the efficiency of the screening programme regardless of the required involvement before they can engage their patients to participate.

**Conclusions**

Considering a proper educational programme for all health professionals involved, a proper media campaign, invitation letter and information leaflet, and along with the timesaving nature of GP-consultations in positive-screens-only, we strongly advice to implement a CRC screening programme

using the iFOBT in a setting of a direct invitation by mail. The latter does certainly not imply a lesser involvement of the GP.

### Do hospitals perform better when they are led by doctors? Evidence on costs, efficiency and medical quality

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**Background**

The last decades have seen an increasing focus on leadership in healthcare. While the vast majority of hospitals in most modern healthcare systems in the past were routinely led by doctors, this has now changed. Yet, medical managers are commonly assumed to have many distinct advantages over their non-medical counterparts, and it has been suggested that placing physicians into leadership positions may help improve hospital performance and patient care. However, there is little empirical research to inform the debate, as studies assessing the physician-leadership hypothesis that hospitals perform better when led by doctors are almost non-existent. The objective of this study was therefore to investigate if medical leadership had any impact on hospital performance.

**Methods**

Using data from the 21 Norwegian hospitals gathered in 2005–09 we investigated two aspects of medical leadership: 1) the percentage top-level leaders with medical background, 2) the percentage department leaders with medical background. Hospital performance was measured as relative costs, efficiency and medical quality (mortality rates, postponement of planned operations, corridor patients, epicrisis time, pre-operative length-of-stay for femoral operations). Using multi-level techniques we were also able to control for several possible confounding factors: hospital size, hospital type, patient-mix and geography.

**Results**

Only medical leadership at department level were of importance for hospital performance: hospitals with doctors as department leaders have higher costs and lower efficiency, but also lower mortality rates. In addition, more planned operations are postponed in hospitals with doctors in charge at departmental level.

## Conclusions

To our knowledge, this is the first study to address the relationship between medical leadership and performance by studying a large set of hospitals and using actual output indicators of relevance. Our results suggest that the picture is a bit more nuanced than the general assumption that physician leaders improve hospital performance. While physician leaders at department level reduces mortality rates, our results suggest that nurses make for better department leaders in terms of reducing costs and maintaining hospital efficiency.

## Avoidable hospitalization in Switzerland between 2003 and 2007

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### Background

Avoidable hospitalizations (AH) encompass diseases that can usually be cared for outside hospitals through population based health interventions. AH are therefore quality indicators of ambulatory care and have been used to monitor health system performance in the United States, in several European countries and in Australia. For Switzerland, comprehensive data on extent and causal factors of AH were not available and were therefore studied in this research. This research was initiated by the Swiss Federal Office of Public health.

### Methods

We performed a cross-sectional analysis of small area variation of all hospitalizations matching the eligibility criteria of the OECD indicators for AH (principal diagnoses of asthma, chronic obstructive pulmonary disease, diabetes complications, congestive heart failure and hypertension). Data collection was based on the complete dataset of all hospital discharges in Switzerland for the years 2003–2007. To document regional differences, rates of AH were calculated for 86 hospital service areas. We used Pearson correlation coefficients ( $\rho$ ) to explore bivariate associations between regional rates of AH and regional factors of medical supply.

### Results

A total of 4.631.349 hospitalizations of patients were analyzed and 140.907 hospitalizations were categorized as avoidable for the five year study period (3,04% of the total). The data show an increase of annual rates of AH from 72 to 82 per 100.000 population for 2003–2007 (14%). The data indicate up to 3,3 fold higher rates in some hospital service areas with reference to the overall mean. These data indicate a significant, but moderate linear association with GP density ( $\rho = 0,25$ ) implying that areas with a higher density of primary care physicians are characterized with higher rates of AH.

### Conclusion

This study provides a first insight into the regional variation and determinants of AH in Switzerland. AH rates are one the lowest compared to the other 18 OECD countries. Nevertheless, the attention from Swiss healthy policies for this topic is needed as regional variation is large and rates are increasing.

## Predictors of adverse events in an Italian acute care hospital. Findings of a two-stage method

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### Background

The promotion of safer healthcare interventions in hospitals is a relevant public health topic. This study is aimed to investigate predictors of Adverse Events (AEs) taking into

consideration the Charlson Index in order to control for confounding biases related to comorbidity.

### Methods

The study was a retrospective cohort study based on a two-stage assessment tool which was used to identify AEs. In stage 1, two physicians reviewed a random sample of patient records from 2008 discharges. In stage 2, reviewers independently assessed each screened record to confirm the presence of AEs. A univariable and multivariable analysis was conducted to identify prognostic factors of AEs; socio-demographic and some main organizational variables were taken into consideration. Charlson comorbidity Index was calculated using the algorithm developed by Quan et al.

### Results

A total of 1501 records were reviewed; mean patients age was 60 (SD: 19) and 1415 (94.3%) patients were Italian. Forty-six AEs were registered; they most took place in medical wards (33, 71.7%), followed by surgical ones (9, 19.6%) and intensive care unit (ICU) (4, 8.7%). According to the logistic regression model and controlling for Charlson Index, the following variables were associated to AEs: type of admission (emergency vs elective: OR 3.46, 95%CI: 1.59–7.53), discharge ward (surgical and ICU vs medical wards: OR 2.28, 95%CI: 1.00–5.21 and OR 4.79, 95%CI: 1.46–15.56 respectively) and length of stay (OR 1.02, 95%CI 1.01–1.03). Among patients experiencing AEs a higher frequency of elderly ( $\geq 65$  years) was shown (58.5% vs 49.3% among patients without AEs) but this difference was not statistically significant. Interestingly, a higher percentage of patients admitted through emergency department was found among patients experiencing AEs (69.6% vs 55.1% among patients without AEs).

### Conclusions

The incidence of AEs was associated with length of stay, type of admission and unit of discharge, independently by comorbidity. The high frequency of AEs in patients admitted to ICU suggests that patient vulnerability could play a major role in generating AEs, as well as the organizational context.

## Predictors of adverse events in an Italian acute care hospital. Findings of a two-stage method

Lorenzo Sommella

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### Conclusions

The incidence of AEs was associated with length of stay, type of admission and unit of discharge, independently by comorbidity. The high frequency of AEs in patients admitted to ICU suggests that patient vulnerability could play a major role in generating AEs, as well as the organizational context.

## Amenable mortality as an indicator of health care services performance at a sub-national level

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### Background

Mortality amenable to health care services has been defined as “premature deaths that should not occur in the presence of timely and effective health care” or as “conditions for which effective clinical interventions exist”.

Originally developed in the 1970s in the United States the concept of amenable mortality has been revitalized recently as potentially useful to assess the quality and performance of health systems and analyse changes over time.

This study examined amenable mortality in Italy and analysed regional variability in health care services using amenable mortality as a performance indicator. We also estimated the contribution of amenable mortality to the total mortality gap between Northern and Southern Italy.

### Methods

We analyzed age-standardized rates of amenable mortality under age 75 (SDR) per 100,000 inhabitants, stratified by gender and region, over the years 2006–2008.

### Results

Amenable mortality constitutes an important proportion of total mortality, accounting, in 2006–08, for an average of 18.9% of total mortality under age 75 among males and 31.4% among females. During the study period, the SDR in Italy was 62.6 per 100,000 inhabitants: 66.0 per 100,000 for males and 59.1 per 100,000 for females. A significant regional variation in SDRs was found, ranging from 54.1 per 100,000 in Alto Adige to 76.3 per 100,000 in Campania. Southern Italy generally had higher SDRs than Northern Italy.

The contribution of amenable mortality to the total mortality gap between Northern and Southern Italy was estimated using the ratio of the standardized mortality rate differences (SRD amenable / SRD all causes) between the groups of interest. In 2006–2008 amenable mortality contributed 35.8% and 54.1% to the North-South total mortality gap for males and females respectively.

### Conclusions

The Italian National Health Care System shows a general good performance although Southern health care services display a poorer performance, as assessed by the concept of amenable mortality. Despite its limitations, amenable mortality is a scientifically sound and feasible indicator that can be used to inform policy decision making processes in decentralizing health care systems and monitoring their effectiveness and equity.

## Cesarean section rates: regional and between-hospital differences in Switzerland

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### Background

Cesarean section (cs) rates in Switzerland are higher than in France, similar to Germany and Austria (30.3% / 30.8%), lower than in Italy (38.4%) (OECD, 2009), they vary between regions, and they have increased from 26% (2001) to 33% (2010). In 2009 the Swiss parliament asked for a report with in-depth analysis of this phenomenon and recommendations for reducing the number of unnecessary cs deliveries (to be published by the End of 2012). As preparatory work an analysis of hospital data from 2001–2010 was conducted.

### Methods

For each delivery, characteristics of the mother (age, nationality, insurance type, medical diagnoses at discharge) and the hospital (language region, canton, small area; kind of hospital: size, academic / non academic, private / public) were used to build a multilevel (hierarchical) model aiming at quantifying medical, preference- and supply-associated factors explaining the mode of delivery

### Results

Data on 611'582 deliveries were available for the full model. 5-fold differences between small areas with lowest and highest rates were found. Among mother's characteristics predicting cs deliveries were: certain medical diagnoses (fetal-pelvic disproportion: OR=61.1, uterine scar after previous cs: OR=23.7, placenta praevia: OR=22.2), origin from certain countries / regions (South America: OR=1.5, Africa: OR=1.3, Italy: 1.2), age >35 (1.7), private insurance (OR=1.4). According to the model 15% of the variance was explained by hospital characteristics. Size and academic status of hospitals did not predict higher cs rates, while private hospital status did (OR 1.9).

### Limitations

As administrative data were used, not all data needed to explain medical, preference- and supply-factors were available: Data on planned / unplanned cs and on parity were lacking, and it was not possible to classify hospitals by organizational indicators described in the literature (eg. degree of responsibility of midwives for managing uncomplicated deliveries).

### Conclusions

Medical as well as preference factors explain differences in cs rates. In addition, economic aspects have been identified as influential, confirming that cs deliveries in Switzerland are supply-sensitive services.

## Pay-for-Performance-A Systematic Review

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Most physicians and hospitals are paid equally regardless of the quality of health care they provide. This remuneration scheme does not lead to any incentives to improve the quality of care provision. A number of studies have revealed quality problems in health care systems. One of the identified reasons is the payment form of physicians. In 2002, the Institute of Medicine published a report (“Crossing the Quality Chasm”) and postulated greater use of remuneration systems to increase

quality of care, rather than quantity. During the last 10 years, health services research studies have been conducted to identify effects of Pay-for-Performance (P4P) programs. As the results are heterogenic, one can hypothesize that P4P has the potential to enhance quality of care, yet, a number of fundamental factors need to be considered. Therefore, this study aims at identifying success factors that need to be regarded when designing and implementing prospective P4P programs.

A systematic literature review on P4P published between 2000 and 2012 was conducted in the following databases: PubMed, Cochrane Databank of Systematic Reviews, and EconLit. The literature searches provided 304 citations for inclusion. After titles and abstracts screening 234 studies were excluded. 56 articles were precluded after full text examination. Finally, 14 reviews were included.

All reviews identified studies on (moderate) quality improvement. However, half of the reviews (7) exposed that P4P programs do not have any effect and three even revealed negative effects of financial incentives on measures of quality. Nine reviews examined process and outcome indicators, two focused only on outcome. Size of the bonus payment ranged from <2% to 20% of total reimbursement and is predominately based on an absolute threshold. None of the reviews considered the influence of bonus payments' point of time and duration.

Reviews confirm that P4P programs can improve the quality of care, though not always. Success factors are a combination of process and outcome indicators, adequate financial incentives, and reachable thresholds. More and better-designed studies are needed to determine additional factors for quality improvement. The roles of public reporting and unintended consequences have to be considered as well.

## Differences in length of stay in pediatric hospitals of Armenia, 2011

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### Background

The length of hospital stay (LOS) is an important modifiable indicator of efficiency and quality of care with known inter-hospital variability. This study aimed to determine the factors associated with LOS in pediatric hospitals of Armenia and to identify whether there were inter-hospital differences in the LOS.

### Methods

The study utilized data from a cross-sectional survey of mothers of 0–7 years old children hospitalized one to five months prior to the interview. Stratified simple random sampling was applied to select cases from a computerized database of all children hospitalized in Armenia during the periods of August–December, 2010 and March–May, 2011. A total of 1,603 mothers of hospitalized children were interviewed. The study fitted a multiple linear regression model to identify the factors associated with children's LOS.

### Results

The average LOS for 0–7 years old children was 6.73 days (SD 5.38). In the fully adjusted model, which explained 27% of the variance of the outcome, LOS was significantly associated with child's age (in months) at hospitalization ( $\beta = (-0.04)$ , 95% CI =  $(-0.05)$ – $(-0.03)$ ), overall payment (in 1000 AMDs–~2.5 USDs) for hospital care ( $\beta = 0.02$ , 95% CI =  $0.01$ – $0.03$ ), and the score of satisfaction from care ( $\beta = 0.12$ , 95% CI =  $0.06$ – $0.18$ ). LOS was 4.40 times longer (95% CI =  $2.97$ – $5.83$ ) for those transferred from other hospitals, 2.93 times longer (95% CI =  $1.46$ – $4.41$ ) in specialized vs. general hospitals and 1.46 times longer (95% CI =  $0.64$ – $2.27$ ) for regional residents hospitalized in Yerevan. Of all diagnostic groups, only

kidney diseases ( $\beta = 3.67$ , 95% CI =  $2.04$ – $5.29$ ) and pneumonia ( $\beta = 1.92$ , 95% CI =  $1.11$ – $2.72$ ) caused significantly longer LOS in the adjusted model. After controlling for all significant variables, the differences in LOS remained statistically significant for five pediatric hospitals/units (coefficients ranging from  $(-5.95)$  to  $7.84$ ).

### Conclusion

There was significant variation in LOS among pediatric hospitals of Armenia even after adjusting for factors associated with the LOS. This variation suggests the need for improving efficiency and quality of pediatric inpatient care in Armenia through introduction of standardized evidence-based treatment guidelines and algorithms.

## Engaging health care providers in participant recruitment: Lessons learned from a mixed-methods study

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### Background

In randomised controlled trials (RCTs) it is a challenge to recruit sufficient participants to achieve adequate power for detecting a difference between treatment groups. This problem is even more pronounced when health care providers are responsible for recruiting participants. The overall aim of this study was to gain insight in the facilitators and barriers for participant recruitment in an occupational health care (OHC) setting.

### Methods

A mixed-methods approach was used to explore factors related to the recruitment of employees (i.e. the research participants) by occupational physicians (OPs) for a cluster-RCT. The association between OP characteristics (demographic and work related factors) and number of employees recruited by each OP was examined in a multilevel Poisson regression model, controlling for the clustering of OPs in group practices. Focus groups and interviews were conducted with OPs to discuss the barriers and facilitators they experienced during recruitment.

### Results

Multivariate analyses showed that the mean number of participants recruited in the group practice of the OP was positively associated with the number of recruited participants per OP (rate ratio (RR) of 1.93, 95% confidence interval (CI) 1.61–2.32). OPs working for group practices in the South of The Netherlands recruited significantly fewer participants than OPs working in the other regions (RR = 0.19, 95% CI 0.05–0.70). Barriers and facilitators for recruitment as reported by OPs were categorised into:

(1) Study characteristics (e.g. concise inclusion criteria), (2) study population characteristics, (3) OP's attention, (4) OP's workload, (5) Context (e.g. working at different locations) and (6) OP's characteristics (e.g. motivated to help). Important facilitators were being encouraged by colleagues and being reminded by tools (e.g. a 'pop-up' screen).

### Conclusions

When mobilising OPs for participant recruitment, researchers should not only motivate the individual OP but also the OPs' colleagues. Continuous attention for recruitment strategies, especially face-to-face contact with the researcher and reminder tools, may help to improve participant recruitment in the OHC setting.

## K.2. HEALTH SERVICES MANAGEMENT

### Evidence Based Management supporting decision making process: a new frontier

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#### Background

Evidence Based Management (EBMgmt) is a tool aimed at supporting decision making by integrating the best scientific evidences into daily management practice, in order to promote the continuous quality improvement of healthcare organizations' performance through innovative managerial solutions. This study has been aimed to highlight EBMgmt features and also obstacles and potential strategies associated with its introduction within healthcare organizations.

#### Methods

A literature search was performed covering studies published up to May 2011, by consulting PubMed electronic database. Search terms used were as follows: "Evidence Based Management", "Decision Making", "Criticalities", "Barriers", "Strategies".

#### Results

Ten studies were included which main contents are summarized as follows. EBMgmt is based on three assumptions: evidence-based decisions help to achieve expected results; results are transferable (among different organizations); evidence is objective and context-independent.

EBMgmt consists of five stages: question wording; acquiring evidences; assessing their validity, quality and feasibility; summarizing and disseminating scientific research results; integrating the best available evidences within decision making process. The main criticalities of EBMgmt introduction are: under- or over-use or abuse of innovative management strategies; uncritical emulation of managerial models implemented within healthcare organizations considered top performers. The main barriers to EBMgmt implementation are: lack of relevant experiences in the management field; difficulties in finding appropriate studies; lack of time or appropriate skills to acquire, evaluate and integrate the best available experiences into management practice; issues related to generalization, reproducibility and transferability of management models.

#### Conclusions

EBMgmt is a new original tool supporting the decision-making process, which health managers should adopt to improve decision making quality. To promote EBMgmt, four key strategies have been identified: responding to the growing need for transparency and accountability; developing organizational structures and processes of knowledge transfer; building a 'questioning' organizational culture; organizational research capacity building.

### Value in Health Technology Assessment Project. Results of a training and education program

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#### Background

This project stems from the results of a previous experience, the Value in Health Technology Assessment (ViHTA) project, which objective was to review the state of the art of Health Technology Assessment (HTA) methodology in the 20 Italian Regions. The study revealed a strong heterogeneity across Italian Regions in terms of: HTA methodology development maturity, implementation levels (macro-, meso-, micro-) and application scopes (vaccines, drugs, medical devices, etc).

#### Objectives

The ViHTA 2 project is based on the development and implementation of a specific program aimed at: strengthening the network of health professionals on HTA in Italy; promoting the harmonization of regional activities and professionals in the development of HTA methodology, through training activities and knowledge sharing and contextualization of European guidelines (European Network of HTA, EUnetHTA); make available and accessible to professionals and institutions peer review tools and data, aimed at improving the methodological quality of the assessments.

#### Results

A based and an advanced HTA workshop have been realized, taking place at the Catholic University of Rome, with 40 participants per workshop from all Italian regions. A website has been created in order to: strength the networking among health professionals and carry out e-learning activities through a dedicated forum, accessed by username and password, spread guidelines and recommendations and share best practices. The website consists of 4 sections: 1) HTA publications; 2) HTA guidelines and recommendations; 3) HTA reports; 4) HTA conferences/congresses/training events. The sections respectively contain: 30 scientific articles; 10 guidelines/recommendations; 20 forms and information about 15 scientific events.

#### Conclusions

The ViHTA2 project public health impact can be considered very successful as representatives of all Italian regions joined the training and also the network activities and the program considerably contributed to the spreading of HTA culture and to the homogenization of HTA practice. This public health action has been innovative as it is based on the use of web medium and it also may be considered transferable and applicable in other Countries.

### Evaluating preferences for equity and efficiency among national health policy makers in Spain

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#### Background

In most countries, decision-making, and its driving criteria, by policy makers to set priorities in health care financing and delivery are often ad-hoc, based on political motives and on heuristic or intuitive approaches to simplify complexity. Spain is not an exception. The different efforts in formalizing the priority setting for health decision making have to include a common rationale of a prioritizing process. This paper is built in that direction.

#### Objectives

This session presents a Multi-Criteria Decision Analysis (MCDA) in priority setting in Spain and assesses the results of decision-makers' preferences for equity and efficiency criteria.

## Data and Methods

Choice experiments were conducted among health decision-makers in Madrid, Catalonia, Basque Country, and Valencia, four of the most active Spanish regions in terms of pharmaceutical policy, using standardized criteria for eliciting preferences for health interventions. Using regression analysis, coefficients of criteria were obtained and the model was evaluated for how well the overall fit to the complete list of criteria. Ex post classification of the criteria into groups of equity and efficiency was then done, and we examined the relative overall preference for and level of tradeoff between these two concepts. The results were also used to rank a menu of interventions noting how each country's probability of interventions selection is determined by their aggregate preference level.

## Conclusion

The results show that MCDA methods can be used by researchers to analyze preferences for country stakeholders for application to health decision making. We show that there is a range of preference for criteria dealing with equity and efficiency and that equity and efficiency levels vary between regions. The discrete choice experiment also illuminates tradeoffs between criteria, and the ex post classification of all criteria into two groups, equity and efficiency, shows that among some region policymakers a tradeoff indeed is taking place. We show that MCDA is a valid approach for incorporating aggregated preferences as a component of health decision-making in Spain.

## Can the Global Burden of Disease national tool kit help inform local priorities?

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### Issue/problem

Understanding the burden of disease and its major causes is central to good public health practice. Death rates and prevalence tend to be used to prioritise action, yet Disability Adjusted Life Years (DALYs) and Years Lost due to Disability (YLD) adds an extra dimension to this process; however these are often less available.

The WHO Global Burden of Disease (GBD) study addresses this, summarising major causes of mortality, morbidity, and associated risk factors, by high, medium and low income countries. They have recently made available country-specific National Burden of Disease (NBD) toolkits, containing 'prior' estimates of mortality and morbidity for WHO Member States for 2004.

A key issue is whether the toolkit provides information above that offered by the GBD publications.

### Method

The NBD toolkit identified the major UK causes of mortality, morbidity (YLD & DALYs), and associated risk factors. Comparisons were made to the GBD study reports of top 10 causes and risk factors of disease burden for high income countries. Breakdowns by age and sex, not available in the GBD publications, were also extracted.

### Results

The toolkit identified Prostate Cancer and Lymphomas and multiple myeloma in the top 10 2004 causes of mortality for UK that were not identified in the GBD analysis of high income countries. Other UK specific top 10 included migraine for YLD, and refractive errors and oostoarthritis for DALYs. A similar picture was seen for risk factors, with occupational airborne particulates and carcinogens identified as important UK specific risk factors for mortality and unsafe sex identified as an important cause of DALYs.

Patterns in the importance of causes and risk factors by age and sex made apparent priorities for specific groups not evident from the GBD reports. For example, the impact of alcohol manifested at a much younger age than many of the other risk factors.

### Lessons

The NBD toolkits provide substantially more information applicable to national policy development and prioritisation than the GBD publications to date. The tool kit can be adapted for use in both policy and implementation at more local levels. It's availability to all WHO member states make it an important international resource.

## Silver Code: a new tool for the management of the frail elderly in Emergency Department. Results of a year of experimental use

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### Background

The number of visit to emergency departments (ED) has increased during the past few year, especially for elderly. Also the overcrowding in the ED has increased, generating a lot of managerial and organizational problems, but also of safety and quality.

In Italy, a four colour-level triage system is used (in ascending emergency order: white, green, yellow, red). The Silver Code (SC) is a prognostic tool based on administrative data, developed and validated in Italy, that identifies older patient at risk, and it is also a "priority green code" assigned to elderly with certain clinic characteristics to ensure shorter waiting times (WT).

Aim of this study was to evaluate the impact of introduction of SC in WT.

### Methods

An observational retrospective study was performed. The study includes all patients over 70 arrived in the ED in 2011, with white or green code of triage. We assigned the SC at all patients aged over 85 and at aged over 70 years but with presence of some criteria of risk. The WT was calculated from arrival in the ED until medical care. Statistical analysis was performed with STATA

### Results

The sample is composed of 7061 patients aged 70 years and older, admitted to medical wards via the ED during 2011 (46,9 male and 53,1% female). The mean age was 79,5 years (SD = 6,10). The green code was assigned at 96,4% of patients; the sample was divided in two group: patient with SC (14,5%) and without SC. The WT mean for patient with SC was 65,8 minutes (SD = 72,55) vs 95,3 (SD = 98,11) in patients without SC, regardless of initial colour code (p value = 0,000). There are not statistical difference in WT of group with initial white colour.

In groups with initial green colour we identified a statistical difference in WT (65,5 min in SC vs 94,9 min without SC; p value = 0,000). Also, we compared the sample with patients of similar age limits but arrived in the ED in 2010, to assess the generalizability of the sample and the analysis revealed no statistical differences by age, gender, disease and total WT.

### Conclusions

The application of the SC has led to a reduction in the waiting times for elderly patients. At the same time this reduction of WT did not cause an increase in WT on other patients but affected only on organizational aspects and management of ED.

## Rapid appraisal of diabetes care in Armenia, 2011: qualitative research

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### Background

Diabetes-related morbidity, disability and mortality are growing public health concerns in Armenia. The aim of the study was to provide a snapshot of the pathways persons with diabetes access and navigate the health care system and to propose changes to improve delivery of diabetes care in Armenia.

### Methods

The study utilized qualitative research methods including focus group discussions and in-depth interviews. The study took place in Yerevan (the capital city) and Shirak marz (one of the poorest provinces) to understand diabetes care at national and regional levels. There were six groups of participants: primary health care (PHC) physicians and nurses; PHC endocrinologists; hospital endocrinologists; other specialists dealing with diabetes complications care; policy makers/experts; and adult diabetes patients. There were 91 study participants (80 female and 11 male). The study team used advanced analytical qualitative research methods to analyze the study transcripts utilizing conventional inductive and directed deductive content analysis techniques.

### Results

Main obstacles to appropriate care were associated with shortage of hypoglycaemic drugs that placed a heavy financial burden on most diabetes patients, changes in types and brands of hypoglycaemic drugs leading to destabilization of patients' blood glucose levels and increasing the risk of complications, expensive consumables and high prices of advanced laboratory testing and examination reducing effective monitoring of the disease, lack of access to medically necessary care for diabetes complications and poor coordination of efforts between diabetes care in polyclinics, hospitals, and private medical centers. The social stigma associated with diabetes and insulin-use was identified as one of the underlying factors for poor compliance with treatment, especially among younger diabetes patients.

### Conclusions

The study developed policy recommendations to improve diabetes care in Armenia: expand coverage of anti-diabetic drugs and other drugs for care of diabetes complications, establish a unified diabetes registry for effective communication and coordination of care, and organize population-based educational campaigns to reduce stigma and improve diabetes management.

## Perceived control and health care utilization in Poland

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### Background

Perceived control (PC) is known to be related with cardiovascular disease mortality. However, little is known on its relation with health care utilization.

### Objective

To assess the relationship between PC and health care utilization.

Studied group: 10,728 men and women aged 45–64 years, random sample of permanent residents of Krakow-Polish participants of the HAPIEE Project (Health Alcohol and Psychosocial factors In Eastern Europe).

Study design and methods: cross-sectional study; participants were interviewed at home using a structured questionnaire. PC was measured using 11-item questionnaire. Very high, high, moderate and low PC were defined according to the interquartile values. Multivariate logistic regression was used to investigate the health care utilization characteristics in quartiles of PC.

### Results

Compared to persons with very high PC, both men and women with low PC were more likely to report limitations in access to medical consultation. After adjustment for age, education, occupational status and perceived health men with low PC reported limited access to medical consultation more frequently by nearly 90% (OR = 1.89 95%CI = 1.31–2.73) and in women with low PC limitations in access to medical consultation were 3.5 times more frequent compared to the group with very high PC (OR = 3.49 95%CI = 2.22–5.50). Men with PC lower than the median more frequently experienced inability of buying prescribed drugs by 62–96% ( $p < 0.05$ ). In women, PC lower than very high was associated with 50–175% ( $p < 0.05$ ) higher chance of inability of buying prescribed drugs. Women with moderate and low PC were more likely to have more than 4 medical consultations per year by 20–25% ( $p < 0.05$ ) when controlling for age, education, occupational status, perceived health and out-of-pocket payment for medical consultation. No relationships were found between PC and out-of-pocket payment, type of provider usually chosen: public or private and primary or specialty.

### Conclusions

Low PC increased limitations in access to medical consultations and drugs in both sexes. Low PC was related to higher number of medical consultations in women. The types of providers chosen and frequency of out-of-pocket payment were not associated with PC.

## L.2. OCCUPATIONAL HEALTH

### Employers who combine organizational and individual-oriented health interventions have better health among their employees—a study of Swedish municipal social care organizations

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### Background

In research on workplace health promotion (WHP), a broad approach which combines organizational and individual-

oriented health interventions has been advocated. However, there are gaps in knowledge regarding the scope of WHP measures that employers use as well as the importance for employee health. The aim of this study was to investigate differences between Swedish municipal social care organizations concerning the provision of WHP measures and the relation to the level of employee health in the organizations.

### Methods

This cross-sectional study is based on questionnaires to employers and employees in the sector of social care of elderly and disabled in a random sample of 60 out of the 290 municipal organizations in Sweden. The employer questionnaire to the top manager covered organizational characteristics, management control, WHP and occupational health

services. The employee questionnaire covering WHP and self-rated health was sent to a representative sample of 15 871 employees in the same organizations. Data from the employers were linked to aggregated employee data and analysed by bivariate and multivariate statistics at organizational level.

#### Results

Employers with more individual-oriented WHP measures (health profile assessment, lifestyle guidance, fitness activities and medical health control) as well as more organizational level measures (health coordinators and local health projects) had better employee health. There was a correspondence between employers and employees reports regarding the provision of WHP measures. Although highly correlated, individual-oriented WHP measures and local health projects were independent predictors and explained 34% of the variation in health. However, more general organizational characteristics and management policies were not related to employee health.

#### Conclusion

Both individual-oriented WHP measures and organizational support for WHP are related to the level of employee health in the organizations. The study supports the use of a comprehensive approach to address workplace health.

### Workplace justice and health status of employees: a cross-sectional study from Taiwan

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#### Backgrounds and Objectives

Previous research suggests that low workplace justice is detrimental to health. However, few research has been conducted in Asian countries. This study discussed the association between workplace justice and a variety of self-reported health outcomes in a nationally representative sample of employees.

#### Methods

A total of 9563 men and 7804 women aged between 25 and 65 years old were sampled and completed questionnaires in 2010. Workplace justice and health status was assessed. The latter included self rated health, presence of various self-reported symptoms and musculoskeletal discomfort, minor psychiatric morbidity and sleeping quality.

#### Results

Multivariate logistic regression models showed that, as compared with those in the highest tertile of workplace justice, those in the lowest tertile had odds ratios of poor self-rated health of 2.939 (95%CI 1.74 to 4.963) in men and 1.823 (95%CI 1.116 to 2.976) in women, respectively. Similar findings were found for other health outcomes. These associations remained significant after adjusted for age, grade, working hours, working conditions and individual lifestyle factors.

#### Conclusion

This study showed that lower level of workplace justice was associated with poor health and its importance appeared to outweigh traditional work-related stressors such as heavy workloads and lower job control as well as individual lifestyle factors such as lack of exercise and smoking.

### Occupational injury from a gender perspective

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#### Background

The basic idea behind the occupational injury insurance is that individuals who suffer a work-related injury or illness will be compensated financially. Annuities are the most common

form of compensation. In Sweden, between 2009 and 2010, 24 per cent of female applicants and 39 per cent of male applicants were granted annuities for illnesses caused by harmful effects of their work. In Sweden a generic work injury concept is applied. This means that all kinds of illnesses can be recognized as work-related if there is enough evidence that the illness has occurred as a result of exposure at work. The Swedish Social Insurance Agency's investigations and decisions are dependent on occupational research and that those who issue the medical statement are familiar with current research. The present study presents an analysis of potential underlying factors behind the gender gap in granting of work injury annuity due to work-related disease.

#### Methods

The sampling base of first-time decisions in 2010 of work injury annuity because of work-related disease according to the Swedish Work Injury Insurance Act from 2002 was identified through available registers of workers' compensation. The material was analyzed with logistic regression analyses adjusting for a number of potential confounders.

#### Results

In all 217 cases, 99 granted annuities (19 women and 80 men) and 118 denied annuities (63 women and 55 men). Of the 217 cases, 122 concerned musculoskeletal disorders, 32 cases concerned mental illness, and 63 cases concerned disease in other diagnostic chapters according to ICD 10. Men had a higher probability of being granted work injury annuity regardless diagnostic chapter. Crude odds ratio shows a rather much higher probability for men of being granted work injury annuity (OR 4.82). When adjusting for craft work or work in manufacturing (OR 2.75), and when adjusting for a number of additional factors that may affect the likelihood there was still a higher probability for men of being granted work injury annuity (OR 2.66).

#### Conclusions

The difference in grant rates for different occupations largely explains the difference in grant rates for men and women.

### Occupational category and cardiovascular risk factors

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#### Background

Occupational status is a known socioeconomic factor which influences health. Little is known on the relationship between occupational category (OC) and cardiovascular (CVD) risk factors.

#### Objective

To assess the relationship between OC and CVD risk factors.

#### Methods

The study was done in a Polish part of the HAPIEE (Health, Alcohol and Psychosocial factors In Eastern Europe) Project. Random sample of permanent residents of Krakow (men and women aged 45–69 years) participated in the study. Information on health status and OC was collected using a standardized questionnaire. OC was defined using information on economic activity, job position, and work description. CVD risk factors (hypertension, hypercholesterolaemia, diabetes, smoking, and obesity) were defined using standard methods. Multivariate logistic regression was used to assess the relationship between occupational circumstances and CVD risk factors, with adjustment for age, education, and self-perceived health.

#### Results

Compared to employed persons, in men: non-working pensioners had higher risk of diabetes (OR = 1.44; 95%CI = 1.11–1.87), whereas working pensioners-higher risk of smoking (OR = 1.38; 95%CI = 1.03–1.84), and obesity (OR = 1.78; 95%CI = 1.35–2.34). In women, non-working pensioners had higher risk of hypertension (OR = 1.28;

95%CI = 1.06–1.54), diabetes (OR = 1.62; 95%CI = 1.16–2.27), and obesity (OR = 1.23; 95%CI = 1.01–1.50), whereas working pensioners-higher risk of obesity (OR = 1.37; 95%CI = 1.05–1.78). Compared to men at managerial position, being an employee without inferiors reduced risk of hypertension (OR = 0.72; 95%CI = 0.57–0.91), diabetes (OR = 0.53; 95%CI = 0.38–0.74), and obesity (OR = 0.70; 95%CI = 0.54–0.90). Being a self-employed worker reduced risk of hypertension (OR = 0.68; 95%CI = 0.52–0.89), and diabetes (OR = 0.65; 95%CI = 0.44–0.96). Compared to sedentary work, other types of work reduced risk of diabetes in women (OR = 0.55; 95%CI = 0.35–0.89).

### Conclusions

Being a pensioner increased risk of diabetes, obesity (in both genders), and hypertension (in women). Working at managerial position increased risk of hypertension and diabetes in men. Sedentary work increased risk of diabetes in women.

## Different compensation in unemployment and their effects on hospital admission

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### Background

There is a missing link on the association between different compensation strategies of unemployment and hospital admission. The aim of the present analysis is to compare results of unemployment compensation of salary insured and social welfare considering overall hospital admission and hospital admission due to cancer, circulatory disease, and musculoskeletal disorders.

### Method

Danish data from Esbjerg municipality were analyzed for the period 2006 to 2009. First inpatient hospital admission and the individual unemployment situation separated in different compensation strategies were considered. In a cross sectional analysis, a multiple logistic regression model was conducted based on the year 2006 (n = 114,373). A follow up (2006–2009) of healthy individuals was done to look on the effect of unemployment on health; unhealthy individuals were excluded, leading in total to n = 89,764 persons. A Cox regression model was used considering the first relevant hospital admission.

### Result

In the cross sectional population 12.5% of the Esbjerg's inhabitants had at least one day hospital admission in 2006. In total, 3.6% of the population was unemployed; with 0.9% salary insured and 2.6% social welfare compensation. Persons having salary insured unemployment compensation had increased hospital admission neither in the cross sectional nor in the cohort approach. Social welfare compensated unemployment and hospital admission was statistically significant associated in the cross sectional analysis. The cohort approach suggests for circulatory disease the same (HR: 1.63; 95% CI: 1.32–1.81). For hospital admission due to cancer or muscle skeletal disorders no such an effect was seen in the cohort approach.

### Conclusion

No health related effect measured by hospital admission was seen in persons with salary insured unemployment compensation. People with social welfare compensated unemployment shows an effect from unemployment to hospital admission due to cardiovascular disease. However, for hospital admission due to cancer or muscle skeletal disorders, the results suggest that the disease cause joblessness and finally social welfare compensated unemployment and not vice versa. This analysis allows defining vulnerable groups in unemployed.

## Positive work experience factors relate to salutogenic health—a survey among Swedish hospital employees

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### Background

Workplace health promotion intends to increase well-being and health in working populations. Many health care workers in Europe experience the work situation stressful and demanding. Health promotion processes are needed, but most studies of health care staffs have an ill-health perspective while salutogenic factors of importance to health promotion are less studied. The aim of the study was to compare work experiences between groups of employees, and to analyse if positive work experiences relate to salutogenic health.

### Methods

At a Swedish hospital the employees (n = 770; response rate 66%) in 2009 completed a questionnaire on age, gender, health and work experience, using WEMS (Work Experiences Measurement Scale), and SHIS (Salutogenic Health Indicator Scale). WEMS and SHIS are validated instruments, which give indexes for work experiences and salutogenic health indicators, respectively. WEMS also contains six subdomains of work factors. The WEMS and SHIS indexes were standardised to range from 0 to 100% (from most negative to most positive work experiences and health, respectively). Differences between professional groups were tested with ANOVA. Multiple regression with SHIS as a dependent variable was used to study the relation to positive work experiences.

### Results

SHIS was higher among health care staff (71%) compared to administration (62%; p < 0.05). WEMS showed marked differences between professional groups. The subdomain Time experience was 62% among nurses compared to 38% among physicians and 51% among managers (p < 0.01). Autonomy, another subdomain of WEMS, was lower among the assistant nurses and nurses (50–56%) compared to managers (71%; p < 0.01). The regression analysis showed that 33% of the variation in SHIS could be explained by WEMS. Three subdomains of WEMS significantly contributed to the regression model.

### Conclusions

Reports of positive work experiences relate to salutogenic health. The discriminatory ability of WEMS should make it possible to individualise health promotion programs in relation to professional groups. The health outcome related to health promotion efforts could be evaluated by SHIS. The results are promising but studies in other contexts are necessary to review the usefulness of these instruments.

## Combining work and care: a new light on effective strategies and long term experiences with a pilot intervention to affect these

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### Background

The amount of evidence about the mostly negative consequences of interference between the work and non-work domain is huge. In spite of this, the evidence-base for strategies applied by employees and effective interventions is limited across Europe. The KIK training was developed for workers who experience stress in combining work and care tasks and aims to raise the participants' awareness of their attitudes and line of thinking, behavioral change and the improvement of their communicative and practical skills in combining work and care. The purposes of this qualitative study were 1) to explore the experiences of the participants with the training, 2)

to investigate the different strategies participant use to deal with work life balance and 3) to investigate the extent to which the training reached its goals.

#### Methods

Three months and 2 years after the training semi-structured interviews were held with 10 participants, all female and all teachers and having children. Open-ended questions were asked about problems and experiences in combining working and caring, and the extent to which the training had influenced awareness and behavior. The interviews were transcribed verbatim and analyzed thematically, using the stages of change model of Prochaska & DiClemente (1985) as a theoretical framework.

#### Results

Results showed that there is a large variety in the problems participants experience in the combination of work and care. Overall, the experiences during the training were positive and participants reported changes in attitudes and thinking (“training anticipated on my needs”, “training made me more aware”). Actual changes in behavior were reported as well, but less often.

#### Conclusions

We conclude that 1) problems experienced and strategies applied vary widely, 2) given this variety, the results of this training are promising, 3) more intensive training seems necessary for sustainable behavior change. More qualitative and cross-cultural research regarding the work-home-interference concept is warranted in order to develop high-quality interventions. In line with EU policies aimed at improving work life balance (European Commission, 2008) we recommend more evidence based and innovative public health interventions for balancing work and private life.

### Assessment of needlestick and sharp object injury risk among health personnel in hospitals of a university in Ankara

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#### Background

High prevalence of injuries with respect to blood-borne infections poses an occupational health problem among

health personnel. Students and newly graduates are especially at risk, because of their limited clinical experience. This study aimed to investigate needlestick and sharp object injuries among health personnel in the teaching hospitals of a university.

#### Methods

The study population consisted of 1750 health personnel (855 nurses, 606 residents and 289 interns), working in three teaching hospitals of a university in Ankara. All the interns were included in this cross-sectional study, whereas the minimum sample sizes for the nurse and resident groups were calculated as 250 participants each ( $p=0.80$ ,  $d=0.05$ ). The final study group included 781 health personnel (287 residents, 261 nurses, 233 interns), where stratified sampling with respect to the departments was used. Infection control unit records and questionnaires were used to collect data. In data analysis, SPSS 15.0 was used to perform descriptive statistics, chi-square and one-way ANOVA.

#### Results

The mean duration of clinical practice was highest for the nurses ( $9.2 \pm 7.0$  years), lowest for the interns ( $7.1 \pm 1.0$  months), and in between for the residents ( $2.7 \pm 1.3$  years) ( $p < 0.05$ ). Prevalence of risky injuries in the past year was 18.5% in residents, 25.7% in nurses, and 50.4% in interns ( $p < 0.05$ ), whereas notification of those injuries to the infection control unit ranged between 17.9–33.9% ( $p > 0.05$ ). The main reasons for under-reporting were heavy workload and not attaching importance to the size of injury. The prevalence and notification of injuries were not found to differ with respect to previous training on prevention and management of injuries ( $p > 0.05$ ).

#### Conclusions

Health professionals need specific competences on patient safety and their own safety. It is not unusual for interns to experience more injuries than experienced health personnel; however, the high annual prevalence (50.4%) indicates to a need for more skills training and supervision before and during clinical practice. Under-reporting of injuries despite previous training shows that the quality of trainings need to be improved and other ways should be explored for notification systems to be more practical and functional.

## M.2. CHRONIC DISEASE MORTALITY

### Mortality atlas as a useful tool for detecting unexpected spatial patterns of mortality in Poland

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#### Background

Maps are useful tool for uncovering and reporting spatial distribution of mortality level across the country. Our work is the first analysis of spatial distribution of mortality on small area level in Poland. The results revealing patterns of mortality from different causes will be a groundwork for investigating sources of huge differences between regions and a tool for health policy makers.

#### Methods

Maps of standardized mortality ratios (SMR) presenting mortality from wide number of causes in years 2008–2010 on district (powiat) level were created. Poland is divided into 379 districts with mean population about 100 000. Database

containing information about number of deaths in each district with respect to gender and age was created on the basis of individual death records obtained from Central Statistical Office. Smoothing of original SMR data to reveal spatial trends in mortality was done using Besag-Yorke-Mollie model. Results are presented as maps of original and smoothed SMRs accompanied with a list of the less and the most favorable regions.

#### Results

Results for two selected cardiovascular diseases: cardiac arrest (ICD-10: I46) and heart failure (ICD-10: I50) for males 0–64 and for all colorectal cancer (ICD-10: C53) for males 65+ years are presented. Mortality level from both of selected causes of death presents clear spatial pattern. However underlying reason seems to be different. For cardiovascular causes it seems that maps are showing some inconsistency in assigning code of death, that can be corrected by training of physicians responsible for assigning cause of death. Mortality rates of cervix uteri show spatial trend with the lowest level of mortality in South-East and the highest in North-West Poland. Reason of such a trend is unknown and should be a matter for more deep investigation.



## Conclusions

Mortality maps can help identify patterns in spatial differences in mortality level, which can suggest directions of the causes of such differences and help formulate health programs to reduce such health inequalities. Application of modern spatial statistics techniques is helpful in analysis of trends in mortality across the country.

## Acknowledgements

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## Alcoholic liver cirrhosis mortality in Estonia in 1996–2010

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## Background

Alcohol consumption is an important contributor to the high premature mortality rates. Liver cirrhosis mortality rates are associated with alcohol consumption in the general population and are used as an indicator of excessive drinking. The aim of this study was to describe trends in alcoholic liver cirrhosis mortality rates in 1996–2010 and to examine socio-demographic differences in alcoholic liver cirrhosis mortality in Estonia.

## Methods

Individual records of deaths from alcoholic liver cirrhosis among 25–64-year olds in 1996–2010 in Estonia were analysed. Age-standardized mortality rates for men and women aged 25–44 and 45–64 were calculated. Association between alcoholic liver cirrhosis mortality and socio-demographic variables (age, education and ethnicity) for the data of the years around the census in 2000 was measured by mortality rate ratios using Poisson regression models.

## Results

During the whole study period, alcoholic liver cirrhosis mortality rates were higher among men than in women and in the older than in the younger age group. In 1996–2008, age standardized alcoholic liver cirrhosis mortality rate per 100 000 increased from 9.7 to 43.6 among men and from 2.2 to 17.3 among women. Thereafter mortality from alcoholic liver cirrhosis decreased to 32.5 for men and 11.5 for women in 2010. In 1998–2001, higher alcoholic liver cirrhosis mortality rates occurred in non-Estonians and those with lower levels of education. Compared with Estonians, mortality from alcoholic liver cirrhosis was 1.68 (95% CI = 1.32–2.14) times higher among non-Estonian men (RR = 2.07, 95% CI = 1.50–2.84 among women). Compared with highly educated adults, the risk of dying from alcoholic liver cirrhosis was 1.66 (95% CI = 1.10–2.50) times higher among men with secondary and 2.49 (95% CI 1.62–3.81) times higher among those with basic education (RR 2.54, 95% CI = 1.35–4.75 and RR = 4.89, 95% CI = 2.55–9.41 among women, respectively).

## Conclusion

In 1996–2008, mortality from alcoholic liver cirrhosis increased steeply and thereafter decreased. National alcohol policies should address all strata of society, but special attention should be paid to non-Estonians and people with low levels of education.

## Epidemiology and survival of colorectal cancer in the Arkhangelsk region, Russia

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## Introduction

The incidence of colorectal cancer (CRC) has been steadily increasing both in Russia and worldwide. The Arkhangelsk regional cancer registry (ARCR) was established in 1997. From 2000, all new cases of CRC with demographic data, tumor characteristics and outcomes are registered in ARCR providing unique opportunities for research.

## Objectives

to assess the incidence of CRC in the Arkhangelsk region, Northwest Russia in 2000–2009 and to study factors influencing survival.

## Methods

A historical cohort study. New cases of CRC in the Arkhangelsk region in 2000–2009 and their characteristics were extracted from ARCR. Size of population was obtained from the Regional Bureau of Statistics. Standardized Incidence and mortality rates were calculated per 100 000 using standard world population. Survival was assessed by Cox regression. Age, gender, stage, localization and place of residence (rural/urban) were included in the models as independent variables.

## Results

During the study period, 5582 new cases of CRC occurred (58.5% females). Stages 0, 1, 2, 3, and 4 were registered in 4.5%, 7.1%, 13.1%, 35.4%, and 25.9% of patients, respectively, and in 14% (784) cases stage of CRC was not registered. Cancer The incidence increased from 31.7 per 100,000 in 2000 to 40.9 per 100,000 in 2009. Mortality decreased from 21.5 per 100,000 in 2000 to 20.0 per 100,000 in 2009. The survival was significantly influenced by stage and localization of primary tumor (both at  $p < 0.001$ ) adjusted for all independent variables.

## Conclusions

Incidence of colorectal cancer in Arkhangelsk region of Russia increased during the last ten years while the mortality slightly decreased. Stage and localization of primary tumor were associated with survival.

## Epidemiology of and survival from stomach cancer in the Arkhangelsk region, Northwest Russia in 2000–2010

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## Background

Stomach cancer is one of the most prevalent types of cancer worldwide. The aim of the study was to estimate stomach cancer incidence, mortality, survival and its predictors using data from the Arkhangelsk Regional Cancer Registry (ARCR).

## Methods

ARCR is a well-established population based cancer registry in the Arkhangelsk county, Northwest Russia. All cases of stomach cancer were extracted from ARCR. Population size was obtained from the Regional Bureau of Statistics. Standard World Population was used for calculation of the age-standardized mortality and incidence rates. Survival was estimated with the use of Cox Regression analysis. The potential predictors were age, sex, setting, site and stage of stomach cancer.

## Results

Altogether 5926 primary cases of stomach cancer were registered during the study period. Women and men constituted 2658 (44.9%) and 3268 (55.1%) cases, respectively. Advanced stage of the disease (stage 3–4) was found in 3804 (64.2%) of primary diagnosed stomach cancers. In 18.0% of records stage was missing. Age-adjusted incidence decreased

from 32.9 in 2000 to 25.2 per 100,000 in 2010. Age-adjusted mortality increased from 13.3 to 20.5 per 100,000 in 2000–2010. One-year cumulative survival was 27% for both sexes, and five-year cumulative survival was 18% for women and 17% for men, although no significant difference between sexes was found. Median survival was 6 months (CI 95% 5.6–6.4). Stage of the disease was a significant survival predictor ( $p < 0.0001$  CI 1.56–1.68).

#### Conclusions

Age-adjusted incidence of stomach cancer decreased in 2000–2010 in Arkhangelsk region, and age-adjusted mortality increased. Male patients diagnosed with the advanced stage of stomach cancer constituted a majority of cases. Survival did not differ significantly among men and women. The stage at the diagnosis was the only significant survival predictor.

### Eighteen-year risk of all-cause and cause-specific mortality associated with serum leukocyte count: European Prospective Investigation into Cancer Norfolk Study

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#### Background

Serum leukocyte count is a marker of general systemic inflammation. Investigating its association with risk of all-cause and cause-specific mortality helps in better understanding the role of inflammation in aging. Moreover, as a widely available, inexpensive test, it may have a role in risk prediction.

#### Methods

Men and women aged 40–79 were recruited, from 1993–97, to the European Prospective Investigation into Cancer in Norfolk (EPIC-Norfolk) study. Among 16,463 men and women with available serum leukocyte count measurement who were free of prevalent cancer, myocardial infarction and stroke at baseline, 2,607 deaths from all-causes (813 from cardiovascular disease, 1,040 from cancer, and 754 from other causes) were observed after 229,585 person-years of follow up. Study follow up was on average 14 years and was up to 18 years after recruitment. Association of leukocyte count (categorized into fifths of the baseline distribution) and all-cause mortality was tested using Cox-proportional hazards regression analyses adjusted for age, sex, body mass index, smoking, Physical activity, alcohol intake, systolic blood pressure, total cholesterol, social class, history of diabetes, menopausal status and hormone replacement therapy. Competing risks models adjusted for the same covariates were used for cause-specific mortality.

#### Results

There was a positive and linear association between baseline leukocyte count and risk of death from various causes. The hazard ratio (HR) of death comparing extreme fifths of baseline leukocyte count (i.e., over 7.8 compared to below 5 thousand/ $\frac{1}{4}$ L) was 1.32 (95% CI 1.16–1.51;  $P$ -value for trend  $< 0.001$ ) for all cause mortality. The corresponding hazard ratio was 1.38 (95% CI 1.08–1.75;  $P$  for trend 0.01) for cardiovascular disease mortality, 1.24 (95% CI 1.00–1.52;  $P$  for trend 0.14) for cancer mortality, and 1.39 (95% CI 1.09–1.77;  $P$  for trend 0.004) for mortality from other causes. In sex-specific analyses the trend of the association was positive in both men and women but was less graded in women than in men for all types of mortality.

#### Conclusion

Leukocyte count is a powerful predictor of risk of all-cause and cause-specific mortality independent of known risk factors.

### Association of C-reactive protein with risk of all-cause and cardiovascular disease mortality: European Prospective Investigation into Cancer Norfolk Study

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#### Background

Serum C-reactive protein (CRP) was positively associated with mortality in previous cohort studies. However, potential sex differences in the association have not been sufficiently explored.

#### Methods

Men and women aged 40–79 were recruited from 1993–97 to the European Prospective Investigation into Cancer in Norfolk study. Of the 16,850 participants with available serum CRP information who had no known cancer, myocardial infarction and stroke at baseline, 2,815 all-cause deaths (1,550 in men) and 878 cardiovascular (CVD) deaths (495 in men) were observed after 245,136 person-years of follow-up (median 14.5 years). Association of serum CRP and all-cause mortality was tested using Cox-proportional hazards regression analyses adjusted for age, body mass index, smoking, physical activity, alcohol intake, blood pressure, total cholesterol, social class, diabetes, and (in women only) menopause and hormone replacement therapy. Competing risks models adjusted for the same covariates were used for cardiovascular disease mortality.

#### Results

In both sexes, baseline serum CRP levels were positively associated with risk of all-cause and CVD mortality independent of known risk factors. The trend of the association was less graded in women compared to men. In categorical analyses, the hazard ratios of all-cause mortality for participants with CRP levels 0.6–1; 1.1–2; 2.1–3; 3.1–10; and above 10 mg/L compared to below 0.5 mg/L (referent category) were 1.11 (95% CI 0.89–1.38), 1.23 (1.00–1.51), 1.33 (1.06–1.66), 1.59 (1.30–1.96), and 1.94 (1.50–2.51) in men and 0.96 (0.76–1.21), 1.00 (0.81–1.24), 1.07 (0.84–1.36), 1.31 (1.05–1.63), and 1.83 (1.39–2.40) in women, respectively. The corresponding hazard ratios for CVD mortality were 1.27 (0.81–2.00), 1.54 (1.01–2.34), 1.94 (1.25–2.99), 2.25 (1.49–3.40), and 2.14 (1.27–3.60) in men and 1.10 (0.71–1.71), 1.06 (0.70–1.61), 0.98 (0.62–1.56), 1.35 (0.89–2.05), and 2.34 (1.42–3.85) in women, respectively.

#### Conclusion

CRP is a strong predictor of risk of all-cause and CVD mortality even after controlling for known risk factors. However, the trend of the association appears to be different in men and women. The differential association by sex may provide insights into the sex difference in CVD and requires further exploration.

### Public Attitude Towards Colorectal Cancer Screening

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#### Background

Colorectal cancer (CRC) is the second most commonly diagnosed malignant neoplasm for both sexes combined in developed countries. Studies have shown that although the incidence of CRC is increasing, participation in screening programmes is low. Understanding reasons for non-participation is crucial when designing a screening programme. A study was designed to measure the knowledge, attitudes and behaviour of a sample of Maltese residents towards CRC screening prior to the introduction of the national CRC screening programme. In this abstract only the part of the study that dealt with attitudes will be discussed.

**Method**

A cross-sectional telephone survey was conducted on a stratified, random sample of 430 Maltese residents aged 40 years and over. The self-administered questionnaire which was used in a similar study, in Italy, was adopted into a structured household telephone interview and used for the current study. Bivariate tests and multivariate logistic linear regression were used to test possible associations.

**Results**

The means score for perceived risk of developing CRC was 5.4 (95% Confidence Interval (CI): 5.2–5.6) and for personal belief in the utility of screening test to prevent CRC was 8.2 (95% CI: 8.0–8.3). With regards to the attitudes, 66.5% and 87.7% respectively claimed that it is possible to prevent and treat

CRC. Variables which were statistically significantly associated with a positive attitude towards the utility of screening tests to prevent CRC were: gender, education, body mass index, CRC knowledge, perceived CRC risk and intention to participate in CRC screening using FOBT.

**Conclusion**

Improving the attitude towards CRC screening, on its own, might not be enough to increase participation in screening. This study has also found significant differences between those who believe in CRC screening tests utility and those who do not. This highlights some characteristics of a possibly vulnerable group in this area and it emphasises the need to delineate population subgroups to target and tailor health-related messages based on respondent characteristics.

## N.2. INFECTIOUS DISEASES 2

### Screening by faeces PCR in an outbreak of Hepatitis A in day care centres in day care centres

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HAV PCR on faeces can be a useful tool for investigating HAV outbreaks, especially in low endemic countries. This abstract describes the use of HAV faeces PCR as a non invasive tool for screening. Two Dutch children visiting separate day care centres were diagnosed with hepatitis A in 2011. A systematic contact investigation was started in the day care centres and relevant contacts were screened. HAV faeces PCR was used to screen the children. The employees were screened with a serum IgM. The HAV PCR on faeces proved to be an appropriate tool for screening. The screening of a total of 135 children and employees in the day care centres resulted in evidence of 8 asymptomatic infections and transmission to 3 related day care centres. Control measures were taken including immunisation. As compared to an epidemiological investigation without screening, 144 extra contacts were vaccinated based on the screening results. This most likely led to improved prevention of expansion of the outbreak.

This outbreak description is accepted for publication in epidemiology and infection

### Risk behaviours for sexually transmitted diseases among prisoners in Serbia

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**Background**

Sexually transmitted diseases have become an important medical problem in prisons. Individuals who are infected with STDs are at least two to five times more likely than uninfected individuals to acquire HIV infection if they are exposed to the virus through sexual contact. Accurate information on the prevalence rates of STDs and frequency of risk behaviours is a prerequisite for preventive strategies, healthcare planning, and clinical interventions. The aim of this study was to identify the risk behaviours for sexually transmitted diseases of prisoners in Serbia.

**Methods**

A cross-sectional study was conducted from January to June 2010 on a representative sample of 599 prisoners aged 18 years and more (530 males and 69 females), in 16 prison facilities in Serbia. Data were collected through specifically structured questionnaire.

**Results**

Almost three quarters (72.2%) of the prisoners had sexual intercourse in the last 12 months preceding the survey. Significantly smaller percentage of inmates who had sex in the last 12 months was noted in women (51.6%), persons aged 50 years and over (55.7%), and in people who have no spouse or common-law partner (62.9%). Also, the percentage of sexually active persons decreases with length of stay in a prison facility. One in six prisoners (16.3%) had sex with irregular partner. While sex with irregular partner had nearly one in five men (18%), women do so in a significantly lower percentage (3.2%). Also, the frequency of sexual relations with irregular partners declines with ages. Nearly every fourth person (22.1%) aged 25 to 34 years had sex with irregular partner, as opposed to people over 50 years where the number has significantly decreased. The average number of irregular partners for inmates who had sexual intercourse with irregular partners is 3.4. 50% of female prisoners engage in risky sexual behaviour in terms of irregular use of condoms with occasional partners, which represents a significantly greater percentage ( $p < 0.05$ ) than male prisoners (22.7%).

**Conclusions**

The study confirmed risk behaviours for sexually transmitted diseases among prisoners, what represents a profound challenge to healthcare professionals and to prison authorities to create specific preventive programmes.

### EurSafety Health-Net: development of an euregional infection control quality certificate for nursing homes in the Dutch-German border region

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**Introduction**

Healthcare-associated infections (HAI) pose a substantial risk for elderly people. Thus, especially nursing homes are bound to address and manage this problem. Moreover, healthcare infrastructure and medical treatments are interlocked and exchange of patients is frequent between healthcare facilities. Consequently, infection prevention strategies, which cross both healthcare-sectors and regional borders, are to be established.

The setup of networks, bringing healthcare stakeholders together, has proven to be a valuable means in order to foster infection prevention and patient safety. The project

EurSafety Health-net has been launched in 2009, covering the whole Dutch German border region. Regional quality-networks have been established in which e.g. representatives of nursing homes, hospitals and local health authorities cooperate in order to align infection prevention strategies across the border.

#### Methods

Within this framework, a multi-step plan consisting of infection control quality criteria for nursing homes has been composed, which is complementary to the certificate for acute care hospitals ([www.eursafety.eu](http://www.eursafety.eu)). Aim of this multi-year cross-border project is to implement a complete infection control program for nursing homes in a step-by-step fashion. The quality criteria were designed in order to improve infection control practices and focuses on structural and process quality.

A quality certificate is awarded to those facilities that meet the criteria. Consultation and quality audits are carried out by audit-teams and local health authorities. Participation and certification are depicted on a website accessible for the public.

#### Results

The first set of ten quality criteria for Dutch and German nursing homes has been defined and includes e.g. the setup of an infection control committee, setup and implementation of infection control guidelines, continuous education of health care staff and surveillance of HAIs.

#### Conclusion

The EurSafety Health-net quality program for nursing homes stimulates setup and implementation of strategies to prevent HAIs, integrates and connects these facilities with other healthcare providers and publicly illustrates the additional efforts undertaken to improve the patient safety.

### Viral and bacterial infections in children with acute gastroenteritis in Arkhangelsk Region, Northwest Russia, 2008–2011

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#### Background

A burden of acute gastroenteritis is high worldwide. In Northwest Russia a detection of pathogens which cause diarrhea is limited by bacteriological tests. Modern diagnostic technologies are inaccessible due to low hospital budgets. Number of acute cases of gastroenteritis, which were diagnosed in Arkhangelsk region in 2011, was 4483. Etiology of 2955 of them was undetected. The aim of this study was to determine the frequencies of viral and bacterial infections in children with acute gastroenteritis in Arkhangelsk Region.

#### Methods

Results of all multiplex polymerase chain reactions (PCR) tests of stool samples performed by virologic laboratory in Arkhangelsk were included in an analysis. Frequencies were calculated. Confidence intervals for proportions were computed with a Wilson procedure. Person Chi-Square test was used to analyze nominal data.

#### Results

A total of 149 stool samples were analyzed using multiplex PCR in Arkhangelsk region between 2008 and 2011. All patients were children admitted to the hospital with acute diarrhea. Etiology was determined in 85.9% (128/149) of the cases, 95% CI = 79.4–90.6%. Mono-infections were revealed in 61.1% (91/149) of the cases, 95% CI = 53.1–68.5, among them 92.3% (84/91) were viral infections. Rotavirus was the most common detected agent, 52.7% (48/91), while norovirus was found in 29.6% (27/91), adenovirus in 5.5% (5/91), astrovirus

in 4.4% (4/91), salmonella in 5.5% (5/91), campylobacter in 2.2% (2/91). Associations of rotavirus + norovirus / astrovirus, norovirus + astrovirus were detected in 67.7% (21/31) and 16.1% (5/31), respectively. Viral infection were revealed in children under one year more frequently,  $\chi^2(1) = 9.58$ ,  $p = 0.002$ . The rate of coinfections was equal for the children under one year and older,  $\chi^2(1) = 0.57$ ,  $p = 0.45$ . Seasonal distribution of viral infections was unequal,  $\chi^2(3) = 16.06$ ,  $p = 0.001$ . In winter season 52.1% (63/121) of viral infections were confirmed, while in spring-20.7% (25/121), in summer-9.1% (11/121), in autumn-18.2% (22/121).

#### Conclusions

Viral agents are the most common cause of acute gastroenteritis in young children. A great number of diarrheas are remained unconfirmed due to poor diagnostics.

### Unpleasant and stinking hosts

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#### Background

Feet can suffer of several pathologies due to bacteria/fungal infections. Discomfort can be determinate by uncomfortable/tight shoes which can injure the feet and by the increase of bacteria/fungi due a reduction of the escape of the sweat into the air. Good hygiene is the first step in maintaining the feet in good health. While socks can easily be washed and disinfected, shoes, in many case, can not. For this reason procedures and substances which can hygienize the inner part of the shoes are a relevant aspect of primary prevention against foot infections and from strong odor. The aim of the study is to evaluate the effectiveness of a hygienic compound for shoes in the reduction of bacteria/fungi contamination.

#### Methods

This is an ongoing study in which few subjects are treating for 5 consecutive days one of their shoes, with a natural guar compound for reducing the load of bacteria, and did not treat the other shoes. An overall of 40 samples per shoe have been collected and investigations have been conducted on overall bacteria count at 22 and 36°C, and for Staphylococci, Pseudomonas aeruginosa (PA), Enterococci (Ent), Escherichia Coli (EC), and fungi. The Wilcoxon matched pair test was used to assess statistical differences ( $p < 0.05$ ) between the treated/not treated shoes.

#### Results

Early results showed a decrease of the bacteria/yeasts and molds counts in the treated shoes compared to the untreated ones in all the comparisons. Reduction was statistical significant for overall bacteria count at 22°C ( $p = 0.043$ ), 36°C ( $p = 0.043$ ) and for Coliforms ( $p = 0.0422$ ). Reduction was obtained also on molds ( $p = 0.0782$ ), ranging from 3 to 0 Colony Forming Unit (CFU) 0.1 ml for the treated shoes versus 42 to 13 CFU 0.1 ml, on the untreated ones. EC decreased ( $p = 0.0897$ ), the treated shoes had a maximum of 2 CFU 0.1 ml versus a mean of 18 CFU 0.1 ml on the untreated shoes. PA was not found in any shoes.

#### Conclusion

The intervention can reinforce personal hygiene in reducing bacteria/fungi contamination. It could be useful i) to study a larger population to obtain more stable results, ii) to verify the possible advantages on people which are at higher risk/consequences of feet infection, such diabetes patients and iii) to estimate the cost/benefits of such intervention.

## Climate variations and Salmonella infection in Astana, Kazakhstan: a time-series analysis

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### Background

Several studies have reported associations between enteric infections and climatic factors, but most of them were conducted in Europe, North America and Australia warranting further research in other settings. The objective of the study was to investigate associations between Salmonella infection and ambient air temperature and precipitation in Astana, Kazakhstan.

### Methods

Data on all laboratory-confirmed cases of Salmonella infection in the city of Astana from 2000–2010 were obtained from the regional infectious diseases surveillance centre. Associations between monthly counts of cases and climatic variables with lags 0–2 were studied by negative binomial regressive models with dichotomous indicator variables for each year and month to control for long-term trends and seasonality. The model was adjusted for first- and second order autocorrelation. “Hockey-stick” models were also applied to logarithmically transformed monthly counts to detect a threshold of the effect of mean temperature on monthly counts of Salmonella infection to ensure comparability with the European studies.

### Results

We observed a linear association between the number of reported cases of Salmonella infection and mean monthly temperature with lag 0 across the whole range of temperatures. An increase by 1°C was associated with a 5.3% (95% CI: 2.1–8.6) increase in the number of cases in the same month. An increase in precipitation by 1 mm was associated with a 0.5% (95% CI: 0.02–1.0) increase in the number of cases of Salmonella infection two months later. No thresholds were detected by the “hockey-stick” models for either temperature or precipitation.

### Conclusions

Higher temperatures are associated with higher monthly counts of Salmonella infection in Astana, Kazakhstan. Moreover, higher precipitation was associated with higher counts of salmonellosis two months later. Potential mechanisms behind the associations will be discussed. The results may have implications for the future patterns of enteric infections in the Republic of Kazakhstan related to climate change.

## Urinary tract infections in neurological rehabilitation settings: another hot topic for ESBL positive pathogens

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### Background

Extended spectrum beta lactamases producing pathogens (ESBL+) represent an alarming threat that has spread worldwide since the first description in the '80. ESBL+ are frequently isolated from intensive care units (ICU), but a large and underestimated involvement in urinary tract infections (UTI) in all clinical settings has been suspected, in particular by *Klebsiella pneumoniae* (Kp) ESBL+. Here we present a retrospective study conducted in a medium- and long-stay neurological unit.

### Methods

The “Giuseppe Verdi” Hospital is a rehabilitation center for patients with spinal cord lesions in the Northern Italy.

The Hospital database was retrospectively retrieved for all urine specimens identified as positive between 2009 and 2011; their antibiotic resistance phenotype was then analyzed. Risk factors (e.g. length of the hospital stay, urinary sphincter status, diabetes) were also retrospectively retrieved.

### Results

During the observation period, 288 patients were admitted (mean age: 55.9 ± 19.8 years), 97 of them with at least a positive urinary sample (period prevalence of 33.0%): 24 subjects were ESBL+ (in total 57 ESBL+ specimens; incidence of 8.3%, period prevalence of 19.8%). Kp-ESBL+ was identified in 19 patients and 40 specimens (incidence of 6.6% and period prevalence of 13.9%). ESBL+ patients were more frequently males (18 vs 6 females, Chi-sq. test  $p$  value = 0.0154) and usually younger than ESBL- negative (40.8 ± 18.5 years vs 56.4 ± 19.8 years, Student's  $t$  test  $p$  value < 0.0001). Previous diagnosis of diabetes or COPD had a similar prevalence on both ESBL+ and ESBL- subjects. Twelve ESBL+ patients (10 of them Kp-ESBL+) were previously ( $\leq$  30 days) admitted to ICU (Chi-sq. test  $p$  value = 0.0052), whereas in 9 cases (37.5% of ESBL+ cases) a recent hospital stay was unnoticed, suggesting community onset infections.

### Conclusions

The emergence of multidrug-resistant pathogens poses a serious health threat, usually underestimated in settings other than ICU. Neurological care units, usually associated with long hospital stay, high frequency disorders of urinary sphincter requiring permanent urinary catheters, previous hospitalization in high risk settings, should require a high level of attention, implementing surveillance and control measures.

## A Norovirus outbreak from raw oysters in a New Year's Eve Dinner in Malta

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### Introduction

An outbreak (OB) of Norovirus (NV) affected 44 persons who had attended a New Year's Eve Gala Dinner in 2007. A cohort analysis confirmed the hypothesis of a link between eating raw oysters and developing the illness.

### Methodology

- A cohort study was done using a preset questionnaire and a telephone interview
- Possibly exposed persons present for the dinner were 270 and the cohort represents 16% of this group
- Environmental investigation of the hotel performed
- Analysis was done using Epi Info Version Six

### Hypothesis

Persons who attended this function and ate raw oysters were more likely to become ill with norovirus.

### Demography

Out of 270 persons, 84 (31%) were interviewed by telephone, 44 met the case definition. Mean age 42.8yrs and range 12–69 yrs, 21 were males and 23 females.

### Results

- Food and water samples had normal microbiological features
- FRNA bacteriophage = 16 830 pfu/100 g in oyster sample from hotel
- Same (to OB) batch raw oysters: Norovirus Gr I and Gr II positive
- 21 stool samples tested positive for Norovirus using RT-PCR
- 28 stool samples bacteriologically negative
- Oysters bacteriologically negative (including *V. parahaemolyticus*)

**Public Health Actions**

- Same batch oysters were withdrawn
- Press release and journalists' questions addressed
- RASFF and EWRS notification

**Discussion**

- Analysis indicated a strong association with raw oysters (RR 73.3,  $p < 0.0001$ , 95% CI 9.02–595)
- GII.3 genotype from stools and oysters from the hotel were identical!
- Cohort attack rate was 52%
- Normal microbiological examination of hotel food, water and oyster samples suggests that contamination at the hotel was unlikely
- High counts of FRNA bacteriophage in hotel oyster samples suggests viral contamination early on in their production when depuration would have eliminated bacterial elements

**Conclusions**

- It was shown that the NV OB was caused by contaminated raw oysters
- Genetic variability of NV is common and typical
- Oysters can be a risk factor to NV disease when eaten raw

**Recommendations**

- All possible actions for preventing contamination at breeding and harvestings waters should be made
- Cooking oysters eliminates any risk of viral contamination

**Addressing MRSA bacteraemia in high endemic settings**

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**Introduction**

The Mediterranean region is characterized by a very high prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Indeed, with the exception of France, every Mediterranean country participating in EARS-Net reported that more than 25% of *Staphylococcus aureus* isolates from blood cultures to be methicillin-resistant.

**Methods**

In order to understand the epidemiology of these infections within Mater Dei Hospital, Malta, root cause analysis (RCA) was undertaken. Following every MRSA bacteraemia reported in 2011, a meeting was held between the infection control team and medical and nursing professionals responsible for the patient's care. Case details were reviewed and possible presumptive causes identified.

**Results**

A total number of 26 RCAs were performed in 2011. Three aetiologies were identified to be the most important and accounted for a total 83% ( $n = 20$ ) of cases during the year. Central venous catheters (CVC), in the form of non-tunneled temporary haemodialysis catheters as well as short duration catheters were the identified predisposing factor for 58% ( $n = 11$ ) of cases. 25% of MRSA bacteraemias ( $n = 9$ ) followed inflammation at peripheral venous catheters (PVC).

Discussion: Intravenous devices, both peripheral as well as central, are the key factors associated with MRSA bloodstream infections. As a result Mater Dei Hospital has implemented specific initiatives aimed at ensuring better care of peripheral venous catheters, emphasizing on a maximum 72 hour duration. An intensive drive has also been undertaken to reduce non-tunneled haemodialysis catheters in renal patients and replace them with tunneled equivalents or permanent access. A policy has been implemented to improve care of central venous catheters using evidence based care bundles.

## P.2. TOBACCO

**Evaluation of a smoking cessation intervention designed for Spanish nurses**

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**Background**

The smoking prevalence in Spain, one of the highest in Europe, is of concern and it is imperative that action is taken. Nurses, as the largest group of professional health care workers, are expected to make a contribution to tackle it. However, a very high proportion of Spanish nurses are smokers. Given the implications that this has, it is vital to identify interventions to help nurses quit smoking. Following the Medical Research Council's (MRC) Framework for Complex Interventions, a smoking cessation intervention for female nurses was developed informed by the knowledge gained from previous stages. This presentation reports on the piloting stage; evaluation of the intervention's efficacy, acceptability and feasibility.

**Methods**

The study was undertaken at Clínica Universidad de Navarra (CUN; Clinic of the University of Navarra) in Spain. The study subjects were 30 nurses that worked at the clinic and were smokers. They were randomised into intervention ( $n = 15$ ) or control group ( $n = 15$ ) after gaining their consent. Nurses in the intervention group participated in four individual motivational interviewing sessions. The control condition consisted of brief advice to quit smoking. Outcome measures were: cessation (biochemically verified), number of cigarettes

smoked, Prochaska's stage of change, self-efficacy, depression and satisfaction with the help received. In addition, the fidelity with which motivational interviewing was delivered was assessed.

**Results**

At three month follow up, intervention group nurses had a greater likelihood of quitting (odds ratio, OR 9.33; 95% CI = 0.96–90.94). Among the nurses who did not quit, change in mean of cigarettes smoked did not differ much in both groups, whereas progress in the stages of change was more intense in the intervention group than in the control group. The intervention was accepted by the nurses. Despite the demanding nature of motivational interviewing, the conduct of the study with this sub-population was feasible.

**Conclusions**

The intervention piloted showed efficacy, and was acceptable and feasible. The adoption of the MRC Framework enabled gaining a deep understanding of the phenomenon which in turn contributed to theoretical building that led to the development of an intervention that resulted successful.

**How successful is Turkey in MPOWER implementations?**

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Monitor tobacco use and prevention policies: Tobacco use prevalence is monitored through GATS (2008 and 2012), GYTS (2003 and 2009) and health professional survey (1997 and 2011). Preventive policies are followed by the Provincial

Tobacco Control Boards through regular inspections, implementing fines and publishing reports. But follow-up of the tobacco industry activities was not sufficiently done.

Protect people from tobacco smoke: By amending the Tobacco Control Law, smoking was banned at all closed places including hospitality venues and commercial taxis, and Turkey became one of the first complete smoke-free countries in the world since July 2009.

Offer help to quit tobacco use: Presently 400 smoking cessation centers give smoking cessation service, at Ministry of Health establishments and universities. In addition, a 24-hour free quitline service was in operation since 2010. Ministry bought 250 thousand doses of smoking cessation drugs and distributed to those in need in order to support smoking cessation services.

Warn about the dangers of tobacco: Health warnings on the tobacco packages were printed since 1988 and, picture warnings were added since May, 2010. All TV channels broadcast 90 minutes a month on hazards of tobacco use since 1996. By the amended Law in 2008, more effective messages and films are being broadcasted mostly at daytime.

Enforce bans on tobacco advertising, promotion and sponsorship: Advertisement and promotion of tobacco products were banned since 1996, and the amended law banned in 2008. Violations in this field are traced and fines implemented.

Raise taxes on tobacco: Turkey has one of the highest taxes in the world, 80.3%. Special Consumption Tax was increased twice during the last years, and cigarette prices increased considerably. Nevertheless, prices are still relatively low compared to most of the European countries.

Conclusion: Turkey was found as successful in 5 out of 7 criteria by WHO.

### First Year Success Rates of a Community Based Smoking Cessation Clinic in Izmir Turkey

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#### Background

Tobacco is the most important preventable cause of mortality. Our department of Public Health at the Dokuz Eylül University has started a smoking cessation clinic within the BAK Project, which is a community based prevention of heart disease and health promotion. The aim of this presentation is to evaluate the success rate of the clinic at the end of the first year.

#### Methods

The clinic has started its activities 2009 with a community based understanding. Primarily, the smokers who have medium or high risk Framingham scores, which were assessed earlier in the BAK project, were invited to the clinic. A team of community health support group, a psychologist, a nurse and a physician served in the clinic. The services and pharmacotherapy was available free of charge when needed. The patients were invited regularly for follow-up and counseling was provided at each visit. If the patient could not come to the clinic the follow-ups were conducted by telephone. The patients who were seen at least twice were included in the study and who have stopped smoking for four weeks were included in the follow-up for one year. The quit status was the endpoint in the study.

#### Results

There were 581 patients who attended the follow-up program at least twice. The mean age of the participants were 51.6 and 50.3% were male. At the end of one year the quit rate was 30.1%, relapse rate was 31.7%, fail to quit was 37% and 1.2% were lost to follow-up. The success rate was higher in the group who used pharmacotherapy compared to the group who only received counseling ( $p < 0.05$ ). Men, age over 50 and

those not working currently were significantly more successful in quitting. In the Cox regression analysis the effect of dependence was not significant when controlled for age, sex, work status and presence of a smoker at home (RR = 1.13 95% CI 0.9,1.41).

#### Conclusions

Community based clinics target a special group, who may not apply for these services themselves otherwise. Nevertheless, the success rates were comparable to the usual clinics where services are based on voluntary applicants. Since these patients were at high risk for heart disease, cessation will have more benefit on this group.

### Opinion Changes of Coffee-House Clients Two Years After Comprehensive Tobacco Control Law of Turkey (Ankara, 2011)

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#### Background

The study aimed to assess coffee-house approach to the new legislation for tobacco control two years after the second phase of the law, which covers the hospitality sector entered into force.

#### Method

This was planned as a longitudinal study consists of two cross-sectional studies. First was carried out at 2009 in 44 coffee-houses, the second was carried at 27 coffee-houses at 2011 in Kecioren, Ankara. The data was collected through face to face interviews with 463 and 317 clients by using a standard four sectioned questionnaire. Descriptive statistics were used to summarize data, whereas chi-square and t-test were used to compare groups by SPSS 15.0 statistical programme (alpha value was taken as 0.05).

#### Results

All of the coffee-house clients were male, with 64.8% between the ages of 26 to 55 years at first study, 73.8% between the ages of 39 to 103 years at second study. There was a minimal decrease at current smokers, whereas 20.5% were ex-smokers at both. Nonsmokers were found to be in favor of the law more than current smokers at both studies ( $p < 0.05$ ). More clients stated that the law was advocating for the right to smokefree air (73.9%, 74.7%) and was not a restriction for smoking behavior in general at the second study ( $p < 0.001$ ). In case of any violation of the law, nonsmokers' tendency to warn the owner of the coffee-house and call the hotline was found to be higher than smokers at 2009 ( $p < 0.05$ ) whereas at 2011 nonsmokers' tendency was only to warn the smoker ( $p < 0.001$ ). Pleasure from smokefree air was increased at both nonsmokers and current smokers ( $p < 0.05$ ). There was an increase at expressing smokers' will to quit smoking and decrease at the number of cigarettes they smoked per day ( $p < 0.05$ ).

#### Conclusion

The results indicate that coffee-house clients, in general, are in favor of the law, although they seem to refrain from taking action in case of any violations of the law and also clients' acceptance of the law was increased. Interventions such as awareness raising, advocacy for the right to breathe smokefree air and strengthening of health services for smokers who are willing to quit smoking need to be implemented for better enforcement of the law.

### Impact of knowledge of harmful effects of tobacco use on smoking behavior in students-a comparative study from Bucharest, Romania

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### Background

Despite the repeated attempts to raise awareness of harmful effects of tobacco use, over the last decade cigarette smoking has become very popular among young people aged 19–25 years. Most anti-smoking campaigns are based on information models emphasizing the harmful effects of smoking. Our research established the degree to which the knowledge of the noxious effects of tobacco influences the smoking behavior of medical students, compared to students from other universities.

### Methods

We have conducted an observational analytic study using two groups totaling 190 subjects who admitted to smoking (61 students from the university of medicine, 129 students from other universities). We used a survey questionnaire assessing the behavioral patterns and level of knowledge regarding cigarette smoking. The data were analyzed using statistic computer software.

### Results

The difference in the level of knowledge between medical students and other students concerning the harmful effects of smoking is statistically significant, medical students scoring higher. Despite the higher level of knowledge, medical students smoked slightly more than non-medical students (measured in terms of the number of cigarettes smoked per day). The self-assessed level of stress in medical students was significantly higher compared to non-medical students.

### Conclusions

Despite the fact that the level of knowledge of harmful effects of tobacco use among medical students is significantly higher, there is no significant difference between medical and non-medical students regarding the number of cigarettes smoked per day. The results could be partially explained by the increased level of stress among medical students. Our data suggest that current anti-smoking strategies focused on increasing the level of knowledge may not impact as expected on the smoking behavior of young people.

## Social capital and social inequality in smoking in 167 Flemish schools: a multilevel analysis

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### Background

Social inequalities in health are an important public health problem and the concept of social capital has been used to explain the relationship between social position and health or to suggest policy options to deal with this public health problem. This study investigates the individual and contextual effects of different components of social capital at school on cigarette smoking in Flemish high school students.

### Methods

The data comes from the 2005/6 Flemish Health Behavior among School-aged Children survey, which is part of the international Health Behaviour in School-Aged Children survey: a WHO Collaborative Cross-National Study (HBSC). Self-completion questionnaires were administered in 167 secondary schools via a standardized research protocol including 7926 pupils between 12 and 18 years old. A three-level logistic multilevel regression model is estimated using MLwiN software (version 2.25) to account for the hierarchical structure of the data, i.e. non-random clustering of pupils in classes and schools.

### Results

A significant social gradient in adolescent cigarette smoking was observed ( $p < 0.05$ ). On the pupil level, horizontal social capital (between pupils) was associated with higher smoking

prevalence, whereas vertical social capital (between pupils and teachers) was associated with lower smoking prevalence ( $p < 0.01$ ). On the school level, all social capital dimensions were negatively associated with smoking ( $p < 0.01$ ) except for the insignificant effect of horizontal school social capital. In addition, a significant ( $p < 0.01$ ) interaction effect was found, such that the social gradient in smoking was amplified when pupils reported a high level of horizontal social capital.

### Conclusions

The finding that horizontal social capital between pupils increases smoking and may even amplify socioeconomic inequalities in smoking, (i) illustrates the possible dark sides of social capital, (ii) substantiates the need to distinguish between different components of social capital because their effects on health are different and (iii) alerts school policy makers to invest in vertical ties between pupils and teachers which have a protective effect on smoking.

## Does maternal employment and maternal marital status in childhood affect smoking in adolescence?

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### Background

Maternal employment has been shown to influence number of child health, cognitive and developmental outcomes although not many studies used health or health behaviours at adolescence as study outcomes. The aim of this analysis is to assess the role of maternal employment in three periods of childhood on smoking among young adults aged 16–21 years in British Household Panel Survey (BHPS).

### Methods

Annual BHPS has started in 1991, and data from 18 waves were available for this analysis. There are 3,859 individuals with at least one record of smoking at age 16–21 and maternal employment prior to age 16 years. Other variables, such as gender, maternal age, maternal education and marital status, household income or maternal SRH, maternal psychological distress and maternal smoking were used as covariates. Multilevel logistic regression (using clustering of repeated measurements within individuals) was used for the analysis. Several life-course models were tested to evaluate the role of maternal employment and maternal marital status and other social characteristics in different periods of childhood.

### Results

24% of young adults reported smoking habits. 56%, 76% and 79% of mothers worked at preschool (0–4 years), primary school (5–11 years) and secondary school (12–16 years) period of childhood. The results suggest interaction between maternal employment and maternal marital status. While marital status did not play an important role among those who were employed, there was large difference in the odds of smoking by marital status among those who were not employed. The odds ratios of adolescent smoking were 11.1, 30.8 and 21.0 among those whose mothers were not employed and not married compared to those who were married although not employed. The data suggest that accumulation model best describes the relationship between maternal employment, marital status and smoking in adolescence.

### Conclusions

The association between maternal marital status in childhood and young adults' smoking differs by maternal employment. This is one of the first studies showing such differential effect of these social and demographic indicators. It is important to further investigate the reasons for the differential role of maternal marital status in different social groups.



## Q.2. LIFESTYLE

### Simultaneous occurrence of preventable risk factors in the population

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#### Background

Tobacco, alcohol, diet and physical activity are health determinants whose risk levels are preventable. Their simultaneous occurrence in the population is poorly known and seldom included in public health planning and intervention. This study describes the simultaneous presence of these factors in the Portuguese population.

#### Methods

Data from the 2005/2006 Health Interview Survey (persons aged 15 or more) on present tobacco use, harmful alcohol use (over 2 drinks a day in men, 1 drink a day in women), unhealthy diet (no fruit or vegetables the previous day, and cooking with saturated fat) and sedentarism (weekly physical activity under 150 minutes). Population prevalences of their simultaneous presence stratified according to socio-demographic variables, observed to expected prevalence ratios between genders, crude odds ratios for combinations of the 4 factors and exposed and population attributable fractions were computed.

#### Results

Half the population had 1 factor (51,8%), 16,4% 2 factors, 3,4% 3 factors and 0,3% had all 4 factors. Isolated factors were more frequent than expected in women and occurred simultaneously more frequently than expected in men. Strongest association was observed for tobacco and presence of the other factors (OR=4,28; IC95%: 1,85; 9,88). Average number of disability days in previous 2 weeks was not significantly different among groups with different number of simultaneous risk factors. Average number of medical appointments in previous 3 months was higher among those with 1 or more factors (2,19; IC95%: 2,10; 2,28), than in those without risk factors (1,97; IC95%: 1,86; 2,08). A 32,4% reduction in short term disability could result from preventing occurrence of 3 or more factors, especially in men with 2 factors (Attributable fraction 76,0% among exposed; 8,4% in population). Number of persons with 4 or more medical appointments in previous 3 months could be reduced (41,9%), especially in women with 2 factors (54,3%).

#### Conclusions

Simultaneous occurrence of lifestyle-related preventable risk factors is similar with patterns in other countries. Potential health gains from their prevention are relevant. Observed gender and socio-demographic differences should be used in health planning and evaluation.

### Epidemiology of smoking in Greece. Trends 2006–2011

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#### Background

Smoking is a major public health issue in Greece. The objective of the Hellas Health I and Hellas Health IV surveys was to investigate into the trends in the epidemiology of tobacco use among the Greek adult population during the past five years, which were marked by important legislative efforts to tackle the tobacco epidemic in Greece.

#### Methods

The nationwide surveys Hellas Health I and Hellas Health IV were conducted in October 2006 and in October 2011 respectively. Representative samples of the adult Greek population, consisting of 1,005 and 1,008 individuals respectively, were selected by means of a three stage, proportional to size sampling design. All individuals were interviewed.

#### Results

In October 2011, the prevalence of everyday smoking among the Greek adult population was estimated at 35.6%. From 2006 to 2011, the prevalence of smoking among men decreased from 49.9% to 43.8% ( $p < 0.05$ ) and among women from 30.8% to 28.1%, especially in individuals younger than 25 years of age (from 44.3% to 31.7%). A significant decrease has been documented in higher and lower socioeconomic groups, but not among people classified in the middle socioeconomic group. Additionally, the average consumption of cigarettes among smokers has fallen sharply, reaching 18.01 cigarettes per day in 2011. Since 2006, the proportion of smokers who smoke more than one pack per day has decreased from 40% to 23.4% ( $p < 0.01$ ).

#### Conclusions

For the first time in decades, there is a favorable trend in the prevalence of smoking in Greece, mostly attributed to the significant decrease of smokers among young individuals. Moreover, the average consumption of cigarettes is falling as well. Overall, the past years' efforts to reduce the consequences of smoking in Greece seem to be effective.

### Alcohol habits in different socioeconomic groups of sick-listed in Sweden 2008

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#### Background

The aim was to examine whether the social gradient in sickness absence could be explained by socioeconomic differences in harmful alcohol habits among sick-listed men and women.

#### Methods

This cross-sectional study included newly sick-listed individuals ( $n = 2798$ , 19–64 years, 66% women) from Sweden who received a mailed questionnaire included socio-demographic factors, and lifestyle. The outcome variable, self-reported harmful alcohol habits, was measured with the Alcohol Use Disorder Identification Test. Registered socioeconomic variables (education, income and occupational class) were explanatory variables with age as confounder and self-reported health, symptoms, mental wellbeing, and self-efficacy as mediators. The aim was examined with Chi2-tests and logistic regression models.

#### Results

Nine per cent sick-listed women had harmful alcohol habits and 22% of the men. Women with a low yearly income ( $\leq 149\,000$  SEK) had higher odds ratio (OR=2.48; 95% CI=1.43–4.27) to have harmful alcohol habits compared to those with  $\geq 300\,000$  SEK/year. Introducing mediators in a

logistic regression the significance of low income remained (OR = 2.03, 95% CI = 1.13–3.65). In the model including age, income was no longer significant. Men with low income were more likely have harmful alcohol habits compared with men with high income (OR = 2.59; 95% CI = 1.45–4.62). When mediators were included low income remained significant (OR = 2.88; 95% CI = 1.56–5.31). Income was no longer significant when age was introduced. Education and occupational status was not significant.

#### Conclusions

The social gradient in sickness absence could not be explained with socioeconomic differences in harmful alcohol habits since the small socioeconomic differences found initially in this sample disappeared when age was introduced.

### Bitter food intake in the French SU.VI.MAX cohort: finding based on bitterness intensity-weighted scores

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#### Background

Dietary and nutrition factors have been gaining attention in the chronic disease prevention literature. However, consumption of certain foods with a strong potential to ward off disease (eg, cruciferous vegetables) might be low due to perceptions of bitterness. Unlike the large body of literature on the genetic determinants of taste and intake, epidemiologic or public health research on individual sociodemographic determinants of bitter food intake is presently scarce.

#### Methods

We analyzed data from the French SU.VI.MAX antioxidant trial (1994–2002), selecting a sample of 2,327 participants (aged 45–60 years) who had completed a minimum of 12 24-h dietary records during the first two years of participation. A weighted bitter food consumption score was computed, taking into account a number of vegetable and non-vegetable items and using previously reported bitterness intensity values (scale 0–10). Sex-specific associations between sociodemographic factors and bitter food consumption were analyzed with multiple linear regression.

#### Results

The weighted bitter food consumption score largely reflected the items with the strongest bitterness intensity ratings (eg, grapefruit, grapefruit juice, dark chocolate, blue cheese varieties). Body mass index emerged as a significant correlate of bitter food consumption in both men and women ( $p < 0.002$ ), whereas educational level was supported only among women ( $p < 0.006$ ).

#### Conclusions

These findings support the role of sex-specific sociodemographic determinants of bitter food intake and should be considered in future nutrition education initiatives. In the context of fruit and vegetable intake below established dietary guidelines, and especially the low levels of cruciferous vegetable intake reported in many countries including France, the identification of population subgroups according to their vegetable and other bitter-tasting food consumption patterns may help in refining public health recommendations.

### The influence of physical activity frequency on Body Mass Index and Percent Body Fat in persons over 18 years

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#### Background

Physical activity is associated with health benefits and obesity prevention. Methods by which it is possible to estimate obesity are body mass index (BMI) and percent body fat (PBF). The aim of this study was to determine the influence of physical activity frequency on nutritional status in relation to BMI and PBF.

#### Methods

During the 2011 in the outpatient clinic of the Center for Preventive Medicine, Dr. Andrija Stampar Institute of Public Health 343 persons older than 18 were examined. Among other things, as part of preventive examinations, morphological variables of the height and weight to calculate BMI were measured. PBF was also measured during examination. Via questionnaire the data on the physical activity frequency for each person were collected. Data were divided into three categories: low frequency (less than 3 times a week), moderate frequency (3–5 times a week) and high frequency (more than 5 times a week).

#### Results

The total sample shows that 39.4% (N = 135) person had a low frequency, 50.1% (N = 172) moderate frequency, and 10.5% (N = 36) high frequency of physical activity. Persons who have a low frequency of physical activity showed higher mean values of BMI with a statistically significant difference than those with moderate frequency ( $p = 0.001$ ) and high frequency ( $p = 0.010$ ). Mean values of PBF were also higher in persons with low frequency of physical activity with a statistically significant difference ( $p = 0.001$ ) in both the moderate and high frequency. Among persons with moderate and high frequency of physical activity has no statistically significant differences in the mean values in both BMI and PBF.

#### Conclusions

The results indicate that increased frequency of physical activity three or more times a week affect, among other things, the reduction in body mass index and percentage body fat compared to adults who spend insufficient physical activity two times a week.

The results of this study support the need for public health interventions to promote healthy active living and increased physical activity in order to maintain weight and reduce chronic diseases.

### Cognitive testing of two physical activity questionnaires in a multicultural setting in Europe

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#### Background

We investigated the practicability of two physical activity questionnaires when implementing them in different cultural settings in Europe (Belgium, Estonia, Germany, and UK). More specifically, we examined the respondents' comprehension, understanding, and thought process when answering the questionnaires.

#### Methods

The International Physical Activity Questionnaire-Short Form (IPAQ-SF) and the US National Health Interview Survey-Physical Activity Questionnaire (NHIS-PAQ) were tested using the methodology of cognitive testing in a multinational setting. IPAQ-SF asks for frequency and duration of vigorous, moderate, walking and sitting activity in the last 7 days. NHIS-PAQ asks for vigorous, light-moderate and muscle-strengthening leisure activities in a usual week. Four European research institutes participated in a coordination meeting, agreed on a standardized data collection and analysing strategy, conducted 60 face-to-face interviews and prepared country reports.

## Results

Comprehension: Respondents (Rs) had difficulties to categorize their activities according to intensity levels (“light-” moderate” and “vigorous”). Thought process: Rs struggled to indicate exact durations for the time they spent walking and sitting (IPAQ-SF). Such activities were perceived as “unconscious” activities someone usually “doesn’t take track of”. Concepts of “leisure time” and “muscle-strengthening” activity were not clear for some Rs (NHIS-PAQ). Certainty with answers: Many Rs were unsure about their answers when they had answered the questionnaires. Simplicity: NHIS-PAQ was easier to answer for Rs who had a regular exercise schedule. IPAQ-SF was easier to answer for Rs for whom the distinction between work and leisure time make no sense (e.g. retired and unemployed).

## Conclusions

Cognitive testing revealed considerable limitations for both questionnaires. IPAQ-SF demands a lot of calculations and NHIS-PAQ neglects apart from leisure activities other relevant activity domains.

## Perception of risk related to sexually transmitted disease among Italian user of social network

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### Background

A recent study has highlighted the relationship of direct proportionality between the use of social networks like Facebook and the rise in cases of infection with sexually transmitted disease (STDs).

### Methods

It is appropriate, fifths, to estimate the perceived risk of STDs among internet Italians. It was delivered an anonymous questionnaire developed by ‘Google docs’ and launched on the social networking website ‘Facebook’. This was advertised through word of mouth among friends and on the home page of some popular pages on the network. In a single week has been compiled from well 886 Internet users residing in Italy. Were asked: personal data, marital status, education level, sexual orientation, any diagnosis of STDs and a number of questions that allow them to study the actual knowledge of STDs.

### Results

Among the respondents 75.13% indicated they had received information about STDs in their lives, most of them said they had taken on their own terms or by teachers. Ben 819 subjects claim that the information on STDs result in a greater awareness and reassurance. The contraceptive methods are well known among the respondents, although 510 of them use a condom as a contraceptive and 271 only because he is afraid of STDs. Who does not use a condom because he does not trust

the partner (252) resorts to other methods of contraception (191) or for other reasons (167). 50.5% never speaks with the partner of STDs before intercourse, 39.4% do so sometimes and only 3.8% always does. In the event that the respondent requires the use of condoms and the partner disagree 47.1% accepted only if the partner change your mind, only 19.5% agree to have sex is not complete, 18, 1% decide not to have intercourse and 15.4%, however, accept the report. If you ever have sex without a condom feels most guilty, others think the possibility of having contracted AIDS/HIV. Regarding the knowledge of STDs respondents, in general, know what they are: HIV/AIDS, syphilis, genital herpes and hepatitis, but have less knowledge of HPV, gonorrhoea, chlamydia, genital candidiasis, genital warts, trichomoniasis.

## Conclusions

From these data we can say that respondents have sufficient knowledge of the danger but they feel far away from their environment.

## Goal orientation and well-being: a cross national study

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Self-determination theory suggests that the pursuit of intrinsically motivated goals such as autonomy and relatedness leads to positive affect and well-being to a greater extent than the pursuit of extrinsic goals such as money or recognition. There are also some evidence that intrinsic values and goals orientation become more pronounced under stressful conditions e.g. among people suffering from a chronic illness or among people that have experienced a traumatic event.

The aim of the current study was to examine the association between intrinsic and extrinsic goal orientation with positive affect, negative affect and well-being in a large random cross-national European population based sample from 23 countries (n = 43 000).

Intrinsic goal orientation was strongly and positively related to well-being ( $\beta = 0.26$ ,  $p < 0.001$ ) and extrinsic goal orientation was unrelated to well-being, and positively related to negative affect ( $\beta = 0.10$ ,  $p < 0.001$ ). The association between intrinsic goal orientation and well-being was stronger for people under chronic stress, and increased with age. People under chronic stress scored relatively higher on intrinsic vs. extrinsic goal orientation, and the balance between intrinsic and extrinsic goals weighted heavier towards intrinsic goals with increased age.

The results indicate that intrinsic goal orientation seems to be important to promote well-being in the general population. This influence seems to be increasingly important with increased age and during chronic stress.

# R.2. PUBLIC HEALTH SURVEILLANCE

## The European Health Interview Survey 2014 in a nutshell

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This presentation aims to introduce the upcoming European Health Interview Survey (EHIS) 2014 which will be obligatory for all European Union member states when the relevant implementing regulation comes into force early in 2013.

It also describes the development of national health surveys over the latter half of the twentieth century and their

introduction and their evolution over the years, with a particular focus on Europe.

The basic principles of this upcoming international European health survey will be introduced, together with the best sources for further information, with a view to enabling new entities to take on this challenge.

An overview of the structure of the questionnaire and the recommended conduct of the survey will be provided, including sample size considerations, mode and time of administration, and other elements related to the conduct of the survey. The structure and legal parameters of the upcoming regulation will also be discussed, together with plans for the future of EHIS, beyond 2014.

## Finnish School Health Promotion study has strengthened health promotion activities since 1995

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### Issue/Problem

Finnish adolescents' health and well-being have been monitored by School Health Promotion (SHP) study since 1995. The aim of the SHP study is to strengthen the planning and evaluation of health promotion activities and development of welfare services.

### Description Of The Problem

The data have been gathered from secondary schools (since 1995), upper secondary schools (1999) and vocational schools (2008). The topics of an anonymous classroom-administered questionnaire are living conditions, school experiences, health, health related behaviour and school health services. The study has been carried out in Southern, Eastern and Northern Finland in even-numbered years and in Western and Central Finland in odd-numbered years. From 2013 the study will be carried out nationwide every second year. In 2010–2011, over 190 000 respondents participated and the response rate was highest among secondary school pupils (80%).

### Results (Effects/Changes)

The results of the study are presented at school, municipal and regional level. Municipalities get a wide variety of results from a written report to indicator figures, distribution tables and school-specific results. National and regional results are presented on internet and in written reports. A number of indicators are available on electric Statistics and Indicator Bank, SOTKANet, which offers health and welfare data of Finnish population. The results are important for health promotion and they have been utilized in different welfare programs, strategies and policies at local as well as national level. Likewise, the data have been used in several national and international studies.

### Lessons

The study gives an opportunity to monitor trends and inequalities in adolescents' health and well-being at school, municipality and national level. It helps to target and evaluate health promotion actions and develop co-operation between different professionals. In addition, the study offers information for political decision-making and strategy planning.

## Qualitative and quantitative evaluation methods-a critical discussion on the example of a health promotion model project in Austria-

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### Background

Within the remit of a three year regional project in Austria concerning cardiovascular health, 250 interventions/activities were implemented among the defined target group (women and men aged 30–60 years). Activities were designed based upon established health-promotion principles (settings approach, empowerment, participation, capacity building, multipliers approach). In accordance with national guidelines, a complex and multifaceted evaluation of both process and results was designed.

### Methods

To measure changes in health behaviour and health status, a quantitative survey was undertaken in two stages (baseline and follow-up). This written questionnaire was based on the Austrian health barometer (ATHIS). It is important to identify and measure all potentially relevant variables and indicators associated with complex health promotion programmes. For

this reason, qualitative research was also undertaken via focus groups in school and community settings. The project team, trainers and the project steering group also took part in focus groups.

### Results

The aim of using a focus group was to ascertain experiences and individual/group opinions on commitment to key success factors and possible barriers.

### Conclusions

Especially in communal settings, those directing/participating in the interventions are persons in everyday-life. They are best placed to deliver important data (via opinions and situation-specific results) for the evaluation of outcomes relating to the structural anchoring and creation of health promotion conditions for such interventions. The comparison of qualitative and quantitative research methodology revealed a preference, in terms of cost-efficiency and applicability, for qualitative methods in this type of setting. It is not possible to detect significant measurable changes in relevant health parameters on population level over such a relatively short time period.

## The prevalence of birth defects in Albania-results from newly established birth defects surveillance system in 2010

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### Background

Birth defects (BDs) are considered a challenging public health problem worldwide in terms of societal and economic burden. Until 2009, from the wide range of diagnosed BDs in Albania only spina bifida and congenital dislocated hip were officially reported. In 2009, the Institute of Public Health (IPH) started the implementation of Birth Defects Surveillance System (BDSS) as a first step towards identification of major birth defects in Albania and their risk factors.

### Methods

This is a cross-sectional study. Information on BDs during 2010 was extracted from the database of BDSS. Diagnosed BDs cases are reported to the IPH by individual forms. The system captures BDs diagnosed in public and private sectors during pregnancy, birth and up to two years of age. The data regarding the number of total live births were extracted from the Ministry of Health database. BDs are described by type of body system affected and by socio-demographic factors.

### Results

As for 2010, the rate of BDs in Albania was 14.0/1000 live births. The most common BDs were those affecting the cardiovascular system, muscular-skeletal system, the oral cavity with gastrointestinal system and the central nervous system. The male/female ratio of BDs was 1.22. Around 57% of BD cases were of rural residence. In 51% of BD cases the mothers had 8 years of education or less and 63% were unemployed. The frequency of BDs was highest among mothers aged 20–24 years old (27%). Two thirds of BDs cases had a birth weight of more than 2500 grams.

### Conclusions

The newly established BDSS offered for the first time a general picture of the distribution of BDs in Albania. As with all new systems, there are challenges ahead for improving the reporting rate and quality. Internationally, the BDSS will help conduct comparative studies and adopt successful international BDs prevention policies. Locally, the BDSS will play an important role for shedding light on determinants of BDs in Albania and will assist policymakers and public health professionals to develop and tailor BDs prevention policies through considering health care implications.

## Trends in abortion rates in Albania

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### Background

Following the legalization of abortion in 1994 in Albania, a substantial increase in the number of induced abortions was noted and for the first six months of 1998 it was reported 1 abortion for every 2.5 live births. The legalization of abortion and low fertility levels had their impact on the position of Albanian women in family and community. In spite of the drop in abortion figures during the recent years, the Ministry of Health considers that abortion rate remains high, leading to unnecessary costs on women's health and health system. Since May 2007 the Institute of Public Health (IPH) has started to build up the abortion surveillance system, which constituted an urgent need to improve not only the quality of the collected statistics but also the effectiveness of programs to promote family planning.

### Methods

The data are collected based on the abortion surveillance system (abortion reporting form) which is the main source for estimating the differences of abortions among age-groups, marital status, education level, employment, previous pregnancies and current number of children in urban and rural women. Ministry of Health and INSTAT provides the data on live births and total number of abortions. The results of this information allow a depth analysis of the phenomenon on its various aspects and different periods of time.

### Results

National abortion ratio decreased gradually since 2000 from 419.2 per 1,000 live births to 238.8 per 1,000 live births in 2010. In 1996 (immediately after the legalization of abortion) spontaneous abortions constituted about 18.2% of all abortions reported, while for 2010 they constituted 60% of all the reported abortions. In 1996 abortions performed by women who lived in the village constitute about 44.3% of the total number of abortions, while in 2010 they constitute 31.4% of them, this mainly due to internal migration from rural to urban.

### Conclusions

In Albania, following the availability of family planning methods, the rates of abortion started to decline rapidly. Data of abortion incidence and trends are important for policymakers to monitor progress toward improvement of maternal health and access to family planning.

## Comparing health status in Belarus between 2001 and 2010: a novel method for surveys with different response categories

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### Background

Two European Union funded population surveys were conducted in Belarus: The Living Conditions, Lifestyle and Health (LLH) in 2001 (n = 2000), and The Health in Times of Transition (HITT) in 2010 (n = 1800). Each survey included a question on self-reported health status. The LLH survey provided a 4-point verbal response scale and the HITT survey used a 5-point scale. When translated into Russian, only two response categories had identical wording. The

options "bad" from the LLH and "poor" from the HITT were translated as "Плохо", and "good" from both surveys as "Хорошо". These differences make a direct comparison of self-reported health status between 2001 and 2010 difficult.

### Methods

We conducted a further Health Category Response Scale (HCRS) survey of Russian speakers in Belarus, 2010 (n = 570). Two questionnaires were developed to correspond to the 4-point LLH and 5-point HITT categories. A 100th graduated Visual Analogue Scale (VAS) was designed and included in both questionnaires to understand how the different verbal response categories were perceived. Respondents were randomly allocated one of the questionnaires and asked to assess the strength of the Russian categories. The mean score of each health response category from our HCRS was utilised to calculate the weighted health status (WHS) for the LLH and HITT surveys. This allowed us to compare self-reported health status in Belarus between 2001 and 2010.

### Results

A small statistically significant increase of 2.9 points on a 0–100 scale ( $p < 0.001$ ) in the WHS in Belarus was found between 2001 (56.2, 95% CI = 54.8–57.1) and 2010 (59.1, 95% CI = 58.2–59.9). Identical response categories were perceived differently on a 4-point and 5-point VAS depending on whether more extreme categories were available. The category "good" ("Хорошо") measured approximately 12 points higher, and the category "bad/poor" ("Плохо") measured approximately 16 points lower, on the 4-point compared to the 5-point VAS.

### Conclusion

Our HCRS survey and method, when applied to the LLH and HITT surveys, concluded that health status in Belarus has improved between 2001 and 2010. This type of method based on a VAS is useful for comparing similar questions with different response category scales and surveys conducted in different languages.

## Magnitude and Trends of injuries in occupational settings between 2001 and 2011 in Cluj-Napoca, Romania

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### Background

Work-related injuries have been of interest for a long time, but due to a lack of proper recording and notification systems, the official numbers are missing from many middle-income countries. In Romania, the occupational injury database is not appropriately developed, and recorded cases differ across Romanian counties, most of them being underreported. Therefore, there is a need for a comprehensive detailed database that will give a better understanding of this phenomenon.

### Methods

A retrospective, descriptive study was piloted in Cluj-Napoca, Romania. At the time of abstract submission data is being collected. This study is part of a research grant and the reported findings are only preliminary. A database will be developed using secondary data for the period 2001–2011 that will compile information about occupational morbidity and mortality rates among the population from Cluj-Napoca, Romania. The dataset will include statistics on the main occupational injuries at county level, by employment status, occupation, and type of industry, leading causes of death on occupational sites, injury characteristics, risk factors, age category and gender.

### Result

The trend of occupational accidents fluctuated across the past 10 years. In the first part of 2011 the number of injuries

occurring at work sites in Cluj County was around 80 persons, of which 4 were fatally injured and 76 were temporally disabled. In previous years, in terms of rates, a slightly higher trend was observed in both fatal and nonfatal accidents: in 2009, 168 work-related injuries were reported, but in 2010 the number decreased by 23 cases. A sharp fall was observed in injuries in the coal mining and preparation industry, pushing the construction industry into first place. A higher prevalence of work related injuries and deaths was observed for men than for women and risk has also been found to be much higher for older workers (40–50 age category).

#### Conclusions

Statistical data is necessary for injury prevention and it represents a starting point in occupational health research by trying to understand the causal mechanisms underlying workplace injuries and by designing safer working conditions.

### Healthy diet and self-rated health: a cross-sectional population-based analysis

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#### Background

Self-rated health is a reflection of an individual's perception of his or her own health status and can be influenced by a variety of factors, including diet. Research has shown that optimal nutrition and healthy dietary choices can positively affect the perceived health of adults. The objective of this study is to assess whether fruit and vegetable consumption has an

influence on the self-rated health of both adults and adolescents living in Merseyside, United Kingdom.

#### Methods

As part of the European Urban Health Indicators System Part 2 (EURO-URHIS 2) study, 2231 adults and 1220 adolescents from randomly selected populations across Merseyside completed standardised urban health questionnaires. Information pertaining to fruit and vegetable consumption was compared with self perceived health status using logistic regression analysis, adjusting for potential demographic (age, sex and deprivation) and lifestyle confounders.

#### Results

Amongst adults who reported eating fruit and vegetables frequently (>5 portions per day), 68.4% rated their health as good/very good compared to 61.1% who did not consume these foods as frequently. These people had a 50% increase in the likelihood of reporting good/very good health of OR = 1.51; 95%CI = 1.22, 1.87:  $p < 0.005$ ) after adjusting for age, sex, deprivation, physical activity and other covariates. In adolescents the association was stronger with a more than two-fold increase in the likelihood of reporting good/very good health associated with consumption of fruit and vegetables on most days (adjusted OR = 2.35; 95%CI = 1.15, 4.82;  $p = 0.02$ ).

#### Conclusions

The findings from this population based cross-sectional study suggest that there is a positive association between consumption of fruit and vegetables and self-perceived health. The analysis demonstrates the importance fruit and vegetable consumption might have in improving self-perceived health. These findings are consistent with observations from other epidemiological health surveys.

## S.2. HEALTH WORKFORCE

### Translation of attained knowledge and skills for planning the health workforce requirements into practice

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#### Background

In settings with health workforce excess or shortages an evaluation of the training on human resource planning and development should go beyond standard evaluation form that provides evidences of students' achievements of the learning objectives and that teaching standards were maintained.

#### Objective

To evaluate applying of specified knowledge and skills about health workforce planning into public healthcare services of Serbia.

#### Methods

In the course of the EU funded project "Training in Health Service Management in Serbia", at Medical Faculty University of Belgrade, within the scope of the Master of Health Management study programme, the Human Resources Planning (HRP) module was established. The questionnaire about on the job application of HRP knowledge and skills was disseminated four months after each of three HRP courses delivered during 2009–2011. Of 100 students, 54% (22 males and 32 females) voluntary completed a not-anonymous questionnaire about current management position, years of managerial experience, time devoted to performing general managerial tasks and usage of attained HR knowledge, skills and tools.

#### Results

Most respondents (75%) were health managers in public sector with 1–13 years of managerial experience. Respondents spent most of the working time in leading (2–32 hours/week),

operational planning (4–12 hours/week) and administrative work (2–8 hours/week). They have contemplated or have applied at least one or more HRP tools (performance measurement, workload indicators of staffing needs -WISN, needs-, demand- and targets-based HRP, reprofiling and interventions for reducing staff excess and shortage). The WISN was most often used, while most difficult to implement were interventions on staffing numbers and reprofiling.

#### Conclusion

In public sector with centralized healthcare financing and planning (like Serbia), HRP knowledge and skills may remain separate from the health manager's tasks due to extensive file of procedures that guides their decisions and actions, inappropriately related or rigid HRP regulations and detachment of top management. Furthermore, the respondent's perception of low authority and power makes very uncertain the integration of strategic HRP knowledge into public health practice, and change management generally.

### E-learning and open access strategy in Spanish training courses of Health Management

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#### Background

In 1996 the Spanish National School of Public Health (Escuela Nacional de Sanidad-ENS-) began to cooperate with the Spanish National University for Distance Learning (Universidad Nacional de Educación a Distancia -UNED-). A year course in Clinical Management was launched in 1999 using distance learning, with written study units and quarterly sessions. In 2003 it was upgraded as Master Degree in Medical and Clinical Management. Study units were published in 8 books. In 2008 another course, the Master in Health

Administration began to use the this study units, and combine distance learning with monthly sessions.

### Objectives

Implement an additional step in the process of learning innovation, building synergies between the courses, improving the e-learning interactive tools, editing new updated and improved web2.0 study units, and publishing in open access for the use of all Spanish speaking interested public. All this innovation must be done without additional economic resources, based in the academic interest of authors and the some future minor returns as course e-lecturers.

### Results

In 2010 a website was opened for current students and alumni; forums and discussions of students are open to registered participants of the website ([www.escuelanacionaldesanidad.es](http://www.escuelanacionaldesanidad.es)); In 2011 around 150 study units were assigned to 75 authors (faculty members, external lecturers and experts) with a very detailed guideline to optimize the pedagogy (friendly language of small size study units with easy use of reference and webpage). The Master in Health Administration has been renewed and submitted for approval as Bologna-Official MSc; both Masters will run in parallel to share resources and to gain interaction in forums and discussions. Alumni of former courses now enjoy the possibility to engage in activities, and to update the study units. The wider community of health and clinical management, have a collection of on-line study units for consultation; at the international level, there is a clear prospect for cooperation with Latin-American schools and institutions.

### Conclusions

Technological innovation, academic altruism, and strategic redefinition of learning processes, allow low-cost reengineering of public health and health management training.

## Practice nurses in General Practice: a rapidly growing profession in The Netherlands

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### Background

In 1999, nurse practitioners were introduced. The main objectives were to improve quality of care for chronic ill and to reduce workload of general practitioners. In ten years the number of practice nurses has grown tremendously. Meanwhile there are new tasks as a result of aging. Practice nurses will be needed in the expanding elderly care. The question is whether the number of practice nurses is sufficient and sufficiently trained for these tasks.

### Methods

Secondary analyses were performed on three data sources (NIVEL). Video-recordings were collected and communication skills were analyzed: 19 nurses and 181 patients. Performed tasks were analyzed by using data of LINH in 2008 and 2010. In 2008 data were retrieved from 54 GP practices and in 2010 from 76 practices. Tasks were analyzed using registration of consultations and diagnosed main complaints. From the registration of GP practices numbers and characteristics of practice nurses were derived. Additionally, interviews with teachers and online training information were analyzed.

### Results

GP registration indicated the growth of practice nurses in ten years. In 2001 only 6% of GP practices employed practice nurses and in 2011 in 75% of all practices. In total 1.867 FTE (fulltime equivalents) nurses are working with an average of 0.4 FTE per GP practice. Tasks of practice nurses are related to control consultations of patients with diabetes (38%),

hypertension (21%) and asthma or COPD (9%), next to life-style advices. Practice nurses are highly trained at following guidelines and in applying a range of communication skills. Motivational interviewing was used less. These skills are aimed at changing behavior and life-style.

### Conclusions

As a result of the extension of tasks, an increase of trained practice nurses is needed, both in number and FTE per practice. The competencies for control tasks are sufficient, but completion of knowledge about elderly care and identifying multimorbidity also calls for a more generalist training.

## An experiential intercultural competence training design for medical students in Austria

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### Background

Medical students will increasingly be faced with the complexity of cultural diversity and intercultural encounters in their future careers. The Medical University of Graz has therefore implemented an elective course on 'Intercultural Competence' which is designed to raise awareness for cultural values, perceptions and beliefs and to reflect one's own cultural backgrounds. As our own cultural imprinting is not conscious to us we project our rules onto others. It is therefore important to become aware of one's own cultural boundaries and of cultural, social, gender, etc. differences in a self-reflecting process.

### Objectives

1) To move away from a purely analytical and theoretical approach to offering medical students an approach sensitising them for the benefits of cultural diversity. 2) To lead the students to cultural competence in order to reach an understanding of how diversity management can be practised in teams and how it influences innovative intercultural health care and research. 3) To offer medical students an adequate preparation for intercultural sensitive care and patient-physician interactions. 4) A long-term objective is to implement intercultural competence as an interdisciplinary, cross-cutting issue through the entire undergraduate curriculum to prepare students adequately for an increasingly diverse working environment.

### Methods

vary from theoretical input on culture and diversity to a hands-on approach concentrating on group work and specific sensitising exercises, case-studies and role plays. The applied methods focus on an approach to foster self-awareness as well as interactive intercultural awareness and sensitivity. The course will be held in training blocks of 3-4 hours each.

### Results and conclusions

Our results will be gained after the analysis of the before and after knowledge, attitudes and skills test in February 2013. The progress in intercultural competence is difficult to assess yet results of US medical schools indicate that courses of this type improve knowledge, attitudes and skills regarding intercultural competence. By using awareness and sensitising methods, this course is designed to enable future medical doctors to respond effectively and sensitively to diversity in health care in their professional lives.

## Personnel motivation and job satisfaction in Bulgarian hospices (2010)

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### Background

Hospices as health institutions were introduced by Bulgarian Health Act in 1999. This coincided with the first nurses'

unemployment crisis in the country so this was a new opportunity for their professional realization. The initial enthusiasm led to establishment of many hospices but only a few of them kept working. Out of 109 registered hospices till 2007 only 35 were functioning in 2008. In other publications we investigate the reasons for ending their activity as well as the problems with personnel qualification.

The objective of this paper is to investigate the personnel motivation to start working in hospices and their job satisfaction.

#### Materials and Methods

Self-administered questionnaire was introduced among the personnel in 29 hospices and 5 palliative care units. All in all 190 health professionals responded to the questionnaire (response rate 86%): 102 employed in in-patient hospices, 27 in home care hospices and 61 in palliative care units. The majority of respondents (141–74,2%) were nurses, 8,4% physicians and 17,4% other professionals.

#### Results

Humane and financial motives were the leading for the studied group–39,5% and 22,6% respectively. The ranking of motives differed between different hospices with humane motives more presented in home care hospices (55,6% to 42,2%) and financial motives being more important for in-patient hospice personnel (34,3% to 18,5%). The differences were statistically significant ( $P < 0,001$ ). Among hospice managers job satisfaction was prevailing (89,7%) and 76,8% of the personnel also declared job satisfaction. As the main motive for quitting hospice work the majority of respondents (46,1% in in-patient hospices, 48,1% in home care hospices and 57,4% in palliative care units) indicated great psychological burden. Equally important was inadequate payment which was the most important for palliative care units' personnel (72,1%).

#### Conclusions

In confirmation to our previous studies, financial issues are of utmost importance for hospices functioning. Hospices personnel, although starting work with humane intentions, is ready to quit job which is too burdening and inadequately paid. Without governmental involvement in hospices' financing these institutions will continue struggling for survival.

### Satisfaction of primary Health care worker in Spain, development of a questionnaire

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#### Background

The efficacy of health care is related with health care worker satisfaction. There are many studies that have evaluated burn out among health care workers. The aim of this study was to develop an instrument that could be use to identify those areas that could have a potential of improvement in primary health care workers.

#### Methods

A set of items was elaborated using items from the Job Description Index (JDI), Minnesota Satisfaction Questionnaire (MSQ), Font-Roja, and CSLPS-EAP/33, CVP-35 EFQM as well as the Maslach burnout inventory. In a second stage 5 experts reviewed the items and eliminated those who they believe would not work to evaluate satisfaction after that a questionnaire with used a liker scale was elaborated. A random sample of 432 Primary Health Care workers of Navarra Health Service answered a self reported questionnaire. A screening of items was performed by computing a correlation between each item and the total score minus that of the item, and comparing those people in the first and fourth

quartile of the total score minus that of the item with the item using U Mann Whitney test. Scale consistency was computed using Cronbach alpha. After that a factorial analysis to identify dimensions in the scale was performed.

#### Results

The resulting scale has 47 items. Crohbach alpha coefficient has a value of 0.92. Factorial analysis identified 5 dimensions that explained 46,3% of variance. The 5 dimensions were: relationship with patients and the chief (22,3% of variance), satisfaction with the management of work (5,9%), work-related stress (4,8%), professional competence (4,4%), job satisfaction (3,9%) The first dimension included relation with superiors and patients, vacations, allowing to attend conferences, training, coordination between health services and social services, and condition in health centres specially space and illumination. In the second dimension the items were fairness in workloads between team members (physicians, nurses), flexibility in outpatient appointment.

#### Conclusions

A scale to identify opportunities to increase satisfaction among primary health care workers have been developed and validated.

### Foreign nurses in Finland: motivations for migration and integration to working life

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#### Background

Registered nurses and physicians are actively recruited from abroad to cover the shortage of health care personnel in Finland. This study examines (A) why foreign nurses choose to come to work in Finland, and (B) their integration to Finnish health care.

#### Methods

A postal/web-based survey was sent to 1156 foreign origin nurses licensed to work in Finland (received responses  $n = 516$ , 45%) The questionnaire included questions on motivations for moving to Finland, barriers to employment, experiences of discrimination, psychosocial working conditions and job satisfaction.

#### Results

Most of the respondents (72%) mentioned family related reasons as the primary motivation for moving to Finland. Other reasons were dependent the country of origin. Finland being a safe country was mentioned more often in nurses coming from Asia and least often in those from N/S America ( $p < .001$ ), good salaries in respondents from Russia, Estonia and Asia ( $p < .001$ ), free education among those from Africa ( $p < .001$ ), possibility for professional development as well as good resources in those form Africa and Asia ( $p < .001$ ). Most of the respondents were employed fulltime (90%) and in permanent positions (78%). The most common perceived barriers for employment were poor language skills (36%), insecurity regarding working life (32%), attitudes of the employers (30%), and lack of connections with native Finns (29%). Employment barriers were most often reported by those of African origin. Although frequent experiences of discrimination were rare, 14% reported having experiences at least sometimes discrimination by their superiors, 26% by their co-workers and 25% by patients (more commonly among those of African origin ( $p < .001$ )).

#### Conclusions

The most common reasons for migration were family related reasons but also reasons related safety, economic and professional possibilities were common motivations. Nurses of foreign origin were successfully integrated (mostly employed fulltime and in permanent positions). Frequent experiences of discrimination were rare, but particularly those from “visible” minority groups reported more discrimination.



## Emigration intentions of medical students from Serbia

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### Background

In 2008 in Serbia, 62% of 1840 unemployed medical doctors registered at National Employment Biro were younger than 30 years.

### Objective

To investigate medical students' reasons and barriers to work abroad.

### Methods

The questionnaire on migration intentions similar to those used in Poland and Lithuania before EU accession was distributed to medical students at the fifth year of medical studies at Medical Faculty of Belgrade University, Serbia in 2011. Response rate was 81%. Logistic regression was used to explore migration reasons and barriers and estimate difference between male and female students, between those with excellent and not-excellent grades in the group of students with high intention to emigrate (i.e. to work permanently abroad immediately after graduation).

### Results

Among 445 students (57% females) 83% envisaged to work abroad (mostly Germany, Slovenia and USA), 82% after

graduation and 43% permanently. Very bad financial situation had 14% students. 54% have family abroad, 47% speak a foreign language. High intention to migrate had 140 students (67% females, and 33% with excellent grades). Among them, 41% would work abroad for salary 2–3 times higher while 47% for 4–5 times higher salary than the average gross-salary in Serbia. For males compared to females, professional training/trainee-ship is 43% less likely the reason to work abroad (odds ratio, OR = 0.565;  $p < 0.05$ ) and the separation from family and friends is 60% less probable barrier to work abroad (OR = 0.400;  $p < 0.01$ ). In comparison to students with not-excellent grades, for excellent students there is 35% less probability that difficult conditions of settlement (OR = 0.649;  $p < 0.10$ ) and adaptation to difficulties (OR = 0.649;  $p < 0.10$ ) will be barriers to work abroad. Half of eight students with complete plan to work abroad were ready to improve language and professional skills, to work at lower position than their qualification or outside the health sector.

### Conclusion

Since 26% of future medical graduates in Serbia have envisaged working abroad the government should conduct an interactive migration policy supported with WHO Code of recruitment of health professionals, which includes family issues, better quality of life, professional development, working conditions and salary.

## T.2. FOOD AND HEALTH

### The Food for Life Partnership in England

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### Issue/problem

England has the worst childhood obesity figures in Europe, which represents a looming crisis for future public health

### Description of the problem

A very large percentage of children are growing up without proper understanding of food-of both correct choices as regards nutrition and the environmental impacts of food production.

The Food for Life Partnership [FFLP] is an alliance of four English NGOs: Health Education Trust, Soil Association, Focus on Food and Garden Organic.

FFLP have had five years of lottery funding to work with over 3,800 schools to enable children to eat good food, learn where it comes from, how it is produced and how to grow and cook it themselves

### Results (effects/changes)

These have been set out in three detailed reports produced by independent evaluators. Evidence of success includes:

- improved eating habits among primary school age children and parents
- increased take-up of free school meals
- improved overall school performance
- benefits to local economies from increased spending on local food

### Lessons

FFLP has developed a way of working with children, parents, teachers, school managers, local authority catering services and food producers which may well be of interest to people in other EU countries who are grappling with the same problem of how to improve child nutrition.

### Healthy Weight for Life Strategy an intersectoral approach to tackling obesity in Malta

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### Issue

With 40 to 48% of children and 58% of adults being overweight and obese, excess weight in both children and adults in Malta has become a major concern. Obesity has considerable effects on mortality and morbidity. The excess direct cost on the Maltese health service associated with overweight and obese individuals as compared with persons of normal weight is estimated to be nearly 20 million Euro per year (in 2008), accounting for 5.7% of total health expenditure.

### Description of problem

An inter-sectoral committee was set up to tackle this problem. After reviewing the epidemiology, the complex causal factors affecting this epidemic and evidence and good practices in other countries, a strategy covering the period 2012 to 2020 was outlined. The aim of this Strategy is to reduce the prevalence of overweight and obesity within the Maltese population and achieve a healthy weight for life.

### Results

This strategy identifies multi-sectoral areas for action which are effective and designed to lead to containment and reversal of the epidemic. The main areas of action include

- Promotion of healthy eating
- Promotion of physical activity
- Re-orientation of public health services to increase the importance of health promotion and disease prevention
- Possible economic measures which may act as motivators to healthy lifestyle choices including the introduction of sin

taxes as well as incentives and subsidies for increased accessibility and affordability of healthy food are proposed.

### Lessons

The vision for this Strategy is to have a society where healthy lifestyles related to diet and physical activity become the norm and where healthy choices are easy and accessible to all, so as to prevent disease and prolong disability free years of life. This requires an inter-ministerial and multi-sectoral approach, so that changes are made to the living environment, which shift it from one that promotes weight gain (obesogenic) to one that promotes healthy choices and a healthy weight for all.

### Energy density per meal-usability in estimating the nutritional quality of meals offered in eating out

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The nutritional quality of meals offered in eating out should meet the nutrition recommendations. The nutritional quality is evaluated by calculated contents or energy percentages (E%). Energy density have proposed to be more comparable and customer friendly measurement for nutritional quality.

The aim is to assess the usability of energy density of meal as a nutrition quality evaluator. Does energy density give additional information to the nutrition content results? Can energy density of meal be used to improve the nutritional quality in eating out?

The nutritional quality of the meals in a student lunch restaurant were calculated and compared with the Finnish nutrition recommendations for the customer groups (17 to 19 year old boys and girls). The results in means of the tree menu options (basic n=40, vegetarian n=40 and second choice n=19, respectively) for eight week menus showed that the content of energy (732, 573 and 656 kcal) and carbohydrates (79, 70 and 75 g; well as 44, 49 and 47 E%) were too low. Fats exceeded the recommendations (31, 23 and 27 g; as well as 38, 36 and 35 E%). The content of proteins (33, 22 and 31 g) were too low in vegetarian menu even though E% met the recommendation (16, 18,5 and 18,8 E%). Salt exceeded the recommendation (1,4 g for a meal) in all menu options (3,7, 2,8 and 3,3 g).

The energy density of meal was calculated per 100g. The means of the menu options were 106 (95% CI=99.8–111.7), 83 (95% CI=76.5–89.7) and 99 (95% CI=87.0–111.2). A reference value does not yet exist for energy density, but the results seem low. Further, variation of energy density inside of menu options, between weeks and weekdays was high, showing need for standardizing the nutritional quality.

The energy density of meal is usable, giving additional and comparable information about the nutritional quality of meals in eating out. First, further information about the variation of nutrition quality helps caterers to improve the overall nutritional quality, minimize inner variation of menu options, and variation between menu options and standardize the nutritional quality to meet the recommendations every day and the needs of different customer groups. Second, the energy density of meal can be used to inform customers and thus help them to compare choices.

### Vitamin D concentrations amongst active asthmatics and healthy adolescents in Cyprus

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### Background

Emerging evidence suggests that Vitamin D might be implicated in the pathophysiology of several chronic diseases, including asthma and allergies.

### Objectives

To ascertain the level of vitamin D deficiency in Cyprus and investigate differences in serum levels of 25(OH)D between asthmatic and healthy adolescents.

### Methods

Using a case-control approach, participants were selected from a cohort of 5384 16–17 year old adolescents who completed the ISAAC questionnaire. Those who reported wheezing in the past 12 months were eligible to participate and further grouped into active asthmatics (AA), if also reporting a diagnosis of asthma, and current wheezers only (CW). The healthy controls were sampled amongst Never Wheezers/ Never Asthmatics (NWN). All participants had serum levels of 25(OH)D measured between Nov 2007 and May 2008. Multivariable regression analysis was performed in order to investigate differences in levels of 25(OH)D between the three groups after adjusting for age, sex, BMI status, self-reported sun exposure and season of blood sampling.

### Results

A total of 190 cases (of whom 69 AA) and 671 controls participated in the study (around 65% response rate). Predictors of levels of 25(OH)D were female gender, BMI status and sun exposure during the winter (but not in summer) season while no association was observed with parental education or use of sun protection. Unadjusted mean serum levels of 25(OH)D were 22.90 (SD 6.41) 23.96 (SD 6.32) and 21.15 (SD 5.59) ng/mL in NWN, CW, AA respectively (p=0.014). Even after adjusting for potential confounders, mean vitamin D levels were significantly lower amongst AA compared to both NWN (adjusted beta -1.68, 95% CI= -3.24, -0.13, p<0.001) and CW (adjusted beta -2.71, 95% CI= -4.56, -0.86, p<0.001). Interestingly, in a sunny place like Cyprus as many as 80% of children had insufficient levels of vitamin D (defined as <30 ng/mL) while the percentage of vitamin D deficiency (<20 ng/mL) ranged from 34.7% in healthy adolescents (NWN) to 40.6% in active asthmatics.

### Conclusions

Against a background of high prevalence of vitamin D deficiency in a sunny place like Cyprus, active asthmatics have significantly lower mean levels of vitamin D compared to healthy adolescents.

### Food consumption habits in Maltese adolescents aged 12–14 years

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### Background

Malta has the second highest proportion of excess weight amongst 11 and 13 year olds and the highest overall proportion in 15 year olds (WHO, 2008). Local data on food consumption behaviours in this age group is not available. This study aimed to obtain information on the typical food consumption patterns of Maltese children aged 12 to 14 years. This data is important so as to facilitate direction of possible future interventions, as well as to provide clues as to the nature and possible source of the obesity epidemic in Malta.

### Methods

A quantitative cross-sectional design was used with a representative sample, selected by random cluster sampling,

consisting of 372 students recruited from nine schools around Malta and Gozo. A validated questionnaire was administered to students. Chi-square tests were used to test for any statistically significant differences. Pearson chi-square was used for most associations. A P-value of 0.05 was used to determine significance.

#### Results

Results showed that water (48.6%) and regular soft drinks (25.8%) were the most popular drinks at all meal times, except at breakfast time. Across five meal times, the most popular food groups were those high in carbohydrates, fats and sugars. Males (88.1%) were more likely than females (78.1%) to consume junk food ( $p=0.009$ ); while females were more likely to consume food items rich in carbohydrates ( $p=0.04$ ). With regard to physical activity, those spending the least time engaged in physical activity per day were more likely to consume carbohydrate-rich food. The less time reported spent in sedentary behaviour the more likely participants were to consume fruit and vegetables, as well as food items rich in carbohydrates. Students coming from the Northern Harbour area were more likely to consume junk food ( $p=0.026$ ), and Gozitan students were the most likely to consume fruit and vegetables ( $p=0.002$ ).

#### Conclusions

The findings of this study show that the food being consumed by Maltese 12–14 year olds may be a major contributing factor to excess weight. Areas of focus are on sweetened beverages, as well as junk and carbohydrate-rich foods. Actions which support the decrease in consumption of these items need to be enhanced in order to tackle the problem of increasing weight in this age group.

### 'Healthy Eating with Fonzu': A health promotion pilot project targeting schoolchildren

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#### Aim

This was a school-based pilot project within the larger European Food Framework project. The goal was to develop, trial and evaluate a set of teaching and learning resources targeting young Maltese children. The focus was on promoting a balanced, primarily plant-based diet, traditional foods and recipes, and regular physical activity using a cross-curricular approach.

#### Method

Five schools participated in the pilot. A children-selected mascot visited the schools and featured in two resource packs comprising students' workbooks, teachers' handbooks, CD-Roms with various teaching materials, a board game and parents' newsletters. All materials were trialled over a period of 6 weeks and evaluated using a pre- and post-test questionnaire (pre  $n=331$ , post  $n=354$ ) and class-based or small-group interviews ( $n=13$ ) with children, a feedback sheet ( $n=18$ ) and individual or small group interviews ( $n=8$ ) with teachers, school management team member interviews ( $n=3$ ), and phone interviews with parents ( $n=5$ ).

#### Results

In the short-term, there was an overall increase in knowledge among the Yr 2 students (+2.7% to +25.7%) and a mixed impact among the Year 5s (-7.4% to +16.9%). Results have to be interpreted cautiously as there was no students' control group, not all teachers used all the materials with their students and the teachers' level of nutrition knowledge varied. Feedback on the resources' design, pedagogical value and usefulness for teachers was very positive.

#### Conclusion

This pilot study revealed the potential educational value of the project's materials and indicated areas for improvement for a

more positive impact on children's health knowledge, attitudes and behaviours.

### The knowledge, attitudes and behaviour of young Maltese women on the challenges of excess weight

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#### Background

The major public health challenge is Malta is that of increasing weight in adult, child and teenage population. 40 to 48% of children and 58% of adults are overweight and obese. Malta had the highest proportion of self-reported overweight and obese 15 year olds in the countries participating in the Health Behaviour of Schoolchildren Study (2006).

#### Methods

Two focus groups were held with a total of 20 participants (all female) aged between 16 and 22 years of age, all full-time students. The aim of these focus groups was to better understand the knowledge, attitudes and behaviour of young people with respect to healthy choices related to nutrition and physical activity. The facilitator guided the discussion along a range of predetermined questions.

#### Results

The discussion was analysed by grouping into categories. The participants were well informed about food types and the food pyramid, as well as what food types to avoid. Alcohol was not regarded as contributing to excess weight. Parents absent from home were thought to increase the consumption of ready-made fast food. Lack of time by the mother to prepare nutritious food was noted. The importance of the mother as a role model who prepares and eats nutritious food was noted as a determinant of lifestyle among youths. Lack of resources contribute to the purchase of cheaper ready-made food in entertainment areas. The taste of food is important in determining what is eaten. Large portion sizes are often served both in homes and in catering establishments. Exercise was seen as important, with a lack of motivation reported as very commonly being the main cause of lack of exercise uptake by young people. The need to improve both the frequency and variety of Physical Education lessons within secondary and post-secondary education was discussed. The cost of gyms and sporting clubs was reported as significant.

#### Conclusions

Actions were proposed to stimulate youth interest in overcoming challenges related to excess weight. These proposals are included in the "Healthy Weight for Life Strategy". An increased focus on young people is suggested in terms of research and public health action.

### Eating disorders in a female student population of Athens and their association with body image perception and socioeconomic status

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#### Background

Eating disorders (ED) constitute a public health problem of modern society, with a higher prevalence among girls and young women. One characteristic of ED is the deranged way in which patients perceive and experience their body weight and shape. There are conflicting references regarding the association of ED with Socioeconomic Status (SES), with initial studies correlating ED with higher SES and subsequent studies questioning these results. Our aim was to detect the incidence of ED in a female student population of Athens and investigate whether these disorders are associated with students' body image perception and SES.

## Methods

250 students from five universities of Athens anonymously completed 3 self-administered questionnaires concerning demographic, anthropometric and socioeconomic characteristics, eating attitudes assessment (EAT-26) and body image perception (MBSRQ-AS). Statistical analysis of data was obtained through SPSS-17, Minitab-16, correlation variables and accounting and linear regression analysis.

## Results

EAT-26  $\geq 20$  was observed in 13.6% of the sample. There was statistically significant difference in all parameters of body image perception between the EAT $\geq 20$  and the EAT $< 20$  group (AE<sub>mean</sub> = 3.14 and 3.52, MW test = 2461.5,  $p = 0.002$ ; AO<sub>mean</sub> = 4.17 and 3.67, MW test = 1743.5,  $p = 0.000$ ; BASS<sub>mean</sub> = 3.32 and 3.58, MW test = 2515.0,  $p = 0.003$ ; OWP<sub>mean</sub> = 3.96 and 2.5, MW test = 669.0,  $p = 0.000$ ; SCW<sub>mean</sub> = 3.54 and 3.17, MW test = 2523.0,  $p = 0.002$ ). Significant correlation was found between EAT and all body image perception parameters (Spearman's rho: EAT-AE,  $r = -0.240$ ; EAT-AO,  $r = 0.327$ ; EAT-BASS,  $r = -0.238$ ; EAT-OWP,  $r = 0.630$ ; EAT-SCW,  $r = 0.238$ ). No significant correlation was observed between EAT and SES factors, neither between body image perception parameters and SES factors.

## Conclusions

Disordered eating attitude was observed in Greek female student population at a rate of 13.6%. The disordered eating attitudes were highly correlated with the body image perception of the students, but there was no association between the disordered eating attitudes and the students' SES. Furthermore, the body image perception of the students did not appear to be associated with their SES.

## Child malnutrition and recurrent flooding in rural eastern India: a community-based survey

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## Background

This study aims to improve the understanding of the relationship between exposure to floods and malnutrition in children aged 6–59 months in rural India. Research has focused exclusively on Bangladeshi children, and few controlled epidemiological studies are available.

## Methods

A community-based cross-sectional study of child nutritional status was carried out in 14 flooded and 18 non-flooded villages of Jagatsinghpur district (Orissa) within one month of the September 2008 floods, and similarly affected by flooding in August 2006. Face-to-face interviews were conducted in 757 households in the flooded villages and 816 in the non-flooded communities. Data used in this study were from those households with children aged 6–59 months. In total, 191 and 161 children were measured, respectively. The association between various malnutrition indicators and the exposure to floods was assessed by univariate and multivariate logistic regression.

## Results

Adjusted analyses revealed that children in flooded households were more likely stunted compared with those in non-flooded ones (adjusted prevalence ratio 1.60; 95% CI 1.05 to 2.44). The prevalence of underweight was also higher in children living in the flooded communities (adjusted prevalence ratio 1.86; 95% CI 1.04 to 3.30). Further analyses found that the 26–36-month flooded cohort, thus those children younger than 1 year during the precedent flood in August 2006, attained the largest difference in levels of stunting compared with the unexposed group of the same age.

## Conclusions

Exposure to floods is associated with long-term malnutrition in these rural communities of Orissa, India. Children exposed to floods during their first year of life presented higher levels of chronic malnutrition. Long-term malnutrition prevention programmes after floods should be implemented in flood-prone areas.

# U.2. ADOLESCENT HEALTH

## Music, young people and physical impairment

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This presentation draws on data from a research study performed in collaboration with researchers, music educators and staff members within a Swedish music project, where digitally based musical settings were developed to provide tools for performing and creating music. The educational aspects of the study will be presented at the ISME World Conference 2012. This presentation highlights results not previously presented regarding the role of the media and the personal assistant in relation to the music-making of young people with physical impairments.

Home and school/preschool are by tradition primary environments for young people. In Western society a 'third environment' has developed in children's leisure time. Examples of this may be after-school centres, organized activities such as sports and culture schools. Even if parents or teachers do not supervise these activities, other adults are usually present. In Western countries this pattern is changing due to the rapid development of media and the Internet. These new digital media offer children and young people a novel kind of freedom, where popular culture and media are abundant. Facebook, smart phones, Twitter and many other

environments are important in young people's lives. Social media has become as 'real' as physical meeting places. Internet and digital tools might be considered as a "fourth environment", especially vital to young people with physical impairments.

Data were collected through field notes, video observations, interviews, photographs and conversation notes. The theoretical framework of the research study includes an ecocultural perspective, developed by the author, theories of modernity and aesthetics, together with the Sense of Coherence framework.

Results from the study demonstrate the importance of engagement and the musical interest of personal assistants.

It could be concluded that the relationship and interplay between participant, assistant and musical environment has a great impact on the experienced quality of the music-making performed by young people with physical impairment. Furthermore, the digitally based musical settings developed in the project may be regarded as a part of the "fourth environment", mentioned above.

## Prevalence of violence against 11–18 aged children and it influenced factors in Lithuania

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Violence is one of the worst and most pressing public health problems caused by a complex interaction of many factors. In recent years the tendency of violence and aggressive behaviour in Lithuania increased. One of the essential solutions of violence as public health problem is analysis of violence prevalence and influencing factors. The study aim was to evaluate the prevalence of violence against 11–18 aged children and its related factors in Lithuania.

Using an anonymous questionnaire cross-sectional research was done in 2010. Sample consists from 2167 respondents, 47.8% of them were boys. The statistic reliability of frequency inequality was evaluated by calculating chi (x<sup>2</sup>), p value and adjusted odds ratio (OR) with 95% CI.

With physical violence during last year faced 20.5%, with psychological violence during last 2 month-27.2% of respondents. The majority experienced physical and psychological violence from peers (16.4% and 21.2% respectively). From parents physical and psychological violence experienced 6.0% and 7.8%, from teachers-2.9% and 5.9% children respectively. Family situation are strong violence related factor. Physical violence experienced 36.9% of respondents who mother and 31% who father are dependent on alcohol (p = 0.001), physical and psychological violence who reported unsatisfactory relations with mother (34.6% and 43.4% respectively) and with father (27.3% and 38.9% respectively)(p = 0.001). Physical and psychological violence was significantly associated with a negative commitment to school-OR 1.32 (95% CI: 1.19–1.46) and OR 1.25 (95% CI 1.13–1.38) respectively, friendship with delinquent friends-OR 1.3 (95% CI 1.19–1.43); OR 1.34 (95% CI 1.23–1.46) respectively, higher self-esteem-OR 0.69 (95% CI 0.61–0.77) and OR 0.62 (95% CI 0.55–0.69) respectively.

One fifth of pupils experienced physical violence, and one third experienced psychological violence. Individual factors (self-esteem), relationship factors (relations with parents, delinquent friends), community (relations with classmates) and societal factors (attitude toward violence and commitment to school) were determined as factors related to physical and psychological violence against 11–18 aged children.

### **Correlations among the socio-economic status of families and the nutrition habits of first-formers (Lithuanian Children Growth Study, 2010)**

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#### **Background**

The aim of the study is to analyze the correlations among the socioeconomic status of families and the nutrition habits of first-formers.

#### **Methods**

Cross-sectional epidemiological study of a national representative sample of first-formers was performed. The survey was carried out in ten districts of Lithuania, in 161 randomly selected schools. The survey followed the protocol of the World Health Organization European Childhood Obesity Surveillance Initiative, which was jointly developed by the WHO Regional Office for Europe and the participating Member States. Cluster sampling of classes was obtained. Parents of first-formers completed the questionnaires (n = 4574, response rate-86.2%).

#### **Results**

More than half of the families were living on low fixed income. The majority of first-formers were having a regular nutrition regimen. About two thirds of children were eating enough of fresh fruit; milk products; natural meat and poultry as well. The majority of first-formers ate potato chips, salty nuts, hamburgers, fizzy drinks seldom.

Approximately half of respondents often ate sweets, chocolate; various sausages; drank tea which was to sweet, 39 percent often drank whole milk. Correlation among eating breakfast and family income (x<sup>2</sup> = 43.567; df = 6; p < 0.001) as well as mothers education level (x<sup>2</sup> = 57.384; df = 6; p < 0.001) was established. In families in which the education level of mothers was the highest the majority of respondents often ate fresh fruits (z-score 6.9, p < 0.001), vegetables (z-score 2.7, p = 0.01) and milk products (x<sup>2</sup> = 49.271; df = 8; p < 0.001). Every second first-former from families with the lowest education level drank whole milk (z-score 6.1, p < 0.001). Sweets and chocolate were eaten by more children in families where mothers had secondary and higher non-university education (z-score 2.72, p = 0.01).

#### **Conclusions**

The financial status of families and the level of education of mothers correlated with the nutrition habits of first-formers significantly. Higher socioeconomic status determined a healthier nutrition of first-formers. Education of families it is an important strategy in Public Health for promoting healthier nutrition of children.

### **Prevalence and accumulation of early school dropout risk factors among Finnish adolescence in 2010–2011**

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#### **Background**

Social exclusion and high dropout rates have raised public concern for adolescents' welfare in Europe. In 2010, 9% of secondary school students and 60% of upper secondary school students did not continue further studies and 11% of 17–25 year olds were without work in Finland. Dropping out of school associates with several health and social problems and unhealthy habits. Likewise, school dropout has enormous economic and social implications for society.

#### **Methods**

This study was carried out to assess the prevalence and accumulation of early school dropout risk factors. The data was from national School Health Promotion study gathered in schools 2010–2011. Respondents' age ranged from 14 to 20 years. The study covers initial individual and family risk categories for early school dropout. The binary logistic regression was performed to analyze the combination of risk factors and to build a predictive model for the accumulation of school dropout risk factors.

#### **Results**

According to preliminary results, the prevalence of risk factors for school dropout varied as follows: individual background 12–34%, non-school-related 4–23%, school-related 5–35%, family background 12–31% and factors related to family support for education 9–19%. Five or more risk factors were found in 27% of the study population. Significant factors for accumulation of these risk factors were: parents' unemployment, repeated minor offences, difficulties in studies, moderate or poor health, depressive symptoms, daily smoking, repeated binge drinking, meaningless of studies, difficulties to get along with teachers and school dislike. Interactions between these risk factors were complex.

#### **Conclusions**

Results indicate that risk factors for school dropout are common at all educational levels. Therefore policies and practices for their identification should be developed to more early stage interventions at all school levels. Especially student welfare services have an important role and multi-professional co-operation is needed in identification of school dropouts.

## Health promotion lifestyle behaviours of the apprentices in the province of Kayseri

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### Background

The aim of this study is to establish the health promoting lifestyle behaviors (HPLP) and the factors affecting it in apprentices trained in Kayseri Turkey Vocational Education Center.

### Methods

This descriptive study was conducted upon 332 students attending Vocational Education Center. Data were gathered by questionnaire method.

### Results

The mean age of the apprentices participating in the study was  $17.1 \pm 1.5$ , 88.0% were male, and 39.8% of the apprentices were first year students. The mean body mass index (BMI) of the apprentices was  $21.7 \pm 3.5$ ; 7.5% had a chronic disease. 59.9% had lived most of their lives in the province center. The mean age of the students for starting apprenticeship was  $15.4 \pm 1.7$ . The rate of students who worked as apprentices for two years and below was 41.9%; the rate of those who received their pay-checks regularly was 75.3%; 15.4% were insured. The mean HPLP scale score of the apprentices was  $111.2 \pm 22.0$ , with mean subscale scores of; self-actualization  $34.6 \pm 7.5$ , interpersonal support  $18.6 \pm 4.3$ , exercise  $9.4 \pm 3.0$ , nutrition  $13.9 \pm 3.5$ , stress management  $16.2 \pm 4.0$ , and health responsibility  $18.6 \pm 5.7$ . The mean item scores given over four-point Likert, as arranged from high to low were as such; self-actualization ( $2.7 \pm 0.6$ ), interpersonal support ( $2.7 \pm 0.6$ ), nutrition ( $2.3 \pm 0.6$ ), stress management ( $2.3 \pm 0.6$ ), exercise ( $1.9 \pm 0.6$ ), health responsibility ( $1.9 \pm 0.6$ ), with a total score of  $2.3 \pm 0.5$ . There was no significant difference in the HPLP scores of the apprentices when compared according to gender, class, age, and presence of chronic diseases. HPLP scores were found to be higher in those very content, or content with their jobs compared to those undecided or not content. While the self-actualization, health responsibility, nutrition, interpersonal support subscale scores were not affected by gender, class, age group and presence of a chronic disease, those who were content with their jobs had significantly higher scores. 15–17 age groups had higher stress management scores compared to those 18 years old and above. Conclusions: The HPLP scores of the students were found to be within the intermediate level. It can be suggested that topics regarding “Health Protection and Development” should be included into the vocational education programs.

## Sexual habits and risk factors for sexually transmitted diseases among medical students of Palermo's university in 2010–2011

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### Background

The Residency Program in Hygiene and Preventive Medicine at Palermo's University has conducted a survey among the students of the local Medical School regarding their knowledge about Sexually Transmitted Diseases (STDs), with the aim to detect possible risk factors frequently associated with STDs.

### Objectives

The study has been conducted with an anonymous questionnaire delivered, during classes, to the students attending the six years of Medical School. The medical residents on

Hygiene and Preventive Medicine of the Department of Sciences for Health Promotion at Palermo's University had previously made a short introduction about the study and its purpose and answered students' questions. The questionnaire is composed of 5 main sections: demographical data, sexual habits, contraceptive methods, knowledge on STDs, sexual information and education.

### Results

624 questionnaires were collected from students with a mean age of 21 years old (range 18–35 years-old). 514 students (92%) declared they had sexual intercourse, and 16.8% of them has had intercourse with occasional partners. Among the numerous pathogens responsible for a STD the students acknowledged HIV as the most known, 96% of them, in fact, know the pathogenesis and the natural history of AIDS. The other microorganisms linked to STDs are less known (62% Chlamydia, 82% HBV/HCV; 81% HPV, 83% syphilis). 32% of the study sample stated that they auspicate to receive further information on STDs in the informational and educational campaigns.

### Conclusions

The study has shown good knowledge of AIDS among the interviewed students, in contrast with the poor information on other STDs, even if more common in the general population. This data highlights defects in the management of educational campaigns for the prevention of STDs. Although students improve their knowledge on STDs during Medical School, it does not have to be underestimated the importance to train future doctors on the importance of the prevention of STDs, especially since they are going to be involved in the counseling of at-risk population for STDs.

## HIV risk-reduction interventions for adolescent's girls in sub-saharan Africa: a systematic review of qualitative studies relevant for future research and programme implementation

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### Background

Every day, about 7,000 girls and women become infected with HIV (UNAIDS, 2009). In Sub-Saharan Africa (SSA), the spread of HIV has increased and the number of new infections each year is alarming. The study aims to explore the interventions that promote the adoption of safe sexual practices, their effectiveness and impact on adolescent girls in SSA.

### Methods

A comprehensive systematic search of twelve databases from 1995 to 2011 was carried out. Application of a review protocol and inclusion criteria resulted in 12 eligible studies. An appraisal checklist was used to assess the methodological quality of these selected studies. Thematic analysis was adopted to synthesise the research findings. This involved the coding of text line-by-line, the development of descriptive themes, and the generation of analytical themes.

### Results

African women's status, complex socio-cultural norms, religious ideas and beliefs about sex, levels of poverty (i.e. involvement in cross-generational and transactional sex) and a variety of factors negatively affect the ability of adolescent girls to make decisions regarding their sexual and reproductive lives. While clearly there are interventions to reduce risk-taking behaviour and encourage safe sexual practices, the role of ABC approach (Abstinence, Be faithful and Condom use) in HIV prevention presupposes the ability to exercise sexual rights (i.e. a right not exercised by adolescent girls for whom ABC has turned out to be ineffective). Interventions that need to change

women's knowledge, information, and services are not sufficient.

### Conclusions

There is no single way to successfully address young women and girls' unique vulnerability to HIV/AIDS. HIV prevention must be part of comprehensive health-care programmes for adolescents in SSA (such as, provision of youth-friendly services, peer education approach, and 'safe places' are known to be best practices). In the bid to curb the spread of HIV/AIDS among women in SSA, interventions that will tackle or change the existing socio-cultural norms, values, and practices should be implemented; as this will help to eradicate gender inequality and promote safe sexual practices.

## Sexual Health Services and Sexual Health Promotion Among Undergraduate Students in the Atlantic Canada

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### Background

Sexually transmitted infections (STIs), unplanned pregnancies and substance abuse are serious concerns for university students. In addition, sexual coercion, assault, mental health, issues around gender/sexual identity are common. University students must be well served by sexual health strategies and, by clinical health services in order to reduce negative outcomes. There is no information to indicate whether sexual health services are being delivered effectively or meeting the needs of students in Atlantic Canada.

### Objectives

1. To carry out collaborative and participatory research involving knowledge users who are responsible for student health services delivery at eight Atlantic Canadian universities and, sexual health researchers from several disciplines. 2. To identify the barriers and facilitators of university sexual health care services, and prioritize students' needs as informed by an

online sexual health care services survey. We aim to establish the overall reach, applicability and acceptability of services being offered at university health centres in Atlantic Canada. 3. To undertake an integrative knowledge translation (IKT) process involving knowledge users and researchers which lead to improvements to university health services and health promotion, to better meet the sexual health needs of students at each university. 4. To assess the success of the IKT process with the knowledge users, health researchers and stake holders by examining policy and practice changes.

### Methods

Assembling the research team, development and testing of our online questionnaire and PHSI application were made possible with a (2008–09) PHSI Planning and Dissemination Grant and a Nova Scotia Health Research Foundation (NSHRF) operating grant (2009–10). (Year 1) We will implement a pre-tested, online sexual health survey at eight universities across Atlantic Canada in an IKT process that will eventually influence the sexual health and promotion services provided to students throughout the region. The survey covers a broad range of sexual health issues and was developed partly with the input of undergraduate student focus groups and with the expertise of an interdisciplinary team. (Year 2) Once survey results from all universities are collected, analyzed and summarized, we will work collaboratively with the research team to identify and prioritize sexual health issues that affect students. Under the guidance of an experienced change facilitator, we will work with each university's knowledge user and researchers at three specific IKT workshops and, through ongoing dialogue to identify/prioritize student sexual health and promotion needs. Each university will identify sexual health priorities and implement changes with respect to sexual health care delivery. (Year 3) Assessment of the IKT process with each university decision maker along with each university health policy, service and policy changes will conclude the project.

### Impacts

Supplied with data from our student survey and through an interdisciplinary partnership among universities in Atlantic Canada, university health services will be in a better position to address sexual health issues and service needs that are identified by students, knowledge users and researchers as essential to health service delivery, accessibility and availability. The data will be useful at a national level, providing a framework for other universities to examine their own sexual health initiatives and needs.

## W.2. ETHNIC MINORITY HEALTH

### Prevention and health promotion interventions for ethnic minorities in Europe: A systematic literature review

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### Background

Immigrants in Europe are in higher risk of a broad range of potentially preventable diseases such as diabetes, cardiovascular diseases, and mental disorders than the majority population in the host countries indicating a need of effective health promotion in this target group. This review provided an overview of current research on prevention and health promotion interventions and their effectiveness among ethnic minorities in Europe.

### Methods

Peer-reviewed, quantitative articles focusing on prevention and health promotion interventions designed to target adult ethnic minorities in Europe were searched in PubMed and Embase. Eligibility of studies was based on the abstracts and the full texts and guided by pre-defined criteria. Both controlled and non-controlled studies were included. Additional articles were identified via the references. The review included 28 intervention studies published in Danish, English, Norwegian or Swedish between 2002 and 2012.

### Results

Most studies were carried out in the United Kingdom or The Netherlands and addressed a range of health issues such as: diabetes, cardiovascular diseases, tobacco use, mental disorders and sexually transmitted diseases. Most frequent ethnic minority groups in the studies were South Asians followed by Turkish, Moroccan and Afro-Surinamese. Many interventions consisted of education or counseling individually or in groups or a mix of these two. Other elements in the interventions were exercises, booklets and out-reach activities.

Effects were assessed by questionnaires or by anthropometric or biological measures. The largest share of the controlled trials showed significantly larger improvement in the intervention group than among controls. However, many studies showed modest effects or only effect for some of their indicators, and three articles showed no effect. One article reported a direct adverse effect on its outcome measures. Non-controlled studies generally found positive process indicators.

#### Discussion

This review showed that effective prevention and health promotion interventions among ethnic minorities can be an important tool to address ethnic inequity in health. However, there were few published studies in this field leaving gap in knowledge for health planners.

### Implementation of reproductive health policies targeting Romani women in Macedonia: results of a field research

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#### Background

The research assessed the implementation and transparency of reproductive health policies and affirmative actions targeting Romani women in Macedonia. The Health Care Law and the prevention programs funded by the Government guarantee for Romani women healthcare during pregnancy, childbirth and the postpartum period. Yet, there is not data about effectiveness of such programs and their use by Roma.

#### Method

Focus group discussions with 102 Romani women were organized in 5 Macedonian cities to explore the type, quality and availability of reproductive health services. 25 interviews were conducted with representatives of healthcare institutions. Social determinants of Romani women's access to health services were also explored. We examined access to documents necessary for obtaining healthcare (ID, health insurance, etc.), experience with services during pregnancy, hospital delivery, neonatal and postnatal care, hygienic conditions in healthcare institutions.

#### Results

About 50% of Romani women do not exercise their right to reproductive healthcare due to several access barriers, the most frequent being prejudices and unawareness on behalf of the majority population. Additional barriers are unequal treatment, administrative and financial barriers, unemployment, social exclusion, lack of self-esteem. According to health care workers, 50% of Romani women do not come regularly for checkups, and the mothers' cards guaranteeing access to health care are not used correctly.

#### Conclusions

Romani women's lack of knowledge about state-funded preventive programs and lack of transparency and information dissemination about these programs impede them in exercising their right to preventive reproductive care. They only visit their gynaecologist with serious health problems. Several barriers impede them in access to pregnancy and maternity care, ranging from lack of knowledge to unequal treatment in healthcare, administrative, language and financial barriers. There is a need for more targeted programs that meet the health needs of Romani women.

### Determinants of preconception care attendance. Lessons from a multi-ethnic cross-sectional survey in an urban population

Sevilay Temel

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#### Background

Evidence accumulates on the periconceptional period as the critical stage of exposure to perinatal risks. Despite significant prospective benefits of preconception care (PC), use of consultations is low. We explore likely predictors of uptake of PC in a population based study using a health behaviour model, the so-called Attitude-Social Influence-Self Efficacy -or ASE-model.

#### Methods

The study was conducted in Rotterdam, The Netherlands, where perinatal mortality rates range from 2 to 37 per 1000 newborns. Ethnic background and age-stratified samples were taken from the municipal population register. A total of 3225 women, aged 15–60 years, were approached through a postal survey, with a reminder after 2 weeks. As a supportive measure, trained interviewers contacted non-responders for oral survey at home. The study population consisted of 631 women aged 15–60 years: 133 Dutch, 157 Turkish and Moroccan, 341 Surinamese and Antillean. Results were evaluated by using multiple linear regression analysis.

#### Results

Knowledge of the adverse effect of smoking (52%; $p=0.04$ ) and overweight/underweight (55%; $p=0.003$ ) on fertility was low. Intention to attend PC was significantly higher in women with a Turkish and Moroccan background ( $\beta$  1.02), a higher maternal age ( $\beta$  0.04) and a positive attitude towards PC ( $\beta$  0.50). No relationship ( $\beta$  -1.16), multiparity with previous adverse perinatal outcome ( $\beta$  -1.32), a high educational level ( $\beta$  -1.23), having paid work ( $\beta$  -0.72) and experienced barriers towards PC ( $\beta$  -0.15) were associated with less intention to use PC.

#### Conclusion

This study is one of the first addressing social predictors of PC attendance. Insight in these predictors that encourage or discourage attendance of PC is essential to design tailored interventions for future parents to increase attendance.

### Recruitment of ethnic minority participants for peer education perinatal health in The Netherlands

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#### Background

The Netherlands has a significant proportion of non-Western migrants especially in the largest cities. In general migrants have more often a poor general health and unequal access to health care. Perinatal mortality rates are relatively high, compared to other European countries and among migrant women even worse. The urban perinatal health programme called 'Ready for a Baby' aims to improve perinatal health among all inhabitants of Rotterdam. In order to reach and inform migrant women about perinatal health and services, we introduced a cultural competent intervention called Peer Education Perinatal Health. A new 6 months program was developed in secondary vocational level and 16 bilingual women were trained. The pilot study evaluates strategy's to reach target groups and the effect of the provided education.

#### Methods

Study period was from 1-7-2011 to 31-12-2011. Participants filled out registration forms measuring individual participant



information about: recruitment method, participant characteristics, preferred healthcare provider during the perinatal period and perinatal health and care knowledge.

#### Results

804 women and 133 men were reached. Women between 20–39 years were overrepresented (82%). 40% had a Moroccan origin. The majority of the female participants was migrant (60% first and 30% second generation). 66% had a low SES and 10% had insufficient language proficiency. 65% of the first generation migrants were recruited by verbal advertising by organizations and 42% of this group participated in the periconceptional meetings. A knowledge increase of 37% was reported about folic acid use, 54% about preconception care, 79% about smoking and 83% about drug use before and during pregnancy and 78% about post partum care.

#### Conclusions

The Peer led Educational format, specific characteristics of the educators and used recruitment methods are innovative and successful to reach non-Western migrants for perinatal health education.

### Developing a questionnaire to measure 'Migrant Friendly' Maternity Care through an international Delphi consensus

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#### Background

Several governments, including Canada, have identified the health of international migrants and the perinatal health of migrant women and infants, as priority. The Reproductive Outcomes And Migration (ROAM) international collaboration strives to identify migrant reproductive health disparities, their causes, and approaches to reduce them. Through this project, ROAM sought to develop a questionnaire which measures aspects of Migrant-Friendly Maternity Care (MFMC) with the goal of reducing untoward health outcomes around the time of birth.

#### Methods & Materials

Between January and September 2011, 89 clinicians, epidemiologists and experts in migration and perinatal health from 42 countries participated in a Delphi consensus. Through three rounds of data collection, respondents provided input into the themes, structure and content of the MFMC questionnaire keeping in mind the diversity of maternity units across their countries.

#### Results

Through the three rounds of Delphi, the original questionnaire was reduced by 35 questions and eight questions were significantly re-worded. Questions were also reordered chronologically around pregnancy and birth. The refined questionnaire was then translated, back-translated, and culturally validated in English, French, and Spanish and tested with 33 international migrant mothers recruited from four maternity units in Montreal.

#### Conclusions

The questionnaire appears to measure aspects of MFMC. The project will be scaled-up to a range of maternity care settings in several countries (The Netherlands, Sweden, UK, and US) to allow for international comparisons of the relationship between MFMC and perinatal outcomes.

### Awareness of Tuberculosis among Roma patients in Bulgaria

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#### Background

Tuberculosis (TB) is an important health problem in the Roma population in Bulgaria. Incidence of tuberculosis in Bulgaria (newly registered cases) in 2010 is 30 per 100 000 population, and there is a slight declining trend. However, compared to other EU countries the prevalence in Bulgaria is about 3 times higher. In general, Roma people live in poor conditions and have more limited access to health services than majority populations. Low quality of food, limited access to healthy food, increased level of stress are factors persisting in Roma communities and contribute to TB prevalence. This study was performed to investigate the knowledge about the transmission, treatment and symptoms of TB in patients with TB among the Roma population in the village of Nikolaevo, Bulgaria.

#### Methods

The focus-group method was used to investigate the knowledge and beliefs about TB among Roma patients. A total of 20 Roma people aged 14–45 years participated in the discussion.

#### Results

70% of the focus group participants knew that TB is a pulmonary disease and can be contagious. Mouth-to-mouth contact and saliva were the most frequently mentioned modes of transmission. Among factors contributing to TB, participants mentioned bad living conditions, low quality and lack of food, and stress. Participants quoted chest pain, cough, haemoptysis, loss of appetite, loss of weight, weakness and sweating as basic symptoms of TB.

#### Conclusions

Participants were not aware of the seriousness of TB. They knew some methods of transmission; however, they had some misconceptions. It is necessary to improve knowledge about TB treatment among Roma and perform a screening study of risk groups. As the Roma people have a tendency to delay contact with the health service, it is important to provide outreach activities in Roma settlements. Door to door TB education and symptomatic case finding may be effective. An important finding was Roma people's confidence in doctors, which contradicts the general view that there is a lack of confidence in healthcare workers among Roma patients. Communication may be poor when health providers are ignorant of a patient's culture. Inadequate communication between patient and provider can delay diagnosis.

### Health markers of precariousness

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#### Issue/problem

Health, as defined by the World Health Organization, is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Social inequalities are an important cause of health inequalities. The increasing prevalence of social precarity leads to a worsening of the population's health status. Thus we can note a connection between health and precariousness.

#### Description of the problem

Precariousness is defined as the absence of one or several securities, including that of employment, that enable individuals and families to meet their professional, familial and social obligations and to enjoy their fundamental rights. The securities concerned are jobs, income, shelter, access to healthcare, school and access to education, access to culture, family ties and social relations. Precarious populations have a particular typology of healthcare seeking. That is why it is

important to have a global view of their behavior towards healthcare (renunciation of care, response to a painful episode).

#### Effects/changes

An efficient way to collect the minimum of information needed for adapting the healthcare process are questionnaires. The reasons for seeking care, the complaints of the patient, the history of attitudes towards two “tracer” pathologies (ear-nose-throat problems and skin diseases, the state of oral health and the subjective assessment of their health status) are health markers of precariousness.

#### Lessons

We conclude that it is difficult to make a reliable measure of precariousness because of its multidimensional character. Developing tools to measure precarity helps to better recognize people in precarious situations and thereby improve their approach by the healthcare system. In order to be efficient the methods to identify precarious people must combine the analysis of social, economic and personal patient data.

### Access of Roma to public health services in Macedonia

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#### Background

The health status of Roma can't be viewed in isolation from global changes such as growing social inequalities and the widening of the gap between rich and poor. All this affects the health status of all people, but especially the most vulnerable groups such as Roma. Low level of education, high unemployment rates, poverty and discrimination continually feed the social exclusion, where each factor reinforces the others as causes of poor health. Poor economic and social conditions affect the health of Roma during their entire lifecycle. Poor living conditions can be represented in many

forms such as insufficient opportunities for good education, high unemployment, poor housing, working and environment conditions, lack of health insurance, unhealthy life styles, lack of access to quality healthcare etc.

The purpose of the research is to collect data about the satisfaction of the Roma with the Public health services in Macedonia.

#### Methods

A questionnaire survey has been used on a representative sample of 46 people in the community Shuto Orizari, Skopje/Macedonia. Specific and relevant issues influencing the socio-economic situation of the Roma population were addressed, including coverage with health insurance, health care access, quality of health services and prevalence of chronic diseases.

#### Results

82% of respondents are satisfied with their family doctor or primary health care in Macedonia, which is private. However, the situation with the public, secondary and tertiary health care services is different: 91% of respondents face difficulties in obtaining health care; the biggest problem according to them is long waiting time. Overall, respondents are satisfied with health services received at secondary and tertiary health institutions: 64% of respondents were satisfied.

#### Conclusions

It is recommended to:

Establish a Committee as an auxiliary body under the Ministry of Health to monitor the health situation of the Roma and the implementation of the Health Strategy (locally and nationally). The Committee would prepare regular and periodic reports and would be composed of representatives of the Ministry, health professionals (experts, practitioners) and of the Roma community (NGOs and service beneficiaries)

Support continuing and sustaining the work of Roma Health Mediators, who have been working in Macedonia since June 2012, because of the good results in improving access to health care.

Saturday, 10 November, 10:30–11:30

## A.6. ENVIRONMENTAL EXPOSURE

### Precipitation, mean monthly temperature and monthly counts of Hepatitis A in Northern Kazakhstan in 2000–2010

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#### Background

Several studies have reported associations between enteric infections and climatic factors, but most of them were conducted in Europe, North America and Australia warranting further research in other settings. While associations between ambient air temperature and food poisoning or salmonellosis are well-established, less is known about associations between temperature or precipitation and Hepatitis A. The objective of the study was to investigate associations between monthly counts of Hepatitis A and ambient air temperature and precipitation in Northern Kazakhstan.

#### Methods

Data on all laboratory-confirmed cases of Hepatitis A in the county of Northern Kazakhstan (regional centre-Petropavlovsk) from 2000–2010 were obtained from the national infectious diseases surveillance centre. Associations between monthly counts of cases and climatic variables with

lags 0–2 were studied by negative binomial regressive models with dichotomous indicator variables for each year and month to control for long-term trends and seasonality. The model was adjusted for first- and second order autocorrelation. “Hockey-stick” models were also applied to logarithmically transformed monthly counts to detect a threshold of the effect of mean temperature on monthly counts of Hepatitis A.

#### Results

We observed a linear association between the number of reported cases of Hepatitis A and mean monthly precipitation with lag 2 across the whole range of precipitation. An increase by 1 mm was associated with a 1.0% (95% CI: 0.3–1.7) decrease in the number of cases two months later. No associations between mean monthly temperatures and the number of cases of Hepatitis A were observed. No thresholds were detected by the “hockey-stick” models for either temperature or precipitation.

#### Conclusions

Greater mean monthly precipitation seems to be associated with lower monthly counts of Hepatitis A two months later in Northern Kazakhstan. No associations between mean monthly temperatures and the number of cases of Hepatitis A were found. Potential mechanisms behind the associations and further implications of the results in relation to climate change will be discussed.

## Study of indoor air quality and respiratory health in urban and rural areas in Slovakia

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### Background

Indoor air pollution is, after drinking water, the second major environmental factor influencing health. Almost half the world's population uses coal and biomass fuels for domestic energy. This study's aims were to determine the indoor air quality in rural and urban households by measuring the level of CO, CO<sub>2</sub>, PM, PM<sub>10</sub>, temperature and relative humidity during winter and summer time; to assess the respiratory health by identifying respiratory symptoms and respiratory diseases in study population; and to analyse the relation between selected indoor air parameters and lung function/respiratory scores.

### Methods

The wood and coal were used as a main source of energy for heating and cooking in rural households; electricity and gas were used in urban households. Levels of indoor air parameters were measured continuously during 24 hour period time in each settlement in the winter and summer time. The basic data on indoor environment and respiratory health were obtained through standardized questionnaires. Respiratory score was calculated on this data. Spirometer was used for lung's function examination.

### Results

Higher median concentrations of CO (1,9 ppm), CO<sub>2</sub> (959 ppm), PMS (0,38 mg.m<sup>-3</sup>, PM<sub>10</sub> (0,15 mg.m<sup>-3</sup>) were measured in rural household during the winter time compare to urban areas (1,6 ppm; 803 ppm; 0,17 mg.m<sup>-3</sup>; 0,1 mg.m<sup>-3</sup>). In the summer time, the measurement results were the opposite. The average temperature was higher in urban households during summer and also winter period. In the contrary, the relative humidity was higher in rural households during both measurement periods. In this study was found that the risk of lower lung functions increases in people older than 65 (OR = 21,08; 95%CI = 2,43–182,51), in respondents with higher respiratory score (OR = 7,33; 95%CI = 179–30,02) and in inhabitants living in households with humidity less than 30% (OR = 6,68; 95%CI = 1,31–33,92).

### Conclusion

The results of this study suggest that the indoor air quality could be improved in the rural areas by using cleaner energy sources, not fossil fuels, for heating and cooking and by improving the behavioural habits as regular ventilation. The monitoring of outdoor air pollution is assumed to be an essential part of the future studies of indoor air quality.

## A proposal for a new index for the evaluation of fish freshness

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### Background

Fish are a very perishable product. The freshness of fish (as well as of other food products) is an index of preservation and greatly affects the product quality and market value; therefore, the control of food quality and freshness is of growing interest for both consumers and the food industry. Different indices of freshness have been proposed based upon sensory and biochemical parameters; these indices are related to the species of the fish and do not overcome the problems of sensorial

analysis proposed by the regulations. The purpose of this study is to define a new system for assessing the freshness of marine bony fish based on objective and measurable parameters.

### Methods

In total, 151 fish were analysed to determine the concentrations of total volatile basic nitrogen, trimethylamine N-oxide, trimethylamine and malondialdehyde. The results of the analytical determinations were included in an algorithm to calculate the value of the Freshness Index. The Receiver Operating Characteristic curves method was used to identify the threshold values of Freshness Index that can distinguish fresh fish ("good") from fish that is not fresh ("not good"), according to the Council Regulation (EC) No 2406/96.

### Results

After taking all of the analysed samples into consideration, the most appropriate threshold value was 0.33 (sensitivity 95.6%, specificity 73.6%, 80.1% correctly classified cases), with some differences among individual families or groups.

### Conclusions

The preliminary results show that the Freshness Index provides a simple, straightforward, and objective method that can be used for the official control and self-verification systems. The Freshness Index can be used for the evaluation of consignments of fresh or presumed fresh fish to produce definite evidence for control purposes; this index can also monitor the production of fish up to the level of retail display. The applicability of the index is supported by the fact that the analyses are low-cost, can be performed in laboratories with basic equipment, and can estimate the freshness of the fish quickly.

## Is bottled water safe to drink; surveillance of market and manufacturing practices in Poland

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### Issue

The production and consumption of bottled water, (ie. mineral water), has risen almost 20-fold over recent years in Poland. This water is legally classified as a foodstuff and falls under health and safety regulations governing food and nutrition. Detailed requirements on water quality were defined in 1997 Ministry of Health regulations. Poland's laws in this respect comply with those from the EU intended to guarantee full consumer health protection against harmful effects of any contamination.

### Description

The responsible government authority is the State Sanitary Inspectorate (SSI), operating according to a set code of practice where 3 water categories are defined; mineral, spring and table waters. Water products placed on the Polish market must have official clearance from the SSI and/or responsible authorities in other EU countries.

### Results

Up to 7.10.2011 the SSI has endorsed 100 mineral water products, whereas only 40 during 2007–2010. During this latter time the SSI performed surveillance on 97% of all 3 water types taking 4533 samples for quality analysis where roughly similar numbers of samples were taken yearly. Challenges were as follows; 8.7% in 2007, 6.9% in 2008, 2.5% in 2009 and 4.7% in 2010. The most frequent transgressions recorded were from the prohibited presence of bacteria from the E.Coli group *Pseudomonas aeruginosa* and non-compliant labelling of mineral and spring waters. Compliance of manufacturers with national/EU recommended codes of practice, (ie. GMP, GHP and HCAAP), has also been observed to grow; being at levels of 80–90%.

## Lessons

In such ways the SSI operates to ensure up till now safe drinking water in Poland.

## Determinants of Handwashing Habits, Turkey 2009:Assigning New Tasks for Health Promotion

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### Background

In this first nationwide study on handwashing, it is aimed to determine the handwashing frequency and its relationship with some descriptive variables, and to generate data for future health promotion programs.

### Methods

Sampling is selected through households and based on national database in which all addresses in Turkey are registered. Stratified cluster sampling method is used and strata are determined as urban-rural. For a household to be covered in this study, at least with one person over 12 years old an interview should be done. 3672 of 5085 households (72.2%) were interviewed and 6854 persons were covered in a face-to-face survey.

### Results

61.6% of participants wash their hands over 10 times a day. As 91.1% of participants always wash their hands after using the bathroom, 61.1% always wash before meals.

Frequency of handwashing before meals, after using bathroom and over 10 times a day increases with age and education level, and it is higher in women ( $p < 0,05$ ). Frequency of handwashing before meals in persons living in rural areas is higher ( $p < 0,05$ ).

Forgetting (34.1%), not having available setting for handwashing (29.4%) and not having enough time (24.3%) are the first reasons indicated by participants for not washing hand while they should.

When the reasons for not washing hand are grouped as personal (forgetting, not having enough time etc.) and environmental (not having available or hygienic settings etc), the frequency of persons indicating environmental reasons for not washing hand increases with age, urbanization and education level ( $p < 0,001$ ).

### Conclusions

Adolescents, men and low educated groups who are determined as disadvantaged groups for handwashing should primarily be considered in health promotion programs.

Higher frequency of environmental reasons for not washing hand in higher educated groups and persons living in urban areas implies a higher expectation for availability of handwashing settings and inadequacy in access to handwashing settings. Taking these results into account for the countries in process of urbanization like Turkey will make a contribution to reach the aim of healthy cities.

## Small invisible dangers from printers in the office environment

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### Background

Particulate air pollution was demonstrated to have serious short and long-term health effects, in particular in indoor environments. There is little literature data available to compare particle number concentrations measured in the office environment. Objective of this study is to investigate the particle number concentration levels in a controlled dynamic office environment.

## Methods

A Kanomax Model 3887 Handheld Laser Particle Counter was used for continuous (3 h), repeated (sample time 60 s with logging interval of 10 min) and real-time measurements of total number concentrations of particles in the range from 0.3  $\mu\text{m}$  to 5  $\mu\text{m}$ . The particle counter has a calibrated flow rate of 2.83 L/min, verified to  $\pm 5\%$  accuracy. Particle concentrations were studied in a work environment characterized by the presence of three printers. Measurements were performed in different conditions: when printers were off, immediately after the printers had printed one page and after 20 minutes of operative printing process. Same measurements were taken with more or individually printers switched on and with air intake and/or emission switched on/off. All statistical analyses were conducted using SPSS 17.0.

### Results

Preliminary analysis of the particle number concentrations showed clear variation (one-way ANOVA,  $p < 0.005$ ) during printing time and printers “at rest” in each environmental condition of air intake and/or emission. The average number concentration for particle with diameter of 0.3–0.5–5  $\mu\text{m}$  during printing time were  $9.21 \times 10^6 \text{ m}^{-3}$  ( $\pm 7.32 \times 10^4 \text{ m}^{-3} \text{ SD}$ ),  $5.09 \times 10^5 \text{ m}^{-3}$  ( $\pm 4.93 \times 10^4 \text{ m}^{-3} \text{ SD}$ ),  $4.24 \times 10^3 \text{ m}^{-3}$  ( $\pm 1.62 \times 10^3 \text{ m}^{-3} \text{ SD}$ ) respectively, values about three times higher than that during non operative printing process. Particle concentration was not depending significantly on the number of pages printed. The switching on of the air extractor showed to decrease significantly the 5  $\mu\text{m}$  particle number concentrations ( $p < 0.005$ ). Further investigations are underway.

### Conclusions

The control and the possibility of cutting down such emissions allow to hypothesize procedures and control measures for exposed workers’ protection.

The widespread use of information technology in private homes, mostly by young people, makes it an interesting topic beyond the occupational medicine.

## Occupational environment and its impact on occurrence of cancer cases among workers in nickel refinery

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### Background

To demonstrate the impact of occupational exposure on the incidence of various types of cancer among nickel smelter workers in Sered, Slovakia. To analyze the occurrence of cancer among smelter workers. To make a risk assessment and survival analyses in a selected group of workers.

### Methods

Retrospective cohort study is based on data pertaining to outcomes of past and present work-related nickel exposures among smelter workers. Observed historical cohort group were 4622 workers in the nickel smelter in Sered (Galanta district) who were employed during the years 1963–1993. Survival analyses were calculated.

### Results

There were 1348 non-exposed employees (29%) and 3274 exposed employees (71%). There were 4222 employees without recorded cancer (91%) and 400 employees had recorded cancer (9%). Among cancer cases we assessed that they mostly worked in manufacturing departments (52% of cases). The most cases were employed in nickel smelters over the 20 years (42%). Thirty-six percent of cases were originally employed as nickel smelters at 31–40 years of age. The higher fatality was recorded by cases with respiratory cancer (86%), digestive cancer (82%) and oral cavity cancer (80%). We found that with increasing age of first histology confirmation, there was an increased hazard of death among cancer cases (hazard ratio = 4,11, CI95% = 1,97–8,55,  $P \leq 0,001$ ).

## Conclusions

This study was the first study which discussed health-related consequences of the possible occupational exposure in the nickel refinery in Sered in the Slovak Republic.

## Asbestos: encapsulating or removal?

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## Introduction

In Italy, every year, the deaths attributable to asbestos are nearly one thousand. Asbestos is forbidden in Italy from 1992, in fact its fibers, released in the air and inhaled cause pleural, pericardia, peritoneal mesothelioma and lung cancer. To avoid these problems structures which contain asbestos are encapsulated or dismantled. The aim of this research is to assess whether the choice of the intervention (IN) “encapsulating” or “removing” asbestos is driven by the degradation index and/or other variables.

## Materials and methods

This is a descriptive study. Data refer to the municipality of Arezzo, Italy, and were obtained by its Local Health Unit. The studied period was from 2008 to 2011. Fifty-eight asbestos sites (AS) and the territory of the municipality of Arezzo were geo-referenced, using the program ArcGis. The evaluation of the asbestos conditions, mainly in the roof of the buildings was obtained using the Degradation Index (ID). Other variables included in the analysis were asbestos surface, population density and geographical position. Descriptive analysis, X2 test and logistic regression were used to analyze the data.

## Results

Thirty-six asbestos roofs have been removed and 22 have been encapsulated from 2008 to 2011. Seventy-two percent of the interventions occurred in 2008/9. No differences between the two IN were detected in the 4 year ( $p=0.404$ ). Population density (OR=1.07,  $p=0.352$ ), asbestos surface (OR=1.0,  $p=0.200$ ), and geographical positions (OR=0.99,  $p=0.391$ ) did not show association in predicting the IN “removing” versus “encapsulation” one. ID was always associated with the “removing” IN when the value scored more than 52.

## Conclusions

It seems that only ID is the factor which influence the removal of asbestos. It seems that highly populated zones and asbestos surfaces do not play a role in dismantling the AS. Although encapsulation should assure safety for the population living nearby the AS, routine controls should be undertaken.

# B.6. Relationships

## Adolescent health is associated with high school dropout, independent of parental socioeconomic status: a prospective population study, The Young-HUNT 1 study (Norway)

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## Background

Despite the vast evidence of social inequalities in health in adulthood, the influence of adolescent health on educational attainment remains equivocal. The aim of the present study was to investigate several dimensions of health in adolescence and their associations with school dropout-adjusting for family factors such as family structure and parental socioeconomic status (SES).

## Methods

In 1995–1997, a population of 8950 adolescents (13–19 years) rated their health in the Young-HUNT 1 Study (90% response rate), reporting on the presence of chronic somatic disease, symptom burden, psychological distress, concentration difficulties and insomnia. BMI was measured. School dropout, family structure and parental SES (education, income and occupation) were defined by linkages to the National Education Database, the National Insurance administration and HUNT2. Data was analysed with logistic regression, adjusted for socioeconomic status and family structure (with 95% CI).

## Results

Chronic somatic diseases (asthma/epilepsy/migraine/diabetes/disease lasting longer than 3 months), symptom burdens (headache/neck pain/muscle and joint aches/nausea/diarrhea/constipation/palpitations), psychological distress, concentration difficulties, insomnia, self-rated health, overweight and

obesity were all strongly associated with school dropout. Adjustment for socioeconomic status and family structure did not substantially attenuate these associations. There was no interaction with either sex or socioeconomic status.

## Conclusion

The findings suggest a health contribution in generating socioeconomic inequalities in adolescence, additively to the effect of parental socioeconomic status. Across all familial socioeconomic classes, health and health potential had impact on educational attainment and hereby on future social position. It challenges both health and school services to develop adequate preventive measures to counteract such health selection.

## Quality, equity, safety in the Tuscan long term care facilities: the results of a survey

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## Background

Long term care facilities are representing a fundamental part of the answers offered to elderly people with problems of not self sufficiency or who suffer from health and/or socioeconomic problems. In Italy there have been estimated, at the end of 2007, up to 300.000 beds.

In this context there are still many differences both in the selection and use of tools for assessment and management of the patients and many difficulties in the definition of the criteria for admission. The research project aimed at clarifying the following steps:

- improve technical skills among healthcare workers through the diffusion of the guidelines and other technical tools;
- improve the surveillance by promoting the assessment of the prevalence and incidence of some specific health problems;
- improve clinical practice by implementing professional behaviours characterized by effectiveness and feasibility

particularly as regards to pressure ulcers, management of pain and prevention of falls.

#### Methods

We have selected 60 facilities and formed 300 healthcare workers on the objectives of the project. The same professionals have led the prevalence and incidence survey on pressure ulcers, pain and falls, together with filling of two more schedules regarding the safety of the environment and the measure of case mix.

#### Results

The sample of the guests who live in the sixty facilities was of 2583 subjects, of whom 80% were not self sufficient, in an age range between 70 and 94 and 70% of female gender. 50% was physically dependent and with a mental impairment; 36% was confused, irritable or restless; 20% suffers from scarce comprehension, difficulty in speaking, was deaf or blind. The prevalence of pressure sores is 8,7% and 50% of the guests are at risk of developing a new lesion (according to Braden scale score). The incidence of falls was 3,1% person-month and 60% was at high risk for falls. The environmental conditions showed a higher risk of fall in the bedroom (27%), dining room (25%) and corridors (20%). The prevalence of pain, both acute and chronic, was 24,3%.

#### Conclusions

The study made possible for all the facilities to share and use a common set of health measures internationally recognized as effective as regards to elderly people here living.

### The health of lone mothers in different European welfare states-the contribution of non-employment and financial strain in different contexts

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#### Background

Lone mothers have a health disadvantage to couple mothers, partly explained by the socioeconomic composition of the group lone mothers compared to couple mothers. In addition, non-employment and financial strain may contribute to the health disadvantage. Comparative studies of the health of lone mothers in different welfare states have suggested that the impact of non-employment and financial strain on health may differ between contexts. We analysed the impact of non-employment and financial strain on the health of lone and couple mothers in four European countries which represent different welfare regimes (Esping-Andersen).

#### Methods

Data on mothers aged 15–59 were drawn from the European Social Survey (ESS). Pooled data for Netherlands, Slovenia, Sweden and the UK from round 1–4 (conducted 2002–2008) yielded 5770 participants. Population characteristics, prevalence of non-employment, financial strain and health were analysed. Multivariate logistic age-adjusted regression models were fitted to evaluate the relationship between motherhood type, employment status and financial strain with less than good self-rated health (poor health) as outcome measure. Explained fraction was calculated.

#### Results

Adding financial strain and non-employment to the regression model (all countries) explained 50.0 per cent of the excess risk of poor health among lone mothers. In all policy contexts, being non-employed was associated with a higher risk of financial strain and more so among lone mothers (age adjusted OR for lone mothers ranging from 2.3 in Slovenia to 4.0 in Sweden). Levels of poor health were highest in Slovenia (lone and couple) and lowest in Sweden and the UK. Poor health was more common among the non-employed in all policy contexts. Results are preliminary.

#### Discussion

The type of welfare state has implications for lone mothers' labour market participation, and the levels of financial strain reported. Labour market participation was higher and levels of financial strain lower among lone mothers in countries more characterised by decommodification. Part of the impact of non-employment on health is likely to be mediated through financial strain. However, as the results show, health is multi-faceted and needs to be related to the policy context.

### Family structure and distinct roles of mother's and father's parenting processes as a predictor of sexual risk behavior among young adolescents

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#### Background

There is salient evidence that family structure together with parental processes such as monitoring and social support play an important role in context of sexual risk behaviour among adolescents. However, only few studies have explored the role of parental monitoring and support separately by mother and father on sexual risk behavior of children from non/intact families. Therefore the aim of the study is to explore the relationship between monitoring and support from both parents and sexual behaviour of adolescents in context of their family structure.

#### Methods

The study sample of 3725 adolescents (49% boys, age ranging from 11 to 17 years, mean 14.3 years, SD 0.65, response: 93.5%) from 8th and 9th grades of randomly selected elementary schools in Slovakia was surveyed. Questionnaires concerning sexual behavior (ever had sex, condom use during last sex), parental support, monitoring and family structure were administered to students without the presence of the teacher during regular lesson. Crude and adjusted logistic regression analyses were performed using the measures of sexual behaviour as outcomes.

#### Results

In crude model both parental practices and family structure were associated with explored types of sexual behavior among adolescents. In adjusted model girl's later sexual initiation was associated with high paternal monitoring and with complete family. However family structure was the only predictor of boy's later sexual initiation in this model. Moreover we found no associations among explored variables and level of condom use during last sexual intercourse.

#### Conclusions

Parental monitoring and parental support may effectively delay the age of first sexual intercourse. Moreover monitoring from father may play important role in healthy sexual initiation among girls. However our results indicates that these parental processes especially parental support might be dependent from family structure.

### Parenthood, marital status, employment and self-rated health among German men and women. Results from the 2009/10 GEDA-study

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#### Background

The association between parenthood, marital status, working status and health is broadly studied, but there are no consistent results. Research is inconclusive as some studies report positive, some negative relationship or even no relationships at all. Most of the discussions go in the direction of multiple social roles theory, divided into two main explanatory

hypotheses-multiple role-burden and multiple role-attachment hypothesis. In our study we test those hypotheses and investigate closely the relationship between having children, marital status, employment, and subjective health among German men and women.

#### Data and Methods

We use representative data from the GEDA-study carried out by the Robert Koch-Institute in 2009–2010. They were collected using computer assisted telephone interviewing. The sample consists of 35 740 people aged 18–64. Effects of parenthood, marital status, and employment on self-rated health are analysed with the help of logistic regressions.

#### Results

Being a parent increases the good subjective health both for men and women. Marital status on its own doesn't show any significant effects. However, interactions show that single parenthood leads to significant increase in the report of bad subjective health for women. This effect is not observed for men, though.

The working status has a very strong influence for both genders, with non-working persons having worse subjective health. Working and living with partner together, no matter with or without children has a very positive influence on reporting good subjective health with stronger effect for men.

#### Conclusion

The working status of men and women turned out to have the strongest effect on the self-rated health for both men and women. Being active on the labour market, combined with being a parent and a partner has a positive effect on the perceived health. Our results support the hypothesis of multiple-role attachment which states that multiple responsibilities are beneficial for health. The next step of investigation is to clarify the causality of the parenthood, partner status and health, as there might be some selection effects for which we do not account for.

### Adolescents, risk and protective factors for their health behavior

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#### Background

In Czechia and other post-communist countries alcohol consumption, tobacco use and use of illicit drugs are very frequent among adolescent. This means a serious situation which is not changing, the public education campaigns are not effective and there is also weak law enforcement within the Czech Republic.

#### Methods

Aim of this presentation is to discuss to use of the resilience theory for the effects of the health risk behavior among adolescents in the Czech Republic from different areas. This allows us to evaluate if young people living in socially disadvantaged areas might have higher probability of risk health behavior than the youth from more affluent areas with higher social cohesion and what is the role of parental support and family socioeconomic status in the evolution of risk behavior in an individual.

Our study is based on the individual data of the cross-country European school survey project on alcohol and other drugs (2007). The ESPAD respondents are schoolchildren cohort of 6902 Czech students (15–16 year-old). There were five independent variables characterizing the family circumstances of the individual. Three models were computed for each type of the city according to its socio-economic circumstances.

#### Results

Our results revealed close relation between the probability that a risk behavior will evolve in a teenager and the education level of parents, as well as an association of teenager's risk behavior and the satisfaction with his/hers relation to parent. This suggests that a family's ability to support adolescents relates to a lower level of risky behavior.

#### Conclusions

The age of an early adolescence is crucially important for the determination of the future risk behavior and for the development of individual's capital. Especially in areas with a higher degree of disadvantage and lower social cohesion, the accessible counseling services focused at family support and social support seem to be the key factor to tackle the high risky behavior prevalence maybe through individual interventions. A community-based approach can contribute decisively to the success of different types of preventive interventions.

### Tarnished arrangements: investigating the individual health consequences of corruption

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#### Background

Evidence from population health studies suggests that corruption negatively influences health. Little information is available that examines the extent living in a country with corrupt features impacts individual health. Given that regimes in Africa are marred by corrupt elements, we explore governance by investigating perceived corruption within society and the manner in which it influences individual health.

#### Methods

World Health Survey data were analyzed on 72,524 adults from 20 African countries. Main outcome was self-reported general health. Multilevel logistic regression was used to assess the association between individual health and perceived corruption, while accounting for individual- and country-level human development factors, namely educational attainment, occupation, mean years of schooling, and gross national income. Differences by gender and age were also examined.

#### Results

Less perceived corruption in society consistently resulted in lower poor health prevalence, also after full adjustments, with odds ratios (OR) in models 1–3 being 0.89 (95%CI=0.70–1.14), 0.91 (95%CI=0.71–1.17) and 0.68 (95%CI=0.43–1.09), respectively. Overall, men had slightly lower odds of reporting poor health prevalence as compared to women, and a further distinction by gender showed that both men and women had lower odds of reporting poor health prevalence. For example, after full adjustments of corruption and human development factors, odds ratios for women were 0.70 (95%CI=0.44–1.13) and for men (OR=0.66; 95%CI=0.41–1.06). This pattern was also evident by age group.

#### Conclusions

Corruption is a mega issue in African nations and this blemish in society might also be negatively impacting individual health. Although our study is a cautious first step, results suggest that higher perceived corruption levels indicate poorer general health. This effect seems apparent for men and particularly women across the lifespan. It appears that corruption should be rooted out of African society for the benefit of individual health.

## C.6 DRUGS

### Cannabis use and depression: Longitudinal study of a national cohort of Swedish conscripts

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#### Background

While there is increasing evidence on the association between cannabis use and psychotic outcomes, it is still unclear whether this also relates to depression. We aim to assess risk of depression and other affective outcomes among cannabis users.

#### Methods

Cohort study of 45 087 Swedish men with data on cannabis use between ages 18–19 were followed up during 35 years with regard to inpatient care for unipolar, bipolar, affective psychosis and schizoaffective disorder. Cox proportional hazard model was used to assess the relative hazards of developing depression and schizoaffective disorder in relation to cannabis exposure.

#### Results

Only subjects with the highest level of cannabis use had increased crude hazard ratios for depression 1.5 (1.0–2.2), but after adjustment for confounders this association vanished. There was a strong graded association between cannabis use and schizoaffective disorder. Even after control for confounders 7.4 (1.0–58.2)

#### Conclusion

While we did not find evidence for an increased risk of depression, our finding of an increased risk of schizoaffective disorder is consistent with previous studies on cannabis and psychosis.

### The use of marijuana as an alarming feature in the lifestyle of Czech teenagers

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The changing social and political conditions after the so called ‘velvet revolution’ in 1989 brought many changes in the life style and life choices of Czech citizens, including increase in the risk behaviors. These risk behaviors are extremely problematic especially among young people. Czech students usually score very high on the majority of the variables monitored by international surveys on risk behavior (e.g. the ESPAD study). Nearly half of the students monitored have used cannabis and the use of other drugs was reported by another tenth of students. Such a high use of marijuana is striking also when compared to the rest of the Central European countries. Czechia is a transport country and many drugs are transferred through the area of the country on their way to the Western Europe. Availability of marijuana is thus widespread and the prices are obviously convenient including for the younger customers.

The paper aims to reveal the trends of marijuana use between 1993 and 2011. We use the data from the European School Project on Alcohol and Other Drugs (ESPAD) which

offers a comparative evidence of alcohol, tobacco, and drug use in the populations of 15–16 year old students. The paper statistical analysis—mainly descriptive statistics and logistic regression and it focuses on the connection of this risk behavior and lifestyle of the teenagers. For the evaluation of lifestyle the leisure time activities have been applied.

Meanwhile the proportion of those who never tried marijuana in their lifetime is decreasing, there is an obvious increase in the categories of students who experiment with drugs or use them regularly. We conducted a logistic regression with marijuana use during the last twelve months as dependent variable and various leisure time activities as independent variables. The strongest association revealed was the one between the frequent use of marijuana and frequency of visits at the disco, club etc. (eleven times higher for the daily visitors when compared to those who never go to disco).

The results reveal an obvious need of enhancing prevention, including not only the risk behavior, but implying also an essential change in the approach to leisure activities of young people as a good proxy of their future healthy life choices.

### An epidemiological survey to determine the scale and serious public health risk of designer drug (DD) abuse in Polish schoolchildren and students

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#### Background

Since 2008 it is recognised by most health authorities worldwide that abuse of newly emerging psychoactive drugs, (‘designer drugs’/‘legal highs’), in youth is a problem rapidly increasing especially in the EU, threatening to offset gains made in tackling established and illegal drugs which they are intended to mimic; DD diversity continually increasing to circumvent laws. This was particularly acute in Poland with hundreds of hospitalisations resulting in Oct 2010 alone bringing about drastic enforcement action following scientific assessment and changes to the national law for the situation to be controlled.

#### Methods

A major randomised survey of 10,083 school pupils and 4,428 students was therefore performed (March–April 2011), to determine the scale of DD abuse/availability amongst Polish youth.

#### Results

Few persons from each group admitted using DDs; 453 schoolpupils (4.49%) vs 81 students (1.83%). More males (4.74%) took DDs than females (2.77%). The tendency to take DDs in friend’s company was high in both DD taking groups (>80%). First time users within 1–2 years ago constituted the highest group. DDs were consumed mostly in open spaces (34.15%), discos/pubs (21.13%) and boarding school/friends house (20.57). Most frequently DDs came from shops (57.68%), friends (31.46%) or dealers (10.67%). Ensuing symptoms included; happy/euphoric mood (58.8%), talkativeness (42.51%) and hallucinations (22.85%). Over 73% of DD takers in both groups experienced adverse reactions and those requiring help sought; friends/colleagues (6.74%), doctors (5.06%), hospitals (4.87%) but most rarely parents/guardians (2.62%).



## Conclusions

Urgent action is being taken, especially youth education, to prevent DDs becoming the serious menace as seen with conventional drugs.

## Problem Drug use in Lithuania

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Aim of the study is to estimate and assess the prevalence of problem drug users in Lithuania. Problem drugs users mean persons-injecting drug users or regular users of heroin and other opioids (including illicit methadone and buprenorphine), cocaine and/or amphetamine (including use of methamphetamines, excluding ecstasy). This definition does not include users of cannabis (marihuana). To estimate the prevalence of problem drug users the capture-recapture method was used. For the study, the data concerning problem drug users were selected from the databases of the health care and law enforcement institutions. The target group consisted of permanent users of heroin and other opioids and/or several drugs, the population aged 15–64.

Were identified 431 monitored problem drug users in 2005 in Lithuania, i.e. in 2006-482, and in 2007-447. The ratio of males and females among the monitored problem drug users was as follows: in 2006-6:1, in 2005 and 2007-4:1. The average age of the monitored problem drug users in 2005 was 26.8 years, in 2006-27.6, and in 2007-28.0 years. In 2005, 2006 and 2007-the youngest problem drug user was 15 years old, the oldest in 2005-47 years of age, in 2006-57 years, and in 2007-61 years. In most cases the age of monitored problem drug users was 26 years throughout the period of the study. Biggest share of the monitored problem drug users belonged to the age group of 25–34 years. In 2005, in Lithuania 5699 problem drug users were identified (95% Confidence Interval (hereinafter-C.I.) 5552–5849), in 2006-5800 (95% C.I. 5652–5951) and in 2007-5458 (95% C.I. 5314–5605). Using the received data the prevalence of problem drug users was calculated as follows: in 2005-2.3 problem drug users per 1000 Lithuanian population aged 15–64, in 2006-2.5, and in 2007-2.4.

The study showed that in Lithuania one of the lowest prevalence levels of problem drug users was observed, as in Germany, The Netherlands, Greece and Cyprus. In 2005–2007, in Lithuania problem drug users mainly were young men.

## Gender-specific differences in rates of licit and illicit substance use and associated negative consequences among German university students

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## Background

Substance use (i.e., using alcohol, tobacco, cannabis and other illicit drugs) in adolescence may not only cause negative health outcomes but may also have negative social, academic, legal and financial consequences. Numerous studies have shown

that men are more likely to use drugs and to experience negative consequences of substance use than women. The aims of this investigation were to examine rates of licit and illicit drug use as well as associated negative consequences and to investigate gender-specific differences among German university students.

## Methods

Data came from an EU-funded study conducted in 7 European countries. In Germany, 471 students (58.8% female) completed questions about their personal substance use and the extent to which they experienced a selection of negative consequences associated with drug use.

## Results

62.9% of male and 46.5% of female students had consumed alcoholic beverages at least once per week. A higher proportion of males reported the consumption of marihuana (35.6%) and other illicit drugs (11.5%) in the past 2 months than females (18.4%; 6.2%), but there were no significant gender-specific differences in tobacco consumption (male 42.8%, female: 39.0). Both male and female respondents reported experiencing a variety of substance use-related consequences. Overall, the most frequently experienced negative consequences were having a hangover (85.3%) or experiencing memory loss (63.0%). 56.5% of the students reported missing an academic class or another commitment. 35.7% of the students stated that they had been injured and 31.6% reported unintended sexual contact. Men were more likely than women to report missing a class, driving under the influence or riding as a passenger of an intoxicated driver and involvement in physical assaults. No gender-specific differences were shown regarding unprotected and unintended sex.

## Conclusions

Similar to previous findings, our results indicate higher rates of substance use among male compared to female university students. Short-term health complaints, academic failure and involvement in violent acts as a result of substance use were more prevalent among men than women. Gender sensitive health promotion and prevention strategies towards substance use should be developed and tested.

## Stability and change in alcohol habits of socio-economic subgroups

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## Background

Alcohol habits vary by socio-economic factors, but there is sparse knowledge of stability in alcohol habits by socio-economic subgroups and socio-economic predictors of stability and change. The aim was to study stability and change in alcohol habits by age, gender, educational level, and occupational class.

## Methods

This is a cohort study and the study population derives from two longitudinal population-based studies with randomly selected citizens in Stockholm, Sweden; 19 457 individuals, aged 20–64, from the PART study in 1998–2000, and 50 067 individuals, aged 18–84 years, from the Stockholm Public Health Cohort (SPHC) in 2002. The cohorts were followed-up on two occasions, 2000–2003 and 2010, in PART and 2007 and 2010, in SPHC. Participants responding at all occasions were included in the current study, a total of 5 227 in PART and 19 327 in SPHC. Alcohol habits were measured with the Alcohol Use Disorders Identification Test (AUDIT) in PART and normal weekly alcohol consumption (NWAC) in SPHC. Educational level and occupational class were the studied

socio-economic variables. Stability in alcohol habits was measured with intraclass correlation. Multinomial logistic regression estimated odds ratios on predictors for stability and change in alcohol habits.

#### Results

The stability in alcohol habits for the total cohorts was moderate, and did not differ substantially between socio-economic subgroups in AUDIT, but in NWAC. In both cohorts there was no overall gender difference in stability, the oldest age groups had higher stability compared to younger ages, and men with high educational level had higher stability compared to less educated men. Predicting factors for increase was low and intermediate education level and self-employment in NWAC.

#### Conclusions

The stability in alcohol habits varied by socio-economic subgroups and was moderate or low. Educational level and occupational class predicted change in weekly alcohol consumption but not in AUDIT.

### Tobacco and Alcohol Use during Pregnancy in South-West Romania

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#### Background

Smoking and alcohol drinking during gestation are important public health problems associated with a range of adverse pregnancy outcomes. This study aimed at investigating the prevalence of these two behavioural risk factors among women residing in South-Western Romania.

#### Methods

481 women aged 18–75 years were enrolled during 2009. Information about age, residence, educational level, number of pregnancies, and smoking habits and alcohol use during last pregnancy was obtained either by self-administered or conducted by an interviewer questionnaire at enrollment (response rate 96%).

#### Results

9.1% women smoked and 10% used alcohol during their most recent pregnancy. Women highly educated ( $p < 0.05$ ), living in urban area ( $p < 0.01$ ), aged 24–34 were more frequently smoking. Related to the alcohol consumption there were no significant differences by educational level or residence, but women aged 35 + drank more during last gestation. Women in rural (36%), less educated (60%) and aged 50 + (45.5%) stated that they have received not enough or at all information from healthcare providers about the effects of tobacco and alcohol usage during their last pregnancy. Only 40.2% of all women considered themselves to be well informed.

#### Conclusion

Tobacco and alcohol use during pregnancy are still prevalent among Romanian women. This research demonstrates the necessity of implementing a smoking and drinking cessation counseling intervention integrated into prenatal clinics; these programs could have an important impact upon reducing risk behavior during pregnancy.

### Has the minimum tax on cigarettes affected smoking outcomes in Spain?

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#### Background

Tobacco control policies in Spain have been strengthened over the last years, banning advertising and smoking at workplaces in 2006, until a complete ban in bars and restaurants in 2011.

Several tax reforms have also been applied. In 2006 a minimum tax on cigarettes was introduced in mainland Spain and the Balearic Islands. This intervention increased the average price of cigarettes and lifted the bottom end of the cigarette price distribution in the territories where the minimum tax was applied. While several studies have addressed the effects of the reform on exposure to environmental smoke, nothing is known about the effects, if any, of the introduction of the minimum tax. The objective in this paper is to evaluate whether it had any impact on tobacco consumption, and if not, the possible causes for it.

#### Methods

We exploit the differential tax regime applicable in the Canary Islands, a territory exempted from the minimum tax. We use a difference-in differences methodology whereby Spain's mainland and the Balearic Islands are considered as the treatment group of the intervention and the Canary Islands the corresponding control group. Three outcomes are considered: smoking prevalence, rate of quitting and rate of never smokers. The evolution of the three outcomes for the two groups are compared using data from the Encuesta Nacional de Salud in 2001, 2003, 2006 and the European Health Survey in Spain 2009. Tests for the common trends assumption are duly carried out.

#### Results

We find evidence for some positive causal effect on the rate of quitting among men. This is counteracted by a concomitant increase in the percentage of men who have ever smoked in mainland Spain and the Balearic Islands, a phenomenon that reveals the inefficacy of the intervention at stopping new starts.

#### Conclusions

Despite a clear positive effect on the bottom end of cigarette prices and average tobacco prices, the intervention not succeeded in bringing down the prevalence rate. The answer may lay in the fact that cigarettes have cheap substitutes in the form of roll your own tobacco, whose price has remained clearly below that of the former. Other factors, such as the growth of incomes and employment over the study period might have counteracted any price effect on smoking take up.

### We Dance-A Dance Against Violence and Drugs

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#### Issue/Problem

Adolescence is the transition from childhood to age adult age. This transition is marked by great changes, both physical, psychological and social. The age of adulthood is marked by the quest for sexual and social identity, and often time with different risky behaviors (alcoholism, drug addiction). Young people are particularly exposed to risk factors in their free time. description of the problem: Dance is an art, sport, entertainment. Dance offer to develop new skills, raises self-esteem, has positive effect on the development of sexual identity, improves physical health, develop motor skills, improves posture. Dance develops hearing, sense of rhythm, enhances and improves mood and cognitive function. Dance is the only activity that connects simultaneously to enjoy music, entertainment, sports and socializing with the opposite sex in particular:

Whit all that benefits, it should be offered to young people in their free time, by providing them a social activity in which they could enjoy, under supervision and professional guidance. So we proposed health promotion program, to introduce dance as free school activity. We organized free workshops for final year students in seven selected primary schools. It was organised two lessons per week, after school, under professional guidance, dance teacher and public health specialist. Approximately 80 students per school participated in program. expected results are: Short-term: Organizing free time

adolescents, The development and adoption of new knowledge and skills, Learning through fun and games, The positive development of sexual identity, Promoting physical activity, Reducing exposure to the risky behavior, The development of musical culture. Long-term: Improvement of social and communication skills of young, Reducing violence and addiction in schools, Develop dance skills

### Lessons

It is extremely important to offer young people opportunities to socialize with peers, gaining new skills and meeting new friends, all with facilities that offer entertainment, socializing, while also developing social and communication skills and promoting healthy lifestyle.

## D.6. ALL RESEARCH INCLUDED

### Is Chhattisgarh Rural Medical Corp scheme is a solution to the non availability of healthcare staffs in rural and remote areas of Chhattisgarh state, India?

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#### Objectives

To assess the impact of Chhattisgarh Rural Medical Corp scheme on non availability of healthcare staffs in rural and remote areas of Chhattisgarh, India.

#### Background

Faced with a shortage of doctors in rural and extremists affected areas, the Chhattisgarh Govt. has formulated an incentive scheme to influence external motivation of health professionals and promote their behavior to give service in these hard areas. This scheme is known as Chhattisgarh Rural Medical Corp (CRMC).

#### Methods

Two districts Bastar and Narayanpur were selected to see the mobility of health workforce from normal to hardest area because of CRMC scheme. In-depth interviews was conducted among medical doctors, rural medical assistants and staff nurses working and not working under CRMC scheme by using a semi-structured interview schedule.

#### Results

About awareness of CRMC scheme among 129 respondents, data depicts 89 respondents' claims that they are aware of CRMC scheme while 40 (31.00%) respondents are not aware of scheme. According to 61 (82.43%) CRMC beneficiaries; provision for good accommodation for all health staff, provision for children education of health staff, increase in cash incentive, Health insurance coverage, timely promotion, special rewards, mobility support and special protection to health staff should be incorporated under CRMC scheme.

#### Conclusions

This study reveals that awareness of CRMC scheme among targeted health staffs is not sufficient and acceptances among those who are aware of it also low. Despite the better provisions and financial incentives offered through this scheme, the response of medical officers working in normal areas has been cold because of poor awareness of scheme among targeted health staffs, and better provisions and financial incentives under schemes are not sufficient to motivate the health staffs to join this scheme.

#### Implications

There is a need of revision in CRMC scheme so that motivation among health staffs can be increased accordingly.

### Who are healthier: physicians or teachers?

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The physicians and the teachers are two groups of professionals who are mostly involved into health promotion and

disease prevention of population. The health status of the physicians and the teachers is directly related with their wellbeing and influences their professional effectiveness. The aim of the study was to evaluate and to compare the main health indicators among physicians and teachers in Lithuania.

#### Material and methods

The health status of physicians and teachers working in five regions of Lithuania was checked up. One hospital and secondary school of each region town and rural place was randomly selected. All physicians and teachers working in rural hospital and secondary school and randomly selected physicians of town's hospitals and all teachers of town's schools at the day of survey were invited to take part in the health check-up. During the health check-up the arterial blood pressure, height, weight, blood cholesterol and glucose level were measured. The anonymous questionnaire included questions about self-health assessment, health behaviour, workloads, etc.

#### Results

Six hundred and eight physicians and five hundred twenty four teachers took part in health check-up. The response rate was higher among the teachers than among the physicians, correspondingly 75.5% and 45.8% ( $p < 0.05$ ). The self-health assessment was better among physicians than teachers, but the prevalence of such major risk factors of noncommunicable diseases (NCD) as hypertension, overweight was higher among physicians than among teachers. The multivariate analysis of data showed, that not the same risk factors were related with the worse health of respondents.

#### Conclusions

Despite the fact that physicians' awareness on health promotion and prevention of NCD's is better, unfortunately their risk profile is quite high and the prevention measures should be planned for them as well as for teachers.

### Evidence-based search strings for the study of farmers' occupational diseases

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#### Objective

The aim of the study was to identify efficient PubMed search strategies to retrieve articles regarding putative occupational determinants of farmers' diseases.

#### Methods

Based on Medical Subject Heading (MeSH) definitions and expert knowledge, we selected the MeSH term agricultural workers' disease and, as candidate search terms, five MeSH terms describing farm work (pesticides, agriculture, rural population, rural health, agrochemicals NOT pesticides) alongside 25 other promising terms. Using random samples

of abstracts retrieved by each term, we estimated proportions of articles containing potentially pertinent information regarding occupational aetiology in order to formulate two search strategies (one more “specific”, one more “sensitive”). We applied these strategies to retrieve information on possible occupational aetiology among farmers of knee osteoarthritis, multiple sclerosis and kidney cancer. We evaluated the number of abstracts needed to read (NNR) to identify one potentially pertinent article in the context of these pathologies.

### Results

The more “specific” search string was based on the combination of terms that yielded the highest proportion (40%) of potentially pertinent abstracts. The more “sensitive” string was based on use of broader search fields and additional coverage provided by other search terms under study. Using the specific string, the NNR to find one potentially pertinent article were: 1.3 for knee osteoarthritis; 1.3 for multiple sclerosis; 1.1 for kidney cancer. Using the sensitive strategy, the NNR were 1.8, 2.4 and 1.4, respectively.

### Conclusions

The proposed strings could help health care professionals explore putative occupational aetiology for farmers’ diseases (even if not generally thought to be work-related).

## Estimating the Prevalence of Systemic Lupus Erythematosus in Malta

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### Background

Systemic lupus erythematosus (SLE) is a multisystemic autoimmune disease which occurs worldwide, with considerable variability in prevalence from country to country. The prevalence ranges from 40 in 100,000 amongst Northern Europeans to 200 in 100,000 in USA black populations. SLE is reportedly up to nine times more common in females as in males. The detection of autoantibodies help in the diagnosis of SLE with IgG anti-double stranded DNA (anti-dsDNA) antibody being the most useful antibody to diagnose and manage SLE. Anti-dsDNA is present in 50–70% of SLE patients. This study aims to estimate the prevalence of SLE in Malta by using routine sources. The main sources are immunological data on test requests and positivity for IgG anti-dsDNA, membership data from the Lupus Group Malta and estimations from private general practitioners.

### Method

Data for anti-dsDNA positivity was obtained from Mater Dei Hospital and all other private laboratories in Malta. Denominator data used similar sources. Membership data stratified by age and gender was obtained from the Lupus Group Malta, though this clearly shows a proportion of all cases. A cross-sectional survey was conducted using a custom made questionnaire to ask private general practitioners to estimate the size of their practice and to quantify all SLE patients, thereby getting estimates of practice prevalence. All sources of data were analyzed and linked to estimate the local prevalence of SLE.

### Conclusion

The formal way of measuring prevalence would be a cross-sectional survey comprising history, examination and laboratory confirmatory tests. Being an uncommon disease, it would be difficult to estimate the prevalence of SLE in such a small population. Moreover, this study encompasses the biases associated with using such routine data and cannot measure true prevalence but only aspire to obtain estimates. However, this method provides a novel, efficient and inexpensive technique to shed light on local SLE prevalence and its standing in relation to a varied worldwide prevalence.

## Implementation of electronic health records in mental health hospitals in England: findings from an independent national evaluation

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### Background

The National Programme for Information Technology (NPfIT) in England was the most expensive IT-based transformation of public services ever undertaken. Nation-wide implementation of integrated electronic health record (EHR) systems in hospitals was at the heart of the NPfIT. This paper describes the process, stakeholders’ experiences and local consequences of the implementation of an electronic health record (EHR) system, in an English mental health hospital.

### Methods

A longitudinal, sociotechnical and real-time case study-based evaluation of the implementation and adoption of an EHR software at an English mental health Trust known here as Delta.

### Results

The implementation of EHR systems at Delta was perceived as challenging and cumbersome. The software was burdensome and not fit for purpose. The chain to deploy the software, imposed by NPfIT, was bureaucratic and obstructive. Users complained about the training insufficiencies for using the software. Low IT literacy among users was a barrier to the implementation of EHR software. This, in turn led to resistance to big cultural and work environment changes initiated by EHR. Nonetheless, despite all challenges, Delta achieved a few early positive consequences from implementing EHR systems. These included: the ability to check progress notes and monitor staff’s activities; improving quality of care as a result of real-time, more accurate and shared patient records across the hospital; and mitigating patient risk because of profoundly-enhanced readability of typed notes.

### Conclusions

Despite what was generally seen as a turbulent, painful and troublesome implementation of the EHR system, Delta achieved some early benefits from implementing EHRs. The benefits were enhanced readability of patient notes and the ability to share real-time notes across the care settings, both of which led to enhance quality of care and patient safety. These are strong reasons, we argue, to scale up the intake of EHR systems by mental health care settings. Given controversial literature on benefits versus costs and harms of EHRs, EHR systems may bring, we envisage, better value for money and greater healthcare improvement into mental health settings.

## Mental comorbidity as predictor of suicidal behaviour

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### Background

The suicide is one of main causes of death worldwide and the mental disorders are considered among the most important predictors of suicide attempt. The objective is to identify the mental disorders associated in Romania with subsequent suicide attempt and to measure the role of suicide ideation and plans.

### Methods

DSM-IV mental disorders and suicidal behaviors were assessed on 2357 respondents by face-to-face interviews using the WHO Composite International Diagnostic interview (CIDI). For the predictive associations between temporally prior (time-varying) mental disorders and subsequent suicide ideation, plans, and attempts was applied survival analysis. Were

considered two models with attempt as response: the bivariate model with each/any category disorder in a separate regression equation and a multivariate model with all disorders in one regression equation. Models are both in survival framework and have control for age, sex, cohorts.

### Results

65.1% of people with a history of suicide attempts have a temporally prior DSM-IV/CIDI disorder. From those with suicidal attempts, 47% had any anxiety disorder, 23.7% any substance disorder, 21% major depression, 24% posttraumatic stress disorder. Within the bivariate models, with each disorder in a separate model, OR was 13.2 (CI 2.7–64.1) for any disorder, 9.6 (CI 2.1–44.3) for any anxiety disorder, 22.3 (4.4–112.7) for any substance disorder and 5.6 (1.0–30.9) for any mood disorder. Within the multivariate models with all disorders in the same model, OR was for any anxiety disorder 7.3 (1.2–44.5), for any substance disorder 14.0 (2.6–74.4). The majority of anxiety, mood, impulse-control, and substance disorders significantly predict suicide attempts and comorbidity have significantly sub-additive effects.

### Conclusions

Mental disorders are strong predictors of suicide attempts. Largely the association is relied on the prediction of ideation and less on the prediction of attempts among ideators. The “Policies in Mental Health Area” and “National Study regarding Mental Health and Services Use” were carried out in conjunction with the World Health Organization World Mental Health (WMH) Survey Initiative. We thank the WMH staff for assistance with instrumentation, fieldwork, and data analysis. These activities were supported by the United States National Institute of Mental Health (R01MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the US Public Health Service (R13-MH066849, R01-MH069864, and R01 DA016558), the Fogarty International Centre (FIRCA R03-TW006481), the Pan American Health Organization, the Eli Lilly & Company Foundation, Ortho-McNeil Pharmaceutical, Inc., GlaxoSmithKline and Bristol-Myers Squibb and Shire. A complete list of WMH publications can be found at <http://www.hcp.med.harvard.edu/wmh/>. The Romanian WMH study projects “Policies in Mental Health Area” and “National Study regarding Mental Health and Services Use” were carried out by National School of Public Health, Management and Professional Development Bucharest, (former National School of Public Health & Health Services Management, former National Institute for Research & Development in Health), with technical support of Metro Media Transylvania, the National Institute of Statistics-National Centre for Training in Statistics, SC. Cheyenne Services SRL, Statistics Netherlands and were funded by Ministry of Public Health (former and present Ministry of Health) with supplemental support of Eli Lilly Romania SRL.

## The impact of retirement on health: a systematic review

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### Background

Governments of developed countries have to do with an ageing population. As a consequence, the balance between employed people and dependent ones is disturbed. Therefore, governments are facing the challenge to increase the labour force participation of older workers. Policy changes are aimed at abolition of mandatory retirement, closing other paths to retirement, introducing active labour market policies, promotion of flexible or part-time work by older workers, and raising the age of statutory retirement.

Though, there is considerable debate about the timing of retirement and its influence on health. The evidence in the literature on the effect of retirement on ones physical as well as psychological health is not unambiguous. Therefore, we carried out a systematic review to summarize the available evidence of the effect of retirement on physical as well as mental health.

### Methods

A systematic review of literature was conducted in Medline, Embase and Web of Knowledge on the association between (early)retirement and health related outcomes (eg. physical health, mental health, hospitalisation). Included were longitudinal-, observational- and cohort studies.

### Preliminary Results

Our search resulted in 1788 potentially relevant articles. From titles and abstract we identified 117 articles. At this moment, we are screening the full text articles for inclusion in the review. The preliminary results of four studies which fulfilled our inclusion criteria show that sub optimum health improvement after retirement in men (OR 0.68, 95% CI 0.64–0.73) and women (0.74, 0.67–0.83) Mental health functioning improved among the retired, but was restricted to those in higher employment grades.

### Conclusions

Currently no conclusions could be stated as we have only preliminary results. According to our timeline we will finish this review at the end of June 2012. Therefore we could present our results at the Eupha-congress in November.

## Dutch work reintegration professionals' frames of reference

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### Background

Most welfare states have professionals that support return-to-work after sickness absence or long-term disability. The impression exists that they use a large variety of methods, particularly in The Netherlands because support is offered by both private and public suppliers. We however lack knowledge on why these professionals act as they do. Our aim was to get more insight in Dutch work reintegration professionals' ‘frames of reference’.

### Methods

Twenty-four work reintegration professionals from social insurance, vocational rehabilitation agencies, municipalities and occupational health services across The Netherlands, were included by purposive sampling. On location, 24 semi-structured interviews were held on return-to-work support. To improve interpretation, 24 meetings with clients and 2 with colleagues were observed. Data were transcribed verbatim and analyzed through an iterative process of open coding, axial coding, and selective coding.

### Results

The professionals reported not to use evidence-based approaches and were critical towards using strict methods. Five different ‘frames of reference’ were distinguished: (1) the procedural frame, characterized by strict obeying of legal or organizational procedures; (2) the work-focused frame, which defines the client primarily as unemployed; (3) the caring frame, characterized by a more contextualized perspective on the client; (4) the learning/changing the client frame, characterized by pushing the client to change his behavior (5) the service-oriented frame, characterized by regarding the client as a ‘customer’ who orders certain services. The same frames were found in different contexts, and could lead to different guidance styles.

## Conclusions

Five fundamentally different frames of reference for return-to-work guidance held by Dutch reintegration professionals were distinguished. Further research is needed on how these frames relate to reintegration success. Among work reintegration professionals and policy makers it needs to be discussed which frame(s) are the most desirable for which client group. A new instrument to support such discussion has been developed.

## Factors associated with Self-Rated Health among Elderly People in Japan

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### Background

Japan is facing an unprecedented aging society. One third of the population in Japan will be at least 65 years old in 2035. Healthy aging is a crucial key for public health and society in Japan. Self-rated health (SRH) is a good indicator for health outcomes including chronic diseases and mortality in older adults. We organized questionnaire surveys from 2009 to 2010 to examine the relationship between SRH and factors including medical histories and life styles among those over 65.

### Method

From 2009 to 2010, we sent questionnaires to randomly selected university graduates 65 years and older. The questionnaire asked for their SRH (excellent, good, poor,

very poor), age, working status, subjective life standards (excellent, good, moderate, bad, very bad), living with family or not, medical histories such as bone fractures and chronic diseases (hypertension, stroke, heart disease, diabetes, cancer, asthma, arthritis), regions of residence, activities participated in, health habits and perceived vulnerability to flues and colds. First, the correlation was tested by Spearman Test (SPSS 17.0), which was followed by multivariate analysis.

### Results

We received 586 (Age  $73.18 \pm 4.43$ ) responses. After unadjusted statistical analysis by Spearman Test, independent variables were selected by the backward elimination stepwise method. Adjusted logistic regression analysis of SRH as a dependent variable provided perceived life standard (OR=0.39,  $p=0.001$ ), past chronic disease history (OR=0.35,  $p=0.01$ ), past bone fracture history (OR=0.39,  $p=0.013$ ), living alone (OR=0.29,  $p=0.016$ ), exercise hours (OR=1.10,  $p=0.037$ ), participating in sports groups (OR=1.36,  $p=0.044$ ), participating in cultural groups (OR=1.30,  $p=0.077$ ) and perceived vulnerability to flues and colds (OR=0.61,  $p=0.10$ ). The Hosmer and Lemshow Test and ROC Curve analysis showed the model fitness.

### Discussion

In this study, poorer SRH was associated with perceived poor life standard, perceived vulnerability to flues and cold, past chronic disease history, past bone fracture history and living alone. Better SRH was associated with participating in sports or cultural groups and longer exercise hours per week.

## E.6. INEQUALITIES

### Social Determinants of Health-Old or new wine in the health policy bottle?

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The processes initiated by the work of the WHO Commission on Social Determinants of Health (CSDH) have raised great expectations internationally to make a change in impacting growing inequalities in health. The emphasis on SDH as such is not new, nor is the emphasis on influencing health through other policy areas than health and intersectoral action. In Finland the idea of influencing the distribution of population health was discussed in the 1970s even before the Health for All -movement and the Finnish national Health for All strategy of 1986, but the first actual action plan to reduce health inequalities was launched in 2008. It focused on influencing poverty, education, employment, working conditions and housing, strengthening the prerequisites for healthy lifestyles and improving social and health services. It has been something of an astonishment that in spite of good intentions inequalities have not diminished but rather the contrary has taken place. However, lack of success may not be surprising in view of insufficient implementation, or in view of actual policy decisions that have increased social inequalities since the 1990s.

The novel approach in the CSDH was to look at policies themselves as social determinants of health and raise the difficult issues of economy and work. Also the health care system was put to a position of a social determinant of health, with a strong advocacy role. However, it is a challenge to translate the approach of the CSDH into strategies and action that could address such macro level phenomena as the development of economic policy and the global division of labour, which tend to weaken the social position of many people in wealthy and poor countries alike. Even in a relatively equitable country like Finland, the main obstacles to health

equity may lie in the competitive economy and labour conditions, and increasingly in the inability of the health care system to balance out the health consequences of polarisation. The question is made whether the numerous projects to tackle some specific determinants of health are enough to reverse the present trends. The SDH approach suggests addressing more directly the conflicting interests and ideological and institutional factors that hamper the achievement of health equity.

### Streamlining health inequalities to benefit policy making

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The Annual Abstract of Health Statistics focuses on the health status of the Maltese population, with an emphasis on health inequalities. Inequalities will depict the effect of residing in different regions or obtaining different levels of education on various health issues. This will benefit policy makers to recognize health determinants outside the health sector.

The data gathered covers macro-aspects from various streams of health within the Maltese population, concentrating the data on the latest year available for the various streams which were delved into. The suppliers of data fall under the various departments and units within the Ministry of Health, the Elderly and Community Care. The data collected is easy to maintain from one year to the next, hence ensuring the sustainability of data. Moreover, it was ensured that the data collected was not burdensome for our suppliers to compile.

A particular focus was put on the number of new cases and deaths with specified chronic illnesses or conditions. The effect of the completed level of education on the number of new cases and deaths was analysed. Similarly, the effect of residing in different regions on the number of new cases and deaths with specified chronic illnesses was analysed.

To ensure comparability of the effect of residing in different regions on the various chronic illnesses and conditions, the crude rate of new cases and deaths with specified chronic illnesses or conditions per 100,000 population was presented. Analysis by level of education was made possible through collaboration with the National Statistics Office (NSO). Directorate for Health Information and Research (DHIR) officers were given the NSO confidentiality oath and linkage between the various registries and the NSO Register of Persons was carried out in a safe centre environment. The results were standardised to the European Standard population to remove the confounding affect age has on education and specific chronic illnesses or conditions. This method was also applied to remove the confounding effect age has on region and self-perceived health. This will provide a better picture of the effect these inequalities have on the number of new cases and deaths with specified chronic illnesses or conditions, which is the future of policy making.

### Reducing health inequities: Medical education can make a difference

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#### Background

Israel, as other countries, is struggling to reduce health disparities. According to the Institute of Medicine (IOM), medical education is one of the important parts when dealing with health disparities. There are currently five medical schools in Israel, each has a different emphasis on integrating social medicine and the subject of health disparities in its curriculum.

#### Objectives

1. To compare the community orientation as reflected in these medical schools' curricula and the rates of graduates working in the periphery. 2. To compare the social and community orientation of graduates from these medical-schools.

#### Methods

Online survey among 9,000 physicians who graduated from all medical schools in Israel during May-June 2011. The survey included measures about community orientation, social involvement, place of work (center vs. periphery), etc. Data was analyzed using uni-variate and multi-variate analyses.

#### Main Results

1,491 physicians answered the survey (16.6% response rate). There were no demographic differences (age, gender, religion and country of birth) among graduates from the various medical schools. Higher rates of physicians who studied in Ben-Gurion University (BGU) are working or have worked in the periphery (55% vs. 30% Average of other schools,  $p < 0.001$ ) and active in community programs (50% vs. 37%,  $p < 0.001$ ). Among the physicians active in community programs, 37% of BGU graduates estimated that their medical education greatly influenced their community involvement (37% vs. 11–15% in other schools,  $p < 0.001$ ). Among BGU graduates, 61% noted that their studies had social orientation, compared to 2–4% in other schools ( $p < 0.001$ ).

#### Conclusions

This study emphasizes the important role of medical education in reducing health disparities by directing graduates to work in the periphery and to be more involved in community programs. As BGU medical school is located in the southern periphery of Israel, and its curriculum focuses on community and social medicine, its graduates were found to be more involved in social and community medicine. These insights are crucial when considering changes in the medical schools' curriculum and implementing a long-term national plan for reducing health disparities.

### Empowering local stakeholders to tackle health inequalities: an interventional research project in Pays de Redon-Bretagne Sud, France

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#### Background

According to the WHO Commission on Social Determinants of Health (CSDH, 2008), a significant reduction in health inequalities (HI) can be achieved by improving the populations' daily living conditions. However, little is known about effective strategies to reorient public health systems towards better integration of the social determinants of health (SDH) in current practices. We present here the strategic components and rational of a program to facilitate this reorientation.

#### Methods

The interventional research project implemented in the Pays de Redon-Bretagne Sud (France) is carried out in collaboration with a non-profit health insurance provider, the Mutuelle des Pays de Vilaine (MPV) and the Regional Health Education and Promotion Committee. The target population includes all the stakeholders of the health promotion system, the MPV, NGOs, elected officials and decision-makers. The evaluative component of the project is based on a realistic evaluation approach using qualitative methods (semi-structured interviews, description of the actions and policies) to understand the mechanisms influencing the reorientation of the regional public health system. The interventional part, developed in partnership with local stakeholders, includes a population need assessment and the provision of training and methodological tools to address the SDH and HI. Data collection will be conducted all throughout the duration of the project to document the context and deployment of the actions.

#### Results

This project will contribute to research by disentangling the mechanisms underpinning actions on the SDH and clarify the influence of knowledge about HI, of networks and partnerships to enhance capacity in addressing the SDH at the regional level. In practice, methodological tools and training material created and tested during the project will be disseminated throughout France to support health professionals, institutions and cities interested in acting on SDH for better equity.

#### Conclusion

The project stands as a direct answer to the first recommendation of the WHO CSDH which has opened the door to a new generation of population health intervention projects.

### Inequality in Healthcare Utilization in Armenia- Analysis of Survey Results 2010

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#### Background

Prevailing sociopolitical and economic obstacles have been implicated in the inadequate utilization and delivery of the Armenian healthcare system. The state funding is not even sufficient to assure guaranteed free services for vulnerable, and the exorbitant cost of public health insurance prevents its implementation. Considering the importance of the issue a survey was conducted within the framework of the Armenian National Science & Education Fund program. The paper indicates that the purpose of this survey was to explore the

high level of unmet needs for healthcare and to contribute to the development of public health policy in Armenia by exploring the implications for delivering health services aimed at reducing health inequalities and inequities.

#### Methods

The survey was approved by the Institutional Review Board of YSMU. Participation in the survey was voluntary. Individual participants' identifiers were not recorded. Stratified random sampling was used for the selection of respondents. The preliminary random selection was made among administrative divisions of Armenia on the basis of proportionate-to-population-size approach. The respondents were divided into strata by urban/rural areas and the data was weighted by age and gender to bring the realized sample in line with target population parameters.

#### Results

The analysis of the survey revealed the percentages of the main risk factors affecting the health of the population and main reasons for high level of unmet needs for health care. The share of healthcare expenditures in total consumption for the richest quintile group was much higher compared to the poorest quintile group (9.1% and 0.1% respectively). The utilization of healthcare services in the poorest quintile is 17.1 times lower than the average utilization rate, whereas for the richest quintile this indicator is 5.8 times higher than the average.

#### Conclusions

A very important conclusion can be derived from the survey results—utilization of healthcare and the role of the state are open questions in Armenia. Measures designed to improve healthcare affordability for disadvantaged households should be enacted. The paper concludes and summarizes the range of recommendations, which are most relevant to other developing countries.

### The association of economic difficulties with subsequent disability retirement

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#### Background

Disability retirement is socioeconomically patterned. However, previous studies have focused on conventional socioeconomic indicators such as education, income and occupational class. Our aim was to widen the socioeconomic approach by examining whether current economic difficulties were associated with subsequent disability retirement due to all cause, mental disorders and musculoskeletal diseases among public sector employees. The contribution of other socioeconomic circumstances, health behaviours, body-mass index, working conditions, work-to-family interface and chronic diseases on the associations was also examined.

#### Methods

Helsinki Health Study (2000–2002) mail survey data among 40–60 year old City of Helsinki employees were linked with register data on disability retirement and diagnoses (ICD-10) from the Finnish Centre for Pensions were used. Disability retirement events until the end of 2010 were linked with the baseline data on economic difficulties (difficulties in buying food and clothes and paying bills). Cox regression analysis was used to calculate hazard ratios (HR) and their 95% confidence intervals (CI) for disability retirement.

#### Results

One fifth of women and men reported frequent economic difficulties. Frequent economic difficulties were associated with subsequent all-cause disability retirement among women (HR 1.85, 95% CI 1.48–2.32) and men (HR 2.77, 95% CI 1.77–4.34) after adjusting for age. In addition, frequent economic difficulties were associated with disability retirement due to mental disorders (HR 2.61, 95% CI 1.76–3.88) and

musculoskeletal diseases (HR 1.77, 95% CI 1.29–2.42). After adjusting for other socioeconomic circumstances and especially diseases the associations attenuated but frequent economic difficulties remained associated with disability retirement due to all causes and mental disorders.

#### Conclusion

Economic difficulties are associated with subsequent disability retirement. Preventing disability retirement and reducing socioeconomic differences in disability retirement also economic difficulties among employees should be considered.

### Subjective social status and health-related quality of life among adults in Germany: results from the German General Social Survey (ALLBUS 2010)

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#### Background

The impact of subjective perception of social status on health has been analysed in international health research for several years. However, in Germany the empirical analysis of the relation between subjective social status (SSS) and health is still in the very early stages. This study investigates if health-related quality of life (HRQoL) in German adults is associated with SSS over and above conventional measures of social status.

#### Methods

The results are based on the German General Social Survey (ALLBUS 2010), a representative cross-sectional survey of the adult resident population in Germany (n = 2.827). HRQoL was assessed with four items referring to self-rated health (SRH) and impairment of well-being due to bodily pain, depressiveness, and loneliness. SSS was measured with a 10-point scale where participants rated their status in society. The impact of SSS on HRQoL was analysed separately for men and women using logistic regression models adjusted for age, school education, net equivalent household income, and occupational position.

#### Results

Poorer SRH, bodily pain, depressiveness, and loneliness occur significantly more often in men and women with low SSS compared to those with higher SSS. After adjusting for age, education, income, and occupation the effects of SSS on SRH and depressiveness remain significant in men and women (SRH: men: OR = 4.76; 95% CI = 2.52–8.99; women: OR = 2.95; 95% CI = 1.74–4.99; depressiveness: men: OR = 2.86; 95% CI = 1.60–5.10; women: OR = 2.75; 95% CI = 1.65–4.56). The effects of SSS on bodily pain and loneliness can be observed only in women after adjustment for objective status indicators (OR = 1.75; 95% CI = 1.07–2.86 and OR = 3.03; 95% CI = 1.43–6.42, respectively).

#### Conclusions

These findings indicate that self-perception of social disadvantage affects HRQoL in German adults independently and partly gender-specifically. Hence, complementary to objective status indicators the SSS offers additional potential for describing and explaining health inequalities.

### Trends in socioeconomic inequalities in smoking prevalence and cessation in Lithuania in 1994–2008

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#### Background

Smoking is strongly related to socio-economic status. A substantial part of socioeconomic inequalities in health can be linked to smoking. Smoking prevalence in population is determined by smoking initiation and smoking cessation. The



aim of the study was to assess the trends in socioeconomic differences of smoking prevalence and cessation in Lithuania in 1994–2008.

#### Methods

The data were derived from eight cross-sectional surveys conducted every even year within the international Finbalt Health Monitor project during 1994–2008. An independent national random sample of 3000 inhabitants aged 20–64 was taken from National Population Register for every survey. The data were collected through postal surveys. The response rate varied from 53.8% to 74.4%. The odds of daily smoking and smoking cessation according to social factors were calculated using logistic regression analysis.

#### Results

The prevalence of smoking among men was increasing up to the year 2000 (from 44% to 52%); afterwards it started to decline reaching 35% in 2008. The proportion of smoking women increased from 7% in 1994 to 16% in 2000 remaining stable over the last decade. Over the study period, smoking

cessation rate has increased both in men and in women. In 2008, the proportion of quitters was 18.7% in men and 8.2% in women. Smoking was more common among younger and less educated people in both genders. Since 1994, age differences in smoking have decreased, especially among women. Educational inequalities among men have enlarged. The association between education level and smoking among women has reversed over the study period: in 1994 better-educated women smoked more often, while in 2008 smoking was more prevalent among women with lower education. The proportion of quitters was higher among older and better-educated people as well as among married men and urban women.

#### Conclusions

Widening socioeconomic inequalities in smoking prevalence and cessation should be addressed in implementation of tobacco control measures targeting young and lower educated groups of Lithuanian population.

## F.6. PUBLIC HEALTH METHODS

### Development of a tool for quality assessment of abstracts presented to public health conferences: a 2005–2010 Italian survey

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#### Issue/Problem

Scientific literature considering the quality of abstracts presented as oral communications or posters in Public Health conferences is still lacking. Our work was conducted examining all the abstracts published in the Abstract Books of the Italian Public Health Society (SIIt) Conferences from 2005 to 2010, in order to assess the quality of the abstracts.

#### Description of the problem

A checklist grid was realized, evaluating the following eight dimensions: inherency, structure, originality, objectives, design of the study, sources of data, results and conclusions of the abstracts. Each item was scored from 0 to 3 points (max total score for each abstract was 24) and we used 15 as threshold of good quality, corresponding to the average score in our study. A multivariate analysis was then performed with STATA MP 11 in order to investigate potential predictors of lower and higher score of abstracts presented. Level of significance was set at  $p \leq 0.05$ .

#### Results

A total of 4,399 abstracts (1,172 oral communications; 3,227 posters) was examined. Most of abstracts (around 60%) were submitted by Universities and around 40% were from Central Italy. The highest quality was found in the fields of Vaccines (average score 18.9), Epidemiology of Infectious Diseases (18) and in abstracts submitted by Universities (16.4). Through a regression analysis we identified possible predictors of lower quality: for instance geographical area and affiliation ( $p=0.002$ ). In addition, we found that abstracts containing Results, Conclusions and Objectives judged with high scores (3 points) are more likely to be high quality abstracts (OR = 55.6;  $p < 0.001$ , OR = 41.9;  $p < 0.001$ , OR = 157.4;  $p < 0.001$ , respectively).

#### Lessons

Analysis of abstracts' quality is essential for scientific societies aiming at promoting the diffusion of high quality scientific knowledge. A well structured evaluation tool is fundamental to offer a transparent methodology of assessment and to improve the quality of the research. This is the first European study evaluating the quality of abstracts in the field of public

health. The present instrument could be adapted to different Countries in order to create and implement a standardized way to assess quality of abstracts.

### Integrating a Temporal Dimension into Research on Contextual Health Effects

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#### Background

The analysis of contextual effects on health has been of emerging interest during the last decade. Numerous studies showed that health is spatially correlated and that this correlation can partly be explained by certain small-area factors (e.g. air pollution, noise disturbance etc.). However it is still unclear whether these effects accumulate over time or whether there is a period in life which is particularly susceptible to such effects. We present a theoretical model, which integrates this temporal dimension for explaining the relation between place and health.

#### Methods

Based on own empirical studies (Voigtländer et al. 2010) and existing theoretical models that aim to explain the contribution of contextual effects for the production of health inequalities we developed a new theoretical framework for the integration of a temporal dimension in this context. We tested this new theoretical concept in an empirical analysis of data from the German Socioeconomic Panel (SOEP).

#### Results

We estimated the relative distribution of area of residence on health over time by fitting cross-classified models with subjective health, measured by SF-12, as dependent variable. Own empirical analyses and analyses from other countries showed that models which consider area of residence at different time points are more accurate in estimating the area specific variance in health. Theoretical models and empirical results indicate that health effects of area of residence are not only restricted to a single time point but accumulate over the life course and affect health differently at different stages of the life course.

#### Conclusion

Disregarding the temporal dimension could lead to distorted results, possibly underestimating the real effect of place on health. To avoid this phenomenon we suggest a theoretical model that integrates this temporal dimension. There is a need

for longitudinal studies which allow studying the individuals residential history over the life course.

#### Literature

Voigtländer, S.; Berger, U.; Razum, O. (2010): The impact of regional and neighbourhood deprivation on physical health in Germany: a multilevel study. *BMC Public Health* 10: 403.

### Systematic needs assessment as cornerstone for (quality) development of Long Term Care into a health promoting setting

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#### Background

Demographic development of an ageing society goes along with growing demand for LTC. This has become obvious in the sector for informal and professional home care for the aged, but also for the sector of residential LTC. A combination of high age and deteriorated health status already at onset of residential care increases pressure on these settings, asking for quality development. A comprehensive health promoting settings approach is an innovative strategy for dealing with many challenges. Residents, employees, voluntary workers and residents' relatives are seen as target groups for health promotion interventions, but also management for the overall organisational framework. A systematic needs assessment investigates health status and positive/ negative influencing factors as part of an Austrian pilot project aiming at developing residential LTC into a health promoting setting.

#### Methods

The needs assessment took place between April and September 2011. For residents interviews for a subjective perspective and a professional assessment were used. Questionnaires were applied for staff, focus groups took place for residents' relatives and voluntary workers, the management used a tool for organisational self-assessment. The needs assessment included 345/900 residents, 235/367 employees, 34 voluntary workers and 40 relatives in 3 local sites of a large provider of residential aged care in Vienna. Results were reported to stakeholders to support work on solutions and an overall strategy development process.

#### Results

Needs assessment provided a complex picture, issues had to be prioritized. Staff issues: Improving work time models, ergonomics, health behaviour and work ability; For residents: improving mobility, security and social networks. Voluntary workers and residents' relatives: improving information. Management: developing a central support structure for health promotion.

#### Conclusions

LTC is a rather new setting for health promotion. Implementing health promotion in this setting needs to be based on perspectives of involved stakeholders. A comprehensive assessment based on perceived needs of relevant stakeholders has given an important input for starting the development of health promotion in participating organisations in this pilot project.

### Use of specialised psychiatric care and psychopharmaceuticals for mental disorders-a nationwide follow-up study

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#### Background

Mental health problems in childhood and adolescence are an important public health concern, since they have a substantial effect on social and economic outcomes that extend into adulthood. The general aim of Finnish health policy is to offer equal services for all inhabitants according to need, irrespective of background, such as socioeconomic circumstances or place of residence. Here, we assess equity in access to mental health care in a long-term nationwide follow-up study from birth to early adulthood.

#### Methods

The 1987 Finnish Birth Cohort covers all 60 069 children born in Finland in 1987, and they are followed up through health and social registers from childhood to early adulthood (1987–2008). The cohort members' use of specialised psychiatric outpatient and inpatient care for psychiatric diagnoses and their purchases of psychopharmaceuticals were assessed and linked to their socioeconomic status (SES) and residential area.

#### Results

Altogether, 20.1% (16.5% of the males and 23.9% of the females) of the cohort members had received specialised psychiatric care or had used psychopharmaceuticals. At least one mental health disorder diagnosis was made at the time of specialised care for 11.6% of the males and 14.4% of the females of the cohort. Females used significantly more medication ( $P < 0.001$ ) and specialised psychiatric outpatient care ( $P < 0.001$ ) than males. In addition, the use of specialised psychiatric care was more common among young people with a low socioeconomic position, OR 1.56 (95% CI 1.47–1.66) and those living in urban areas, OR 1.20 (95% CI 1.14–1.27).

#### Conclusions

A notable number of the young adults born in Finland in 1987 used specialised psychiatric care and/or psychotropic medication during their childhood and adolescence. Utilisation was clearly defined by sex, residential area, parental SES and education. Most probably, the increase according to sex, parental SES and education seen here is a result of different levels of morbidity. However, the geographical disparities suggest inequalities in services. The data indicate that equity in mental health services should be highlighted in health policies, since contemporary outpatient mental health care has not been equally available for people living within and outside urban areas.

### Pulling apart the population health intervention black box: the concept of 'mechanism' from a realist evaluation perspective

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#### Background

Outcomes of complex population health interventions are dependent on the context in which they take place and therefore hardly lend themselves to evaluation based on experimental designs. Inspired by theory based evaluation and realistic epistemology, Pawson & Tilley's Realist evaluation is seen as a way around this methodological problem. At the core of this approach is the idea of a mechanism activated by an intervention to produce effects observed in a specific context. Even if the concept of 'mechanism' has been the subject of ongoing scholarly debates in social sciences, it is only recently that researchers have started acknowledging its utility in population health program planning.

#### Objective

In this presentation we will provide an account on the various definitions given to the realist concept of 'mechanism', on the many meanings it takes on and on its use in social sciences and more specifically in population health research.

**Method**

A scoping review was realized. Unlike a systematic review, it is an exploratory enterprise which entails the systematic documentation of a given subject by highlighting key concepts, theories and research gaps. Our review unfolded in six stages: identifying the research question; identifying relevant studies; selecting studies; charting the data; collating, summarizing and reporting the results; and consulting stakeholders.

**Results**

If initially Pawson & Tilley's concept of 'mechanism' made explicitly reference to the actors' reasoning, choices and to their capacities, more recent publications suggest that researchers understand and apply differently the concept. For instance, they rather refer to intervention strategies or activities than elements of the reasoning of the actors involved in the intervention.

**Conclusion**

This work enables us to suggest a theoretical definition that fits within the realist approach framework for the assessment of complex population health interventions. This is the first step of a more ambitious research program that will involve the analysis, through the lens of this improved definition, of a set of population health interventions addressing social inequalities in health. We hope that by so doing we will contribute to identify some of the mechanisms impacting on these inequalities.

**Intervention Modelling-A flexible model to drive lasting change?**

Richard Forshaw

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The UK Government has outlined how the NHS must embrace value-based competition to meet future public health needs. Intervention Modelling provides the practical tools for a flexible, needs-based approach around key issues such as smoking, obesity and alcohol misuse.

Abstract description of the problem: Intervention Modelling involves service providers forming partnerships with external suppliers to deliver services at their point of need. This provides new pathways to reach hard-to-reach groups by adapting to the needs and circumstances of individual citizens through long-term programmes of work. It helps reshape social norms and supports sustainable behaviour change

**Results (Effects/Changes)**

The 'Asgard' project in North East Lincolnshire is one example of Intervention Modelling, which supports young people who are misusing health services and 'falling between the gaps' in provision due to underlying issues such as health inequalities, substance misuse, disrupted families and low aspiration. Intervention workers work directly with 16–19 year old following their discharge from A&E to offer one-to-one support and advice on managing health issues.

The Asgard team work closely with a network of 37 different agencies and during a 12 month period, they referred 76% of young people, compared to a target of 50%, into accessing the right service (including housing support and mainstream contraceptive services). The project has helped reduce the number of 'frequent flyers' (those presenting at A&E more than 3 times a month with inappropriate health and/or social care issues) by 11%. This has generated a cash saving of £66,450, against a target of £12,500.

**Lessons**

Intervention Modelling is a cross-cutting, all-encompassing approach which could be replicated to help reshape long-term behaviours and change people's health-and lives-for the better. Taking a collaborative approach is vital to success and services could build on best practice by sharing expertise through integrated networks, thus identifying wider needs and

providing more cost effective solutions to tackle entrenched behaviours.

**Supporting the interface science-practice/politics: results of the German national prevention research initiative**

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Contact: Walter.Ulla@mh-hannover.de**Background**

A sustainable prevention and health promotion requires an exchange and transfer at the interfaces science-practice/politics, which are often not successful. The German Ministry of Education and Research funded a National Prevention Research Initiative with 60 projects focusing on new evidence and implementation oriented research (2004–2012). The initiative enables close co-operation of research and practice in planning and conducting these projects. A meta-project supports the transfer of the scientific results to politics, practice and networking. The experiences obtained during the practice research process were bundled and recorded in a memorandum.

**Methods**

To explore transfer methods used for preparation, dissemination and implementation of their projects, 302 experts from all projects received a questionnaire. Descriptive statistics and ANOVA were used for analysis. In a workshop (n=90 participants), the experiences and the implicit knowledge was gained and condensed by complex qualitative methods of structured large group interventions. Based on these data, a memorandum for further research funding was published. It was distributed to all 350 experts in the funded initiative to obtain feedback. The memorandum was distributed to scientific associations (n=14) and boards of federal institutions (n=2).

**Results**

The experts had a wide range of transfer methods at their disposal. The main implementation barriers were limited funding and the complexity of the field. The different systems and cultures in science and practice require a longstanding dialogue to understand each other and to build up a basis of trust for sustainable processes. This requires new funding strategies. The memorandum contains recommendations for more flexibility, participation in research already in the early application phase as well as supporting networks.

**Conclusions**

The memorandum was presented to the Federal Ministry of Education and Research and will provide further input into the debate of the new funding programme for prevention research.

**Methodological quality of genetic guidelines on hereditary breast cancer screening and management: an evaluation using the appraisal of guidelines, research and evaluation instrument**

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**Background**

We examined the methodological quality of guidelines on breast cancer genetic susceptibility syndromes.

**Methods**

PubMed, EMBASE, and Google were searched up to October 2010. Adjourned guidelines in English were included. The

Appraisal of Guidelines, Research and Evaluation (AGREE) instrument was used to assess their quality. The reported evidence base of the guidelines was evaluated.

### Results

13 guidelines were deemed eligible: seven were developed by independent associations, six had national/state endorsements. Four guidelines performed satisfactorily, achieving a score >50% in all six AGREE domains. Mean standardized scores for the six AGREE domains were: 'scope and purpose', 90% ( $\pm 9\%$ ); 'stakeholder involvement', 51% ( $\pm 18\%$ ); 'rigour of development', 55% ( $\pm 27\%$ ); 'clarity and presentation', 80% ( $\pm 11\%$ ); 'applicability', 37% ( $\pm 32\%$ ); 'editorial

independence', 47% ( $\pm 38\%$ ). Ten guidelines were found to be based on research evidence.

### Conclusions

Given the ethical implications and the high costs of genetic testing on hereditary breast cancer, guidelines on this topic should provide clear and evidence-based recommendations. Our analysis shows that there is large scope for improving methodological quality of guidelines under many aspects. The AGREE instrument is a useful tool and could also be used profitably by guidelines developers to improve the quality of recommendations.

## G.6. DISTANT HEALTH

### Developing On Line Resource for Expressing and Explaining Risks for the Public and Professionals

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#### Issue/problem

Explaining risk to concerned patients, individuals and communities is a challenge and likely to become more so with increasing access to data and information via the internet. This is particularly challenging in public health where information often highlights uncertainties, including individual and collective professional uncertainty, and the irreducible element of chance. In addition, the understanding of risk can be transformed by the technique used to express it—relative risk, attributable risk, population attributable risk for example. All this can be interpreted by lay people as the professional hiding behind the statistics.

We have developed an accessible on line tool to enable people to put risks into context, providing simple explanations of the different ways of presenting/describing risk and a hierarchy of locally specific risks.

#### Results (effects/changes)

A website 'What are your chances' enables public health professionals to add risks presented in a range of options and reflecting the strength of evidence to show the plausibility and level of risk compared to other risks i.e. putting the risk into context. The site also allows members of the public to enter their own risks and includes an extensive glossary of key statistical and epidemiological terms in accessible lay terms.

### E-learning to train professionals in depression prevention

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#### Background

six percent of the Dutch population has a depressive disorder. To prevent depressive disorders, it is important to identify symptoms in an early stage. Professionals, such as home-care professionals and general practice nurses, have an important role in preventing depressive disorders. The objective of this project was to develop an e-learning program to train these professionals in identifying, motivating, advising, and referring clients with depressive symptoms.

#### Methods

This e-learning program was developed using the Intervention Mapping protocol. First, in several interviews and a literature review professional's barriers and existing teaching strategies

regarding depression prevention were assessed. Next, performance objectives of the e-learning program and teaching strategies were determined, and the program was developed.

#### Results

The e-learning program had as performance objectives that the professional, after completing the program, should know; what depression (prevention) means; how symptoms of depression can be identified; how to discuss the identified symptoms with the client; how to motivate the client to prevent a further depression; how to develop with the client an approach to prevent it and; how to monitor the implementation of this approach. The first phase of the study concluded that several determinants were important barriers in achieving these objectives; such as 1) lack of time and referral options, 2) lack of knowledge on, amongst others, symptoms of depression, on screening instruments and on differentiating between depression and daily life problems, 3) insufficient skills in identifying/discussing symptoms, and 4) negative expectations regarding the reaction of clients. Strategies for tackling these barriers were included in the e-learning program. In the e-learning program, professionals follow three clients with potential depressive symptoms. Knowledge and skills are trained using amongst others action implementation planning techniques and teaching several aspects of motivational interviewing.

#### Conclusion

Using intervention mapping is feasible in developing an e-learning program. This program is now being piloted among professionals to assess the effects on self-reported knowledge, skills and behavior.

### The role of social networks in education of health professionals in Bosnia and Herzegovina

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#### Goal

The aim of this paper is to investigate in what extent and how effectively the Internet is used and especially the well-known social networks in education of students and health professionals in Bosnia and Herzegovina.

#### Results and Discussion

In B&H in 2010 were 522,364 internet access accounts, with about 2 million Internet users, representing about 52% of the total population. Dominated by the users of fast broadband access (xDSL) with 42.8%, and elsewhere still with dial-up access, with 25.2%. The results showed that only 14.6% of full and part time professors at B&H medical universities use Facebook, 47.7% of them have a profile on BiomedExperts scientific social network and 92% have available articles in the largest biomedical literature database MEDLINE (Figure 1). Of those who have profiles on Facebook the 13 are part-time

professors and 16 professors in the clinical disciplines. Analyzing data for 11 of our former teachers who are engaged around the world universities, we found that 90.9% of them have a profile on BioMedExperts scientific social network, 54.5% use Facebook and all articles are available on Medline. Students of biomedical faculties are also frequent users of general social networks, and educational clips from You Tube, considerably more than professionals. Students rarely use the facilities of professional social networks, because they contain mainly data and information needed for further, postgraduate professional education. Analyzed are three B&H journals indexed in MEDLINE database: Medical Archives (Medicinski Arhiv), Bosnian Journal of Basic Medical Sciences and Medical Gazette (Medicinski Glasnik) in 2010. As shown in Figure 2 the largest number of original papers was published in the Medical Archives (Chi square-130.646, DF 10, significance level  $p < 0.0001$ ). There is a statistically significant difference in the number of papers published by local authors in relation to international journals in favor of the Medical Archives (Chi-square-11.644, DF-2, Significance level- $p = 0.0030$ ). Journal BJBMS does not categorize the articles and we could not make comparisons. Journal Medical Archives and BJBMS by percentage published the largest number of articles by authors from Sarajevo and Tuzla, the two oldest and largest university medical centers in B&H. Student's t test shows that there is a statistically significant difference in the average number of papers published on Medline between groups part-time and full time professors (the difference is in favor of ordinary professor 23.171,  $t = 3.873$  for which the  $p < 0.05$ ), but no statistically significant differences between the professor for preclinical and clinical subjects ( $t = 1.001$  and  $p > 0.05$ ).

#### Conclusion

We can conclude that in B&H there are decent conditions for the use of online social networks in the education of health professionals. While students are enthusiastically embraced these opportunities, somewhat less health care professionals in practice, scientific health care workers have not shown greater interest in the use of social networks, both for purposes of scientific research and in terms of self-education and training of students.

### Supporting public health delivery from an altitude of 150 km: how can satellites deliver a step-change in public health effectiveness

Ed Percy

E Percy

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This paper will examine how satellites can make a big difference in the delivery of healthcare services, particularly in remote or hostile locations, or areas with poor on-ground infrastructure, or where doctors and patients are dispersed geographically. In particular, it will draw on some examples from one of the most challenging parts of the world from a healthcare delivery perspective-Sub-Saharan Africa-and detail an initiative currently underway with the European Space Agency, to deliver eHealthcare via satellite to countries in the region. It will explain how lessons from this programme may be applied to situations elsewhere in the world. Specifically the presentation will cover:

- An introduction to satellite networks-what's up there, who they belong to, who operates them, what they are used for, when is it better, faster or cheaper to consider satellites for service delivery?
- Challenges of delivering healthcare in certain geographies-how satellites can cost effectively plug gaps in infrastructure.
- Disease Surveillance and Situational Awareness-how satellites can enable a near real-time understanding of how a disease situation is evolving-to better understand outbreaks

and transmission routes, and thus allocate limited resources most effectively

- Satellites and Disaster Response-making sure when it is safe for health professional to enter an zone, quickly establishing communications in-field, and allocating resources to where they are most needed.
- Satellite networks for education and training-delivering content to remote communities, and enabling use of more bandwidth intense media to avoid language and literacy issues.
- Satellite delivery of eHealth in Sub Saharan Africa-how satellites will enable the timely delivery of care in this challenging part of the world that carries 25 percent of the global disease burden but just 1 percent of the global health expenditure.

### The role of social networks in education of health professionals in Bosnia and Herzegovina

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#### Goal

The aim of this paper is to investigate in what extent and how effectively the Internet is used and especially the well-known social networks in education of students and health professionals in Bosnia and Herzegovina.

#### Results and Discussion

In B&H in 2010 were 522,364 internet access accounts, with about 2 million Internet users, representing about 52% of the total population. Dominated by the users of fast broadband access (xDSL) with 42.8%, and elsewhere still with dial-up access, with 25.2%. The results showed that only 14.6% of full and part time professors at B&H medical universities use Facebook, 47.7% of them have a profile on BiomedExperts scientific social network and 92% have available articles in the largest biomedical literature database MEDLINE (Figure 1). Of those who have profiles on Facebook the 13 are part-time professors and 16 professors in the clinical disciplines. Analyzing data for 11 of our former teachers who are engaged around the world universities, we found that 90.9% of them have a profile on BioMedExperts scientific social network, 54.5% use Facebook and all articles are available on Medline. Students of biomedical faculties are also frequent users of general social networks, and educational clips from You Tube, considerably more than professionals. Students rarely use the facilities of professional social networks, because they contain mainly data and information needed for further, postgraduate professional education. Analyzed are three B&H journals indexed in MEDLINE database: Medical Archives (Medicinski Arhiv), Bosnian Journal of Basic Medical Sciences and Medical Gazette (Medicinski Glasnik) in 2010. As shown in Figure 2 the largest number of original papers was published in the Medical Archives (Chi square-130.646, DF 10, significance level  $p < 0.0001$ ). There is a statistically significant difference in the number of papers published by local authors in relation to international journals in favor of the Medical Archives (Chi-square-11.644, DF-2, Significance level- $p = 0.0030$ ). Journal BJBMS does not categorize the articles and we could not make comparisons. Journal Medical Archives and BJBMS by percentage published the largest number of articles by authors from Sarajevo and Tuzla, the two oldest and largest university medical centers in B&H. Student's t test shows that there is a statistically significant difference in the average number of papers published on Medline between groups part-time and full time professors (the difference is in favor of ordinary professor 23.171,  $t = 3.873$  for which the  $p < 0.05$ ), but no statistically significant differences between the professor for preclinical and clinical subjects ( $t = 1.001$  and  $p > 0.05$ ).

## Conclusion

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## Evaluation of nutritional supplements for prevention and treatment of diabetes sold on the Internet

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### Background

Diabetes, particularly Type 2, is one of the most common chronic disease. Although many medications are available for the treatment and prevention of diabetes, many people turn to nutritional supplements (NS). In these years, the online sales have contributed to the growth of use of nutritional supplement. The aim of the research was to investigate the type of information provided by sales websites on NS, and analyze the existence of scientific evidence about some of the most common ingredients found in available NS for diabetes.

### Methods

A web search was conducted in November 2011, to identify web sites selling NS in the treatment of diabetes using Google, Yahoo and Bing and the key word used was "Diabetes Nutritional Supplements". Website content was evaluated for the quality of NS information available to consumers and the presence of a complete list of ingredients in the first NS suggested by the site. Subsequently, in order to analyze the scientific evidence on the efficacy of these supplements a PubMed search was carried out on the ingredients that were shared in at least 3 nutritional supplements.

### Results

A total of 28 websites selling NS were identified, but only 10 listed the ingredients of NS. In only half sites, Food and Drug Administration disclaimer statement was present, and 40% declared that the NS offered was not a medication substitution. Furthermore, only 50% suggested addressing to a physician. A total of 10 ingredients of NS were searched on PubMed. Half of them was characterized by less than 20 results in PubMed. For all the ingredients except one randomized control trial, systematic review or meta-analysis were present. However, most of the studies were of poor quality and/or the results were contrasting.

### Conclusions

The easy access through the internet to NS lacking in adequate medical information and strong scientific evidence present a public health concern especially considering that the consumers of these products are unhealthy people. It is evident the need for more trials to access the efficacy and safety of these NS, better quality control of websites in addition to more informed physicians and more public awareness about these widely used products.

## Virtual Therapist Project for Elderly and Brain Stroke Patients

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## Background

With age a probability to suffer a brain stroke increases, in fact it has been shown that the risk of stroke doubles for each decade between the ages of 55 and 85. Regardless of brain stroke origin, an ischemic stroke which occurs 80% of times, or a hemorrhagic stroke, what follows for survivor patients is a long and difficult recovery involving many healthcare professionals with often unpredictable results.

### Methods

research Methods:

### Results

It has been shown that the progress of recovery in these patients greatly depends on the time spent with occupational, physical, and speech therapists that in some healthcare systems, particularly in Croatia, have become a bottleneck in successful treatment of brain stroke patients. Our approach to fixing this problem is applying new technologies that can complement and aid both physical and speech therapists in performing their difficult but important tasks. In 2010 Microsoft has released a Kinect technology, a gaming technology that very quickly spawned a number of serious and noteworthy applications, many of them related to healthcare. A Kinect device can monitor players and check if their movements or vocal answers match expected results, and can relentlessly repeat the same actions as long as players, in this case patients, can perform them

### Conclusions

A project named Virtual Therapist, executed together with a Croatian software company, which is developing this product, should result in a system consisting of a server application that can track patients, their progresses and problem areas, and a client application tied to a Kinect device capable of playing out and recording outcomes of exercises defined by a therapist for each patient. Results of Kinect exercise sessions, which could be conducted in specially equipped facilities or in patient's homes will be available to both therapists and patient's doctors, to the healthcare management institutions and national or local public healthcare systems.

## Alcohol drinking and problematic internet use among university students

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### Background

The aim of this study was to explore the differences in problematic internet use between heavy drinking and non-heavy drinking university students.

### Methods

817 Slovak university freshmen (74.5% females) answered 3 questions related to alcohol consumption from the Alcohol Use Disorders Identification Test (AUDIT-C) as a brief screening test for heavy drinking and The Generalized Problematic Internet Use Scale 2 (GPIUS2; Subscales: Preference for online social interaction, Mood regulation, Compulsive use, Cognitive preoccupation, Negative outcomes). The differences in scores related to problematic internet use between heavy drinking and non-heavy drinking students (a score of  $\geq 4$  for males, a score of  $\geq 3$  for females) were explored using an independent-samples t-test.

### Results

Significantly higher levels of Compulsive use ( $t = -2.27$ ,  $p = .024$ ; mean difference =  $-1.11$ , 95% CI =  $-2.08$  to  $-.15$ , eta squared =  $.01$ ), as well as Cognitive preoccupation ( $t = -3.13$ ,  $p = .002$ ; mean difference =  $-1.54$ , 95% CI =  $-2.49$  to  $-.60$ , eta squared =  $.02$ ) were found among heavy drinking females. There were no significant differences in scores among males.

## Conclusions

The results supported the significance of gender specific importance of the levels of the deficient self-regulation as measures by the Problematic Internet Use subscales among females in relation to heavy alcohol drinking.

## Opening patient data to the public-policy considerations and privacy principles: United Kingdom and Malta case studies

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### Abstract Issue/Problem

Patient data is important to not only patients themselves but also to researchers as it has important public health considerations, particularly in health promotion and resource management. In recent years, patient empowerment through the use of internet technologies has become a goal for many countries in a search for a balance between health goals and protections for patient privacy. In this presentation, two particular approaches will be compared from a legal, technical and sociological perspective, the UK and Malta. Overview will be given to the availability of patient data, including the MyHealth system in Malta and the NHS Choices system in the UK as well as Prime Minister Cameron's proposal to make

'every person a research patient'. The paper seeks to understand the policy drivers behind the creation of such schemes and how the realisation of these public health policy goals is compatible with the current data protection regime under Directive 95/46/EC and the proposed Data Protection Regulation.

### Abstract description of the problem

The fundamental question is whether the current data protection regime encourages or inhibits the policy goals of patient information schemes. The problem is that the European Union data protection regime has not yet addressed medical data usage to the degree of specificity such as that outlined in Council of Europe Recommendation (97)5 on Medical Data. Is the European data protection regime, both as it is and the proposed changes, conducive to the opening of access to medical information or whether it is an obstacle? If it is an obstacle, is this justifiable? If there is an obstacle, how can it be remedied?

### Abstract Lessons

The primary lesson of the investigation is that the balancing act between health policies and data protection law as the latter does not currently embody a level of specificity needed for the unique area of medical data, despite the availability of recommendations on use of medical data (particularly R(97)5). The study's preliminary investigation proposed regulation does not necessarily improve the situation. The overall effect is therefore that the efforts of policy makers will be hampered unless a more cogent and focused data processing regime is envisaged in legislation.

## H.6. HEALTH POLICY 1

### 2011 shared public health (PH) priorities in a European Union (EU) cross-border area among Austria, Italy and Slovenia

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### Issue

In the EU the alignment of policies and actions among regions and countries, especially in cross-border areas, is a recognized need. In PH this is particularly true since many health issues do not respect borders and to effectively address them common agendas are needed.

### Description

Tight historical, cultural and socio-economic connections exist among North-Eastern Italian regions, Carinthia (Austria) and Slovenia, as well as in healthcare, e.g. Sanicademia, an international society for healthcare workers training. From February to September 2011, with a specific project within the INTERREG IV Italy-Austria EU program, we aimed to improve reciprocal knowledge and exchange of information in PH, to define common priorities for cooperation and to promote working groups and networks to develop common actions. Nominated PH professionals from Carinthia (Austria), Friuli Venezia Giulia, Veneto, Lombardia, Autonomous Provinces of Trento and Bolzano (North Eastern Italy) and Slovenia were asked to define shared priorities within two main chapters: Health Promotion/Disease Control and Healthcare Services. Priorities emerged in a

consensus meeting and were afterwards approved by regional and national authorities.

### Results

Shared priorities in Health Promotion/Disease Control resulted: community based services tailored at the different ages of life, integrated policies to guarantee equal opportunities for health in mountain areas and access to health information and services. Priorities referred to Healthcare Services were: accreditation of health services inside and outside the hospital, clinical pathways for the continuity of care and the integration of professionals, implementation of Telemedicine/Telecare, Information Technology and Health Technology Assessment. Some horizontal priorities were also stressed: decision-taking methodology based on measurement and accountability, sharing information of common interest, common training initiatives for professionals, and harmonization of laws among countries.

### Lessons

In EU cross-border areas there is technical and political predisposition to cooperate and share policies and actions in PH. The will to continue this project brought to a joint initiative to activate a "Permanent Table for Cross-Border Cooperation in PH".

### Health care turnaround plans: purposes and features

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Over the last two decades, health policy and governance in Italy have undergone decentralisation at the regional level. The central government was expected to play a guiding role in defining minimum care standards and controlling health expenditures at the regional level in order to keep the entire Italian NHS on track. Although health outcomes have been consistent across regions, public health expenditures have been variable and contributed to a cumulative deficit of €38bn

(2001–2010). To address this deficit, the government required troubled regions to develop a formal regional turnaround plan proposing strategic actions to address the structural determinants of the organizational failures and costs of healthcare. In general, turnaround plan are instruments developed for the for-profit-sector which are designed to increase efficiency and reduce deficit problems in the future and they are expected to contribute to the turnaround process by functioning as triggers for change. However, the effectiveness of this tool was widely questioned, and many critics suggested that it was focused more on methods to address short-term issues than on the long-term strategic reconfiguration that is required for regional health systems to ultimately address the structural causes of deficits. Turnaround plan are strategic instrument that should systematically detect and address major operational problems posed by failing organizations, using multiple tools proper of management practice and instruments resulting from specific context and experience (for example, the healthcare sector would employ heavy regulation on cost containment, propose structural reorganization of care provision, define tightened control and improve information systems' mechanisms). With this contribution we want to examine (i) the instruments used during the turnaround process, (ii) the actual use of these assessing tools (e.g. problem solving and/or decision making purpose), (iii) their socio-political dimensions since turnaround process in Italy is embedded in highly institutionalised and pluralistic contexts and, (iv) the intrinsic characteristics that made them appealing to the public services context: legitimacy, recognition, cognitive intuition, easiness and flexibility.

### Dispensation of foreign prescriptions in English pharmacies: an experiment to understand and overcome challenges

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#### Background

Though prescriptions for medicines issued by European healthcare professionals are legally valid in the UK, standards and provisions with regard to dispensation of European prescription-only medicines may not be clearly understood. We conducted an experiment in England to test the acceptance by pharmacists of prescriptions issued in another European country.

#### Methods

From January to March 2012, we conducted visits in 60 randomly selected pharmacies in different areas of England. A letter was sent to 131 pharmacies informing them of the possibility and nature of the visit, and of the standards of anonymity and confidentiality applied. Four different clinical cases were designed to test English pharmacists' acceptability of prescriptions issued by Belgian or Finnish doctors. Legal prescriptions for generic and brand name medicines were prepared in both the national language and English.

#### Results

Preliminary results indicate that only 25% of pharmacies visited were willing to dispense the medication. There were no apparent geographical patterns, as approximately half of the willing pharmacies were in urban centres and the others were on the peripheries of city centres and in rural settings. The reasons given for refusing to dispense included misconceptions that it is illegal for UK pharmacists to dispense foreign prescriptions, European patients visiting the UK should consult a UK-registered general practitioner for an equivalent prescription, and prescriptions must be written in English. Most pharmacists were unclear about the legal dispositions in England applied to medicines prescribed in another European

country, and most did not know who to contact to validate the prescription.

#### Conclusions

Recommendations made by pharmacists to overcome these challenges included the creation of a database or registry of EU prescribers, accessible to all pharmacists; and standardization of prescriptions, including standards of dosage and avoidance of brand names so that the compound is easily identifiable across the EU. This study provides an important opportunity to clarify regulations and options for English (and other European) pharmacists, as well as make recommendations on overcoming the challenges they highlight.

### Health Care Agreements-a policy for providing virtual integration of care

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#### Background

As part of the Danish Health Reform 2007 Mandatory Health Care Agreements (HCAs) replaced former Joint Health Plans (JHP) as a tool for joint health care planning. HCAs are made every four years between regions and municipalities on six specific policy areas: 1) Hospitalisation and discharge processes, 2) Rehabilitation, 3) Devices and aids, 4) Prevention and health promotion, 5) Mental health and 6) Follow-up on adverse events. We conducted a pre-reform and a follow-up survey to assess the municipalities' perception of the relative strength between the parties in the development of HCAs and the usefulness of HCAs as a tool for strengthening coordination and quality. The study also allowed us to compare the new HCAs with the old JHPs.

#### Methods

A web-based questionnaire was sent directly to the directors of social and health affairs in each of the 98 municipalities in Denmark. The wording of the web-based questionnaire was identical to a postal questionnaire assessing the past JHPs. The survey response rate was 62% for the baseline survey compared to 56% for the follow-up survey.

#### Results

In assessing the relative strength of the partners in the process 87% answered that the HCAs were predominantly decided by the regional authorities before the reform compared to 47% for the HCAs after the reform. 12% versus 51% reported that the two actors had an equal strength in the process whereas 2% versus 0% said that the municipalities were dominating. As for the usefulness of the new agreements 25% considered that the agreements were "to a high degree" helping to secure coordination and quality versus 5% before the reform. 64% post-reform versus 44% pre-reform answered "to some degree" and 9% versus 44% "to a lesser degree". 0%/7% answered "Not at all" and 2%/0% answered "Don't know/not relevant".

#### Conclusion

The process of making the HCAs, although still dominated by the regions, are perceived to be more balanced in terms of the relative strength between the parties than the JHPs and the HCAs as a tool for strengthening coordination and quality is considered more useful. In a traditionally decentralized and fragmented health care system the HCAs are an example of useful tool for providing virtual system integration via contracts and service agreements.

### Effect of DRG policies on hospital care efficiency in Slovenia

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**Problem**

Hospital care is the most expensive subsector in health care. This drives health policy makers into looking for solutions that would-at least try to-contain the soaring costs. One of these solutions is the introduction of different patient classification systems, most notably of DRGs.

**Description of the problem**

Policy makers in Slovenia aimed at incentivising hospitals for bigger throughput and increased efficiency through the introduction of new patient classification systems. Long(er) length of stay and poor hospital stay planning practices were responsible for a slight lagging behind of Slovenian hospitals behind those countries who introduced changes already early in the 1990s. Introduction of case-based payments in 2000 and of DRGs in the second half of 2003 should further enhance these processes. In addition to that health policy makers were setting additional objectives in seeking adaptation of smaller hospitals to less complex patients through their increased throughput and through centralisation of some more complex treatments.

**Results**

Hospital performance was measured by average length of stay (ALOS) and by the number of hospital discharges per 1000 population (hospitalization rate). The timeline of the analysis was 1993–2009. We were able to demonstrate that a major decline in the ALOS and increase in hospitalization rates occurred in the second half of 1990s thus making the process more pronounced prior to the introduction of case-based payments and DRGs. It is true that the level of change was lesser with the latter changes but it was important that the trends continued. We also explored changes in employment levels, which showed significant increases in the number of medical doctors in hospitals, due to more hospital-oriented speciality training in most medical specialties.

**Lessons**

We can conclude that the introduction of case-based payments and of DRGs contributed to a further decline in the ALOS and resulted in a significant increase in hospitalization rates. These had also been the most important changes that had been clear health policy priorities. Further adaptation of the system such as closures of certain departments in smaller hospitals or their shift to less complex procedures have not been observed.

### Evaluation of the Child Health State Certificate Program, Armenia, 2011

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**Issue/problem**

On January 1, 2011 the Ministry of Health of Armenia introduced the Child Health State Certificate (CHSC) Program, which assures free care for pediatric patients. The program was designed to assure that state funding for child hospital services adequately covered actual costs, to eliminate informal payments and improve access of children to hospital in-patient care.

**Description of the problem**

The objective of this study was to generate nationwide estimates of informal payments for in-patient pediatric healthcare services before and after the launch of the CHSC Program. A pre-post independent-group design with stratified (hospitals in capital city Yerevan vs. regional hospitals) simple random sampling was used. The respondents were mothers of children 0–7 years of age who received in-patient care during the periods August–December 2010 for the baseline and March–May 2011 for the follow-up assessments. A total of 1,603 mothers participated.

**Results (effects/changes)**

The proportion of those who made any payment for pediatric inpatient care (including payments to doctors, nurses, cleaning ladies, for instrumental examinations and laboratory tests) decreased sharply at follow-up compared to baseline in both Yerevan and regional facilities: this decrease was highly significant for both Yerevan hospitals (from 63.9% to 20.6%) and marz hospitals (from 47.4% to 8.9%). Those who were hospitalized in Yerevan reported making a payment for care more frequently than those who were hospitalized in regions at both assessments. The mean overall spending decreased significantly in regional hospitals and did not change in Yerevan. The overall number of those who reported spending on gifts/“thank you” payments for providers decreased significantly from baseline to follow-up. Almost all mothers were satisfied with the Program at follow-up assessment. The proportion of those who reported being unable to afford hospital care for their child decreased.

**Lessons**

The findings of this study clearly demonstrated that the Program significantly reduced informal payments for pediatric inpatient care and increased access to needed care. This successful model could be implemented in other post-Soviet countries with similar problems.

### Partnerships among Canadian agencies serving substance-abusing women and their children

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**Background**

Substance abuse is an important public health problem. Its effects are more profound for women than men, and substance abuse during pregnancy and after childbirth has implications for women's and children's well-being. Women worldwide experience significant barriers to accessing treatment and support for their substance abuse. Systems barriers include fragmented care and inattention to the mother-child dyad. As part of a larger study, we examined partnerships among agencies serving women with addictions in Canada and identified where efforts are needed to strengthen and expand collaborative delivery of a range of services.

**Methods**

An invitation to participate in an online survey was sent to staff at 526 agencies across Canada that offer addictions treatment to women. Program managers within each agency were asked to answer questions related to their agency's relationships with community partners. Descriptive statistics, social network analysis, and multi-level modelling were used to examine relationship patterns.

**Results**

223 program managers from 106 agencies responded to the survey. Network analyses revealed three large agency clusters and several smaller, mostly isolated clusters. Agencies were most likely to: send referrals to adult mental health agencies; engage in joint programming with adult mental health, health care, and child agencies; and share information with health care and child agencies. They were least likely to: send referrals to child and social agencies; and engage in joint programming or consultation with other addictions treatment agencies. The overall quality of the relationship with partner agencies and specific qualities, such as the agency's responsiveness to clients and friendliness, influenced collaborative activities.

**Conclusions**

There is a need for increased collaboration among community agencies to effectively meet the needs of substance-abusing women and their children. In particular, service delivery should ensure linkages between addictions treatment and

social agencies that have a vital role in attending to the social determinants of health, thereby promoting the well-being of women and children. Further development of partnerships

with child-focused agencies could help foster children's healthy growth and development.

## I.6. HEALTH CARE STAFF

### Motivational interviewing as method in health promotion practice: A Swedish study

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#### Background

Lifestyle-related health problems have caused at least one-third of the total disease burden in Europe, North America and the Asian Pacific. Motivational interviewing (MI) is one way of working with life style changes within health promotion practice (HPP). MI is a form of patient empowerment aimed at helping patients themselves to gain control over dealing with their own lifestyles. Patient empowerment involves establishing cooperation between the health care professionals and the patient to develop the patient's knowledge, skill and ability to deal with different situations and to make decisions. The purpose of this study was to describe primary health care nurses' experiences with MI as a method for HPP.

#### Methods

This study has a descriptive design and uses a qualitative method for examining nurses' experiences with using MI. In this study, we interviewed 20 nurses who worked in primary health care and actively used MI in their work. Qualitative content analysis was used to process the data.

#### Results

The results show that the primary health care nurses' experiences with MI as a method of HPP

#### Demonstrate

that MI is a demanding, enriching and useful method that promotes awareness and guidance in the care relationship. The results also show that MI is a valuable tool for primary health care nurses' HPP.

#### Conclusions

All of the nurses in the study had a positive experience with MI, which can contribute to the increased use, adaption and development of MI among primary health care professionals. Increased MI knowledge and skills would also contribute to promotion of health lifestyle practices.

### Defining and comparing quality criteria for implementation of the dutch national manual for municipal health policy (2012)

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In 2008, an evaluation study of the Dutch National Institute for Public Health and the Environment (RIVM) showed insufficient use of four national guidelines (including recommended interventions for health promotion) to address obesity, alcohol abuse, smoking and depression on a local level. The evaluation showed reluctance among health promoters of Regional Public Health Services (RHS) to use the recommended interventions, because too little was known about their effectiveness. Furthermore, lack of policy coherence

between the designated health issues and confusion of roles between national and local health organizations were considered obstacles.

Although the evaluation yielded important suggestions for improvement of the guidelines, questions arose about possible barriers and facilitators on the use of these manuals in the internal policy processes of the RHSs.

In the absence of thorough understanding of specific conditions for effective use of the manuals by RHSs, an implementation strategy was developed for two RHSs in order to perform a pilot implementation of the revision of the 4 original guidelines into one new "Healthy Community Manual"

However, to ensure the development of a targeted implementation strategy during the pilot implementation, the implementation goals of both RHSs and the developers of the Manual had to be made explicit. Therefore, three separate concept map-meetings were performed. The central objective in all three meetings was to conceptualize the characteristics of successful implementation of the Manual. One concept map-meeting took place in a RHS with representatives from partner local health organizations and municipalities. Another meeting was held in the other RHS with RHS members only and the third was performed with the developers of the Manual.

Preliminary results, when comparing implementation targets of developers of the Manual and RHS organizations, show emphasis in RHSs on the alignment process and control issues between local authorities and RHS organizations. Conversely developers seem to emphasize the degree of attention to substantive health issues as a measure for successful implementation.

In November 2012, final results will be available and presented.

### A comparison of Norwegian and Swedish General Practitioners' experiences with sickness certification

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#### Background

In most western countries sickness certification is a key medical task for general practitioners (GPs). Previous studies have indicated that GPs experience tasks and situations related to sickness certification consultations as problematic. The organization of primary health care and social insurance systems differs between countries and this may influence both the GPs' experiences and their certification practices. The aim of the present study was to gain more knowledge of GPs' experiences of sickness certification, by comparing data from Sweden and Norway, regarding frequencies and aspects of sickness certification found to be problematic.

#### Methods

Statistical analyses of cross-sectional survey data from Sweden and Norway. The study material consisted of 3949 Swedish GPs (response rate of 60.6% of all GPs in Sweden). In Norway, a representative sample of 221 GPs was included (response rate 66.5%).

## Results

In both countries, most GPs reported having consultations involving sickness certification at least once a week (95% in Sweden and 99% in Norway), and a majority of the GPs found such tasks problematic (60% in Sweden and 53% in Norway). A higher frequency of sickness certification consultations was associated with a higher risk of experiencing them as problematic. A higher rate of GPs in Sweden than in Norway reported meeting patients wanting a sickness certification without a medical reason. Compared to Norway, a higher rate of GPs in Sweden found it problematic to discuss the advantages and disadvantages of sick leave with patients and to issue a prolongation of a sick-leave period initiated by another physician. GPs in Norway more often worried that patients would go to another physician if they did not issue a certificate, and a higher proportion of Norwegian GPs found it problematic to handle situations where they and their patient disagreed on need for sick leave.

## Conclusions

The study confirms that many GPs experience sickness absence consultations as problematic. However, there were differences between the two countries in GPs' experiences, which may be linked to differences in social security regulations and the organization of GP services.

## Why GP's do (not) counsel overweight and obese patients about their weight problems: testing the theory of trying. Belgium, April 2011

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Obesity can lead to several severe health problems and has become a serious social health problem. Since 1980, the prevalence of obesity worldwide has doubled and according to recent data 15.5% of adults are obese in Europe. General practitioners (GP's) are well placed to counsel overweight and obese patients about their weight. In general, patients tend to listen to them and take their advice seriously. However, GP's often do not initiate weight counseling with their overweight and obese patients and percentages of overweight or obese people receiving weight counseling are low and even dropping. In this study, we apply and test the Theory of Trying (ToT) model with respect to the intention of GP's to discuss weight problems with patients. The ToT, as an extension of the theory of planned behavior, is also a model of behavioral change and poses that intention is influenced by attitude, social norms, self-efficacy and past behavior. On its turn, attitude is influenced by attitude towards trying and succeeding, attitude towards trying and failing, and attitude towards the process. An online questionnaire was used to collect the data of 208 Belgian GP's (Flemish region). The measurement and structural model were tested with structural equation modeling (AMOS) and showed adequate model fit. Attitude was influenced by the attitude towards the process ( $p < .001$ ). Intentions were significantly influenced by attitude ( $p = .02$ ), self-efficacy ( $p < .001$ ), past behavior ( $p = .01$ ), and marginally significantly by social norms ( $p = .08$ ). These results support the theory of trying model. Practical implications state that GP's need to feel confident in their skills for counseling about weight loss. By adequate training or lessons their self-efficacy can be heightened, leading them to counsel their patients about weight more rapidly. Furthermore, since past behavior is of influence, GP's should start counseling about weight early on in their career, leading them to maintain this behavior in the future. The third influential factor, attitude, is influenced by attitude towards the process. Thus, by positively changing the attitude GP's have about the process of weight counseling, GP's will have higher intentions to counsel their obese patients.

## Knowledge, attitudes and educational needs of Italian physicians about predictive genetic tests for breast and colo-rectal cancer, a cross-sectional survey in Italy

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## Background

The limited economic resources and the increase of the healthcare expenditure compel policymakers to prioritize cost-saving and cost-effective interventions. The choice to use predictive genetic tests, as well as other health interventions, is in charge of physicians to a large extent. The aims of this study were to describe knowledge, attitudes and educational needs of Italian physicians about predictive tests of breast and colo-rectal cancer and to find their possible associated factors.

## Methods

A self-administered questionnaire was sent by email to a representative sample of physicians selected from the registers of the Board of Physicians of the province of Rome and Florence (Italy). Second and third questionnaires were mailed three and six months later, respectively, anticipated by telephone calls.

## Results

A total of 1079 questionnaires were returned. Physicians have a better knowledge of genetic tests for mutation predictive of breast cancer (73.3%) than of those for colo-rectal cancer (66.7%). Recommendations about the use of genetic tests for breast cancer are known by 75.5% of the respondents, while less than a half are acquainted with those concerning colo-rectal cancer. Although the respondents show positive attitudes toward the use of guide-lines, only 28.9% and 43.1%, respectively, agreed with effectiveness and cost-effectiveness principles to guide the introduction of genetic tests in clinical practice. The vast majority of physicians (80%) judges inadequate its knowledge and 86% of them seek for post-graduate courses predictive genetic tests for cancer. Previous graduate and post-graduate courses about genetic tests and time spent for continuing medical education are the strongest predictors of knowledge, that in turn affects positive attitudes.

## Conclusions

Knowledge of Italian physicians about genetic testing for cancer should be improved. Specific courses, that are requested by the vast majority of physicians of this survey, should be implemented to increase the expertise and the attitudes of physicians and ultimately, to enhance the appropriate use of genetic tests in clinical practice.

## Health promoting lifestyle behaviours in medical students: a multicentre study from Turkey

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## Background

The aim of this study is to determine the health promoting lifestyle behaviors among medical students in Turkey.

## Methods

This descriptive study was conducted from March to May 2011, on 2309 first and last (sixth) year students attending 7 medical faculties in different Provinces in Turkey. Data were gathered by questionnaire method. The participants filled the questionnaires themselves and 2118 students were answered the questionnaire with a reachability rate of 91.7%. A questionnaire with two sections was specifically designed for the study. The first section included questions on demographic characteristics; second section consisted of the Health Promoting Lifestyle Profile II (HPLP) Scale. Data were analyzed using independent samples t test and analysis of variance (ANOVA) followed by Tukey post hoc test; values represent mean  $\pm$  standard deviation.

## Results

The mean age of the students participating in the study was  $20.7 \pm 2.9$ , 55.1% were male, and 62.3% of them were first year students. The overall prevalence of smoking was 19.1%, usage of alcohol was 19.4%. The mean HPLP scale score was  $129.2 \pm 17.7$  in first year students,  $25.5 \pm 19.0$  in last year students and  $127.9 \pm 18.2$  in all students. The overall mean score for the HPLP was  $2.5 \pm 0.4$  given over foursome likert. The mean subscale scores ranked high to low; spiritual growth was  $2.9 \pm 0.5$ , interpersonal relations was  $2.8 \pm 0.5$ , health responsibility was  $2.3 \pm 0.5$ , nutrition was  $2.3 \pm 0.5$ , stress management was  $2.3 \pm 0.4$ , and physical activity was  $2.0 \pm 0.5$ . While HPLP scores were significantly different according to class, marital status, educational level of parents, economic status of family, smoking status and general health perception, there was no difference by gender, presence of any chronic disease, usage of alcohol and BMI.

## Conclusions

HPLP scores of the students were found to be within the intermediate level. Scores were lower in the last year students than the first class. We recommend that curriculum should include issues of health promotion especially physical activity in order to increase positive health behaviors of medical school students.

## Training medical students to prevent discrimination in the health system: an innovative model from Romania

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## Issue

Discrimination persists in the health system and affects access to healthcare for vulnerable groups. This fact has been recognized also by medical students, as shown by a study conducted in Romania by NGO Association for Development and Social Inclusion (ADIS) in 2011, titled "Health and Non-discrimination". This study reveals that medical students do not know how to identify discrimination and are not trained to prevent it.

## Description

This project aims to increase the knowledge, understanding, acceptance and respect for minorities of Romanian medical students and future health professionals. The goal is to prevent discriminatory attitudes and behavior towards patients belonging to the Roma minority. With the support of the Open Society Foundations, ADIS has developed and implemented two successful projects creating and introducing into

the curricula of two Romanian medical universities (the state universities of Iasi and Cluj-Napoca) a university course on "Ethics and non-discrimination of vulnerable groups in the health system". The course focuses on the Roma minority. It provides an introduction to medical ethics, and increases medical students' knowledge on the discrimination issue and the Roma minority with the aim to promote a tolerant and open attitude on behalf of medical professionals towards vulnerable groups, especially Roma. The poster will shed light on the motivation underlying this initiative, its implementation, results and future action.

## Results

ADIS has developed this university course and created the necessary conditions for introducing it in the curriculum of two medical universities in Romania. As an outcome, two prestigious universities have accepted the ambitious challenge to include a relatively new topic in the training of medical professionals in Romania.

## Lessons and next steps

The university course discussed above represents the first initiative of this kind, developed and implemented by an NGO in Romania. The poster discusses this innovative model and highlights the importance of its transposition to other medical universities. Furthermore, the poster presents the plans of ADIS to transform this initiative into a national public policy with the aim to support Roma people's access to health services.

## Awareness of breast cancer signs and risks among women attending the National Breast Screening Programme in Malta

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## Background

Breast cancer is a global health issue and a leading cause of death among women worldwide<sup>1</sup> with a lower than average reported survival rate in Malta<sup>2</sup>.

## Aim

The study evaluated the awareness of breast cancer signs and risks and the use of early detection methods in Maltese women.

## Methodology

A descriptive design using a quantitative approach was used and data gathered using a self-administered questionnaire on a sample of 397 women. The dependent variables were awareness of signs and risks of breast cancer and the use of early detection methods such as mammography and breast self-examination. Descriptive crosstabulation statistics and Pearson's Chi-Square test of association were used to assess the distribution of responses.

## Results

Recognition of well-known signs and risks of breast cancer was good but moderate or low for other less known factors. There was also limited awareness of lifetime risk and women were not making use of the appropriate early detection methods at the recommended intervals. Conclusion The study has identified a number of gaps in breast cancer awareness and an inappropriate reliance by women on the benefits of detection techniques. The reported survival rate could be enhanced by a better knowledge of the risks and signs of breast cancer.

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## K.6. PHARMATEUTICAL MANAGEMENT AND MEDICATION

### Impact of family physician on adherence to medication

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#### Background

The purpose is to explore the relationship between general practitioners (doctors) and patients with special emphasis on the comparison of adherent and non-adherent patients.

#### Methods

Relationship is investigated using a questionnaire where patients respond to a series of questions relating directly to this relation and, indirectly, the persistence of the treatment.

#### Results

The study included 635 persons, of whom there were 265 (41.7%) adherent, and 370 (58.3%) non-adherent. More than ¾ of respondents (75.3%) was treated for more than five years at their present general practitioner (doctor), there were more adherent patients that were treated for more than five years (83.4%) than non-adherent ones (69.5%). The analysis of respondents claims about their relation with doctor shows that in the first place, with the highest number of positive responses, is the claim of respondents that his/her doctor always explains the results of laboratory tests, X-rays and other specialized findings (n = 489, 77.0%). In the second place is the claim that a patient can consult his/her doctor whenever he/she has some personal or emotional problem (n = 467, 73.5%). In the third place, the claim that a physician monitors the patient's problem solving (either directly or by telephone) with 71.0% (n = 451), whereby the adherent patients did not differ from non-adherent in accepting these claims (72.5%:70.0%).

#### Conclusions

Adherence is affected by several factors that are common among people with chronic diseases, mostly older, such as physical or mental impairments, the use of more drugs, and an increased risk of drug-drug interactions and side effects. Doctors may be able to simplify the drug regimen by using one drug that serves two purposes or by reducing the number of times a drug must be taken, to improve adherence and to reduce the risk of interactions.

### Physicians' perceptions and adherence to hypertension guidelines in a multi-centre study in Cyprus

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#### Background

The extent to which published guidelines for the management of hypertension are implemented in clinical practice is unknown. Studies from Europe and the US have reported underprescription of antihypertensive medication, commonly

by calculating an overall difference between recommended and current medication use in a study population.

#### Objectives

To quantify the level of agreement between physicians' practice and European guidelines in Cyprus and examine whether physician (e.g. experience) or patients' characteristics (e.g. smoking) affect adherence.

#### Methods

A stratified random sample of 68 physicians (78% response) from 40 public and private centres provided demographic and clinical characteristics for 654 patients with hypertension and/or hyperlipidaemia. Risk stratification was based on (i) the 2007 European Society of Hypertension/Cardiology (ESH/ESC) guidelines and (ii) the SCORE risk function. Level of agreement between current and recommended antihypertensive medication was expressed in terms of sensitivity, specificity and kappa score of agreement while any differences by physicians' and patients' characteristics were examined by comparing areas under the Receiver Operating Characteristic (ROC) curve.

#### Results

As many as 75.5% were classified as high risk (SCORE > 5), of whom 19.9% with established cardiovascular or renal disease and 17.9% diabetes. Among high risk patients, sensitivity was 75.3% (95% CI = 71–79) and specificity was 71.7% 95% CI = 58–82), while restricting to newly-diagnosed patients sensitivity dropped further to 59% (95% CI = 52%–67%). Sensitivity was higher amongst the low risk group (92.9% 95% CI = 75%–99%) but specificity was lower (55.6% 95% CI = 47%–65%). The overall kappa score was fairly low, 0.34 (p < 0.001). Agreement with guidelines appeared better among doctors' with further education (MSc/PhD) and those attending international conferences and in the case of younger patients and smokers. No differences were identified with regards to doctor's specialty, years of experience or their general attitude towards the usefulness of guidelines.

#### Conclusions

The management of hypertension on the basis of an overall assessment of cardiovascular risk appears to be underused in clinical practice.

### Cost-Efficiency of Nonsteroidal Anti-Inflammatory Drug Prescribing in Croatia

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#### Background

Nonsteroidal anti-inflammatory drugs (NSAIDs) are a group of drugs that are most commonly used as analgesics, anti-inflammatory agents or antipyretics. The wide use of these drugs results in gastrointestinal (GI) complications, which are the main cause of morbidity and mortality associated with this type of therapy. These drugs also rank high according to the rate of hospitalization, thus causing high total costs for both NSAIDs and treatment of GI complications. In order to reduce the morbidity and costs associated with the use of NSAIDs, the utilization and quality of prescribing these drugs should first be evaluated.

## Methods

The utilization and prescribing quality of NSAIDs in Croatia were assessed by calculating the number of defined daily doses (DDDs) from the number and size of packages of each prescription NSAID dispensed at all pharmacies during 2009 and 2010. NSAIDs accounting for 95% of overall NSAID utilization (DU95% segment) were analyzed. Quality and cost-efficiency of prescribing NSAIDs in Croatia were assessed by identifying the type and number of NSAIDs accounting for 95% of total NSAID utilization, and ranking them according to GI complications based on the systematic review of case-control and cohort studies of serious GI complications and nonaspirin NSAIDs. The proportion of NSAIDs associated with high (piroxicam), medium (diclofenac, naproxen, indometacin and ketoprofen) and low (ibuprofen) risk of gastrointestinal side effects, cost for each NSAID in DU95% segment, and cost per DDD were calculated.

## Results

Four NSAIDs fell within DU95% segment: ibuprofen, diclofenac, ketoprofen and piroxicam. The cost for NSAIDs per DDD was by half lower within than beyond DU95% segment. Piroxicam was most expensive, and diclofenac and ketoprofen least expensive NSAIDs within DU95% in 2009 and 2010, respectively. The mean cost per DDD for NSAIDs in DU95% was half those beyond DU95% segment.

## Conclusions

The NSAID prescribing pattern was found to be in discrepancy with their relative gastrointestinal toxicity. Target education from independent sources in the prescribing, dispensing and use of drugs poses itself as a necessary measure to improve the quality of prescribing NSAIDs.

## Polypharmacy in the elderly-Strategies to reduce risks and health care costs

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### Issue

The term polypharmacy indicates concurrent use of many medicines. Polypharmacy represents a substantial health care problem and it contributes significantly to an increase in adverse drug events, interactions and subsequent hospitalizations and high medical care costs. Analyzing the data regarding the number of prescriptions to a population it is possible to make conclusions and take actions.

### Description of the problem

Polypharmacy is common in the elderly due to chronic illnesses. This group of patients also suffers from significant comorbid diseases. The most common comorbid diseases are cardiovascular diseases, diabetes and arthritis. Older patients are at increased risk for potential drug interactions and adverse drug effects because of their less effective metabolism and renal excretion of multiple medications. These contribute to hospitalizations and high unnecessary costs of medical care. On the other hand, polypharmacy is associated with more nonadherence to the medication regimen and consequently poor treatment outcome. We analyzed the Slovenian prescriptions data in order to evaluate the seriousness of the situation in our country.

### Results

Analyzing the Slovenian prescriptions data it was found that there are also patients with more than 250 prescriptions per year (over 550 boxes of medicines per year). Usually more doctors prescribe medicines to each patient, but most medicines are prescribed by one doctor. It was also found out that these patients mostly visit one pharmacy where they

are provided with the medicines. This means that pharmacists are familiar with the problem.

### Lessons

Adverse events from medications and interactions are among major sources of high health care costs, impacting a high number of patients each year, and contributing to increased morbidity and lengthy hospitalizations. Due to the aging population this problem will even be greater. We analyzed the current situation in our country and consequently provided several strategies that may be employed to reduce polypharmacy and improve outcomes in Slovenia and other countries. Simplifying the medication regimen, focusing on high-risk medications, establishing communication between doctors using e-medical records are just some of them.

## Prescribed medications as a risk factor for fall injuries. A Swedish register data study, October 2005-December 2009

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### Background

Fall injuries are the leading cause of hospitalization in the elderly and a major cause of morbidity. The use of medications has been recognized as a relevant risk factor.

### Aim

To describe the age and gender specific history of prescribed medication related to the occurrence of fall injuries.

### Methods

The study is based on the linkage of individual register records of fall injured people found in in/outpatient care in Sweden to the Swedish prescription drug's register from October 2005 to December 2009. 442 873 fall injuries were identified according to International Classification of Diseases version 10, among people aged one year and older. Time of drug exposure was based on the dispense date with a reference period of three months prior to the fall. The analyses focused on single medication use and combinations of drugs acting on the cardiovascular, musculoskeletal and central nervous systems according to the Anatomical Therapeutic and Chemical classification. Results were stratified by sex and age group.

### Results

The proportion of injured dispensed  $\geq 1$  medication increased with age. Those who received 5–9 medications was  $\leq 15\%$  at age 50–64, contrasted to  $>40\%$  in those aged  $> 80$  years. The fraction who received 10–19 medications was 5% for those aged 50–64 compared to 20% in the aged  $\geq 80$  years. Women aged  $< 35$  years old received more medications than men (4–28% depending on the age group), but this difference leveled off among older individuals. Central nervous system medications increased with age, at age 80–85 were about 28% used alone and were doubled in those aged  $\geq 85$  years. Musculoskeletal alone were also commonly dispensed with non-steroidal anti-inflammatory drug showed an increasing trend in the aged 35–79. Combined use of medications increased with age, especially for cardiovascular and central nervous system drugs. These medications were common among elderly patients far more than in other age groups.

### Conclusions

Prescribed medications were common in the period prior to fall injury, especially among elderly patients. This descriptive analysis indicated the potential magnitude of fall injuries caused as side effects of fall induced medications.

## Antihypertensive drug choice correlates with direct detailing intensity in Moscow primary care

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### Background

The negative influence of unethical drug promotion on rational use of medicines and consequently on public health is well established. Nevertheless, the effect of drug promotion on prescribing in primary care has had little attention in Russia. Antihypertensive drugs choice in Moscow outpatient clinics is an appropriate subject for such research as this is a common condition and many pharmaceutical manufacturers sell antihypertensive drugs in Russia.

### Methods

This is a comparison of the results of two related surveys. In a written survey carried out in 2008–2010, 710 Moscow primary care physicians were asked to name drug companies whose sales representatives (“drug detailers”) recently visited their offices. Later in 2011, 452 primary care physicians not enrolled in the first survey were asked to reply to a clinical case scenario. They were asked to name their first-choice antihypertensive therapy for a patient with uncomplicated mild-to-moderate hypertension and no relevant comorbidities. Descriptive statistics and correlation analysis were used to process and compare the data of both surveys.

### Results

The response rate for the first survey was 58% (411 of 710 potential respondents), who described 962 sales representatives’ visits, involving 35 producers of antihypertensive drugs. In the second survey 452 respondents (response rate 97.3%) gave 510 answers regarding their first-line treatment. Most drugs (81.6%) were listed by trade name. Four companies accounted for over half of all sales visits (52.8%) and most products (65.4%) named by study participants. A strong and statistically significant correlation was seen between the intensity of a company’s promotional activities and the first-choice antihypertensive chosen by Moscow primary care physicians: ( $r=0.80$ ;  $t=7.60$ ;  $p<0,001$ ). The most frequently chosen products were angiotensin-converting enzyme inhibitors (68.6%), although low dose thiazide diuretics are the least costly and most effective treatment for uncomplicated primary hypertension.

### Conclusions

These data suggest that effects of promotion of antihypertensives on prescribing habits of Moscow primary care physicians could raise treatment costs and harm individual patient and public health.

## Educational strategies on potential prescribers to implement correct use of genomic tests: the Italian experience

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### Background

Marketing pressures, regulatory policies, clinical guidelines, and consumer’s demand all affect health care providers’ knowledge and use of health-related genetic tests sold and/or advertised to consumers.

A survey on health care providers’ and consumers’ awareness, perceptions, and use of direct-to-consumer personal genomic tests, conducted in USA in 2008, suggested a strong need for education of health practitioners. A similar survey, administered among Italian general practitioners (GPs), has documented that the 85% of interviewers reported the need for specific training on predictive tests’ prescription.

Based on these premises, the Italian Health Ministry has introduced in the 2010–2012 National Prevention Plan, an action on genomics and predictive medicine, based on three major mainstays, including the promotion of: a) genomics education (definition of a core curriculum of ‘basic’ skills for trainers, consultants, laboratory professionals, and medical prescribers of genetic tests) for physicians (GPs first), and b) basic genomic health literacy for general population, in order to raise awareness of potential benefits, limits and risks of genomic technologies.

### Objectives

To present an innovative educational and training pilot programme on correct use of genomic tests, dedicated to the potential prescribers, within a project funded by the National Centre for Disease Control with the scientific support of the Italian Network for Public Health Genomics (GENISAP).

### Results

A panel of experts, representative of the six regions enrolled in this project, has defined the contents of a modular course to be administered through a virtual e-learning platform to a population of genomic tests potential prescribers (GPs, public health operators, oncologists, gynaecologists and neurologists), recruited with the support of scientific societies. Course attending will account for continuing medical education credits.

### Conclusions

Implementation of education and training programmes will lead to an appropriate use of genomic knowledge and technologies. The Italian experience might be of interest for other high-income countries, contributing for a shift in culture regarding prescription and appropriate use of predictive genomic tests for complex diseases.

## Are the untreated anxiety and depression in elderly unrecognized sources of increased healthcare utilisation?

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### Background

Prevalence of anxiety and depression among elderly is varying across Europe and might be associated with healthcare utilisation.

### Methods

A cross-sectional survey was performed in eight districts of five European countries (Finland, Sweden, Ireland, Croatia and Greece) participating in the Tipping the Balance Towards Primary Health Care Network. A total of 3,540 persons aged 70 or more were interviewed in 2006, among them 1,469 from three Croatian districts. The Hospital Anxiety and Depression Scale (HAD) was used to screen for symptoms of anxiety and depression and findings were classified as normal, borderline or probable. Self-reported hospitalization and visits to specialists during last 12 months were accounted for healthcare

utilization. Non-parametric tests (Kruskal-Wallis, chi-square) were used for comparisons.

### Results

A clear North-South gradient in anxiety and depression was found ranging from 6%–8.4% of participants with probable or borderline anxiety in Northern European countries through 35.2%–55.9% in three Croatian districts to 57.1% in Greek district and respective percentages for depression were 5.7–17.2, 45.7–63.1 and 69.8. Same pattern was observed for healthcare utilization: specialist-advisory care was used by 40%, 50–60% and 70% respectively, while percentages of hospitalized varied between 20% and 32%. Overall, in three Croatian districts probably or borderline anxious were 20% and 24% of participants while respective findings for depression were 31% and 23%. Only 15% of those classified

as being probably anxious and 10% of borderline paid a visit to GP in the last 4 weeks due to anxiety treatment, and even fewer of those with depression (4% and 2%, respectively). Anxious patients visited specialist more frequently than those without symptoms (RR = 1.24, CI 1.10–1.39 and RR = 1.14, CI 1.02–1.28 for probable and borderline respectively). Depression proved to be statistically significant risk factor for hospitalization (RR = 1.61, CI 1.29–2.02 and RR = 1.40 CI 1.08–1.80, respectively) as well as probable anxiety (RR = 1.40, CI 1.11–1.78).

### Conclusions

Anxiety and depression in elderly seems to be an unrecognized source of increased healthcare utilisation and therefore their symptoms should be recognised and treated at earliest possible stage.

## L.6. SICKNESS ABSENCE: DIFFERENT DIAGNOSIS

### Socioeconomic inequalities in disability retirement after hospitalization

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#### Background

Lower socioeconomic position is connected to worse health and functioning. The aim of this study was to investigate whether the occupational classes also face different consequences of ill-health in terms of entering disability retirement after being hospitalized.

#### Methods

124,418 persons employed by the City of Helsinki were identified from the employer's registers. The persons were followed up from 1994 to 2008 on the registers of Finnish National Institute for Health and Welfare for hospitalizations, and Finnish Centre for Pensions for disability retirement. During the follow-up 63,292 employees were hospitalized and 8,687 retired due to disability. Cox proportional hazard models with hospitalization as a time-dependent covariate were used to estimate the effect of hospitalization on the risk of disability retirement compared to the pre-existing risk in each occupational class.

#### Results

Disability retirement was more common in the lower occupational classes both among those having been hospitalized and not having been hospitalized due to any cause. Hospitalization increased the risk of disability retirement to a five-fold. Being hospitalized due to mental disorder increased the pre-existing risk of disability retirement 12-fold among professionals and 4-fold among manual workers. Increase in the risk of disability retirement was also larger in the higher occupational classes after hospitalization due to cardiovascular diseases and malignant neoplasms among women. Among men, hospitalization due to respiratory diseases increased the risk of disability retirement more in the lower occupational classes. The effect of hospitalization due to musculoskeletal diseases, as well as cardiovascular diseases and neoplasms among men, and respiratory diseases among women, on the risk of disability retirement was similar across all occupational classes.

#### Conclusions

Although receiving disability retirement after hospitalization is generally more common in the lower occupational classes, hospitalization increases the pre-existing risk of disability retirement more in the higher occupational classes. It should be assessed whether prevention at workplaces and occupational

health care meet the needs of different occupational classes equally.

### Reliance on social security benefits by Swedish patients with ill-health attributed to dental fillings, compared to the general population

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#### Background

There are patients who attribute their ill health to dental fillings but it is not known whether these patients continue to financially support themselves by work or become reliant on social security benefits. The aim of this study was to analyse reliance on different types of social security benefits by patients who attribute their poor health to dental filling materials.

#### Methods

A prospective cohort study with a five-year follow up. The cohort included 505 patients who were all applicants for subsidized dental filling replacement between 1999 and 2005 in seven Swedish counties, and who attributed their ill-health to dental restorative materials (e.g. amalgam). They were compared to matched subjects from the general population (three comparison subjects per patient). Individual data on disability pension, sick leave, unemployment benefits, early old-age pension, and socio-demographic factors in the five years prior to and following inclusion were obtained from Statistics Sweden. Linear regression was used to test for differences between cases and controls in mean number of days on different types of social security benefits.

#### Results

The cohort of dental filling patients had a significantly higher number of days on sick leave and disability pension than the control cohort. During the last year of follow up, 2006, the mean number of days on sick leave and disability pension was 155.3 days higher in the replacement cohort than in the comparison cohort ( $p < 0.001$ ). The significant difference remained when adjusting for educational level, country of birth, sex and age at application. In the replacement cohort, the highest number of days on sick leave was recorded in the year they applied for subsidized replacement of fillings. As sick leave decreased following the year of application, the number of days on disability pension increased and peaked at the end of follow-up.



## Conclusions

Patients with health problems related to dental materials are likely to become dependent on social security benefits, even when the dental fillings are replaced. The difference with the general population was huge. Further investigation is warranted to determine how best to support their work participation.

## Arthroscopic subacromial decompression and predictors of permanent benefits 2003–2010 in the Northern Region of Denmark: a 5 year follow up study

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### Background

Shoulder impingement syndrome is a common musculoskeletal complaint leading to reduced work ability. The main problem is the perception of pain associated with dysfunction. Arthroscopic subacromial decompression (ASD) is a widely used efficient treatment with a high percentage of patients returning to work. The aim was to clarify predictors of long-term permanent benefits after ASD. Mandatory permanent benefit demands permanent reduced work ability.

### Method

The study included 155 patients treated with ASD (2003–2005) at Aalborg Hospital with a follow up of 5 years. Data was linked to the following registries: The Danish Ministry of Employment (early retirement pension or permanent benefit due to partly permanent reduced work ability); the Register of Medical Product Statistics from the Danish Medicines Agency (prescribed medication half a year before surgery and one year after surgery); and The National Board of Industrial Injuries from two years before to one year after ASD.

The multivariate logistic regression model included variables with  $P < 0.2$  in univariate logistic regression analyses. Transfer income/temporary benefit two years before ASD (before shoulder disease) was used as an indicator of socio-economic factors.

### Results

Five years after ASD 35(22.6%) received permanent benefit. Mean age 46.5 years. A total of 35 received other benefits two years before; 16 of these received permanent benefit after ASD. A total of 23 used strong painkillers/opioids after ASD; 17 received permanent benefit. Predictors were: use of opioids (at least prescribed twice) at any time in a one-year period after ASD (OR 24.80 [95% CI = 7.05–87.18]); other work claims at time of ASD than due to shoulder disease (OR 5.99 [95% CI = 1.34–26.72]); or any transfer income two years before ASD (OR 3.44 [95% CI = 1.20–9.86]).

### Conclusion

Nearly a quarter received a permanent benefit five years after ASD. There were no predictors due to medication including any painkillers before ASD. Persons who received transfer income two years before or had other work claims had a higher risk. However, treatment with opioids at any time the first year after ASD was the highest risk factor for permanent benefit indicating that better treatment of increased pain after surgery may be an issue.

## Disability pension due to musculoskeletal diagnoses: importance of work-related factors in a prospective cohort of Finnish twins

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### Background

Musculoskeletal diagnoses (MSD) are a common reason behind disability pensions (DP). To prevent permanent incapacity to work due to MSD and to prolong working careers, more knowledge on potential intervention targets is warranted. In this study we aimed to investigate the impact of work-related risk factors for DP due to MSD in a twin cohort. The use of twin design allowed us to take into account the familial effects including genetic factors and family environment shared by co-twins embedded in a cohort with a long follow-up.

### Methods

The study sample included 16 028 Finnish twins born in 1911–1957, who were employed at baseline. Data on work-related factors were collected in 1975 by postal questionnaire and follow-up data on DP until 2004 was obtained through register linkages. The associations between work-related factors and DP due to MSD were analyzed by Cox proportional hazards regression models.

### Results

During the 30-year of follow-up, 1297 (8%) participants were granted DP due to MSD. Self-reported high stress of daily activities (HR = 1.06, 95% CI 1.04–1.09 per one unit increase), monotonous work (HR = 1.62; 1.42–1.85), and work including lifting and carrying (HR = 1.83; 1.58–2.12) showed strong associations with DP. These associations were not affected by other work-related confounders or familial factors. The associations between physically heavy work, shift work, and outdoor work and DP were accounted for by other work-related factors in the model. However, these associations remained of a similar direction and magnitude in discordant pair analysis suggesting independence from familial factors.

### Conclusions

Stress, monotonous work, and lifting and carrying at work were identified as strong, early, and direct risk factors for DP due to MSD. These factors are potential targets for interventions, and the identification of them early in working life could be beneficial for reducing future incidences of permanent incapacity to work due to MSD. Additionally, since other factors influenced several of the found associations between work-related factors and DP, confounding needs to be taken into account while studying the potential risk factors of DP.

## Disability pension due to otoaudiological diagnoses and risk of all-cause and cause specific mortality; a Swedish nationwide prospective cohort study, 2005–2010

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### Background

Hearing difficulties is a serious public health problem with increasing prevalence, estimated to be one of the top ten

leading burdens of disease in 2030. Knowledge regarding mortality among individuals on diagnoses specific disability pension due to hearing diagnoses is virtually non-existent. We aimed to prospectively examine the association between disability pension due to different otoaudiological diagnoses and risk of all-cause and cause specific mortality.

#### Methods

A cohort, based on Swedish register data, including all 5 248 672 individuals living in Sweden in 2005, aged 20–64 and not on old-age pension, was followed through 2010. Otoaudiological diagnoses were further categorized as mainly otological, hearing, vertigo or tinnitus diagnoses. Hazard ratios (HR) with 95% confidence intervals (CI) were estimated using Cox proportional hazard models, those on disability pension due to different otoaudiological diagnoses during 2005 were compared to those not on disability pension. Multivariable models were adjusted for age, sex, family situation, type of living area, birth country, education, and hospitalization days during 2000–2005.

#### Results

In multivariable models, individuals on disability pension due to otoaudiological diagnoses had a 1.21 fold (95% CI = 1.06–1.38) increased risk of all-cause mortality, compared to individuals not on disability pension. Analyses of individual otoaudiological diagnoses groups, revealed the risk increase to be most attributable to otological (HR 1.47; 95% CI = 0.99–2.20) and hearing diagnoses (HR 1.17; 95% CI = 0.98–1.40). Vertigo and tinnitus diagnoses were not associated with increased mortality risks. The hazard ratios for cause specific mortality among individuals with disability pension due to otoaudiological diagnoses compared to individuals not on disability pension were 1.35 (95% CI = 1.03–1.76) for circulatory diseases, 0.95 (95% CI = 0.78–1.16) for cancer and 1.48 (95% CI = 0.82–2.67) for suicide.

#### Conclusion

For the first time, this large nationwide population-based cohort study suggests an increased mortality risk among those on disability pension due to otoaudiological diagnoses compared to those not on disability pensions.

### Workers With Health Problems: Three Perspectives on Functioning At Work

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#### Background

Although it is known that health conditions impact functioning at work, little information is available about 1) why it is that one worker with a health problem is able to stay at work while the other is not, 2) signals for decreased functioning at work, and 3) if and how functioning at work can be measured. To date, most studies on functioning at work with a health problem show only the perspective of the worker. It is important, however, to take the views of different actors with a stake in the problem into account when looking at functioning at work with a health problem.

#### Methods

Three focus groups were conducted with: workers with a health problem (N = 7), occupational physicians (N = 7), and HRM/supervisors (N = 5). A qualitative description method was used to analyse the data.

#### Results

In the three groups differences in coping strategies, motivation, beliefs, attitudes, and values were mentioned as important strategies for staying at work. All groups reported that the supervisor is the key figure in the functioning at work of

workers with health problems. The supervisor can facilitate work accommodation and help optimizing functioning at work. The identified signals, such as changes in behaviour, contribute to the development of an instrument. Conditions for use of an instrument, i.e. a 'safe' setting, were suggested.

#### Conclusions

This focus group study provided insight in why it is that one worker is able to stay at work while the other is not. Although all three groups reported that the supervisor is the key figure in the functioning at work of workers with health problems, there are differences between how the three stakeholders perceive the situation. The worker tends to focus on health status and working conditions, while the OPs and HRM/supervisors have a broader perspective. Overall, the results indicate that an instrument to measure work functioning of workers with a health problem could be helpful for occupational health professionals and HRM/supervisors. The instrument could be used to monitor how workers are functioning, to start a dialogue, to share information and provide directions for interventions for helping these workers to stay at-work.

### Sickness absence and disability pension among Multiple Sclerosis patients in Sweden

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Multiple sclerosis (MS) is the most common neurological disease of younger adults and leads to substantial disability and costs. However, there are few studies about sick leave and disability pension among MS patients. Moreover, multi morbidity is not uncommon among MS patients.

The aim of this study was to gain basic knowledge about the one-year prevalence of sickness absence and disability pension among MS patients, and whether this differed with gender or educational level.

#### Method

This population-based register study includes 9768 MS patients (71.0% women) who in 2005 lived in Sweden and were aged 16–64 years. The patients were identified using the nationwide in- and out-patient hospital registers; that is, those who had at least one such visits with MS as a primary or secondary diagnosis in the four years 2001–2004. Diagnoses-specific data on sick-leave spells > 14 days and disability pension was obtained from the nationwide Social Insurance Agency's MiDAS database. All people in Sweden are covered by the same social insurance.

#### Results

In 2005, 61.7% (n = 6022) of these patients were on disability pension, and 16.7% had been granted a disability pension due to other diagnoses than MS. The corresponding rate regarding at least one sick-leave spell in 2005 was 27.0% (n = 2640) and 37.0% of the spells were due to other diagnoses than MS. Moreover, a higher rate of women than men with MS was on disability pension (63.3. vs. 57.6%, p < 0.001). The same gender difference was observed with regard to sick leave (28.4 vs. 23.7%, p < 0.001). The MS patients with a lower educational level (≤ 12 years) had a markedly higher risk for being disability pensioned than those with higher education (> 12 years of school) (64.0 vs. 43.3%, p < 0.001)

#### Conclusion

One out of six disability pensions among MS patients were due to other diagnoses than MS. Both rates of sick leave and disability pension was lower among men and the rate of disability pension was substantially lower among MS patients with higher education. More specific research is required to better understand these findings.

## M.6. CHRONIC DISEASE PREVENTION

### Program implementation of preventive examinations in family medicine in Zagreb

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#### Background

Raising awareness of the inappropriate habits and behavior patterns as risk factors that influence the occurrence of chronic non-communicable diseases is one of the continuous tasks of public health professionals. Primary preventive care requires an active approach from the health professionals and from all individuals of the target population.

#### Methods

All persons older than 50 who did not visit their family doctor at least two years were invited for free physical examination and certain laboratory tests. 417 persons were examined and interviewed during 2010 and 2011. The paper shows analytic results expressed in percentages of the prevalence and 95% confidence interval (CI).

#### Results

A total of 417 patients were included. The age (mean) was 60.6 years [standard deviation (SD)=9.1], sex ratio male:female was 0.41. There were 24.3% smokers and 15.2% former smokers. Up to three alcoholic drinks per week consumed 22.6% respondents (38.6% male and 11.7% female). Overweight (BMI 25–30) were 47.5% male and 38.3% female. Obese (BMI>30) were 29.2% male and 30.7% female. Hypertension (systolic pressure above 140 mm Hg and diastolic above 90 mm Hg) was found in 13.6% male and 16.3% female. Isolated systolic hypertension was found in 19.0% male and 16.3% female, and isolated diastolic hypertension in 3.4% male and 3.5% female. Digitorectal examination was performed in 403 persons and detected pathological phenomena in 10.4% female and 19.2% male. Suspicion on one or more newly diagnosed disease was placed in 56.3% (95% CI 52.7–59.8) respondents. In total there was a suspicion of 554 newly diagnosed diseases. Newly diagnosed diseases were disorders of lipoprotein metabolism (n=125, 22.4%), followed by hypertension (n=53, 9.6%), obesity (n=41, 7.4%) and independent of insulin diabetes (n=34, 6.1%). 31 person [7.4% (95% CI 4.9–10.0)] had suspected neoplasm and they were immediately referred for further diagnostic evaluation.

#### Conclusions

This program covers all persons who were not in contact with the physician for two years or they themselves have not noticed symptoms or timely respond to the observed symptoms. Detecting malignant state as early as possible is extremely important and thereby confirms the public health significance of such programs.

### Dietary vitamins or minerals in the prevention of colorectal cancer -results from case-control study in Poland

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#### Background

Majority investigations showed dietary habits as the main factors responsible for the development of colorectal cancer. Study results are not consistent and only a few enabled

comparison between the effect of minerals and anti-oxidative vitamins. The objectives of the study were to evaluate the role of dietary calcium, phosphorus, vitamin C, vitamin E and equivalent of retinol in the development of colorectal cancer and to compare their effect.

#### Methods

In total, 1511 patients (637 incident adenocarcinomas of colorectum and 874 controls) were recruited in the hospital based case-control study in Poland. Data were gathered by the 148-item food frequency questionnaire which enables assessment of portion sizes. Moreover data regarding numerous confounders were collected.

#### Results

After adjustment for gender, age, education, body mass index, alcohol consumption, polysaccharides, fiber intake, the highest intake of calcium was associated with 54% colorectal cancer risk reduction (OR=0.46; 95%CI: 0.25–0.84; p=0.012). Similar result was observed for the highest intake of phosphorus (OR=0.32; 95%CI: 0.17–0.62). The analysis failed to prove benefit for the high intake of vitamin C, vitamin E and equivalent of retinol. Moreover, patients who reported the highest (over the third quartile of intake) consumption of all three vitamins had 25% decrease in the risk, however result was statistically insignificant (95%CI: 0.42–1.35).

#### Conclusions

The study confirmed beneficial effect of calcium intake and moreover phosphorus in the protection of colorectal cancer. Moreover, our study showed that consumption of aforementioned minerals may be more beneficial than intake of some vitamins in our region. Despite the protective effect of vitamins in the development of colorectal cancer was not directly compared to minerals across literature, our results suggest to consider diet rich in minerals for dietary prevention strategies among individuals at high risk of colorectal cancer.

#### Acknowledgment

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### Which approach to vitamin supplementation for mothers and children is more effective, targeted or universal? A mixed methods study in the North West of England

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#### Background

In England, a statutory vitamin scheme to prevent ill-health in pregnant mothers and pre-school children has existed since 2006. The scheme was designed by the Department of Health to assist low-income families (targeted approach), but some areas in England have opted to offer the vitamins to all (universal approach). The aim of this study is to compare the effectiveness of the targeted and the universal approach to vitamin uptake by mothers and children.

#### Methods

Comparative analysis of Department of Health data on vitamin uptake rates in targeted and universal areas; qualitative interviews to identify barriers to the effective implementation of this scheme. Data were thematically analysed from 30 commissioners, providers and service users in both targeted and universal areas.

## Results

For low-income women, the uptake of vitamins was three times higher in areas where the policy was universally implemented (15.66% vs. 5.97%). For children from low income families, uptake was twice as high where the policy was universally implemented (6.89% vs. 3.53%).

Commissioners from both areas found the universal approach significantly more cost-effective, which they attributed to lower administrative costs associated with the universal approach. The health care providers' (e.g. midwife and health visitor) perception was that a universal approach allowed a standardised approach to care. Health professionals using the targeted approach did not always discuss the vitamin scheme and found discussion around means testing difficult.

## Conclusions

The universal appears to be more effective than a targeted approach, when delivering the Healthy Start scheme in England. Not only is it more cost-effective, but commissioners, providers and service users feel that it delivers a more efficient service, with higher uptake of vitamins amongst low-income families. However, even with the universal approach, 85% of the eligible population did not receive the vitamin supplementation, despite it being a statutory requirement. This study suggests that more research is required to extend our understanding of how to effectively implement public health policy.

## Vitamin D3 in disease prevention in adults-a systematic review

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### Background

current evidence indicates, that vitamin D3 plays significant role in calcium balance and bone metabolism through lifetime. As far as there is strong evidence on preventive efficacy of vit. D3 in osteoporosis, in other diseases evidence is dispersed and uncertain. The aim of the systematic review was to gather the latest (last five years) evidence regarding role of vit. D3 in prevention of diseases in adults.

### Methods

MEDLINE via Pubmed was searched using example key words: "vitamin D3", "prevention", "adults", "cardiovascular diseases", "cancer", "osteoporosis", "diabetes", "obesity", "depression". 26 trials were included into analysis: 17 randomized controlled trials, five observational studies, two systematic reviews, and two metaanalysis.

### Results

vit. D3 appears to have a beneficial effect in depression therapy and reducing frequency of adverse events in patients with prostate cancer. There is also an evidence on the preventive efficacy in lung cancer, lymphoma, leukaemia, as well as in osteoporotic management. Supplementing with vit. D3 resulted with no improve in reducing body weight, fat, blood pressure, risk of hypertension, response to treatment in cancer prostate (with dexamethasone and carboplatin) and in a risk of colon cancer. Many studies highlight a beneficial influence of vit. D3 (with calcium) on bone mineral density in whole body. Another studies show an improve in bone mineral density in hips and pelvic bones only. There were inconsistencies of studies' results regarding a role of vit. D3 in prevention of a diabetes and a risk of breast cancer.

### Conclusions

results from the primary and secondary studies are in general consistent, although in secondary studies, results regarding osteoporosis (i.a. Cochrane review) are more cautious than in primary studies. Inconsistencies in study results may be exploited by the high heterogeneity between studies. In almost every study, a supplementation with the vit. D3

resulted with increased overall level of it and maintained through next months. Due to a spread of general deficiency in vit. D3 over population and rare cases of toxicity or an overconsumption, the supplementation is recommended, especially in elderly.

## Policy actions to reduce dietary salt intake: price, product, place or promotion? A review of the evidence

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### Background

A range of policies aim to reduce salt intake. Their relative effects are unclear. We undertook a narrative synthesis of existing evidence to determine the most promising approaches.

### Methods

We searched for systematic reviews (SRs), then primary (P) and modeling (M) studies of salt reduction policies in six electronic databases. Reference lists were screened. Key informants identified additional evidence. Items were systematically assessed for inclusion. Extracted data were categorised with a modified version of the marketing four P's framework: Price, Product, Place and Promotion.

### Results

Price A US sodium tax may reduce sodium intake (-6%), systolic blood pressure (-0.9 mmHg), stroke (-10%) and myocardial infarction (-5%) over the lifetime of those aged 40–85. (1M) Product Voluntary US salt limits might achieve lifetime reductions in sodium intake (-9.5%), blood pressure (-1.25 mmHg), myocardial infarction (-5%) and stroke (-10%). In Australia, mandatory salt limits could reduce cardiovascular disease (-18%) but only by 1% if voluntary. (2M) Promotion Intensive support to restrict dietary sodium intake led to significant long term reductions in systolic blood pressure (-1.1 mmHg) and disease burden (-0.5%). (1SR) Place School-, workplace- and community-based interventions have only been evaluated within multi-component interventions. Multi-component interventions A UK product and promotion-based initiative reduced salt intake by 10%. Estimates suggest similar interventions in low- and middle-income countries may achieve a 15% reduction in salt consumption, globally averting 1 million deaths and 21 million disability-adjusted life years annually. Estimates from Norway suggest product and price interventions may reduce daily salt intake by 6g. Survey data reveal a mandatory nutrition intervention (regulating price, product, place and promotion) reduced urinary sodium excretion (-3g/day) in Finland 1979–2002. (2P, 3M)

### Conclusions

There is limited evidence on the effectiveness of policy-based interventions to reduce dietary salt intake. Dietary advice can achieve modest benefits. Modelling suggests taxes and reformulation may be effective (particularly when mandatory). Multi-component interventions may also be powerful.

## Effective interventions for the prevention and management of Diabetes Mellitus and Cardiovascular Diseases in primary care: a systematic review

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### Background

Organising effective responses to the growing problem of non-communicable diseases (NCD) is among the biggest challenges

of (primary) health care systems. In particular tackling cardiovascular diseases (CVDs) and diabetes mellitus type 2 (DM2) requires coordinated approaches close to where people are living. CVDs and DM2 are linked by common risk factors, underlying determinants and opportunities for interventions. This paper aims to provide the evidence for effective prevention and interventions in primary care related to these NCDs.

#### Methods

In Medline, 65 systematic reviews, meta-analyses, cohort studies and randomized controlled trials (RCTs) have been included, systematically reviewed and independently screened by three researchers. Disagreements were discussed until consensus was reached. The Chronic Care Model (CCM) was used to structure the characteristics of the interventions that were identified in the papers.

#### Results

Results show that, in general, prevention and management of CVDs and DM2 in primary care is most likely to be successful when interventions are multifactorial and are provided in a coordinated way by different primary care workers. Furthermore, conditions should be created that enable professionals to incorporate the interventions in their practice routine. It will be a challenge to integrate a heterogeneous mix of activities into a comprehensive chronic care package that includes a major role of self-activated ('pre'-)patients. Effective interventions and strategies for the prevention and management of CVD and DM2 in primary care will be presented. Features of health care systems will also be taken into account, in particular which options are feasible for countries with a lower level of resources.

### Randomized cluster trial of a public health intervention to enhance cardiovascular disease prevention in primary care

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#### Background

Although chronic diseases are major health problems, the use of evidence-based interventions in primary care is sub-optimal. We tested the impact of a knowledge dissemination strategy to increase chronic diseases prevention in primary care settings in Quebec, Canada.

#### Methods

Twenty community clinics were randomized to an experimental or control condition. Experimental clinics received a 3-year intervention consisting of systematic and ongoing support from a public health department for needs identification, planning and implementation of best practices for clinical cardiovascular diseases (CVD) prevention by physicians and nurses. Experimental and control clinics had access to the same internet resources for evidence-based CVD prevention and received the same financial incentives (\$15 000 CAN per year). Evaluation consisted of pre-post questionnaire assessments of 1) CVD risk factors and lifestyle behaviors in randomly sampled patients of each clinic, 2) self-reported prevention practices by nurses and physicians and patients-report of preventive interventions received, 3) qualitative interviews with health professionals, clinic administrators and staff assessed barriers and facilitators to implementation of the experimental intervention. Analyses of quantitative data included generalized mixed linear models to take into account the clustered nature of the trial.

#### Results

Questionnaires were completed by 69% of patients (N = 7689), 78% of nurses (N = 177) and 59% of physicians (N = 83). Nurses in the experimental clinics reported greater increases in counseling for smoking cessation (absolute increases of 37% vs 23%), blood pressure (0.4% vs -1.4%) and physical activity (28% vs -7%) than those in the control clinics (p = 0.01). Physicians did not report changes in self-reported practices. Patients in the experimental clinics reported greater increases in the practice of physical activity (6% vs 2%, p < 0.05). Qualitative results suggest that experimental clinics were more likely to integrate prevention into ongoing practices and that control clinics were more likely to create new independent clinical preventive services.

#### Conclusion

Public health can play a role to support evidence-based chronic disease prevention interventions in community clinics.

### Does legislation in health work? Taking Scotland as an example

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#### Background

Scotland has an unenviable reputation for poor health within the UK and in Europe. However there are positive trends, arguably in part due to specific policies and legislation. For example, motor vehicle casualties have reduced, in part, due to progressive UK road safety legislation. The Scottish Government banned smoking in public places (in 2007), has restricted alcohol sales promotions and plan to introduce minimum pricing for alcohol. Given this context what are the trends in Scottish mortality for a range of causes and in relation to other countries, particularly where legislation has been introduced.

#### Methods

The WHO Statistical Information System website provided deaths by country, 5-year age group, sex, year and cause and corresponding population estimates. Using these data, age standardised mortality rates for 13 disease groups were calculated for 20 European countries, including Scotland, over sixty years (1950–2010).

#### Results

(preliminary)

Mortality rates among working age Scots (aged 15–74) from all causes have fallen over the last 60 years but remain the highest in Western Europe (WE). Trends in adult mortality by cause vary considerably. Three examples are given below.

Lung cancer mortality in Scotland remains among the highest in Western Europe, but the male rate has reduced considerably since the mid 1970s and is becoming closer to the WE average. The Scottish rate dropped below the rates in France, Spain and Greece in 2003.

Scottish mortality rates from 'chronic liver disease, including cirrhosis' rose steeply through the early 1990s to become the highest in Western Europe. However, there have been reductions since the mid 2000s and among men mortality is now slightly lower than in Finland where rates are rising.

Mortality from motor vehicle accidents in Scotland has declined since the mid-1970s and Scotland performed relatively well in Western Europe, but many countries have caught up with Scotland and now have lower mortality rates.

#### Conclusions

There is some evidence that legislative approaches to address specific health issues can have an impact, but there are differences related to gender. However these approaches on their own are not sufficient and should not divert efforts from tackling the wider determinants of health.

## O.6. MENTAL HEALTH AND ADOLESCENTS

### Epidemiology of child poisonings by chemical substances with suicidal purpose in Arkhangelsk, Russia

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#### Background

Suicidal behavior among children is an important public health problem in Russia. Acute poisoning by chemicals is the most frequent method of suicide attempts. On average 2.0–3.0 chemical poisonings per 1000 children are registered in Russia (WHO, 2007). Since 2007, toxicological monitoring performed by the Center of hygiene and epidemiology in the Arkhangelsk region is conducted. Mortality from chemical poisoning in 2010 was 36.7 per 100 000. There is little known about the causes and circumstances of chemical poisoning among children with suicidal purpose in Arkhangelsk.

#### Aim

to study the causes and circumstances of acute poisoning of the chemical etiology with suicidal purpose in Arkhangelsk, Northwest Russia.

#### Methods

A cross-sectional study was carried out at the Center of outpatient surgery of the Arkhangelsk regional pediatric clinical hospital. A representative sample (n=92) of the children under 18 years were asked (for those, under 15 years, their parents were asked) about the causes and circumstances of acute poisoning by chemicals with suicidal purpose. Proportions were compared by  $\chi^2$  tests.

#### Results

Altogether, 14.0% of hospitalized children with chemical poisoning had suicidal attempts. Most of them were girls (86.5%, 95%CI 83.6–88.9). These poisonings were more often polymedicamentous. As many as 37.0% (95%CI 27.8–47.2) of children are from complete families, 63.0% (95%CI 52.8–72.2)-have divorced parents or single mothers ( $p < 0.001$ ). The causes of suicides were conflicts with parents (42.4%, 95%CI 32.8–52.6), conflicts with friends (33.7%, 95%CI 24.9–43.8), conflict situations at school (23.9%, 95%CI 16.4–33.6). All cases of poisonings occurred at home. There were 36.9% (95%CI 27.8–47.2) cases of alcohol poisoning. As many as 94.6% (95%CI 87.9–97.7) attempts had “demonstrative” character. Only 12.5% (95%CI 7.6–21.4) of parents were interested in child’s success, 65.5% (95%CI 55.1–74.2) never discuss children’s life ( $p < 0,001$ ). That can be indirect cause of suicide behavior of their children.

#### Conclusions

Study results show that acute poisoning of the chemical etiology with suicidal purpose demands development of the regional health program on suicidal behavior among children and adolescents.

### Association between self-reported oral health and life satisfaction in Lithuanian adolescents’ population

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#### Background

Oral health problems like malposed teeth and malocclusion can be a serious predictor of people’s well-being and life satisfaction. Therefore, a little is known about such association in adolescence. The present study was aimed to examine the association between oral health complaints and life satisfaction (LS) among Lithuanian adolescents.

#### Methods

This study was a part of the WHO collaborative cross-national HBSC study in Lithuania for 2009/2010 school year. The study population comprised 5,338 students aged 11, 13 and 15 years. The students completed the standardized questionnaires anonymously. Their LS was rated using Cantril ladder with steps numbered from zero (the lowest LS) to ten (the highest LS); scores 6–10 indicated high LS. Four questions were formulated to identify oral health complaints, including: 1) teeth health (TH); 2) bleeding gums (BG); 3) orthodontic anomalies (malposed teeth or malocclusion) (OA); 4) attempts of treatment of orthodontic anomalies (TOA). Log-linear models from SPSS17 were adopted for statistical analysis of associations between variables.

#### Results

Almost half (47.4%) of students reported malposed teeth or malocclusion, and more than half (54.8%) of students reported bleeding gums. Three of four (75.0%) students identified their teeth filled or needed for treatment. In overall, 81.3% of students, boys more often than girls (84.1 vs 78.4,  $p < 0.05$ ), rated their LS 6 or higher scores. LS was significantly associated with BG (OR = 1.60; 95% CI = 1.38–1.85) and OA (OR = 1.36; 95% CI = 1.18–1.57), but did not with TH (OR = 1.06; 95% CI = 0.89–1.25). Log linear modeling of the data suggested the presence of a relatively complex relationship between adolescents’ oral health and life satisfaction. The best model had a design: Constant + LS + TH + BG + OA + LS\*BG + LS\*OA + TH\*BG + TH\*OA + BG\*OA ( $p = 0.633$ ). In the group of adolescents, who attempted treatment of OA, the best model was: Constant + LS + HT + BG + TOA + LS \* BG + HT \* BG \* TOA ( $p = 0.215$ ).

#### Conclusions

Life satisfaction of adolescents has significant association with oral health complaints of gum bleeding and orthodontic anomalies, therefore, it is not associated with teeth health and attempts of orthodontic treatment.

### Self-regulation, perception of stress and problematic internet use among university students

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The aim of the study was to examine the relationship between self-regulation, perception of stress and problematic internet use among university students. Many studies suggest that the impact of stress on university students and their health behavior is considerable (Edwards, et al., 2001; Mikolajczyk et al., 2008; Misra, McKean et al., 2000 etc.). Davis (2001) and Caplan (2002) found that self-regulation deficit is related to problematic internet use. Stress and deficit in the self-regulatory processes may contribute to behavioral disorders such as addictive disorders, metabolic abuse, damage and criminal behavior (Brown, 1998; Tabor, 2004; Tangney et al., 2004). In this context Internet might become a place to reduce this tension, stress or sadness and is highly relevant in the studied population (Haddadain et al., 2010).

**Methods**

Data collection (Self-regulation-The Short Self-regulation Questionnaire SSRQ, Carey et al., 2004; Perception of stress, Cohen et al., 1983; Problematic internet use GPIU 2 Generalized problematic Internet Use Scale, Caplan, 2010), was conducted in 2011 among 538 university students among Slovak university students (82,5% woman, mean 19,92year, SD = 1,976).

**Results**

Results show that there is a positive correlation between perception of stress and components of problematic internet use (preference for online communication 0,242, mood regulation 0,145, cognitive preoccupation 0,218, compulsive internet use 0,172, negative consequence 0,304). By contrast there was negative correlation between self-regulation and components of problematic internet use (preference for online communication -0,202, mood regulation -0,136, cognitive preoccupation -0,264, compulsive internet use -0,324, negative consequence -0,324).

**Conclusion**

A short term exposure to stress as well as long-term exposure to various stressors that might lead to or induce problematic internet use may constitute a new and highly relevant health risk (Goldman, Wong, 1997; Maio-Esteves, 1990, Ross et al., 1999). Examination of the sources of such stress may be helpful in developing a program to help to manage stress or create specific and well targeted intervention programs regarding the abuse of internet.

**Triangulation of stress in adolescence**

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Large scale surveys show that perceived stress and stress-related complaints are common among young people. Perceived stress increase with age and are more common in girls than boys, resulting in late adolescent girls reporting the highest frequencies. The knowledge is however more limited regarding other measurements and meanings of stress. The purpose of this study is to use a small-scale multiple methods data collection to perform an empirical triangulation of stress in the age group 14–15 years, i.e. to analyse stress, and gender differences in stress, as it appears in questionnaires, biomarkers and interviews within the same population.

The study population includes all pupils in the 8th and 9th grades (ages 14–16 years) in two elementary schools in Stockholm, Sweden (n = 545). The data collection was divided into three parts where information was gathered through class room questionnaires (n = 413), saliva sampling (5 time points during the day, number of students delivering complete samples = 190) and semi-structured qualitative interviews (49 pupils in grade 8, mean length 50 minutes).

In the questionnaires, girls consistently report higher levels of perceived stress. This is true for the activation scale (mean value boys = 2.51, girls = 3.11,  $p < 0.00$ ) and the pressure scale (boys = 2.62, girls = 3.33,  $p < 0.00$ ). According to the saliva sampling, girls have higher cortisol concentration both at awakening and 30 minutes later ( $p < 0.00$ ). According to the qualitative interviews, no distinct differences in boys' and girls' associations with the word "stress" were found. However, both male and female interviewees had a perception of girls being more stressed about schoolwork than boys. Many times they linked this to girls way of thinking or coping with life demands, including worries about the future. In conclusion, the picture of adolescent girls being more stressed than boys is largely confirmed by all methods used here.

**Life Satisfaction and Body Image in Adolescence**

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**Background**

In association with weight, perceived body image has strong impact on adolescents' self-esteem, and life satisfaction. Young people often feel dissatisfied with their bodies, therefore, dieting and other weight control methods have been increasing in most of countries. In addition, dieting during adolescence can lead to negative health outcomes later in adulthood.

Our study aimed to comparatively describe adolescents' life satisfaction in association with objective and subjective body evaluation, as well as dieting and physical activity in Lithuania.

**Methods**

Cross-sectional data from Health Behaviour in School-aged Children (HBSC) studies in Lithuania 2010 were used. Methodology and principles of WHO were followed. In total, analysis includes 5338 respondents of 11, 13 and 15 years old. 51,5% (n = 2751) boys and 48,5% (n = 2587) girls were surveyed. Logistic regression models was used to assess the associations of adolescent's life satisfaction, objective and subjective body evaluation, life style factors.

**Results**

Subjective body evaluation has stronger association with life satisfaction than body mass index in both sexes. Dissatisfaction of life is associated with "thin" body perception in boys and "fat" body image in girls.

Logistic analysis show that low physical activity for boys (OR:1,5; 95% CI:1,10–2,03) and for girls (OR:1,8; 95% CI:1,34–2,56) have relation with lower satisfaction of life. In addition, fat body perception (OR:1,5; 95% CI:1,01 –2,23) and dieting (OR:2,2; 95% CI:1,52–3,22) are strongly related with evaluation of life among girls.

**Conclusion**

The HBSC survey findings confirm that dissatisfaction with body weight, dieting and weight control behaviour have influence on young people quality of life. Subjective body image is important for well-being in adolescence. Promotion of physical activity is recommended.

**Using a brief assessment of negative emotions to screen for self-harm behaviour in adolescents (aged 11–16); a prospective cohort analysis of data from eight UK schools**

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**Background**

Self-harm behaviour (SHB) in adolescents represents a major public health problem. Community surveys indicate that around 5 to 10% of adolescents reported SHB over the last year. SHB is a risk factor for repeated SHB and suicide. However, it often goes unreported and undetected. Screening for SHB in community settings can be difficult as it is a sensitive issue. Assessing negative emotionality could therefore be useful as an indirect screening method for SHB in adolescents in a community setting.

**Methods**

Prospective cohort data were collected as part of a clinical trial in eight UK secondary schools (school years 8–11, aged 11–16). The cross-sectional psychometric analysis included N = 4503 adolescents and N = 3263 were included in the prospective

analysis over 12 months. The main outcome measure was SHB at 6 months, with SHB at baseline and 12 months being secondary outcomes.

#### Results

The Short Mood and Feelings Questionnaire, Revised Child Anxiety and Depression Scale, Rosenberg Self Esteem Scale and personal failure (Children's Automatic Thoughts Scale) were assessed (58 items in total). Principal Components Analysis reduced these to 19 items loading on to four interpretable and internally reliable factors; personal failure, physical symptoms of depression/anxiety, general anxiety, positive self-esteem. Physical symptoms of anxiety/depression (girls OR 1.14, 95% CI 1.06 to 1.22, boys OR 1.12, 95% CI 1.04 to 1.21) and personal failure (girls OR 1.19, 95% CI 1.11 to 1.28, boys OR 1.22, 95% CI 1.12 to 1.32) predicted SHB at 6 months. Positive self-esteem also predicted 6 month SHB for girls (OR 0.87, 95% CI 0.81 to 0.94). General anxiety did not predict SHB and was removed. The final screening tool consisted of 14 items. Its summed score had good screening accuracy (AUC > 0.8) for current SHB (both sexes) and 6 month SHB in girls, and fair accuracy for 6 month SHB for boys (AUC 0.74) and at 12 months for girls (AUC 0.77).

#### Conclusions

This brief self-completed measure of negative emotions and self-esteem could be used to screen for SHB in community settings, such as schools or primary care. Further research should investigate whether this screening method can be effectively implemented under everyday conditions.

### Bullying in context-an analysis of health complaints among adolescents in greater Stockholm

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Sweden has an exceptionally low prevalence of perpetration of, and victimization from, bullying compared to other countries in Europe and North America. This does however not mean that its health-related consequences are of any less magnitude than in other countries. In fact, it might be even more stigmatizing to be exposed to bullying in a context where such behaviors are uncommon. This study examines how aspects of bullying relates to subjective health complaints in a total sample of 30,921 ninth graders and 25,260 eleventh graders (i.e. year two in upper secondary school) in the greater Stockholm area by looking at individual- and class-contextual health implications of peer and teacher bullying using multilevel modelling. Results show that students who are victims of bullying (whether they themselves are involved in bullying or not) have a significantly worse subjective health compared to perpetrators of bullying. Regardless of grade and gender, the former group displays a poorer health corresponding to around one standard deviation in relation to students who are not involved in bullying. The analogous estimate for perpetrators is one third of a standard deviation. Depending on grade and gender, being bullied by a teacher is associated with poorer health ranging from ½ to ¾ of a standard deviation vis-à-vis other students. Finally, among girls, but not boys, the class-level concentration of bullied students appears to generate health problems that go beyond the directly exposed female students. To our knowledge, these findings are novel in the research field of bullying and victimization.

## P.6. TOBACCO AND ALCOHOL IN YOUTH

### Predictors of smoking intentions among adolescents: a comparative analysis between never, current, and experimental smokers

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#### Background

Behavioral intentions are a key underpinning of health models that set out to explore health-risk behaviors. As immediate precursors to actions, intentions toward smoking can predict both initiation of smoking, as well as the progression to established smoking. Therefore, insights into determinants of behavioral intentions to smoke are essential in designing efficient strategies aimed at preventing smoking experimentation and uptake by youth. However, little evidence is available concerning the specific predictors of behavioral intentions to smoke in various stages of adolescent smoking.

#### Methods

Data was collected between March-April 2011, in 39 schools in Cluj-Napoca (n = 1177), Romania, using a quantitative strategy of inquiry. A self-administered questionnaire, targeting adolescents aged 11–14, was used to assess smoking status, smoking intentions, and predictors of smoking intentions among never, current and experimental smokers (teens who tried smoking once or several times in the past). Binary logistic regression models were used to explore predictors of smoking intentions.

#### Results

Adolescents with intentions to smoke a cigarette in the next year were divided by smoking status in: never smokers, current smokers, and experimental smokers. Results of binary logistic

regressions revealed important differences between the factors that prompt intentions to smoke among adolescents, with no common predictors across the three smoking stages. Peer smoking has been identified as the most important predictor of greater intentions to smoke among current and experimental smokers. Smoking intentions among never smokers were associated with higher perceived instrumental value of smoking, poor knowledge of smoking-related health risks, and low self-reported academic performance.

#### Conclusions

Preventing smoking experimentation and uptake by youth is a critical public health issue in Eastern Europe. As the patterns of adolescents smoking are associated with cultural factors, our findings have practical implications for program developers in Eastern Europe who should account for the distinction between the predictors of smoking intentions in various stages of adolescents smoking.

### Smoking and prehypertension in children and adolescents

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#### Background

Smoking is one of the major important public health problems in the world. Research has shown that cigarette smoking behavior is common among school-aged children. Smoking during childhood and adolescence is associated with significant health problems, also increases the risk of developing cardiovascular diseases. Prehypertension has become very prevalent in children and adolescents in recent years. This



study examined the association between smoking and risk of prehypertension in children and adolescents.

#### Methods

The case-control study included children and adolescents (aged 11 to 17) who attended gymnasium or secondary school in Kaunas city and district at the time of data collection (from November 2010 to April 2012). According to age, gender and height, blood pressure was classified as normal (<90th percentile) and as prehypertension (between ≤90th and <95th percentile). Data were obtained from questionnaires (including information about smoking status, physical activity and other risk factors). Multivariate logistic regression was used to estimate odds ratio (OR) and 95% confidence intervals (CIs) while controlling for potential confounders.

#### Results

During the period of study a total of 5944 subjects were examined. There were 3535 (55.5%) girls and 2829 (44.5%) boys, with a mean ( $\pm$ SD) age of  $13.4 \pm 1.25$  years. Prehypertension was detected in 25.1% school children. Girls had a significantly higher risk of prehypertension than boys (OR 1.90, 95% CI=1.69–2.13) ( $P=0.000$ ). Among 480 smoking students, 145 (9.8%) had prehypertension. Boys were more likely to smoke than girls (respectively, 8.7% and 7.2%). In the univariate analysis, significant association between smoking and prehypertension was found (OR 1.34, 95% CI=1.09–1.65) ( $P=0.005$ ). In multivariate logistic regression analysis, adjustment for gender, negative emotions (anxiety, anger, depression), symptoms-tiredness or lack of energy, physical inactivity did not change the relationship, although the OR decreased but remained statistically significant. Our result showed that smoking was associated with prehypertension in children and adolescents (OR 1.32, 95% CI=1.07–1.63) ( $P=0.01$ ).

#### Conclusions

Smoking was significantly associated with prehypertension in children and adolescents.

### Association among use of tobacco and adolescents' self-esteem

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#### Background

Substances use is considered by adolescents as an event that would facilitate the inclusion and the identification in the peer group, and increase their self-esteem. It is known that self-esteem can affect people's choices and its 'good level' is a protective factor for health. Aim of the study was to investigate association among self-esteem and use of tobacco in adolescents.

#### Methods

Socio-demographic data and smoking habits were collected by an anonymous questionnaire administered to 2222 adolescents in Sicily, Italy. Self-esteem was calculated through the Multidimensional Self Concept Scale validated by Braken.

#### Results

23.7% of the adolescents had experienced tobacco smoke (M:26.7%;F:20.8%,  $p < 0.005$ ). 9.9% declare to be smoker and to consume on average 3.6 cig/ day. 3.8% are occasional smokers (<1.0cig/die) and 61.% are habitual smoker. (> 1cig/day). 50.3% has global self-esteem proprioceptive levels (SPL) 'normal' (NM) (M:42.3% F:58.2%). 23.0% (M:25.0% F:21.0%) has SPL 'negative' (N). 5.6% has SPL 'positive' (PO). The study of SPL compared with the adolescents' smoking status revealed that who has not experimented tobacco smoking (NS) has SPL 'normal' (56.1%) more frequently

compared to who have tried smoking (SS) (46.1%) ( $p < 0.05$ ). Adolescents with SPL 'positive' between NS (6.1%) were proportionately more numerous than SS. By contrast, the adolescents SS (29.2%) having SPL 'negative' are more numerous than NS (21.1%) ( $p < 0.0005$ ). Non-smoker with SPL 'normal' (50.9%) are more numerous ( $p < 0.05$ ) than smoker (44.7%). Whereas, there was no significant difference between the percentage of smokers (FU) and nonsmokers (NF) and SPL 'negative' and 'positive'.

#### Conclusions

Adolescents who have not experienced tobacco smoke have SPL better than their peers who have experiential initiation of smoking. In particular the percentage of students who have SPL 'negative' among those who admit a first approach with smoke tobacco and found significantly higher than that estimated for those who have never tried smoking. The early cigarette smoking initiation is therefore related to SPL and decreasing self-esteem, smoker prevalence and consumption of cigarettes expose the adolescents at an increased risk of tobacco-related medical and social problems.

### What's a parent to do about teen drinking? Qualitative analysis of parental styles and alcohol-related parenting norms among Estonian adults

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#### Background

Early initiation of adolescent alcohol drinking and high levels of consumption are significant public health concerns in Estonia. Societal transition since the end of the Soviet era has changed the context in which adolescents learn drinking behaviors. The role of parenting practices in postponing adolescent drinking initiation and regular drinking remains essential. Yet, Estonian adults are ambiguous about whether and how alcohol-specific messages should be communicated amid changing social and family structures.

#### Methods

This paper reports findings from a larger study on how working adults perceive the role of alcohol in a post-Soviet society. Six focus groups with men and four with women were carried out in their workplaces in Tallinn, Estonia, in 2011. Data were transcribed and openly coded. Adult and parental attitudes towards youth drinking emerged as a significant theme. Baumrind's (1968, 1991) typology of parenting styles along the dimensions of parental support and control was used to further code and contextualize findings for this paper.

#### Results

Authoritative parenting was described as an ideal parenting type for preventing teenage drinking, but many participants saw it as unrealistic. Permissive parenting style with high level of support but low control was seen as a realistic option as it included explaining the consequences of drinking but avoiding confrontation. Participants expressed reluctance about setting clear limits on kids' drinking, equating this with authoritarian parenting style, high on directivity and rules, but low on responsiveness. Uninvolved parenting style with low support and low level of control was described as a negative but prevalent parenting type in society.

#### Conclusions

Findings from this preliminary research suggest that normative discourse about parenting and alcohol in Estonia does not currently support parents' efforts to set limits and prevent children's early experimentation with alcohol. A comprehensive evaluation of parents' practices, knowledge and attitudes towards alcohol-specific socialization in transitional societies could inform interventions to address the multiple risks for teen drinking on the family level.

## Meaning of and motives for alcohol use in 15 year old Dutch youngsters: A qualitative study among drinking and non-drinking adolescents and their mothers

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### Background

This study examines the role of going-out and alcohol use in the lives of Dutch 15 year olds, with a special focus on the meaning of and motives for drinking alcohol and the context in which it occurs.

### Methods

Twelve 15-year old adolescents and their mothers were interviewed. Eight adolescents drank alcohol (3–60 glasses per month), four did not. Full transcripts were analyzed in atlas.ti.

### Results

Drinking youngsters felt that alcohol is “logically” connected to “going out”. They never drunk during schooldays, but in the weekend they felt they should relax and have fun with friends. Alcohol is not necessary but does “ease things up”. Since 16 is the Dutch legal age for drinking alcohol, both drinkers and non-drinkers felt that it is safe to drink alcohol then, “as long as you don’t drink too much”. Non-drinkers thought at 16 they would be likely to try alcohol. Drinkers said that peer pressure did not influence their behavior, but being part of a “fun” group did. They all said that, compared to their friends, they were moderate drinkers. Mothers of drinking adolescents felt that it was normal for them to start drinking, and that it is better for them to get used to drinking “responsibly”. They did not want to argue about it, because other issues (e.g., doing homework, bedtime, and smoking) were more important, and they feared adverse effects from forbidding alcohol. Mothers of non-drinking adolescents thought that their child was just not into it, and would not likely start at 16. Both adolescents and their mothers indicated that alcohol use was only addressed circumstantially and implicitly (e.g., “be safe tonight”). Youngsters on the other hand felt that their parents clearly have the right to comment on their drinking behavior, and did take into account their parents feelings, i.e., not wanting to drink (much) more than they think their parents would allow them to.

### Conclusions

Legal age has an extremely important effect on alcohol use of youngsters, and it influences the stance mothers take towards their 15 year olds (aiming at damage control-not drinking too much- in stead of forbidding alcohol). In addition, the logical connection between going out, having fun and drinking alcohol is the most important motive for youngsters to drink.

## Analysis of determinants and 16-year trends of alcohol use in Lithuanian school-aged children: HBSC study Results

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### Background

Adolescent substance abuse is one of the main public health concerns. Despite internationally well documented drug and alcohol related harm, there is more research evidence that use of psychoactive substances is increasing among young people in many countries of the European region including Lithuania. The aim of the present study was to evaluate demographic, socio-economic and family influences of alcohol drinking and to analyze the trends in alcohol use among school-aged children of Lithuania during period from 1994 to 2010.

### Methods

Five countrywide surveys were carried out in 1994, 1998, 2002, 2006 and 2010 among 11-, 13- and 15-year-old children. Survey methods of WHO cross-national Health Behaviour in School-aged Children study (HBSC) were applied. The presented here analysis is based on the total number of 26 556 records (5428, 4513, 5645, 5632 and 5338 respectively from the surveys of 1994, 1998, 2002, 2006 and 2010).

### Results

Prevalence of weekly consumption of alcohol has increased in boys from 9.3% to 13.4%,  $P < 0.05$  during 1994–2002. After some decrease in 2006, it has started to rise again (12.9% in 2010). In girls, continuous rise was observed (from 4.3% to 9.3%) during period 1994 to 2006. Urban boys and girls were more likely to consume alcohol on the weekly basis in comparison with their rural peers (respectively 12.4% vs. 10.4%; OR = 1.23; 95% CI = 1.10–1.27;  $P < 0.05$  in boys and 7.3 vs. 6.0%; OR = 1.24; 95% CI = 1.08–1.43;  $P < 0.05$  in girls). Respondents from the families, who lived with one of the parents also have reported higher prevalence of weekly alcohol use (respectively 12.7% vs. 10.9%; OR = 1.19; 95% CI = 1.05–1.35;  $P < 0.05$  in boys, and 7.6% vs. 6.3%; OR = 1.23; 95% CI = 1.06–1.43;  $P < 0.05$  in girls). Therefore, alcohol consumption was more prevalent in school children from more affluent families (12.4% vs. 10.0%; OR = 1.27; 95% CI = 1.08–1.49;  $P < 0.05$  in boys, and 7.0% vs. 6.2%; OR = 1.13; 95% CI = 0.93–1.37;  $P > 0.05$  in girls).

### Conclusions

The increasing trends of alcohol consumption among school aged children in Lithuania require implementation more effective inter-sectorial alcohol control measures, such as providing stricter banning of alcohol advertising, increased alcohol taxation, promoting school and family based health promotion programmes.

## Alcohol drinking behavior of 18–25 aged young adults in association with experienced family violence during childhood in Latvia

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### Background

Exposure to violence in childhood may leave devastating consequences. Model Stress -Strain-Coping-Support assumes that living in family with violence and addictive substance abuse problems increase stress level in children. The consequences of the stress may lead children to immoderate drinking when becoming adolescents and young adults.

The aim of research was to assess experienced childhood violence in family effect on alcohol consumption behavior in young adult age in Latvia.

### Methods

Data obtained from representative cross-sectional population survey about adverse childhood experiences conducted in Latvia, in 2011. In the survey ACE score methodology recommended by World Health Organization was used. A total of 1223 young adults (615 males, 608 females) aged 18–25 years were included in analysis. Odds ratios and 95% CI were examined. The dependent variables were physical, emotional, sexual violence and physical punishments. Independent variables were alcohol use once or more times a month and being drunk during last month.

### Results

From all respondents 75.5% (n=458) men and 65.4% (n=395) women used alcohol once or more in a month, but 62.4% (n=348) men and 47.9% (n=291) women had been drunk once or more times during last month. 66.6% (n=814) of surveyed young adults had experienced any form of violence

during their childhood. Those respondents who had experienced any type of violence, except for sexual violence, had statistically significant higher odds of being drunk once or more times during the last month—emotional violence (OR = 1.54 (95%CI = 1.21–1.95);  $p < 0.001$ ); physical violence (OR = 1.41 (95%CI = 1.10–1.82);  $p < 0.05$ ); sexual violence (OR = 0.64 (95%CI = 0.35–1.16);  $p > 0.05$ ) and physical punishments (OR = 1.31 (95%CI = 1.02–1.68);  $p < 0.05$ ).

#### Conclusions

Alcohol use is a common behavior among young adults in Latvia. Experiencing emotional and physical violence and physical punishments was associated with higher odds of getting drunk once or more times during the last month when becoming adults.

### Youth exposure to online alcohol advertising in the UK through social media websites, 2010–12

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#### Background

There is increasing evidence that youth exposure to alcohol marketing is a risk factor for underage drinking. In 2011, online marketing became the largest marketing channel in the UK for the first time, overtaking television. However, there is little understanding of the level of exposure of young people to online alcohol marketing.

#### Methods

We obtained data on the top three social media sites in the UK for each month from December 2010 to May 2011, based on

unique user figures, by gender and age (6–14, 15–24). We analysed the reach (the proportion of available internet users who used the site in each month) and impressions (the number of individual pages viewed on the site in each month) of the overall top three social media sites, Facebook, YouTube and Twitter in each demographic. Using data from the top 10 TV channels in the UK we identified five drinks brands, which had the highest TV advertising exposure to children (4–15) during this six month period. During February and March 2012, we examined each of these brands across the three social media sites. We analysed the brand presence and page content on each site and assessed the use and effectiveness of age restrictions.

#### Results

Facebook was the most-used social media site, with an average reach ranging from 39% in males aged 6–14 to 91% among females aged 15–24. YouTube had a similar average reach (41–81%) while Twitter had a considerably lower usage in the age groups studied. All five of the alcohol brands studied maintained a brand website, Facebook page, Twitter page and YouTube channel. Features such as the 'like' button on Facebook and the use of competitions and games enable spread of brand engagement through the network. Age restrictions to alcohol brand content varied across the sites. Facebook users under the age of 18 years were not able to access 'official' alcohol brand pages, although most user-generated content and some brand-generated applications were still accessible. YouTube and Twitter did not maintain age-restrictions with, in most cases, users of all ages able to interact with brand content.

#### Discussion

Social media sites are heavily used by children and young adults. Their exposure to alcohol marketing through these sites warrants consideration of intervention.

## Q.6. Lifestyle and chronic disease

### Smoking among pregnant women in two countries

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#### Background

Smoking in pregnancy is associated with the risk of congenital malformations and functional disorders. AIMS: The aim of the study was to assess the prevalence of cigarette smoking in pregnancy, and the rate of congenital malformations in children.

#### Methods

Pregnant women were assessed by a questionnaire distributed upon delivery. The trial was designed as a cross-sectional study to measure exposure of pregnant women to adverse influence of smoking and their health status. The study consists of two arms: one was conducted at four Zagreb maternity hospitals (Croatia) and the other at the same hospitals in Novi Sad (Serbia).

#### Results

Data analysis revealed the habit of cigarette smoking during pregnancy in 829 (11.9%) of 6992 (6099+893) women. Malformations were found in 105 (1.5%) fetuses and newborns. In all these cases pregnant women smoked until becoming aware of pregnancy or during pregnancy. Tobacco smoking and congenital abnormalities that define the contingency table are not significantly related in Zagreb ( $P = 0.385$ ), as well as in Novi Sad ( $P = 0.345$ ).

#### Conclusions

The rate of congenital malformations exceeded their prevalence in the general population. Based on these results, the exact cause of these malformations could not be definitely

identified; however, smoking should be avoided during pregnancy.

### Twenty-five year trends in body mass index by education and income

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#### Background

The socioeconomic gradient in overweight is amply documented. However, the contribution of different socioeconomic indicators on trends of body mass index (BMI) over time is less well known. The aim of this study was to investigate the associations of education and income with (BMI) from 1978 to 2002.

#### Methods

Data were derived from nationwide cross-sectional health behaviour surveys carried out among Finns annually since 1978. This study comprises 25-year data (1978–2002) including 25 339 men and 25 330 women aged 25–64 years. BMI was based on self-reported weight and height. Education in years was obtained from the questionnaire and household income from the national tax register. Education and income were divided into gender-specific tertiles separately for each study year. Linear regression analysis was applied.

#### Results

An increase in BMI was observed in all educational and income groups. In women, education showed a strong inverse association with BMI and also the association with income

was independent of educational level. In all educational groups, women with the highest income had the lowest BMI. In men, education had an inverse association with BMI but income-related differences were not consistent. The most prominent increases in BMI took place in low educated men with the highest income and in high educated men with the lowest income.

#### Conclusion

The socioeconomic gradient in BMI, regardless of the indicator used, persisted in women, whereas in men it was not consistent over time. Among men the effect of income depended on educational level and changed especially since the mid-1990's during the period of increasing income inequalities in Finland. The results encourage further research on mechanisms leading from obesogenic environment to weight gain and its differential development in gender and socio-economic groups. In policies preventing obesity and overweight more attention should be paid to income inequalities.

### Weight Perception in Turkey-2011: Alternative Approach to Fighting with Obesity

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#### Background

In Turkey 16.9% of the population 15 years old and over is obese and 33.0% is overweight. Accurate perception of one's own weight helps developing appropriate weight control behavior. Aim of this first nationwide study on weight perception is to determine weight perception status and its relationship with some descriptive variables.

#### Methods

Sampling is selected through households based on national database in which all addresses in Turkey are registered. In this cross-sectional study stratified cluster sampling method is used. For a household to be covered in this study, at least with one person over 15 years old an interview should be done. 3894 of 5502 households (70.8%) were interviewed and 6082 persons were covered in a face-to-face survey. In the study Accurate Weight Perception (AWP) is defined as the consistency of the categorization of Body Mass Index (BMI) calculated by weight and height given by participants and categorization of Weight Perception (WP).

#### Results

According to categorization of BMI, 3.6% of participants are underweight, 39.7% is normal weight, 33.3% is overweight and 23.4% is obese. Rate of obesity in women (26.4%) is higher than men (18.4%) ( $p < 0.001$ ). Obesity rate declines with higher education levels ( $p < 0.001$ ). According to categorization of WP, 10.5% of participants is underweight, 51.9% is normal weight, 29.4% is overweight and 8.2% is obese. 49.7% of them has AWP. Consistency between categories of BMI and WP is weak ( $\hat{\kappa} = 0.25$ ,  $p < 0.001$ ). Obese persons perceive themselves 25.8% as obese, 54.2% as overweight, 18.9% as normal weight and 1.1% as underweight. The rate of persons having AWP is higher in persons living in urban areas ( $p = 0.002$ ), in decreasing age groups ( $p < 0.001$ ), in higher education levels ( $p < 0.001$ ), in persons perceiving obesity as a health problem ( $p < 0.001$ ).

#### Conclusions

The higher rate of obesity in women indicates the feminization of obesity epidemic. The problem of three quarters of obese persons to not have AWP is crucial and should be overwhelmed. Also lower AWP rate of rural people, both lower AWP rate and higher obesity rate in lower educated groups are important findings that could be used to shape programs designed to fighting with obesity aiming to create AWP.

### Dietary patterns and acute coronary syndrome: A population-based case-control study in Tirana, Albania

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#### Background

We assessed the association of acute coronary syndrome (ACS) with dietary patterns in Albania, a Mediterranean country in Southeast Europe.

#### Methods

A case-control study conducted in Tirana in 2003–2006 included 467 non-fatal consecutive ACS patients (370 men aged  $59.1 \pm 8.7$  years, 97 women aged  $63.3 \pm 7.1$  years; 88% response) and a population-based control group (469 men aged  $53.1 \pm 10.4$  years, 268 women aged  $54.0 \pm 10.9$  years; 69% response). A semi-quantitative food frequency questionnaire was administered to all participants based on which an overall score [referred to as Mediterranean diet score (consisting of fish, fresh fruit and vegetables, olive oil, wine and composite/traditional dishes)] was calculated for each participant. Covariates included socioeconomic characteristics and conventional coronary risk factors. Multivariable-adjusted logistic regression was used to assess the independent association of dietary patterns with ACS.

#### Results

Controls had a significantly higher mean Mediterranean diet score than cases (27.5% vs. 24.3% in men and 34.0% vs. 28.7% in women,  $P < 0.01$  for both). In both sexes, there was a strong inverse association of ACS with Mediterranean diet score expressed as a percentage of total daily calorie intake (age- and sex-adjusted OR for upper tertile vs lower tertile = 0.3, 95%CI = 0.2–0.4). The association persisted strongly upon adjustment for socioeconomic characteristics, conventional risk factors and total daily calorie intake (sex-pooled OR = 0.3, 95%CI = 0.2–0.5).

#### Conclusions

In Albania, we obtained evidence of a strong protective effect of a Mediterranean diet consisting of higher intake of fish, olive oil and fresh fruit and vegetable, compatible with patterns observed in other Mediterranean countries. Intake of traditional Albanian dishes, still a major component of the diet, was associated with a clear protective effect for ACS. Conversely, intake of processed foods was associated in this population with substantial excess risk which, if causal, has serious health implications. This marker of change in Albania is an important indicator of the process and extent of transition that will require focused interventions to avoid its negative consequences, at least for cardiovascular health and diabetes.

### Implementation of Alcohol Policy Measures in Slovenia

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#### Background

In Slovenia drinking wine and other alcoholic drinks is traditional, since all major social events are accompanied by alcohol. Registered alcohol consumption is similar to the EU average, in 2010 it was 10.5 L per adult, however, the estimated consumption of unregistered alcohol is high (7–8 litres), which places Slovenia to the top of the EU's consumption of alcohol. The most important alcohol policy legislation in Slovenia is Act Restricting the Use of Alcohol, therefore we investigated the stakeholders' opinion on implementation of activities anticipated this act.

## Methods

To analyse the stakeholders' opinion the questionnaire was used, with 10 areas of action: Education and communication; Public, private and working environments; Drink-driving; Availability of alcohol products; Promotion of alcohol products; Treatment; Responsibilities of the alcoholic industry; Society's capacity to respond to alcohol-related harm; Support for nongovernmental organizations and Formulation, implementation and monitoring of policy. We looked at the differences in opinions between interest groups and the influence of age, sex and education.

## Results

Results indicate that alcohol policy stakeholders in Slovenia rated the highest the implementation of activities on Drink-driving. The participants in this survey placed on second and third place the implementation of activities from the field of Education and communication, however we cannot affirm that also stakeholders would score the implementation of those activities so high. The implementation of all other activities was scored below the mean value.

## Conclusions

The activities on Drink-driving should be implemented also in future since the effectiveness of activities from this group is well evidenced. The implementation of group of activities from the field of education and communication is too emphasized considering the estimates on its effectiveness and especially cost-effectiveness. This however does not mean that they should be omitted, but they should be carefully combined with other alcohol policy activities. All other activities need to be better supported with the implementation action plan in which it must be clarified who is doing what, with which instruments and whose responsibility is the implementation of specific measure.

## Clustering of unhealthy behaviours in Lithuanian adult population: trends and social differences

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### Background

Clustering of unhealthy behaviours has strong effect on risk of chronic diseases. The aim of the study was to assess social difference and the trends in clustering of unhealthy behaviours in Lithuanian population during 14 years.

### Methods

In 1996–2010, nine cross-sectional surveys have been conducted among Lithuanian population aged 20–64 within the international Finbalt Health Monitor project. An independent national random sample of 3000 inhabitants was drawn from the National Population Register for every survey. The data were collected through mailed questionnaires covering socio-demographic characteristics and health behaviours. The response rate varied from 51% to 74%. The data of 15 296 respondents were analysed. Daily smoking, consumption of any alcoholic drink at least once a week, leisure time moderate physical activity less than four times a week, and unhealthy nutrition (using fresh vegetables less than 3 days a week and/or spreading butter on bread, and/or consuming high fat milk) were considered as unhealthy behaviours. The logistic regression was used for analysis of the associations between social factors and prevalence of unhealthy behaviours.

### Results

In 2010, four analyzed unhealthy behaviours were determined in 13.1% of men and 3.5% of women, three unhealthy behaviours-in 36.3% of men and 17.4% of women ( $p < 0.001$ ). Only 1.6% of men and 4.2% of women had no analyzed behaviours ( $p < 0.001$ ). Since 1996, the proportion of men having at last three unhealthy behaviours decreased, while the same proportion of women showed the tendency of increase.

Odds ratios (OR) of having four analyzed behaviours decreased with age in both men and women. In men, educational achievement was inversely associated with the number of unhealthy behaviours. OR of having four unhealthy behaviours among men with university education was 0.55 (95% confidence interval (CI) = 0.45–0.67) compared to men with secondary education. Clustering of four unhealthy behaviours was less common in rural areas than in cities (OR for men-0.77 (95% CI = 0.66–0.90); OR for women-0.61 (95% CI = 0.43–0.86)).

### Conclusions

Social differences in clustering of unhealthy behaviours should be considered in implementation of health promotion activities in Lithuania.

## Dietary habits and cutaneous malignant melanoma: is there a possibility to improve prevention?

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### Background

Worldwide around 200,000 new cases of cutaneous malignant melanoma (CMM) occur each year with an estimated 46,000 deaths. Although CMM is caused primarily by exposure to ultraviolet radiation, several papers have focused on the association between CMM and diet: the aim of this study is to perform a systematic review of them in order to provide Public Health decision makers with further evidence on potential prevention.

### Methods

PubMed, OvidSP and Cochrane Library were used to identify relevant studies from 1990 to July 2011. Case-control or cohort studies carried out in human population were considered eligible. Studies review and data extraction were performed by two researches independently and the Newcastle-Ottawa Scale (NOS) was used to assess the quality. Both foods and nutrients intake was taken into consideration in the study; hereby data on fish, vegetables and fruits have been reported.

Adjusted Odds Ratio or Relative Risk with 95% Confidence Intervals were used for comparison between the highest and the lowest level of consumption.

### Results

Fifteen articles have been selected out of 266: 13 case-control and 2 cohort studies. Seven studies (46,7%) were conducted in Europe with the remaining carried out in USA or Australia. Sample size ranged from 118 to 1,400 for case-control studies and from 50,757 to 162,078 for cohort ones. According to NOS, cohort studies scored better than case-control. Furthermore, studies differed greatly with respect to tools used for the assessment of dietary habits being questionnaires mostly not standardized. Because of this, combination of data was not judged suitable and only a qualitative summary of results has been performed. The most of studies did not yield any significant association between foods intake and CMM, except for 2 studies demonstrating a reduction of about 35–37% of risk associated to fish consumption, 2 showing a 50–57% risk reduction with vegetables intake and 1 highlighting a reduction of 46% with respect to fruit.

### Conclusions

Even though study results seem to be not conclusive, a trend in the reduction of risk for CMM with higher intake of fish, vegetables and fruits has been shown. Further research should be promoted in order to provide decisive data for the development of prevention campaigns.

## Spatial trends in cancer mortality in Poland

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### Background

Cancer mortality maps are popular tool for detecting of spatial patterns of cancer mortality. It allows to create hypothesis about factors determining regional inequalities having a crucial importance from the public health perspective. Our work presents the first analysis of spatial distribution of mortality in such a small area level in Poland, allowing a deeper insight into the problem.

### Methods

Maps of standardized mortality ratios (SMR) presenting mortality in 2008–2010 at district (powiat) level were created. Poland is divided into 379 districts with average population of about 100 000. Database containing information about number of deaths in each district for men and women aged 0–64 and 65+ was created on the basis of individual death records obtained from Central Statistical Office. Smoothing of original SMR data to reveal spatial trends in mortality was done using the bayesian Besag-Yorke-Mollie (BYM) model. Results are presented as maps of original and smoothed SMRs

(with 95% a posteriori credibility intervals) accompanied with a list of the less and the most favorable regions.

### Results

Results are presented for all malignant neoplasms and for some selected sites with respect to age and gender. Mortality level from all malignant neoplasms shows clear spatial pattern with lower mortality in the south-east and higher in the north-west of the country. The same pattern can be observed for almost all cancers in older age group and for most sites among women aged 0–64 years. Patterns of mortality for cancer of men aged 0–64 years are a little different, it is worth of noting, that mortality from prostate cancer is the highest in north-east Poland. Important observation is that independently on site of cancer the lowest level of mortality is observed in the south-east Poland.

### Conclusions

Application of bayesian spatial statistics analysis allowed to reveal spatial trends in cancer mortality even for relatively rare cancers. Very important observation, demanding deeper analysis, is that the south-east region of Poland has lower cancer mortality than in other parts of the country, which is not the case for other non-cancer causes of death.

### Acknowledgements

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## R.6. PUBLIC HEALTH DATA SYSTEMS

### Monitoring the use of cholesterol lowering and antihypertensive medication among people with diabetes in Finland

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### Background

The national ten-year Development Programme for the Prevention and Care of Diabetes (DEHKO) was launched in Finland in 2000. Besides preventing type 2 diabetes, the program focused on improving early diagnosis of type 2 diabetes and preventing diabetes-related complications. The FinDM database based on a national individual level linkage scheme of health insurance and care registers was established for epidemiological monitoring of diabetes and its complications as well as following up treatment of diabetes people. This study examines trends in the use of preventive medicines of cardiovascular complications among diabetic people during the DEHKO programme.

### Methods

The FinDM II database for 1997–2011 was used to explore medication use among people with diabetes using information about the purchases of prescribed medication. We analysed the use of cholesterol lowering medication and antihypertensive medication  $\beta$ -blockers, calcium channel blockers, ACE-inhibitors, and angiotensin II receptor antagonists). Poisson regression models were used in the analyses.

### Results

According to the preliminary analysis extending to 2007, there were 233 189 persons with diabetes at the beginning of year. Compared with 1997, the prevalence of diabetes had increased by 65%, and the trend is still rising. Since 1997 cholesterol lowering drug use has constantly increased. In 2007, 80% of diabetes population with CHD were on medication whereas the proportion was 48% for those without recorded CHD. Of the antihypertensive drugs  $\beta$ -blockers were most widely used by people with diabetes and CHD: 88% of men and 86% of women used them. In this group the use of  $\beta$ -blockers and

calcium channel blockers (32%) has remained constant. The use of new antihypertensive drugs increased: 40% of men and 30% of women were on ACE inhibitors, and angiotensins were used by 20% of this group. Further analyses will cover medication use until 2011.

### Conclusions

Our study showed that it is feasible to follow up the use of cardiovascular medication using a register based monitoring database. In the preliminary analyses the use of medication for preventing cardiovascular complications among diabetes people had increased that is in concordance with the objectives of the DEHKO programme.

### Making the socioeconomic impact measurable

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### Background

The influence of social factors on health is well known, discussed and evaluated. The legal framework of the Austrian social insurance system distinguishes 566 entitlement conditions, which are determined by current occupation or living conditions. A person may fulfill more than one entitlement condition at the same time as well as they may change over time. A unique ID number is assigned to each insured person, which makes it possible to file all entitlements of a certain person in a central database. We wanted to determinate the social epidemiology in Austria.

### Methods

We ranked these 566 entitlement conditions according to the WHO social determinants of health (including social gradient, stress, social exclusion, work and unemployment, and added the estimated income level for Austria as a surrogate for the social support domain) and developed an index-value (1–4) for each entitlement condition to calculate a socioeconomic index value, which is the weighted mean of all entitlements a person has gained in the last 30 years.

The ranking was done in a qualitative way by one person, checked by a second. The results were checked according to the

Austrian social insurance law as basic for the entitlement, by a peer discussion, for nomenclature correlation, by clustering similar results, and by 1000 test data from real (anonymized) persons.

#### Results

We correlated the SES values with real data from two years on person-level (anonymized). The distribution showed slightly lower SES for women than for men, normal distribution for age categories with the highest SES in the middle age groups (21–50) and a good correlation to regional differences. The comparison with community data of Vienna for education and income showed good validity with our SES value. The comparison with hospital admission data for different ICD-10 categories (respiratory diseases, pregnancy and birth, and injuries) on community district level of Vienna showed high correlation with low SES. These correlations are also described in literature.

#### Conclusions

We have a valid SES score that can be connected to health care utilization data. Innovative is the inclusion of a persons' past.

### A tool to measure adherence to medication: pharmacy claims data

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#### Background

Pharmacy claims data have become a common tool in the assessment of medication adherence. Medication possession ratio (MPR) is introduced as uniform methodology for estimating medication adherence from pharmacy claims data. Objective is to determine adherence to chronic disease medication measured by MPR, and compare with adherence that has been based on patient's self-report from our previous study. Also the goal is analyse adherence to ATC group C (cardiovascular) medication, to different long-term medications, different number of medication and co-payment for medication.

#### Methods

We used in our small study pharmacy claims data for 150 patients in 1 Zagreb's public pharmacy to find out the rate of adherence to chronic disease medication and analysed 3 consecutive dates of filling/refilling medications for each of 150 patients. MPR is used as a measure of adherence to chronic disease medication.

#### Results

There is not a significant difference between group C (cardiovascular) medication and to other medication according to adherence ( $p=0.333$ ). Adherence is slightly higher in those without co-payment, but there is no difference among these 2 groups of patients ( $p=1.00$ ). There is no difference between patients with different number of medications (from one to five) according to adherence ( $p=0.071$ ).

#### Conclusions

MPR does not provide accurate information on the continuity of medication usage and the measurement of medication persistency and identification of eventually gaps in medication supply is an attempt to remedy this limitation. The combination of an MPR and a persistency metric could provide timely information on the dynamics of patients' medication adherence.

### Appearance and Reality of Dementia Diagnoses- Empirical Findings from the Research Project 'Action Alliance Pain-free City Münster'

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#### Background

In Germany, approximately one million people are suffering from dementia with an incidence of about 200.000 cases a year. Providing proper care for this special population poses a huge challenge and a particular exercise of Public Health. Especially in nursing homes, existing diagnoses of dementia are often inexplicit. It is unclear as to how many residents are in need of special care due to their cognitive impairment. The project 'Action Alliance Pain-free City Münster' occupies itself with the phenomenon of pain and pain management in different settings one of which includes nursing homes. This partition focuses on the question as to how far the results of the Mini-Mental-State-Examination (MMSE) correspond with the documented diagnosis of dementia.

#### Methods

For this project part, a pre-post-test-design was developed. In the first evaluation, conducted between September 2010 and April 2011, 436 residents from 13 nursing homes were included in the study. Data from residents' medical and nursing records were reviewed. Within the context of the project, the instrument MMSE was used to assess residents' capability to provide a self-evaluation of their pain. The MMSE score was then used to determine the following mode of inquiry. For this presentation, the collected MMSE scores will be discussed in comparison to residents' diagnosis of dementia as documented in the records.

#### Results

The MMSE has a maximum of 30 points. The critical value for the diagnosis of dementia is 24 points. From the 436 residents, 38.5% show a diagnosis of dementia in their records. From these 168 persons, 18 residents achieved a score of 24 points or higher. 62.3% from those without the diagnosis of dementia ( $n=268$ ) achieved an MMSE value less than 24 points. A score of 10 points or lower suggests a severe dementia. From those 150 residents who scored 10 points or lower, 55.4% have the diagnosis of dementia and 21.3% do not.

#### Conclusion

It can be assumed that records in nursing homes are often incomplete or not up-to-date. A proper diagnosis is a crucial first step in providing the necessary care especially for people with a cognitive impairment. In order to meet the challenges posed by this special group, the process of caring for residents in nursing homes has to be adapted.

### Microbiological monitoring of surfaces in radiology: innovative experience from an Italian study

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#### Background

Over the past 20 years the role of radiology in the diagnostic pathway has changed: procedures has become more complex, the number of patients increased and they are often debilitated, immunodepressed or in chemotherapy regimen. Begins to outline a scenario that could have important implications for public health and infection control but little literature is involved in the microbiological risk assessment of radiological environment and most of the work mainly focus on specific organisms (eg MRSA, SARS virus). Aim of this study is to evaluate the presence of surface contamination by microbiological agents in the radiology department of 9 hospital, located in the urban area of Turin, Italy.

#### Methods

In the study were analyzed 12 radiology department, belonging to 9 hospital. For the microbiological detection was necessary to standardize the sampling areas: Xray tube, console command, table and sensitive floor. Because of the lack of Italian reference were used French guidelines "Norme NFS90-

351” to obtain a thresholds. For the sampling were used the appropriate buffers and, to ensure high validity, the delivery to the laboratory has taken place within 4 h after sampling. The measurement unit is the CFU/100cm<sup>2</sup>.

### Results

42% of Xray tube is found to be contaminated, as well as the 92% of the console and table and only the 8% of the sensitive floor. 7 out of 12 radiology reported value out of range for 3 examined surfaces on 4, but only 2 radiology have achieved a single sampling out of range. None of the radiology showed the total absence of microbiological contamination. The PPE reported to be the most used by the staff are the disposable gloves.

### Conclusions

The radiology department can play a pivotal role in infection control because it is a site of high patient traffic and thus has the potential to be a major source of infection transmission among patients and health care personnel. In the European context the displacement of patients and therefore of pathology is becoming an important phenomenon so it is crucial to recognize the different steps that contribute to the transmission of infections and, subsequently, to implement appropriate interventions. Principal goal for infection control should be to training staff about the best infection control precautions.

## Streamlining health inequalities to benefit policy making

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The Annual Abstract of Health Statistics focuses on the health status of the Maltese population, with an emphasis on health inequalities. Inequalities will depict the effect of residing in different regions or obtaining different levels of education on various health issues. This will benefit policy makers to recognize health determinants outside the health sector.

The data gathered covers macro-aspects from various streams of health within the Maltese population, concentrating the data on the latest year available for the various streams which were delved into. The suppliers of data fall under the various departments and units within the Ministry of Health, the Elderly and Community Care. The data collected is easy to maintain from one year to the next, hence ensuring the sustainability of data. Moreover, it was ensured that the data collected was not burdensome for our suppliers to compile.

A particular focus was put on the number of new cases and deaths with specified chronic illnesses or conditions. The effect of the completed level of education on the number of new cases and deaths was analysed. Similarly, the effect of residing in different regions on the number of new cases and deaths with specified chronic illnesses was analysed.

To ensure comparability of the effect of residing in different regions on the various chronic illnesses and condition, the crude rate of new cases and deaths with specified chronic illnesses or conditions per 100,000 population was presented. This is calculated by dividing the number of individuals with the specified chronic illness or condition by the total population within that region and then multiplying it by 100,000. This will provide the number of individual with the specified chronic illnesses or conditions for every 100,000 individuals.

Analysis by level of education was made possible through collaboration with the National Statistics Office (NSO). DHIR officers were given the NSO confidentiality oath and linkage between the various registries and the NSO Register of Persons was carried out in a safe centre environment. The results were standardised to the European Standard population to remove the confounding affect age has on education and specific chronic illnesses or conditions. This method was also applied to remove the confounding affect age has on region and self-perceived health. This will provide a better picture of the affect these inequalities have on the number of new cases and deaths with specified chronic illnesses or conditions, which is the future of policy making.

## S.6. HEALTH CARE WORKFORCE

### Changes in alcohol consumption over time: The role of early predictors

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#### Background

Mechanisms and pathways of changes in alcohol consumption over time are not well known. We assess changes in alcohol consumption from young adulthood to middle-age in a longitudinal study of Swedish conscripts, and investigate the role of early life factors reflecting social, behavioral, psychological conditions and substance use in relation to high alcohol consumption in youth, middle-age and over time.

#### Methods

Data on alcohol consumption and early life factors was collected from 49,321 Swedish men born 1949–1951 conscripted for military service in 1969/70. Follow-up data on alcohol consumption on the same men was collected from a random sample participating in at least one of the Swedish Survey of Living Condition (ULF) in 1989/89, 1996/97 or 2004/05 (n=148). Odds ratios (OR) with 95% CIs were estimated in a logistic regression analysis for the association

between early life factors and high alcohol consumption in youth, middle-age and for changes in alcohol consumption over time.

#### Results

Sixty percent remained low consumers of alcohol, whilst 20% increased their consumption from low in youth toward high in middle-age. Contact with the police and child welfare authorities (OR=3.4, CI: 1.4–8.4), truancy (OR=5.1, CI: 1.9–13.8), low emotional control (OR=3.4, CI: 1.2–10.0), psychiatric diagnosis (OR=2.7, CI: 1.0–6.9) and illicit drug use (OR=5.8, CI: 1.9–18.0) were associated with high alcohol consumption in youth but not in middle-age. Fathers' alcohol consumption and tobacco smoking were associated with approximately 2 to 3.9-fold increased ORs for high alcohol consumption both in youth, middle-age and for increased alcohol consumption over time.

#### Conclusion

Most men had low alcohol consumption in youth and in middle-age, although a considerable amount of men increased their alcohol consumption over time. A number of early predictors were related to high alcohol consumption at young ages, while fathers' alcohol consumption and tobacco smoking were the only early predictors associated with high alcohol consumption in middle-age and with increased alcohol consumption over time.



## Characteristics of subjects attending preventive health examinations in Austria

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### Background

In Austria preventive health check-ups are focused on early detection of the most common diseases like certain cancer sites or cardio-vascular risk factors, as well as primary prevention and health counseling. They are covered by the social health insurance system and are offered to all insured adult subjects (98% of the population). They are recommended biannually for subjects aged 65 and older, and triannually for younger subjects.

### Methods

Source of data for analyses was the Austrian Health Interview Survey 2006/07 (representative sample of 15,747 subjects). In the multivariate logistic regression analyses the dependent variable was participation in at least one preventive health examination during the three years preceding the survey and independent variables were socio-demographic and health-related characteristics.

### Results

39.7% of subjects of both sexes had attended a preventive health check-up. Multi-variate analyses revealed that subjects aged 40 years and older, subjects with higher education, higher income, and who were born in Austria participated significantly more often in health check-ups. Furthermore, presence of a chronic disease was associated with a higher attendance at health check-ups with odds ratios of 1.23 (95% CI = 1.09–1.38) in men and 1.19 (95% CI = 1.06–1.33) in women. Differences in prevalence rates of chronic diseases between those who attended vs. those who did not attend health check-ups were significant regarding diabetes mellitus, hypertension and osteoarthritis, and especially pronounced regarding chronic back pain. The prevalence rates were 41.1% in men and 43.5% women who attended vs. 32.8% in men and 36.4% women who did not attend health check-ups ( $p < 0.001$  for both sexes).

### Conclusions

Attendance rates for health check-ups in the Austrian general population are high and even higher in sub-populations like subjects with chronic diseases. A “healthy screening effect”, which means that subjects attending health check-ups have lower disease prevalence rates than non-attendees, could not be reinforced through our analysis. Strategies are needed to increase attendance rates for preventive health check-up in younger people, subjectively healthy people, people with lower socio-economic status, and people with a migration background.

## Public health workforce in Switzerland: a national census

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### Background

Planning and developing an effective public health (ph) workforce is essential to establishing and maintaining a high-performance health system. This is particularly important given the increased demands of changing health risks and chronic disease in Switzerland. Yet, there are no national data on the size, distribution or qualifications of the ph workforce in Switzerland. The objective of this study is to conduct a census of this workforce.

### Method

A population-based online-survey targeting individuals based in Switzerland who provide essential ph services. We applied an organizational methodology, using four major ph areas and related activities as key criteria for identifying organizations that employ individuals constituting the ph workforce: 1) population-based interventions, 2) interventions on the structure and activity of the health system, 3) research, and 4) education and training. We identified 436 organizations, including governmental institutions, research/training institutions, professional associations, hospitals, insurance companies, non-governmental organizations, private consulting, pharma/biotech and multilateral organizations. For each institution, a point person was identified who internally distributed the survey-link to all individuals meeting the study criteria. The survey assessed the demographics, education, employment and professional focus of participants. It also assessed participants' scope of continued education and current ph competency needs. The data gathering period is from March, 2012 to May, 2012. First results will be available in early June, 2012.

Preliminary Process Data: As of April 27, 2012:

273 organizations confirmed their participation. The survey was distributed to 3'603 individuals, of which 1'240 already completed the survey.

Results will focus on the ph workforce's employment sectors (i.e., government, education/academic/research, NGOs, etc), public health areas (i.e., health promotion & prevention, environmental health, etc.) level and type of education, scope of continued education, as well as public health competency needs.

## MorbiSimmod - a morbidity based micro-simulation model to estimate the need for health services in Austria

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### Problem

Health services planning is a main instrument and the current practice in Austria to shape the health system for the future. The planning activities concern different levels and include for example the Austrian Health Care Structure Plan, Regional Health Care Structure Plans as well as needs certificates on health-care facilities. Recent planning bases largely on data from the utilization of health services, the use of spatial distance matrices (accessibility) and on the extrapolation of demographic changes. Because of the limitations of extrapolating utilization to the future and because of the intent to plan more directly based on the morbidity of the population new planning methods and the integration of health data (health surveys) and socio-economic data sources are required.

### Method

On the basis of developments in the health care system that promote need based planning including the knowledge about determinants of health, morbidities and socio-economic circumstances (based on a social-science theory) we develop a micro-simulation model that integrates well documented data on services and diagnoses, data from the Austrian Health Interview Survey (AT-HIS) and a demographic data pool including also data on the working status and educational attainment of the Austrian population. Following an agent based modeling method we define a population of statistic representatives that carry morbidity and socio-economic properties in a way that the distribution of the properties of the representatives within different classes (marginal distributions) fit with the properties of the Austrian population.

## Results

The model allows simulating the demographic development over time (and for geographical sectors) with the focus on the prognoses of the future development of morbidities. Based on this simulation prognoses on the future need along different determinants of health and morbidities can be made and used for health services planning purposes. For the future we plan to integrate further available data sources to define the statistic representatives more precisely by means of representing the Austrian population.

## Educational inequalities in utilisation of health care services from 1984–2008 in Norway

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### Background

The Norwegian universal health care system has undergone considerable changes since the 1980s. Important reforms include the introduction of patient lists for general practitioners (2001) and the centralization of hospital management (2002). In more recent years, reducing social inequalities in health has emerged as a political goal in Norway, and it is increasingly recognised that inequity in health care utilisation may play a role in generating inequalities in health.

### Methods

The Nord-Trøndelag Health Study (HUNT) is a total county population based survey that maintains a unique database of medical histories collected during three surveys, in 1984–86, 1995–97 and 2006–08. The number of respondents (% of invited) ultimately eligible for this study were 69,376 (81%), 44,018 (48%) and 45,440 (49%), respectively. Analyses included dichotomous attendance variables (last 12 months) for general practitioners (GP), hospital outpatient services and inpatient care. Estimates were adjusted for self-reported health, disability, municipality of residence and age.

Relative indices of inequality (RII) were estimated using a Generalized Estimating Equations (GEE) regression with the data organized longitudinally. The RII is a regression-based index, which in this study summarizes the relative risk of utilisation for the lowest-educated group compared to the group with highest education.

### Results

Among men the RIIs for GP utilisation increased from 0.46 (95% CI = 0.42–0.50) in 1984–86, to 0.92 (0.81–1.03) in 1995–97, to 1.60 (1.41–1.83) in 2006–08. The RIIs for utilisation of hospital outpatient care was 0.49 (0.43–0.57) 1984–86, 0.69 (0.61–0.78) in 1995–97, and 0.54 (0.47–0.61) in 2006–08. RIIs for inpatient care was 0.93 (0.84–1.03) in 1984–86, 1.05 (0.92–1.18) in 1995–97, and 1.16 (0.97–1.40) in 2006–08. Results are preliminary.

### Conclusion

From 1984 to 2008 and through several reforms in the Norwegian health care system, pro-educated inequity in utilisation of GP care diminished. Education-related inequity in utilisation of hospital outpatient care was as large in 2006–08 as in 1984–86, suggesting a failure of health care reforms to provide fairer access to specialist services.

## Race and Age Discrimination in Medical Treatment in Indonesia

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## Background

Race and age discrimination in medical treatment were carried out mainly in developed countries. Therefore this study investigates in the effect of race on physicians' recommendation in cardiac categorization in Indonesia, standing for a developing country.

### Methods

Video recorded interviews were shown to physicians on a computer, displaying patients describing symptoms. Based on these videos a survey was given to the physicians, who had to categorize the cardiac disease, give recommendations concerning the treatment and estimate the patient's character.

### Results

The ethnicity and age of the patient, the ethnicity of the doctor and the interaction between the ethnicity of the patient and the doctor indeed have an effect on the physicians' recommendation ( $p < 0.5$ ). Physicians estimated Chinese more likely not showing up for follow up treatments ( $p < 0.01$ ), but at the same time they evaluated the character of the Chinese more positive than of the Indonesian ( $p < 0.05$ ). Old patients are estimated more satisfied ( $p < 0.05$ ) and the probability of coronary artery disease were higher ( $p < 0.05$ ) for them. Furthermore the cardiac categorization for young patients than older patients ( $p < 0.05$ ) and young Indonesian patient ( $p < 0.01$ ) were assessed more negative, which means, that they were more likely to be categorized under definitely not angina, even when the patient had angina pectoris.

### Discussion

Based on the results race and age indeed have an effect on the physicians' recommendation. Indonesian and young doctors were more likely to refer Chinese patients not for cardiac categorization, even when the description of the patient was clear that the patient had angina pectoris. Therefore Chinese were indeed discriminated by them. Furthermore, young patients and surprisingly young Indonesian patients (but not young Chinese patients) were discriminated. Still, the findings are most striking for Chinese patients in general and young patients, since the character and behavior of them were also estimated more negatively.

## Decision-aid to find an appropriate method to predict high cost patients based on a systematic literature search

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### Background

Several industrialized countries face the fact that a small group of patients accounts for a high amount of health care expenditures. A part of these expenses could be prevented by early intervention. Therefore, it is necessary to identify potential high cost patients. However, predictive modelling offers a variety of methodical ways to identify these high users. For implementing a predictive model it is important to know which one is appropriate. Hence, the aim of this study is to identify different methodological approaches of predictive modelling of potential high cost patients and to convey aids for decision-making.

### Method

A systematic literature search was done in the scientific database SciVerse Scopus in October 2011 and supplemented by manual search. Identified citations were selected in a two-step procedure by two people independently, according to predetermined inclusion and exclusion criteria.

### Results

Two hundred and sixteen papers were identified. After the final selection 18 articles remained. Two different approaches for dealing with this topic can be found. One of them focuses on patient-characteristics and defines high cost patients by their frequency of health care utilization. Here, the most

common method is logistic regression. The advantage of this method is that it is less demanding than other ones. The second approach is cost-oriented. Articles with this focus are mostly interested in testing methods and new ways of prediction. Thus, many different methods were identified. Especially methods which are suitable for preparation and information processing of a large amount of data are used. These methods are data-mining techniques and classification systems like diagnostic cost groups. Indeed, they are more demanding and time consuming, but also take into account a huge number of diagnostic and cost information.

#### Conclusion

Different methods to predict high users exist. The choice of the method depends on the research question, the data source and the time available. When research focuses on predictors of high usage, logistic regression is a suitable and commonly used method.

### Determinants of health-care system delay in breast cancer diagnosis in Estonia

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#### Background

Survival from breast cancer (BC), although improving, is still much lower in Estonia than in most other European countries. More advanced stage and larger tumors that have impact on survival may be a result of delay in BC diagnosis. This study was undertaken to examine risk factors for doctor/health-care system delay in BC diagnosis in Estonia.

#### Methods

The study population included women with primary BC diagnosed in Estonia during 2008–2010. All data were collected

using structured personal interviews carried out by trained nurses in the hospital setting. Doctor/health-care system delay was measured as time from the first visit to a health professional until the first visit to a BC specialist at a cancer center. Logistic regression was used to evaluate the effect of different factors on the likelihood of intermediate delay (31 to 60 days) and long delay (over 60 days) compared with delay of 30 days and less.

#### Results

Among 1008 eligible patients, 21% experienced intermediate delay and 7% experienced long delay. The risk of intermediate delay was higher among women age below 50 compared to women age 65 and over (OR 1.7, 95% CI 1.1–2.7); skilled workers compared with managerial professionals (OR 1.8, 95% CI 1.1–3.0); and women diagnosed at screening compared with women with self-discovered painless lump (OR 2.1, 95% CI 1.3–3.4). The risk of long delay was increased among women with poor self-reported financial status (OR 2.7, 95% CI 1.2–6.1) and women with self-discovered symptoms other than painless lump or breast pain (OR 2.9, 95% CI 1.5–5.5). Delay was significantly associated with place of residence in both analyses.

#### Conclusions

This study provides further evidence that doctor/health-care system delay in BC diagnosis is associated with symptoms other than breast lump and younger age. Risk associated with occupation and poor self-reported financial status of household as well as place of residence indicate different access to health care and should be addressed by decision-makers. While it is unlikely that prolonged delay leads to severe progression of screen-detected cancers, it still causes anxiety for women. Family physicians as the gatekeepers to the rest of the health-care system should be educated about the variety of presenting symptoms of BC.

## T.6. OBESITY

### Community Based Initiatives targeting childhood obesity in the EU

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#### Background

Childhood obesity is a major public health threat. Because of their comprehensive nature and bottom-up approaches, Community Based Initiatives (CBIs) are considered as best practice approach. In 2010 the European Commission called for an overview of CBIs targeting childhood obesity in the EU, in order to facilitate the exchange of good practices.

#### Methods

Inclusion criteria were defined and eligible interventions were identified in all 27 EU countries and Iceland, Norway and Switzerland through national key informants. Contact persons for the identified interventions were approached to fill in an electronic questionnaire (developed specifically for this purpose) with detailed questions on general characteristics, settings and organizational structure, objectives, instruments and activities, and evaluation and effectiveness. Outcomes were analyzed using SPSS software.

#### Results

278 CBIs were identified, of which 260 could be approached through e-mail. 88 (34%) completed the questionnaire. Five were excluded as basic inclusion criteria were not met. Out of the 83 CBIs included for analysis, 49 were executed at the city

or neighbourhood level, and 21 at the school level. The vast majority of CBIs (93%) implemented a combination of instruments, targeting the environment of children, and activities, addressing the behaviour of children more directly. Information about costs and the number of children reached by specific activities were reported by about 25% and 45% of the CBIs respectively, while 22 CBIs reported data on the effectiveness of the CBI as a whole. Outcomes were reported in a heterogeneous way and there was large variation in the quality of study designs.

#### Conclusions

The comprehensive information gathered in this study can inspire the development of new initiatives or improvement of on-going CBIs, and as such be useful both for public health practitioners, working with CBIs, and policy makers, who want to stimulate best practices. The study also revealed important gaps in information, in particular regarding reach, costs and effectiveness. In order to optimize the exchange of best practices, policy makers and researchers should work on overcoming these gaps.

### Childhood obesity and education - do obese children reach the same educational level as non-obese?

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## Background

This “obesity epidemic” among children is of concern because it is suspected that excess weight or adiposity in childhood negatively affects future health in addition to its concurrent social consequences. However, whether the association between overweight in childhood and the risk of low educational levels in adulthood has changed as the obesity epidemic developed has not been addressed.

## Methods

We investigated the association between childhood obesity defined as body-mass index (BMI) z-score >2 compared to BMI z-score <2 in childhood (13 years of age) and basic schooling being the highest educational level in adulthood (40 years of age). The subjects were a cohort of 300,000 Danish schoolchildren born between 1930 and 1983 for whom measurements of height and weight were available. Educational levels were ascertained by linkage to national registers. Logistic regression analyses were performed.

## Results

The preliminary results show, that the prevalence of a BMI z-score >2 was about 4% for both boys and girls born 1945–1965 and it increased thereafter; among those born from 1980–1984 12.7% of girls and 13.8% of boys had BMI z-scores >2 at 13 years of age. Throughout the period, as compared to boys with a BMI z-score <2, those with a z-score > 2 had an odds ratio (OR) = 0.82 (95% CI: 0.77–0.87) of obtaining more than basic schooling. For girls, compared to those with a BMI z-score <2, those with a z-score >2 had an OR of 0.64 (95% CI: 0.60–0.68). The odds were consistent across time in both boys and girls.

## Conclusion

Compared to non-obese children, obese children have an increased risk of obtaining a lower education independent of birth cohort. As the estimates were stable over a long period of time, and even greater numbers of children are obese today, from a public health perspective it is important to further investigate whether the lower levels of education is due to comorbidities, types of social stigmatization during the school years or impacted by parents low social position.

## Have obesity among schoolchildren become epidemic in Vojvodina

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## Background

Obesity (OB) and overweight (OW) in young people is a topic of the most importance. Information about nutritional status, measuring body mass index (BMI) and self assessment of body weight can give complete insight about this health problem. Facing the magnitude of the burden of disease related to young people's overweight and obesity, it must be a key area of concern to which professionals and policy-makers must direct their attention.

The aim of this study was to compare objective and self rated weight measures among schoolchildren in Vojvodina

## Methods

Research was conducted as a cross-sectional study on representative sample of 672 children age 7 to 19 years in Vojvodina. It was part of the National study: Health of the population in Serbia. For the purpose of this paper we analyzed part of the questionnaire about nutritional status using BMI and self assessment of body weight.

## Results

According to BMI, 13,6% of polled children were underweight, 69,3% with normal nutritional status, 12,1% were overweight and 4,9% obese. Younger age group (7–10 years) is significantly more obese than older groups.

Among those who were overweight and obese only 34,7% assess themselves as such.

Two thirds of polled children assess their body weight as normal, 10% consider themselves fat, and 17,2% as thin There

is discrepancy between nutritional status and answers whether they have behavioral risk to become overweight and obese. Significantly large number (55,9%) of OW and OB children do not consider that their behaviour affects their body weight ( $x^2=64.147$ ;  $p=p<0,001$ ). Only 23,4% of obese children consider that they are at risk.

## Conclusions

Objective measurement showed 17% of overweight and obese schoolchildren who in significant percentage do not see themselves as such. There are significant discrepancies between objective status, self assessment and awareness consciousness about having a behavioral risk to get obese. These facts should be reflected in policy considerations and intervention and prevention programmes.

## Tackling childhood and adolescent obesity in Malta: Skills and training needs of medical paediatric staff

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## Background

Obesity is one the major public health challenges of today's society. The European Union has put obesity high up in its policy agenda. Malta has one of the highest prevalence rates of childhood obesity worldwide. This has emphasized the importance of creating obesity-related child-centred clinical services as part of Malta's National Health Service.

## Objectives

This study aimed to determine Maltese paediatric medical staff's perceived levels of skill when managing overweight and obese children, identify their main information sources, and gauge their interest in training in childhood obesity management.

## Results

A questionnaire was distributed to all registered Maltese paediatricians (n=42) and paediatric specialist trainees (n=13), both in public and private sectors in Malta. 52 participants responded to the questionnaire (94.5%). Most had considerable experience in paediatrics (1–10 years, 28.8%; 11–20 years, 36.5%; 21 or more years, 34.6%). Doctors with 20 years or less of experience felt more competent and comfortable managing childhood obesity than their more experienced counterparts. Overall, less than half of respondents felt either competent (49%) or comfortable (47.1%) managing overweight children. Perceived competencies were poorest for behavioural management, family therapy and parenting guidance. A third to half of respondents reported a high interest in obesity management skills training. 67.5% of respondents stated that they use past experience as their information source to manage overweight children, topping professional guidelines (37.3%), speciality training (31.4%) and medical school teaching (12%).

## Conclusion

This study marks the first and only attempt at assessing Maltese paediatricians' experiences and skills when caring for overweight children. The study identified a need to improve training programmes for Maltese paediatricians and trainees. The setting up a multidisciplinary service for overweight children would facilitate the management of childhood obesity.

## Nutrition, glycemic index and its associations with components of metabolic syndrome in Siberian adolescent population

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Imbalance of the basic nutrients in the daily diet is associated with the development of many metabolic disorders. The associations of glycemic index (GI) in diet of adolescents with metabolic disorders are still controversial and require further study.

#### **Purpose**

To evaluate the association of nutrient intakes, GI of food products with components of metabolic syndrome (MS) in adolescence.

#### **Materials and methods**

Representative samples of adolescent population aged 14–17 were investigated in Novosibirsk. Total sample was 667 people (301 male), response rate-93.8%. The examination program included questionnaire, blood pressure and waist circumference (WC) measurement, estimation of insulin, blood glucose and lipid profile: triglyceride (TG), HDL cholesterol (HDL-C). Diet was estimated using 24-hour dietary recall. The GI of diet was calculated by the formula:  $GI \text{ diet} = (GI \times \text{amount of carbohydrate product}) / \text{total number of carbohydrates in the diet}$ . The associations of GI and metabolic components were analyzed using quartile method.

#### **Results**

Daily consumption of basic nutrients (protein, fat, carbohydrate) and energy in adolescent boys was 70 g, 95 g, 277 g, 2252 kcal respectively and in girls-57 g, 78 g, 213 g and 1787 kcal respectively. High fat percentage (40%) and simple sugars (18%) of the total energy were registered. The average value of GI food in boys was higher than in girls (50 versus 48,  $P=0.04$ ). In boys average levels of insulin, triglycerides and WC were higher in upper quartiles of GI ( $P<0.05$ ) if compare with quartile 1. In girls there were differences between the lowest and highest quartiles of GI ( $P<0.05$ ). Carbohydrate intake was increasing from low to upper quartiles of GI. The consumption of protein and fat in quartile 1 of GI was higher if compare with quartile 4 ( $P<0.05$ ).

#### **Conclusion**

Reduced consumption of basic nutrients and structural imbalance in the daily diet of adolescents were revealed. Quartile analysis showed associations of GI food and metabolic components (insulin, TG, WC). Nutrition in adolescents with low GI was more rational than in those with high GI food. The study was supported by RHF in the research project RHF 'Women Smoking in Russia: psychosocial and biological determinants', project number 12-06-00878.

### **Twenty year trends in hypertension, overweight and lipid disorders in the Siberian adolescent population**

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High blood pressure, overweight, and lipid disorders in adolescence are considered as risk factors for CVD in adulthood. There is a very little information on trends of CVD risk factors among adolescents in Siberia.

#### **Objective**

To evaluate long-term trends and interrelations of elevated blood pressure (BP), overweight and high total cholesterol (TC) in Siberian adolescents.

#### **Methods**

Five cross-sectional surveys of representative samples of school children aged 14–17 were carried out in Novosibirsk in 1989, 1994, 1999, 2003 and 2009. This time period included years of Russian reforms. Total sample was 3311 (46% males), response rate 88–92%. The program was unified for all screenings. Systolic, diastolic BP, body mass index (BMI,  $\text{kg}/\text{m}^2$ ), and TC were measured. Diet was estimated using 24-hour dietary recall. Elevated BP was estimated using NHBPEP 4th report criteria (2004). To define overweight the sex- and age-specific BMI cutoffs recommended by IOTF (2000) were used. High TC was evaluated with NCEP criteria (1992).

#### **Results**

During the 20-year period prevalence of hypertension in adolescents decreased from 25% (1989) to 15% (2009) in boys and from 20% to 11% in girls ( $P<0.05$ ). At the period 1989–1999 the frequency of overweight significantly decreased in both gender groups (from 14% to 4%,  $P<0.001$ ). At the next period (1999–2009) the prevalence of overweight considerably increased, mostly among boys: from 4% to 13% ( $P<0.001$ ). Elevated BP was registered twice more often in overweight adolescents. Percentage of children with high TC ( $>200 \text{ mg}/\text{dl}$ ) dropped significantly over the period: from 32% to 6% in boys and from 22% to 5% in girls ( $P<0.001$ ). Significant regression coefficients for TC controlled by age and gender were revealed with BMI and diastolic BP. During 1989–1999 significant decreasing of total energy intakes (from 3021 to 2342 kcal in boys and from 2300 to 1644 kcal in girls) and of basic nutrients (proteins, fats, carbohydrates) was registered. From 1999 to 2009 there was moderate rising of daily nutrient intakes.

#### **Conclusion**

Significant trends of CVD risk profile in adolescent population of Siberia during the last 20 years of Russian reforms indicate a high sensitivity of adolescent health to environmental changes (in contrast to adult population).

### **Obesity in young children in a Portuguese birth cohort: Geração XXI study**

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#### **Background**

Rates of overweight and obesity are increasing in children to epidemic proportions and may even reverse the present decline trends in adult rates of cardiovascular diseases. Some previous reports place Portugal as one of the European countries with the highest prevalence of obesity and overweight among adolescents. However, it is still unknown when obesity develops early in childhood. It was our aim to describe the prevalence and main determinants of early childhood obesity in a Portuguese birth cohort.

#### **Methods**

Four years after birth, 7458 children were reevaluated as part of the follow up of Geração XXI, a Portuguese birth cohort. After relevant exclusions, 5933 of children were evaluated in this study. They all had information collected through structured questionnaires on demographic, socioeconomic, health and lifestyles. A physical examination was performed. Weight, height, blood pressure were measured, and for a subsample a fasting blood sample was collected. Body mass index was calculated and categorized according to gender and age, following CDC criteria. Associations between BMI and maternal and children characteristics were estimated using multivariate unconditional logistical regression, by computing odds ratio (OR) and respective 95% confidence intervals (95%CI).

#### **Results**

In this sample of Portuguese children, the prevalence of obesity was 13.7% and 16.1% were overweight. Obesity and overweight were significantly more frequent in females (obesity: 15.6% vs. 11.9%; overweight: 18.5% vs. 13.9%,  $p<0.001$ ). After adjustment for gender, obesity at 4 years of age was significantly associated with all the anthropometric measures at birth, weight (OR 1.93; 95% = 1.63–2.22), length (OR = 1.07; 95% CI = 1.03–1.11) and head circumference (OR = 1.15; 95% CI = 1.09–1.21). Socioeconomic characteristics of the child's family were also associated with obesity regardless of child gender and birth weight, such maternal education (OR = 0.93; 95% CI = 0.92–0.95) and household income (OR = 0.90, 95% CI = 0.85–0.96).

**Conclusion**

In this sample of pre-school children, the prevalence of obesity and overweight was impressively high. Anthropometric measures at birth were positively associated with BMI at 4 years, especially birth weight.

**Sixth form students' Attitudes toward Obesity in Malta (January–May 2011)**

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**Background**

As the local obesity epidemic intensifies and Maltese adolescents waistlines expand, their attitudes towards overweight and obesity should be of prime concern to health policy makers. Adolescence is a vulnerable period with typically increased susceptibility to media and peer influences. Additionally, their tendency for normative behaviour might result in acceptance of and indifference towards their overweight status. Evaluation of this phenomenon is critical for the design of targeted preventive strategies that effectively halt or reverse weight gain in this population.

**Methods**

A cross-sectional survey was distributed to a nationally representative sample of first year sixth form students between January and May 2011. Self-reported demographic, socio-economic, attitudinal and anthropometric data was collected. The Attitudes Towards Obese Persons (ATOP) questionnaire

was used to obtain an indicative score of students' perception of obesity and related this to their derived BMI. 62.3% of eligible students completed the questionnaire ( $n=533/855$ ).

**Results**

A mean ATOP score of 58.4 was obtained. Maternal education was significantly negatively associated with student ATOP score ( $p=0.012$ ), however no significant association with self-reported BMI ( $p=0.66$ ), school attended ( $p=0.055$ ) or other demographic data was identified. The ATOP score of students from Southern Harbour areas was significantly higher than that of students from Northern harbour localities ( $p=0.006$ ). Students in the overweight and obese BMI category were significantly more likely than non-overweight students to downplay the potential impacts of obesity on health; potential lifespan, career prospects, and sexual attractiveness, although they admitted to feelings of shame ( $p=0.003$ ). Although no significant gender difference in ATOP score was identified, female students were significantly more likely than males to associate excess weight with greater self-consciousness ( $p<0.001$ ), lower self-confidence ( $p=0.013$ ) and lower self-worth ( $p=0.028$ ).

**Conclusion**

Adolescents perceive themselves as healthy despite their increased weight, and lack awareness of obesity stigma outside their protected school environment. Maternal education influences perception of obesity, and hence possibly health behaviour, in sixth form students. Parental engagement and gender-specific health messages are crucial aspects of any behavioural interventions targeting this and younger age groups.

## U.6 PERINATAL HEALTH

**Postpartum complications and care seeking behaviours among women attending selected health facilities in Ibadan, Nigeria**

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**Background**

Post partum complications (PPC) can be life-threatening and have contributed to the high maternal mortality in Nigeria. Mothers are ignorant about these post partum complications hence care seeking behaviours are often inappropriate. Not many studies have explored these issues among women of childbearing age in Nigeria. This study was designed to assess the awareness of post partum complications and the care seeking behaviours among women utilizing the Infant Welfare Clinics (IWC) of selected Primary Health Care (PHC) facilities in Ibadan.

**Methods**

A cross-sectional study was conducted among IWC attendees at the model PHCs in the Ibadan North and Ibadan North West LGAs Ibadan, Nigeria. A total of 400 women who have had a delivery in the past one year were interviewed. Respondents were recruited consecutively until sample size was obtained. A semi-structured questionnaire was used to collect data on sociodemographic characteristics, awareness of post partum danger signs, experience of post partum complications and the care seeking behaviours of the women. Data were analyzed using descriptive statistics, Chi-square test was used to determine associations between categorical variable at 5% level of significance.

**Results**

Majority (91.8%) of the respondents had received antenatal care at least once during pregnancy, 76.8% had delivery in hospitals, 88.7% had normal vaginal delivery, 7% delivered

by caesarean section and 4.3% by assisted vaginal delivery. Over half (58.0%) reported being informed of post partum danger signs. Sixteen percent of the respondents experienced complications after delivery and the most commonly reported complication was post partum haemorrhage (53.2%). Many (75.8%) of those who had complications experienced it within a week after delivery. Majority (76.7%) sought formal health care while 23.3% sought traditional care; however, 61.7% reported having barriers to accessing care of which distance to health facility (56.8%) was the main barrier. PPCs was highest among those who had caesarean section (39.3%) as compared with other modes of delivery  $p<0.05$ .

**Conclusions**

Health workers need to reinforce education about postpartum danger signs with particular focus on women with operative deliveries to limit the occurrence of complications.

**Epidemiology of preterm birth in Albania**

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**Background**

Preterm birth is a major determinant of neonatal mortality and morbidity. Its incidence across countries is affected by the way in which gestational age is assessed, by national differences in the births registration and quality of neonatal intensive care. Accurate estimation of the incidence is substantial to inform policy and programmes on interventions to reduce the risk of premature birth. This paper is an attempt to identify the incidence of preterm birth in Albania and its regional distribution within country.

**Methods**

The national official data on the preterm birth and live birth are used for the calculation of the incidence of preterm birth

(defined as number of preterm birth per 100 live birth). In Albania, the preterm birth definition used is the WHO definition (36 weeks and 6 days) and gestational age is estimated from the first day of the last menstruation and, where is available, is confirmed by the ultrasound.

### Results

In 2010, the incidence of the preterm birth in Albania is 4.6%. Comparing with the incidence of previous years, there is no any significant difference in incidence (for example with 4.8% in 2002 and 2007  $d = 0.2$  95% CI =  $-0.09-0.52$ ,  $p > 0.05$ )

In 2010, the preterm birth incidence is higher in the capital city Tirana (8.4%) and in some other affluent regions as Shkodra and Durres (respectively 4.5% and 4.2%) compared to deprived regions as Kukes and Diber (respectively 0.5% and 1.2%).

### Conclusion

The incidence of preterm birth is 4.6%, a figure lower than the European average incidence (6.2%) or developing countries average incidence (8.8%) in which Albania is classified. Over the last years the incidence of the preterm birth has not change significantly.

There is a region variation in the incidence of preterm birth within country where the incidence of preterm birth in the most affluent regions is higher compared to the incidence of other disadvantaged area of country.

The way of measurement of the gestational age and the quality of the neonatal care seems to be the main factors affecting the epidemiologic pattern of preterm birth in Albania. However, a further investigation is needed for exploring of the factors affecting this inequality of incidence distribution within country.

## Measures to reduce preterm birth- an umbrella review

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### Background

According to data from 2004, Austria has the highest preterm birth rate (11%) in Europe. Within a larger project aiming at the reorientation of the Austrian parent-child preventive care program initiated by the Austrian ministry of health we conducted this umbrella review to identify primary and secondary preventive measures as well as screening methods to reduce preterm birth.

### Methods

We conducted a systematic literature search in Medline, Embase, the Cochrane Library and CRD for relevant systematic reviews and metaanalyses published between 01/2000 and 4/2011.

### Results

We included a total of 56 systematic reviews. For almost half of the measures analysed we found no between group differences in preterm birth outcomes. Nevertheless, we identified some single interventions especially for well-defined subgroups of pregnant women, which tend to show a positive effect on preterm birth, e.g. zinc- or calcium supplementation or energy- and protein intake for undernourished women, long-chain polyunsaturated fatty acids for pregnant women at risk, the screening for vaginal infections or elevated foetal fibronectin, antiplatelet agents for preeclampsia prophylaxis for women with gestational hypertension, cerclage for women with short cervix and previous preterm birth, bed-rest for women with hypertension, as well as nutritional advice for pregnant women or telephone support for women at risk for preterm birth. Only two measures showed a distinctive positive effect (smoking cessation programmes and prophylactic progesterone for women with a previous preterm birth).

### Conclusions

To assess the effectiveness and applicability of interventions to reduce preterm birth on a population level, we suggest taking

the strengths of association between risk or protective factors with preterm birth and the prevalence of these factors in the population into account. In addition, we recommend considering potential “structural” causes of the high Austrian preterm birth rate (e.g. heterogeneous definitions of stillbirth, influences of assisted reproductive technologies or caesarean sections), before deciding which measures should be included in a new parent-child programme.

## The association between major birth defects of newborns and maternal age in Latvia

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### Background

Total average maternal age increases from 27.3 years (2000) till 29.0 (2010) in Latvia and for live birth primiparas it is rising from 23.7 years (2000) till 25.9 (2010).

### Objective

To estimate congenital anomalies (CA) of newborns by maternal age in Latvia.

### Materials and methods

Data source was Medical Birth register. All live newborns, which were born (2000–2010) and were diagnosed with major congenital anomalies (CA) at birth ( $n = 4927$ ), according to European Registration of Congenital anomalies (EUROCAT) subgroups diagnoses codes (nervous; eye; ear, face and neck; congenital heart disease; respiratory; oro-facial clefts; digestive system; abdominal wall defects; urinary; genital; limb; other anomalies/syndromes and chromosomal anomalies). Odds ratio (OR) was calculated in data analysis.

### Results

Live birth period prevalence -211.4 per 10,000 live births. Live birth prevalence of CA increased by maternal age-118.1/10,000 for mothers till 19; 214.5/10,000 for mothers 20–34 years and 261.0/10,000 for mothers 35 years and older. The average mother age of newborns with CA was 27.7 (SD 5.8). If we compare average maternal age by congenital anomalies diagnoses group, among newborns with easy anomalies and abdominal wall defects it was slightly lower than average, accordingly 26.6 (SD 6.7) and 26.0 (SD 5.8). But it was more than 1 year higher in respiratory system and digestive system anomalies group-28.1 (SD 4.4). Statistically significant difference between average maternal age was found for chromosomal anomalies newborns group-32.49 (SD 7.4), the difference -4.84 years (95% CI  $-5.66; -4.02$ ). Mothers under 20 years had greater risk to have a newborn with abdominal wall defects (OR = 3.0; 95% CI 1.2–7.6) and oro-facial clefts (OR = 3.0; 95% CI 1.2–7.6) compared with mothers in age of 35 years and more. Older mothers (35+) had greater risk for chromosomal anomalies (OR = 4.8; 95% CI 3.5–6.5) than in 20–34 years and (OR = 3.9; 95% CI 1.8–8.9) than under 20 years age group.

### Conclusions

With average maternal age rising clinicians in antenatal care should pay more attention for specify examinations and ultrasound screenings for risk groups and public health interventions with providing more information about reproductive health and birth defects risk factors.

## Estimating differences in birthweight outcomes using panel data approach (Umbria 2005–2008)

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## Background

The main part of international literature finds a significant increasing of birthweight in second-borns in comparison with first-borns. We assume a significant effect of some physical maternal characteristics that change between the first delivery and the other ones, but also the possible effect due to the change of social maternal characteristics could result in a significant impact. We investigate about the differences in birthweight between first- and second-borns, evaluating the impact of changes in physical (e.g., gestational age, chronological age) and social (e.g., education level, marital status) maternal characteristics.

## Methods

Firstly, we use univariate paired t-tests for the comparison between weights of first- and second-borns. Secondly, we investigate the topic through linear and nonlinear regression approaches in order to evaluate the effect of physical and social maternal characteristics. We consider (i) the difference in birthweight between the first two deliveries as a quantitative response variable in a linear regression model and (ii) the birthweight of first- and second-borns as two categorical response variables in a marginal model. All analyses are performed on data collected in Umbria (Italy) taking into account a set of 795 women who delivered twice from 2005 to 2008.

## Results

We find that the birthweight of second-borns is significantly higher than first-borns ones (t-value = 4.83, p-value < 0.0001; association in marginal model = 2.13, p-value < 0.0001). More precisely, A longer gestational age at the second delivery has a positive effect on the second-born's weight: it shows an average increase of 152.18 gr (95% CI = 139.01–165.36, p-value < 0.0001) for each additional gestational week. Moreover, we do not observe any significant effect related with the mother's age (95% CI = -0.07–0.17, p-value = 0.4420) and with social characteristics.

## Conclusions

The analyses allow us to conclude for a significant increasing of birthweight between first- and second-borns for a representative sample of Italian population. The main part of the observed differences depends on differences in gestational ages. For further developments, we intend to extend our study to include the effect of changes in mother's weight.

## Regional anthropometric features to identify newborns at higher risk of poor outcome

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The main problem related to the identification of small for gestational age (SGA) fetuses using the current ultrasonographic (US) approaches is related to the fact that a discrete number of cases are misdiagnosed therefore SGA often show a poor outcome at birth. We applied different models of US assessment of fetal growth to evaluate their efficacy in identifying those newborns.

A group of 5956 singleton pregnant women that delivered from 0 to 6 days from US, by computing fetal routine biometry and estimated fetal weight (EFW) was evaluated. Measurements were compared to Lubchenco, Yudkin and Festini nomograms of neonatal weight and abdominal circumference (AC) values were compared to the Italian Reference Curve (IRC). Sensitivity, specificity, predictive values and likelihood ratios of fetal biometry as diagnostic tests for the detection of poor neonatal outcome in women with SGA were assessed by using Receiver Operating Curve (ROC) test. Therefore, the probability of SGA after having

the test positive (higher than the cut-off) was estimated and compared with the pretest probability, defined as the prevalence of SGA in the whole group of cases. According to the values of nomograms referred by Lubchenco and Yudkin, at the best cut-off chosen by the ROC curve analysis, EFW achieved a sensitivity of 46.5% and 66.4% and a specificity of 98.1% and 94.3% respectively, as diagnostic test for SGA.

Using the Festini nomogram, EFW achieved a sensitivity of 62.8% and a specificity of 95.3%. Using the IRC charts for AC the sensitivity was 49.5% and the specificity 96.0%.

At birth 893 cases were SGA, giving an overall prevalence of the disease in this population of 14.9%. By using the Lubchenco nomogram, the probability of a SGA (PPV) was as high as 81.3%, whilst with values below the cut-off (NPV) it was 8.8%. By using Yudkin growth chart PPV was 67.3% and NPV 5.9%. PPV and NPV by using Festini nomogram and IRC were 70.4% and 68.7%, 93.6% and 91.5% respectively.

The Festini nomogram better estimates the risk of having or not a SGA at birth. This nomogram has been computed and validated on a regional (Tuscany) population and suggests that referring to a regional anthropometric evaluation better estimates the probability of identifying newborns at higher risk of poor outcome.

## The need of rest in late pregnancy-A register-based nation wide study in Sweden 2005–2010

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## Background

Many pregnant women need time off from work in late pregnancy. There might be many reasons for that need, pregnancy related disease, a physically strenuous work, or the weight of a normal pregnancy. In Sweden, pregnant women have the opportunity to use parental benefit days from 60 days before expected delivery and women with physically strenuous work or with risks in their working environment can have their absence compensated via pregnancy benefit days. If a pregnant women fall ill, sick leave may be granted. The present study examines pregnancy related absence from work including all these social insurance benefits.

## Methods

Register information from all women giving birth to their first child 2005–2010 was collected from the Swedish Social Insurance Agency. Descriptive statistics were calculated in SAS.

## Results

During the last three month of pregnancy at least one day of parental benefit days were used by 52% of the women in 2005 and 58% of the women in 2010. In 2005 33% of the women was granted sick leave at least one day during the last three months of pregnancy, and 23% in 2010. The prevalence of granted pregnancy benefit during the last three months of pregnancy remained stable between 2005 and 2010 (19%). However, the total number of women that was granted any of the three types of benefits remained stable over time, 74% in 2005 and 73% in 2010.

## Conclusions

This analysis argues that the need for rest in late pregnancy is constant and that approximately two thirds of all women need time off work. The form of compensation will, however, change over time due to legislation and levels of compensation. Evidence based recommendations of rest in late pregnancy would be of great help for developing sound regulations for pregnant women.



## The moderating effect of maternal height on the relationship between social class and birthweight from national birth data in Scotland from 1990 to 2000

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### Background

In epidemiology it is important to adjust estimates for all key confounders. Maternal height is an important predictor of birthweight; shorter mothers have lighter babies. There have been increasing inequalities in birthweight in Scotland, with lower mean birthweight for those children born to mothers in lower social class. We sought to determine the extent to which maternal height moderated the effect of social class on birthweight.

### Methods

Routine maternity discharge data on all live singleton hospital births in Scotland during the periods 1990–92 (n = 189,210) and 1998–2000 (n = 155,998) were used. Maternal height was missing for 20% of mothers in 1998–2000. Social class inequalities were measured using the slope index of inequality (SII). The relationship between mean birthweight and SII was compared when adjusting and not adjusting for height. Joint modelling was used to impute values for missing height.

Criteria used for comparison were mean and 95%CI for SII. All models were adjusted for maternal age, parity, gestational age, sex of baby, previous Caesarean section and mode of delivery.

### Results

Mothers with height recorded had babies on average 89g (95%CI 80,98) heavier than mothers without height recorded in 1990–92; this difference was 48g (95%CI 41,55) in 1998–2000. At both time points, this difference was socially patterned, with a larger difference in birthweights for mothers in lower social classes. In 1998–2000 the differences were 29g and 80g for mothers in the highest and lowest social classes. In 1990–92 the unadjusted SII was -178 (95%CI -187,-170); after adjusting for confounders this reduced to -129 (95%CI -136,-121). Using imputation the SII after adjustment for maternal height was -100 (95%CI -108,-93), a reduction of 22%. In 1998–2000 the inequality in birthweight was higher: unadjusted SII -228 (95%CI -238,-218); after adjusting for confounders -152 (95%CI -161,-143); further adjustment for maternal height -126 (95%CI -134,-117). The mediating effect of maternal height was similar in both time periods.

### Conclusion

Maternal height is an important moderator of the relationship between social class and birthweight. Inequalities have increased over time, but maternal height accounts for about the same proportion of the inequality.

## W.6. MIGRANT HEALTH 1

### Assessing health system responsiveness to the cultural, literacy and language needs of migrants in Malta

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Malta has experienced an influx of irregular migrants from Sub Saharan Africa, representing a unique area for investigation. This research aims to find out to what extent the Maltese health system responds to the cultural, literacy and language needs of migrants, how this affects the quality of care and how the system can be optimised with view to improving health system effectiveness.

This cross sectional study consists of 60 migrants, 20 health care workers (HCW) and 6 cultural mediators (CM). Participants are recruited from migrant open centres as well as government health facilities. Migrant recruitment is based on snowballing. Recruitment of HCW's and CM's is based on purposive sampling. Information is collected via informal interviews, in addition to 25 hours observation of medical consultations and analysed using coding and interpreted according to theme.

Study findings reveal that the quality of healthcare is challenged by migrant's language proficiency, extent of cultural assimilation and health literacy level which is further influenced by the sensitivity of services to such differing needs including health professionals' ability of effective communication within consultations.

The Maltese health care system needs to mainstream culturally competent, linguistically appropriate care delivered at the literacy level of patients to reduce the unmet health care needs of migrants and contribute towards equity and quality in the delivery of care.

The response entails a clear policy, operational plan and management structure to ensure the scale up as well as efficient and effective use of cultural mediators; the continuous training of personnel along the continuum of care and a system of recording and responding to language,

culture and health literacy needs including the information exchange within and between health services. Efforts in the public sphere should compliment those in the health care setting and include the scaling up of health education sessions to improve health literacy and self management in health for efficient and effective use of services as well as improved health outcomes.

### Competences, Ethnicity and Health: Do the environment of the health professionals influence the development and the diffusion of cultural competence?

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### Background

In most European metropolitan areas hospitals are required to provide culturally competent health care as a way of delivering a more equitable health care to ethnic minority patients. So far this goal has remained elusive because, as we claim, the organizational-level has been neglected. We aimed at investigating the role of inter-professionals ties on the diffusion of cultural competence across health care organisations. We tested two hypotheses: (1) higher exposure to migration and provision of patient-centred health care make health services more likely to be culturally competent; and (2) cultural competence is contagious and spreads within health care service through social network.

### Methods

Thirty-four inpatient and outpatient health services were selected according to their geographic localisation and their degree of patient-centeredness. All healthcare professionals were requested to fill in a questionnaire tapping their level of cultural competences and their social relationships. We performed Fisher test and t-test. We also computed indicators of centrality and of peer-effect to assess the social network of the health professionals.

## Results

We observed high levels of variance of the scores of cultural competences between health professionals within the same health services but also high levels of variance between health services. Moreover patient-centred services were more likely to be culturally competent than non-patient-centred services. No significant difference was found between intermediary exposures and high exposures to migration. However services with more need of cultural competence did not turn out to be so. We found that cultural competence did not spread when the most central health care professionals were not culturally competent. Peer-effect of cultural competence was low rather suggesting that cultural competence remains an individual attitude and is not supported by organizational learning.

## Conclusions

As long as cultural competence remains an individual behaviour, it is less likely to spread in health care organisations. Making the organisation accountable to cultural competence should be considered.

## Foreign physicians' professional integration into the Finnish health care system

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### Introduction

Recently, motivational and structural factors explaining the increasing international mobility of physicians has attracted research activity especially in countries struggling with shortage of physicians. A number of studies have explored why physicians migrate, however not much evidence is available of migrant physicians' experiences in a receiving country. This study investigates factors affecting foreign physicians' professional integration into the Finnish health care system, including foreign physicians' licensing process, employment and job-satisfaction.

### Methods

Research data was collected with two different methods. First, a postal survey sent to all licensed physicians of foreign origin living in Finland in year 2010 (n=1297), of whom 553 returned the questionnaire. Second, personal theme interviews were carried out with 12 physicians migrated to Finland in years 2009 and 2010. Both survey and interview addressed reasons for migration to Finland, job involvement, job satisfaction and wellbeing at work, language skills, and cultural differences in medical practice.

### Results

According to the survey, the average duration for obtaining a license for EEA physicians in Finland was 1.2 years (SD 1.73) and for non EEA physicians 6.1 years (SD 3.48). According to the interviewees, especially non EEA members experienced licensing process as confusing due to the lack of information, bureaucratic difficulties and lack of support with language studies. Also the qualification of the test requirements was felt unfair. After foreign physicians were obtained a license and got a job they were satisfied with their work, and experienced similar problems such as time pressure and high job demand as native physicians have reported of their work previously.

### Conclusion

Qualifications are recognized in accordance to EU Directive among physicians obtained a license in EEA countries. For non EEA physicians the long licensing process may be considered as obvious waste of skilled resources and it may contradict the explicit objective to get more qualified professionals into Finland. Clear guidelines and easy access to information on licensing requirements and language courses would ease foreign physicians' professional integration to the Finnish health care system.

## Provision of care to clients of migrant origin: the experiences of maternity care providers

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### Background

Women of non-western migrant origin comprise a substantial part of the client population in maternity care. According to Statistics Netherlands, mothers of non-western migrant origin contribute to 17% of all live births. This group is very diverse in origin which implies a variety in needs and expectations with regard to maternity care. Furthermore, clients of non-western migrant origin have been shown to make less adequate use of prenatal and postnatal care. This may add to the challenges maternity care providers already face due to the variety in needs and expectations. With this research we therefore wanted to explore which specific issues maternity care providers experience in their working relationship with clients of migrant origin and how they adjust their care to these clients.

### Methods

Individual semi-structured interviews with primary care midwives (N=13) and maternity care assistants (N=15) were conducted, as well as a focus group with 8 midwives. (Preliminary)

### Results

Three main themes emerged from the analysis. Remarkable are the similarities and differences in expression of these themes by these two groups of maternity care providers:

1. Facing challenges in the provision of care describing the difficulties maternity care providers experience: suboptimal health literacy skills (midwives), language barriers (both)
2. Striving for good health of mother and child describing maternity care providers' efforts and adjustments: being alert and pro active (midwives), being creative (maternity care assistants), taking them by the hand and making use of alternative means (both)
3. Experiencing different feelings describing maternity care providers' feelings: ambivalence (midwives), enjoying but sometimes difficult (maternity care assistants)

### Conclusions

To achieve optimal care for clients of migrant origin, it is important to address the challenges maternity care providers face and their efforts and adjustments, in both education programs and policy in daily maternity care practice.

## Does severe hyperemesis gravidarum have an effect on pregnancy outcomes?

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### Background

Hyperemesis gravidarum (HG) in early pregnancy is found to be associated with preterm birth (PTB) and low birth weight (LBW). Due to clinical and methodological heterogeneity previous research shows conflicting results. Our aim is to explore whether severe HG necessitating hospital admission

has an effect on pregnancy outcomes using Norwegian Mother and Child Cohort (MoBa) comprising 107 000 births.

#### Methods

A cohort study with data obtained from MoBa and the Medical Birth Registry of Norway. The main outcome variables were birth-weight, gestational age, Apgar scores after 1 minute and 5 minutes and perinatal death. HG was defined as long-lasting severe nausea and vomiting starting before 22nd gestational week necessitating hospitalisation. Singleton pregnancies were included and all records with missing data on exposure and outcomes variables plus confounders such as maternal age, parity, body mass index, education and smoking habits were excluded. Associations between HG and dichotomous outcomes were studied by logistic regression. Linear regression was applied to estimate differences in birth weight and gestational age.

#### Results

Altogether, 773 of 71 921 women had severe HG (1.1%). Crude OR for PTB where the mother had HG was estimated to 0.80 (95% CI: 0.58–1.10). For LBW and SGA, cORs were 0.98 (0.61–1.56) and 0.97 (0.83–1.37), accordingly. Crude ORs for Apgar score after 1 minute and 5 minutes were estimated to 0.62 (0.41–0.93) and 1.15 (0.61–2.15). Crude estimate for birth weight in grams among children of women with HG was -29.15 (-68.39–10.09) and for gestational age in days -1.65 (-2.50–0.80). Adjustment for confounders did not change these estimates, except for birth weight when adjusted for maternal weight gain between the 17th and 30th gestational week; -60.46 (-96.63–24.93). For gestational age the estimates differed from -1.33 (-2.22–0.44) and -1.63 (-2.51–0.75) days depending on category of maternal weight gain adjusted for.

#### Conclusions

In MoBa, women suffering from severe HG did not have and increased risk of PTB, LBW, SGA or lower Apgar score after 1 minute or 5 minutes. Children born of mothers with HG had 40% lower risk of Apgar score < 7 after one minute than of children of healthy mothers.

### **Helicobacter pylori and severe hyperemesis gravidarum by IgG, virulence factors and feces antigens; an institution-based case-control study among immigrant women in Norway**

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#### Background

The aim of this study was to estimate associations between *Helicobacter pylori* exposure and severe hyperemesis gravidarum (HG) among immigrant women in Norway by exploring IgG seropositivity and *Helicobacter pylori* antigens in feces. Additionally, we investigated whether Cytotoxin-associated gene A product (CagA) and vacuolating Cytotoxin A (VacA) seropositivity modulated this association.

#### Methods

An institution-based case-control study among immigrant women in Norway performed at Ullevål and Akershus University Hospitals from September 2005 until December 2007. Blood samples were used to explore IgG, CagA and VacA seropositivity; feces samples were used to explore the presence of antigens. Multiple logistic regression was used to estimate odds ratios (ORs) of HG according to *Helicobacter pylori* exposure.

#### Results

The study sample comprised 170 women: 62 cases and 152 controls. The observed proportion of IgG seropositive women did not differ substantially between cases and controls. Neither the OR for IgG seropositivity nor the ORs for CagA and VacA seropositivity were statistically significant. For IgG positive and CagA and VacA negative women, the crude OR was 1.26 (95% CI: 0.57–2.82). For those being IgG positive and CagA and VacA positive, the crude OR was 0.82 (0.40–1.68). Adjustment for confounding factors, such as maternal age, body mass index and earlier HG, did not change these results. Additional adjustment for feces antigens did not change the conclusion regarding these associations. Likewise, the crude OR for *Helicobacter pylori* antigens was not statistically significant. Adjustment for confounders and IgG seropositivity did not change this result.

#### Conclusion

This study did not find *Helicobacter pylori* exposure to be significantly associated with the development severe HG among immigrant women residing in Norway. This was regardless of whether *Helicobacter pylori* exposure was investigated by IgG seropositivity, CagA and VacA seropositivity or by presence of *Helicobacter pylori* feces antigens. These results may indicate that the association between *Helicobacter pylori* and HG is weaker than previously expected, and that larger study samples are needed to estimate the effect of *Helicobacter pylori* exposure and HG observed.

### **Incidence and mortality after cardiovascular related hospital admissions among refugees and immigrants—a Danish retrospective cohort study**

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#### Background

The incidence and mortality from cardiovascular diseases (CVD) in Western societies, is high and increasing. While incidence is mainly related to lifestyle and genetic factors, mortality from CVD is furthermore related to treatment and rehabilitation of patients with CVD. However, it is unclear whether the incidence and mortality from CVD among immigrants and refugees in Denmark resembles that of native Danes. The aim of the present study was therefore to explore differences in incidence and mortality following CVD-related hospital admissions among migrants coming to Denmark.

#### Methods

We conducted a retrospective cohort study. All refugees and family-reunited immigrants who obtained residence permits in Denmark between 1st January 1993 and 31st December 2010 (116,000 persons), were included in the study and matched 1:4 on age and sex with native Danes. Participants were subsequently followed-up in the Patient discharge register and in the Causes of death register for cardiovascular disease (based on ICD-10 diagnoses). Cox-regression was used to estimate the ratios of incidence- and mortality rates from CVD between refugees, family-reunited immigrants and native Danes. The regression analyses were adjusted for age, region of origin and income, and stratified by sex.

#### Results

Immigrants constitute approximately 4.6% of the Danish population. Our cohort included more women (55.9%) than men (44.1%). Preliminary results suggest refugees to have higher incidence rates of CVD than family-reunited immigrants. This was evident for both men and women. The incidence of CVD also varied according to region of origin, and in most cases, the CVD incidence was higher among migrants (both refugees and family-reunited immigrants) than in native Danes. Differences in mortality rates are pending.

## Conclusions

Differences in both CVD incidence- and mortality rates according to migrant status and region of origin have important implications for the healthcare system in Denmark. Thus, CVD prevention and treatment should be specifically targeted migrants and differentiated according to migrant status and region of origin. Differences in mortality rates pose a challenge in providing timely diagnosis and treatment for the groups experiencing higher mortality rates.

## Ramadan and type II diabetes: Patient perspectives on medicine use, reasons for fasting and experiences with counselling on medicines

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### Background

Studies show that adherence to medicines is complicated for type II diabetics, and that the prevalence of this disease is high for people of Pakistani background. Also, studies indicate that many type II diabetics of Muslim background fast during the month of Ramadan without adequate counselling on how to adjust their medicines. The aim of our study is to explore patient perspectives on medicine use, reasons for fasting and experiences with counselling on medicines among people of Pakistani background

with type II diabetes and at least one other chronic condition.

### Methods

The analysis is based on a study exploring lived experiences with counselling on medicines using semi-structured interviews and medication reviews among people of Danish and Pakistani background diagnosed with type II diabetes and at least one other chronic illness living in greater Copenhagen, Denmark. The analysis presented here builds on the subset of patients with Pakistani background (six interviewees).

### Results

All interviewees pointed out that Islam allows for ill people to refrain from fasting during Ramadan. However, all had fasted during Ramadan although being diagnosed with type II diabetes. While fasting, they adapted their medicine intake in different ways, e.g. by changing the time of intake or by skipping intake of morning medicines. Fasting during Ramadan implied a feeling of improvement in one's physical well-being for all interviewees. Reasons for this improvement included physiological, social and religious aspects. Health care professionals were rarely part of the decision making process on whether or not to fast. Rather, friends and relatives, especially those with type II diabetes, were considered important.

### Conclusions

For chronic patients with Muslim background fasting during Ramadan may imply changes in medicine use that are not always discussed with health professionals. The study calls for health professionals to acknowledge that Muslim patients may find fasting during Ramadan beneficial to their well-being and therefore choose to fast despite the Islamic rule of exemption. This patient-centred approach to counselling on medicines may facilitate better medicine use and thus better clinical health outcomes among patients that choose to fast.

Saturday, 10 November, 11:40–12:40

## A.7. ENVIRONMENTAL INFLUENCES

### How are health inequalities affected by control in the living environment?

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### Background

Recent public health strategies aim to increase control for individuals, communities and populations in a range of contexts. While research has revealed control in the work environment to be a key determinant of health (and inequalities), evidence for the importance of control outside this context has not been synthesised. We conducted a critical review of theories and causal pathways that have been proposed between control in the living environment and socio-economic inequalities in health.

### Methods

We took an iterative approach to methodically identify theoretical discourse across a range of diverse fields. Experts helped us identify seminal works. We then employed a 'pearl-growing' approach: handsearching reference lists for other publications before widening the search further. Key informants were asked to identify additional publications.

Theoretical elements were extracted and analytical frameworks were developed to elucidate the pathways identified.

### Findings

The relationship between control in the living environment and health inequalities has been conceptualised at three levels:

1. Personal
2. Meso/micro
3. Macro

At the personal level, control beliefs impact on health via fatalism and hostility reactions, which are related to social position and the cumulative effects of chronic stress across the lifecourse.

At the meso/micro level, the immediate external environment, determined by social position, dictates opportunities for individuals and whole communities to exercise autonomy and control over their living conditions. This is important for health via control beliefs (as above) and via people's abilities to improve their living conditions.

At the macro level, socio-political structures and processes operate at the level of whole societies, stratifying access to resources and opportunities-or power-that people have to achieve good health. The results of these processes include the better health outcomes for low-income populations with greater gender equity.

### Conclusions

Plausible pathways between control in the living environment and the generation of health inequalities have been put forward. Empirical evidence needs to be sought to test these

pathways so that the most promising opportunities for intervention can be identified.

### What can ecological data tell us about reasons for divergence in health status between key post-industrial regions of Europe?

David Walsh

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#### Background

The link between the effects of deindustrialisation (unemployment, poverty) and population health is well understood. Post-industrial decline has, therefore, been cited as an underlying cause of high mortality in Scotland's most deindustrialised region. However, previous research showed other comparably-deindustrialised regions in Europe to have better and faster improving health. In this follow-up study, we explored whether ecological data could provide any answers to this conundrum.

#### Methods

A range of data were collected for West Central Scotland (WCS) and 11 other post-industrial regions in England, Wales, N. Ireland, France, Germany, Belgium, Netherlands, Poland and the Czech Republic. Data were analysed under a set of relevant themes: health & function; prosperity & poverty; income inequalities; population; social environment; physical environment; behaviour; child & maternal health. Analyses were underpinned by the collection and analysis of more detailed data for four particular regions of interest: The Ruhr (D); Nord-Pas-de-Calais (F); Silesia (PL); N. Moravia (CZ). In addition, the project drew on accompanying research analysing the historical, economic and political context in the regions.

#### Results

The relatively poor health status of WCS cannot be explained in terms of absolute measures of poverty and deprivation. However, compared to other post-industrial regions in mainland Europe, the region is distinguished by having wider income inequalities and particular social characteristics (e.g. more single adults, lone parent households, higher rates of teenage pregnancy). Some of these distinguishing features are shared by other United Kingdom post-industrial regions which experienced the same economic history as WCS.

#### Conclusions

Poor health in WCS can be attributed to three layers of causation: the effects of deindustrialisation; the impact of neo-liberal UK economic policies, resulting in wider inequalities; and a third, as yet unexplained (but under investigation), set of factors which cause WCS to experience worse health outcomes than similar regions within the UK. In the process of undertaking these analyses, we have created a data set which should be of relevance and interest to researchers and policymakers in many post-industrial areas of Europe.

### Area deprivation In Cyprus is not Townsend's: a spatial factor model

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#### Background

Area-based composite measures of deprivation are frequently used to describe social inequalities in health. "Traditional"

measures include the UK's Townsend Index while newly developed multi-dimensional indices in several European countries use factor analytic techniques. It is not uncommon for such indices (e.g. France, Hungary) to include some, if not all, of the four components of the Townsend Index.

#### Objectives

First-time exploration of the geographical variability of a Townsend-like Index across Cypriot communities and the extent to which the components share a common latent factor.

#### Methods

Three of the components were available at community level ( $n=370$ ) from the 2001 census i.e. % unemployed economically active population, % not owner occupied households and % households with >1 person/room. The fourth component was replaced with % households with no computer (PC) since not owning a car is not recorded in the census. After normalisation/standardisation, Bayesian hierarchical models with spatially unstructured and structured random effects were used to describe the pattern in each indicator while a spatial factor model was developed to explore the relationship between the components.

#### Results

Pairwise correlations were generally low (e.g.  $r=0.37$  between unemployment and overcrowding being the highest) while internal consistency between the variables was insufficient (Cronbach's  $\alpha=0.55$ ). PC ownership was the only variable that displayed a striking spatial (i.e. urban-rural) structure and was not considered further since its correlations with the rest were in the opposite direction. Furthermore, there was evidence that the remaining indicators exhibit a different geography in Cyprus since the shared component accounted only for 25% (95% Cr.I= 18%, 33%) of the total variability of unemployment and 9% (95% Cr.I= 5%, 14%) of not owner-occupied households while for overcrowding it was negligible.

#### Conclusions

A Townsend-like Index does not appear to be an adequate measure of social inequalities in Cyprus. With the release of the 2011 census, efforts should concentrate on developing a home-grown index from a wider set of possible indicators as well as by exploring its association with health outcomes.

### Spatial health inequalities-health professionals perspective 2011 Malta

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#### Background

Health inequalities exist in all countries, Malta being no exception. However, there is no research at a national level in Malta to demonstrate whether spatial health inequalities exist. Given its small population, it is difficult to obtain statistical power at local level. Health professionals working in the primary care setting are in a position to meet people in the community, this putting them in a position to identify spatial health inequalities within the community they practice.

#### Method

This was a qualitative study. The population under study included all health professional working within the primary care setting, health centres within the public sector. Participants were from all the health centre areas, covering the whole of the Maltese Islands. Focus groups were used for data collection. Participants were presented with statistical data from national routine sources and were asked to discuss possible explanations. In depth interviews using open ended questions were carried out. There were a total of 20 participants. Thematic analysis was carried out for analysis.

## Results

A lack of health education was seen to be the major cause of health inequalities in Malta, rather than formal education. It was also felt that health service access was affected by health education, according to participants. Social support was believed to vary across the different regions of the island. Participants said that there is little difference in health inequalities between the different regions in Malta, given its small size, and the recent increase in mobility within the regions. However, they still identified small areas, at street or neighbourhood level, where there might be larger health inequalities. Rather than spatially, participants indicated that health inequalities are more likely to be found between different social classes.

## Conclusion

Given that no national statistical data is available at the village level, qualitative data is the best data easily available for a study on health inequalities in Malta. A larger ecological study could demonstrate better such health inequalities. Given the current results, efforts to establish the veracity of social class as a major determinant and what underlies the inequalities in social strata ought to be studied.

## Quality of life assessment of inhabitants of villages located in the vicinity of wind farms

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Aim of this research is to assess the impact of wind farms on the quality of life of residents of the villages located nearby. Self-reported quality of life became crucial tool in practice as well as scientific research, particularly in case of Health Impact Assessments (HIA). First information about new investment near the place of residence, even just on the stage of preliminary research and social consultation, creates strong, and most often negative, emotions.

## Instruments and Methods

The research was conducted from July to September 2010 throughout Poland. Study group was selected by random two-stage stratified method and was made of residents of Polish villages located nearby the wind farms. Investigation tool was SF-36 v. 2 questionnaire with author's questions-1,277 adult residents, including F=703 and M=572, all of them were residents of villages, mean age was  $45.5 \pm 16.10$ . Majority of participants (33.2%) lives more than 1,500 m from wind farm; below 700 m-17%. Obtained results were put to statistical analysis. Dependence of two variables was verified with Kruskal-Wallis test, assessment of reliability of quality of life measurement was verified with Cronbach's  $\alpha$ .

## Results

Participants marked quality of life on 8 scales. Regardless of the distance of place of residence from wind farm, the highest quality was marked on physical fitness scale-mean  $76 \pm 27.97$ , and the lowest generally perceived health, mean  $55.3 \pm 24.06$ . Distance of housing from wind farm as well as results obtained in particular scales were put to analysis. In all scopes, residents of villages located closest to the wind farms marked their quality of life the highest, and the lowest marks was given by residents living more than 1,500 m from wind farm, or those who claimed no knowledge of construction of wind farm. In scope of mental health, residents living the closest to the wind farm marked their mental health the highest, and those living further than 1,500 m-the lowest ( $p < 0.05$ ). Similar results were obtained in general Health Perception study (HP), social functioning (FS),  $p < 0.0001$  and limitations in role functioning caused by emotions  $p < 0.0002$ .

## Conclusions

Close distance of place of residence from wind farms does not influence the reduction in quality of life of the residents.

## Physical environment and commuting physical activity among adult Finns

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## Background

Every second individual worldwide is not physically active enough for their health. Health benefits of physical activity could be derived by engaging commuting physical activity for 30 minutes. The importance of those physical environments that either set barriers or motivate individuals for commuting physical activity should, therefore, be placed on public health agenda. This study examined the association between self-reported physical environments and commuting physical activity as well as the area level differences in these associations among adult Finns.

## Methods

Cross-sectional data from the Regional Health and Wellbeing Study (ATH) 2010, collected by National Institute for Health and Welfare (THL) was utilized. Data included adult Finns aged 20 years and over living in the city of Turku ( $n = 9000$ ), in the regions Kainuu ( $n = 9000$ ) and Northern Ostrobothnia ( $n = 8000$ ), and in representative sample of Finn ( $n = 5000$ ). The overall response rate varied between 47 and 55%. Commuting physical activity and physical environment were self-reported. Measurement of physical environment included items on infrastructure; such as dangerous intersections, slippery footpaths in winter, poor lighting, long distance to services, and poor public transport, as well as items related to enjoyability of the environment items such crime, noise, litter, unattractive housing district and safety. Multivariate logistic regression modeling will be applied.

## Results

Our preliminary results suggest that a good infrastructure and enjoyable environment are associated with commuting physical activity. Among women, safety and satisfaction of the location of their dwelling was also associated with physical activity while commuting. Some area level differences were observed, as good infrastructure was more strongly associated with commuting physical activity in Turku than in the regions of Kainuu. Enjoyable environment was associated with commuting physical activity more strongly in the regions of Kainuu than in Turku.

## Conclusions

Public health and physical activity policies aiming to promote commuting physical activity should more take into account the gender and area level differences in the physical environments.

## Impact of socioeconomic status on Indian women's nutritional condition-A latent class regression analysis

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India has experienced a steady economic growth since the last decade. Indeed, there is some evidence that the nutrition transition accomplished in several rapid growth countries is yet to occur in India. High level of under nutrition persists in large segments of the Indian population, which confirms that the existing public health policies in India have not worked effectively in targeting nutritionally deprived population groups. We use the body mass index (BMI) as an indicator for the nutritional status: underweight (BMI below 18.5), overweight (above 25 and below 30) and obesity (above 30). This paper analyzes the effect of household socioeconomic status on the nutritional condition of Indian women, using data from the third round of the National Family Health

Surveys (NFHS-3) conducted during 2005–06. NFHS-3 collected a wide range of demographic and socioeconomic data along with specific health status and health care related to children and women in reproductive age. The household schedule included questions on various dimensions of household economic conditions such as durable assets, livestock, and landholdings that can be used to assess the current status of household wealth through a wealth index. In addition, the survey measured weight and height of individual women within the household which allows estimating the individual BMI. BMI is the dependent metric variable in our model. The wealth index, the occupation of the respondent, level of education and final say on health care were included as explanatory variables and indicators of SES in the analysis.

Our conceptual framework defines a heterogeneous relation between the BMI level and the independent variables by setting a latent class regression model. This clusterwise regression model sets different regression equation within each cluster. Model estimates show that the impact of SES is heterogeneous across the three latent classes found. For lower SES women, having an occupation represents an increasing access to food, an improvement in health conditions, and an increasing BMI; whereas for higher SES women, it means an increase in energy consumption and a more balanced weight. These results provide ground for the definition of tailored approaches to tackle this double burden.

## B.7. AGEING AND THE ELDERLY

### Elderly blood cancer: survey on factors influencing the management of onco-hematological diseases

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#### Background

The management of elderly patients with underlying hematologic cancer is characterized by great complexity, in particular related to comorbidities, which can affect the use of specific treatments and care programs. The understanding of physicians' knowledge and attitudes towards the management of these patients and the identification of information needs are of great significance to promote specific training and research.

#### Methods

An online questionnaire consisting of 44 questions on knowledge and attitudes of physicians who deal with onco-hematologic diseases was built with respect to the management of elderly patients. The survey focused on knowledge about efficacy and toxicity and factors leading the choice of therapeutic approach such as quality of life, compliance, or socio-economic aspects. It was promoted at the Blood Cancer in the Elderly European Expert Forum, held in Rome in 2011. It was not mandatory to answer every question.

#### Results

225 physicians responded. Most of them were practicing in Italy (31.2%), France (18.6%) and Spain (16.6%) in teaching or non-teaching general hospitals. 77.6% of the sample declared to be influenced by patient's quality of life in their decisions. There was consensus on not considering age as a disease and choosing treatment on chances of success and patient compliance. They stated in 65.4% of cases that their elderly patients receive almost the same standards of the younger, but 49% of them declared to prefer a conservative approach to treatment and apply dose reductions beforehand. Also, 35% only use supportive care beyond a limit age, mostly because of quality of life issues. Major complaints include lack of support from patients' families, missing information about toxicity and lack of studies enrolling elderly patients. 77% of physicians demanded more training in the management of elderly patients. With respect to diseases, physicians generally agreed on the management, except for mantle-cell lymphomas, myelodysplastic syndrome in over 80 subjects and high-dose chemotherapy in acute myeloid leukemia.

#### Conclusions

Physicians dealing with onco-hematologic diseases are influenced by their patients' quality of life and compliance,

demand more training and believe that research should be improved.

### Dementia clinical guidelines and quality of care for older patients with multiple comorbid disease. A comparison between Europe and North America

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#### Background

Dementia affects 5.4% of the over 65s and its prevalence further increases with age, especially without effective prevention and treatment. Clinical Guidelines (CG) could be used as a tool to improve the quality of care. There is evidence suggesting that CG should be modified for the patient with comorbidities. The aim of this study was to evaluate the applicability of CG for Dementia to the care of older individuals with several comorbid diseases between different international contexts.

#### Methods

CG on diagnosis and treatment of dementia published between 2005 and 2012 in Europe (EU) and North America (NA) were identified through searches in the electronic databases. Additionally, dementia organizational websites were searched. Quality was assessed using the Appraisal of Guidelines Research and Evaluation (AGREE) instrument. Two investigators independently assessed the relevance of the CG on the care of older people with comorbidity by means of a specific instrument developed by Boyd et al. Descriptive and inferential analyses were performed (chi-square test at the 0.05 significance level).

#### Results

Twenty-one CG were included in the study. Quality of the evaluated CG was on average higher than 70% in three out of the six domains measured by AGREE instrument. The domains with lower mean scores (less than 50%) were Applicability and Editorial Independence. The 8 (38.10%) of the selected CG were published in EU, while 13 (61.90%) were from NA (23.81% from Canada, 38.10% from USA). Quality of evidence for older patients with comorbid conditions was considered in 9 (57.14%) CG. In 12 to 22 CG there are specific recommendations for patients with one comorbid condition, while only 6 to 22 considering several comorbid condition. No differences between NA and EU were found on the analysis of quality of evidence for older patient. While the quality of evidence is discussed for older patients with comorbid conditions more in Europe than in North America ( $p < 0.02$ ). Also the attention to specific recommendations for patients

with at least one comorbid condition is higher in EU ( $p < 0.04$ ).

### Conclusion

Our findings show that the attention to comorbidity in diagnosis and treatment of dementia is a matter to delve more deeply at the international level.

## PASSI d'Argento (Silvery Steps): a nationwide surveillance system for active ageing, Italy 2012

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### Issue

People over 64 are consistently increasing in Europe. Socio-economic & behavioural risk factors increase poor health risk, while an ageing population in good health limits pressure on social & health systems & increases its contribution to society. Due to the importance of monitoring elders' health status & needs & reducing their "ill health", the Italian Government supported an active ageing policy with Passi d'Argento (PDA), a nationwide surveillance system. After 2-year experimentation in 16 Regions, under technical & scientific coordination of the National Institute of Health, PDA is now included into the National Prevention Plan (2010–2014).

### Description

Following the CDC BRFS approach, PDA adopted the WHO Healthy Ageing strategy: Participation, Health & Security as main pillars of a policy for Active Ageing. Surveillance is done on a sample of population over 64, stratified by sex & age classes, randomly selected from Local Health Units' list of resident, phone interviewed with a standardised & validated questionnaire on socio-demographic characteristics, health status perception, life styles, depression symptoms, social isolation signs, participation to social life, access to health care & availability of adequate income. Uni- & multivariate analysis of data collected use Epi-Info & Stata. To ensure high quality of data, social and health professionals involved in the surveillance have to follow a continuous training and to participate to a web-based Community of Practice (Moodle) to share experience & best practices.

### Results

5077 interviews in 2010 (response rate 86%). According to instrumental/activity daily living & socio-behavioral factor risks & with the purpose of making data useful for planning elders' services, respondents were grouped in 4 categories: in good health (48%), at risk of disease (14%), at risk of disability (23%), with disability (15%). 36% are estimated to be a resource for the society or their families, but 9% are at risk of social isolation; 60% refer difficulties in making ends meet.

### Lessons

A standardised, comparable & sustainable surveillance system, such as PDA, monitors social & health aspects of ageing,

ensuring reliable evidence to inform policy on healthy ageing at national & international level.

## Falls in elderly. Evidence from a large Emergency Department in Mures County, Romania, 2009–2010

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### Background

Falls are the leading cause of nonfatal injuries among elderly, leading to medical care, hospitalization or permanent disability. In Romania, the proportion of people aged over 65 years is growing faster compared to than any other age group. Furthermore, this population group is also one of the most vulnerable one by involving greater risks of exposure to challenges and a reduced capacity to respond to these. The study aims to determine the frequency of severe falls and the associated risk factors among persons aged 65+.

### Methods

We conducted a retrospective study of all elderly aged 65 years and older seen for trauma in an emergency department from March 13, 2009 to July 17, 2010. The analysis uses data from a surveillance system implemented as part of the EU Injury Data Base (IDB) in the Mobile Emergency Service for Resuscitation and Extrication Targu-Mures, Romania. Records of patients who were coded as fall-related trauma were retrieved, a total of 346 cases.

### Findings

Data collected revealed that 70.2% of the elderly had suffered fall-related injuries due to inappropriate floor surfaces (65%) and alcohol consumption (13.9%). Head injuries encounter for approximately 1/3 of injuries (Pearson Chi-Square Asymp. Sig.=.000). Males sustained more open wound injuries (21.4% in males vs. 15.2% in females), whereas females sustained more fractures (30.9% in females vs. 23.8% in males). 78.9% of elderly received a form of medical treatment, 103 (29.8%) of all elderly patients presenting to the emergency department with trauma required admission.

### Conclusions

Fall-related injuries are a leading risk factor for disability. Moreover, head injuries may result in lifelong psychological impairment. Many of the injuries are potentially preventable. Interventions that focus on fall prevention might have an influence on the reduction of injuries and increase the quality of life.

## Domiciliary radiography program for frail elderly: an innovative service of public health

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### Background

In Italy, the Piedmont Regional Agency for Health Services has funded a research on a public domiciliary teleradiology program for frail elderly and immobile patient.

Transporting radiology to the patient's home is challenging. Preliminary experiences indicate that the coupling of simple, light-weight X-ray equipment with an advanced DR-detector



system proves effective for externalization of radiographic service. Our study is the first randomized clinical trial aimed to examine the efficacy of a public domiciliary teleradiology service.

#### Methods

A randomized controlled study was conducted at the Hospital at Home Service (HHS) of San Giovanni Battista Hospital of Turin. Eligible patients are acutely ill patients treated at home by the r@dhome between June 2008 and December 2010. At home the radiological examinations are carried out using a portable high frequency X-ray tube and a mobile radiological station. These images are immediately sent, via web, at x-ray hospital department that provides radiology reporting. All patients are examined using a standardized protocol which includes multidimensional assessment reasons for needing the domiciliary radiography service, customer satisfaction, cost analysis and radiological quality of imaging.

#### Results

Of the n.463 patients admitted to the r@dhome between June 2008 and June 2010, n.123 patients were eligible for X-ray examination. N.69 (55%) were enrolled and randomly assigned to Intervention group (n=34) and Control group (n=35). N.54 (45%) were excluded because in need of a X-Ray examinations not suitable at home (n=36) or an urgent examination (n=16); n.2 persons did not sign the informed consent. Enrolled and refusals did not show significant differences in age and gender. Mean age of the entire sample was 78 years; 45% were men, multimorbid, functionally and cognitively impaired. 62% of patients were at high risk of developing delirium, according to the Inouye's criteria. At time of hospital admission, the large majority of patients had evidence of exacerbation of COPD and/or acute heart failure.

#### Conclusion

This project is very innovative in the outline of international literature. Domiciliary radiography may be of great value to the patients, family, consultants and general practitioners in clinical medicine.

### Dignity in home for the elderly

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#### Background

The phenomenon of population ageing has led to an increase in the number of older people, and a consequent increase in the number of homes for the elderly. Maintaining residents' dignity is important for a good quality of life. An initial step is to identify what older people living in these homes perceive as being important for their dignity.

#### Methods

A qualitative methodology was used. Ten separate concepts that encompass the term 'Dignity', according to the literature, were explored through in-depth interviews. These were carried out with nursing home residents. Participants (n=30) were asked to rate which of the identified concepts were most important to them and discuss reasons why. Thematic analysis of data was carried out using InVivo.

#### Results

The concepts of being shown 'Respect' and of having 'needs and wants' ranked highest among elderly persons' concerns, whereas 'loneliness and isolation' had the lowest score. Participants were not worried about being alone in the nursing home as they felt surrounded by people. On the other hand

they highlighted the fact that they felt alone within their own homes. In the nursing home, a proportion of participants admitted to being reluctant to 'complain' for fear of revenge by staff. In the study it was also apparent that some elderly disengaged themselves from their social environment and did not participate in 'social activities', whereas others perceived social activities as an integral part of their day that helped them feel active. The participants felt that 'personalised service' was lacking. This was expected by some participants given that they were living in an institution. On the other hand, the physical 'environment' was seen as a barrier, which did not allow them to be independent. 'Privacy' was seen as lacking for those participants who were dependent in their activities of daily living; but not when carrying out family conversations.

#### Conclusions

The results show that all aspects of dignity were nearly equally important to the participants. This indicates that people attribute different levels of importance to different concepts. Monitoring of these aspects and ensuring that expectations are met may improve the quality of life of individuals living in homes for the elderly.

### The evolution towards chronic care-focused healthcare systems. An international perspective

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#### Background

The increase in health expenditures is a matter of concern in many countries, particularly in developed countries given its drivers including the ageing of the population, the cost of developing innovative health technology, and changes in the burden of disease towards a high prevalence of chronicity. The evolution in patients has mostly not been followed by an evolution in health systems that have been designed to 'cure' acute episodes, rather than to 'manage' chronic conditions.

#### Methods

Most health systems need to improve efficiency in the way they organize the provision of health services in order to adapt the changing needs and preferences of users. In this paper we show how three different countries -Spain, Austria, and Australia-, are walking this transition towards a chronic care-focused healthcare system. We utilize in our analysis the different chronic care models developed in the literature.

#### Results

The specificities of each country health systems and their experiences in developing programs for chronic patients provide a unique opportunity to analyze the pathways undertaken. Integration of care or disease specific management programs implemented have shown different results depending on the characteristics of the health system and the population they were addressed.

#### Conclusion

Austria, Australia, and Spain are walking the transition towards chronic care-focused health systems. Each country shows specific experiences adapted to their population and starting point in the development of the health system. Their transitions provide lessons to be taken into account by other countries with some similarities and differences in terms of health systems and burden of disease.

## C.7. HEALTH BEHAVIOUR

### Multiple health behaviours and self-rated health in adolescence: evidence from the German KiGGS study (2003–2006)

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#### Background

Most studies on adolescents' health behaviour consider single behaviours and emphasise their contribution to health behaviour patterns and the development of chronic diseases in later life. Composite measures of health behaviour and direct effects on subjective health are often left unconsidered. The aim of the study was to analyse the association between multiple health behaviours and self-rated health (SRH) in adolescence.

#### Methods

The data are derived from a subsample of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS), a representative cross-sectional study carried out by the Robert Koch Institute from 2003 to 2006 (age = 11–17 years,  $n = 6,813$ ). The additive healthy lifestyle index (HLI; 0 to 6 points) is based upon data regarding smoking, body mass index, physical activity, use of electronic media, alcohol intake as well as fruit and vegetable consumption. SRH was measured on a 5 point scale and dichotomised by combining responses “very good”/“good” and “fair”/“poor”/“very poor”. Logistic regression was used to estimate odds ratios and 95% confidence intervals to investigate the impact of HLI on SRH.

#### Results

Girls reach the highest score of HLI more often than boys (25.4% and 18.7%, respectively), but rate their general health less often as very good/good (83.0% and 86.7%, respectively). The proportion of adolescents who rate their health as very good/good increases with every point on the HLI scale. Even after adjustment for age, parental socioeconomic status and migration background, adolescents with an HLI score of 6 points had a more than 5-fold higher odds of very good/good SRH compared to adolescents with an HLI score of 0–2 (boys: OR = 6.31; 95% CI = 3.15–12.64; girls: OR = 5.18; 95% CI = 2.86–9.38).

#### Conclusions

Many youth prevention messages are limited in their effectiveness because they refer to future health risks and neglect adolescents' developmental tasks and present needs. Our results indicate that multiple health behaviours might already have an impact on subjective health in adolescence. Therefore, these findings could be used to illustrate immediate health benefits of a healthy lifestyle. As it is difficult to draw causal inferences from cross-sectional studies, longitudinal analyses are needed.

### Gender disparities in health production through diet and physical activity in Chilean adolescents

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#### Background

The share of child and adolescent obesity in Chile has dramatically increased over the past 20 years; Western dietary patterns and sedentarism are strong environmental determinants. According to the economic Health Production Model, the level of health depends on the amount of

inputs individuals allocate to the production of health. The amount of health capital may depreciate but can be restocked by investing in medical care, diet or exercise. Socioeconomic determinants influence individuals prone to produce health; however there is a lack of evidence concerning the role of gender.

#### Methods

The objective was to investigate gender-related disparities in health production through diet and physical activity. In a random sample of 1,692 high-school individuals from urban Santiago, we studied the production of health using an indicator that considered the quality of food intake and physical activity, and establishing good producer (GHP), intermediate producers (IHP) and poor producer (PHP). Then we assessed the probability of behaving as GHP after controlling by gender. Nutritional status by BMI (weight/height<sup>2</sup>), waist circumference, socioeconomic status (SES), type of school as well as education level and activity of household head were assessed in each adolescent.

#### Results

There was 31% of GHP, 32% of IHP and 38% of PHP, with a significantly higher prevalence of the latter among obese individuals ( $p < 0.01$  and  $p < 0.001$ ). The prevalence of PHP was significantly higher in adolescent females and similarly the prevalence of GHP was significantly lower ( $p < 0.001$ ). While keeping SES, type of school and education level of household head constant, the probability of behaving as GHP was significantly lower in adolescent women ( $p < 0.001$ ).

#### Conclusions

Results support the association between obesity and the quality of health production through food intake and physical activity. Gender is a strong determinant of the quality of this production. Chilean adolescent women are at a disadvantage in the production of health. We aimed at improving the understanding on young individuals' health production. Gender focused policies and project design are needed to encourage behaviors that increase the stock of health and prevent negative health outcomes.

### Physical activity differences between children from migrant and native Dutch origin

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#### Background

Migrant children are at higher risk for overweight and obesity than their native counterparts. Also, previous studies have indicated lower levels of physical activity among adult migrant groups. Physical exercise in children is influenced by their physical and social home environment. To assess to what degree children from migrant and native Dutch origin differ regarding levels of physical activity and to determine which aspects in their home environments contribute to these differences, a cross-sectional survey was performed. Our aim is to present the results of our study among primary school children in The Netherlands.

#### Methods

Subjects were children at the age of 8–9 years old and their primary caregivers ( $n = 1943$ ), located in two urban areas in The Netherlands. Outcome measure was physical activity level of the child (minutes of physical activity per day). Main independent variables were migrant background, based on country of birth of the parents, the availability (physical presence) and the accessibility (ease of access) of toys and

equipment with regard to physical activity (physical environment), and both parental role modeling, and parental policies with regard to physical activity (social environment). We used multivariate regression to examine the relationship between aspects in these environments and the child's physical activity level.

### Results

Levels of physical activity were significantly lower in migrant children, as compared to children in the native population. This was especially the case in Turkish, Moroccan, and other non-western children. The differences in physical activity levels between migrant and non-migrant children can only partly be explained by home environmental characteristics.

### Conclusions

Our findings implicate that migrant children display an even more sedentary way of life, as compared to native children. To what degree these differences can be explained, besides home environmental characteristics, remains to be investigated.

## Impact of asthma and allergic rhinitis on health behaviour: Results from the MAS birth cohort

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### Background

Allergies and asthma are the most common chronic disorders in childhood but their relationship with health behaviour in adolescence have rarely been examined. Based on 20 years of follow-up of a birth cohort we aimed to examine the association of allergic rhinitis onset and asthma onset in school age with smoking behaviour and physical activity in adolescence.

### Methods

For this German multi-centre birth cohort a total of 1314 newborns were recruited in 1990. Doctor's diagnoses and symptoms of allergic diseases were assessed by interviews during clinical visits and by postal questionnaires at 19 time points during 20 years of follow-up. At age 20 years we collected information on smoking behaviour and physical activity (using the IPAQ) via a webbased questionnaire. For the present analysis, case definitions for onset of asthma and allergic rhinitis were restricted to doctor's diagnoses between 5 and 13 years. We compared participants who had asthma and allergic rhinitis with those who were free of allergic diseases.

### Results

Out of all 1314 recruited subjects, 942 (72%) participated at the 20 year follow-up. Doctor's diagnosed asthma (onset between 5 and 13 years) was found in 81 (8.6%; 95%-CI 6.8–10.3) and allergic rhinitis in 128 (13.6%; 11.6%–15.9%) subjects. Participants with allergic rhinitis were less often current smokers at age 20 years (24.2%) than those without asthma and allergic rhinitis (31.9%) and asthmatic patients (32.5%). Participants with asthma were less physically active than participants in the other 2 groups (median adjusted minutes/week): asthma 2950; allergic rhinitis 3460, no respiratory allergy 3460.

### Conclusions

Preliminary analyses showed that participants with asthma onset in school age were more often smokers and less physically active in adolescence compared to participants with allergic rhinitis. Potential confounding by other factors e.g. social status will be in the focus of further analyses.

## School stratification and risk behaviours among students in Stockholm

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### Background

In Sweden school segregation has increased along both socioeconomic and ethnic dimensions during the latest decades. Segregation sorts pupils into different school contexts and shapes the environments of pupils' everyday life. The aim of this study is to examine the extent to which students' alcohol consumption, drug use and criminal behaviour vary among schools in Stockholm and how this variation is associated with the school's socio-demographic characteristics. Our theoretical basis is the social disorganization theory (SDT).

### Methods

The analyses are based on 6 512 ninth-grade students distributed over 93 schools in the Stockholm area in 2010. The data used are derived from the Stockholm School Survey, which is a total sample of ninth-grade pupils in Stockholm city. School specific information has been retrieved from the Swedish National Agency for Education. Logistic random intercept models will be used.

### Results

Results indicate significant school-to-school differences in relation to alcohol consumption (9.3%), drug use (5.8%) and serious crimes (2.7%). Our results also indicate that, when controlling for students' background characteristics, schools characterised by a large proportion of highly educated parents and a low proportion of students with non-native background are, compared to schools with high proportions of students with low educated parents and with non-native background, associated with a higher risk of high alcohol consumption (OR 3.30 (95% CI=2.26–4.82)) and drug use (1.89 (95% CI=1.26–2.83) but a lower risk of criminal behaviour (OR 0.74 (95% CI=0.56–0.99)) at student level. The school's level of collective efficacy also seems to play an important, although not mediating, role.

### Conclusion

Our results suggest that a significant variation exists between schools in Stockholm in relation to alcohol consumption, drug use and criminality at student level. In contrast to what could be expected from SDT the risk for high alcohol consumption and drug use is greater in schools that are typically associated with low risk of problem behaviours. However, the association between school characteristics and risk behaviours need to be further explored as the association seem to vary depending on the type of risk behaviour under study.

## Systematic promotion of physical activity in preschools and its effects on physical activity, health resources and social behaviour of children

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### Background

Physical activity (PA) is essential to the healthy development of children; therefore preventive interventions should be initiated as early as possible in the preschool years. The study determines the associations between the systematic promotion of PA in preschools and the PA, health resources (e.g. well-being) and peer interactions of children. Furthermore, the association between the parental behaviour and the children's PA will be examined.

## Methods

A comprehensive online or written survey of the PA programmes in all preschools in Lower Saxony (Germany) (N=4.114) was conducted. To assess the effects of the systematic promotion of PA in preschool “Preschools with systematic PA programmes” and “Preschools without PA programmes” were contrasted with each other. A sample of 402 children was interviewed to survey their well-being. Their parents completed a postal questionnaire survey, which contained e.g. questions about the children’s PA.

## Results

A total of 2.419 (59%) questionnaires were returned. The criteria for a systematic PA programme fulfil 23% (n = 554) of the preschools; 3% (n=64) of the preschools do not implement any PA programme. All the rest promote the PA in different kind of ways but not systematic. 77% (n = 49) of the preschools without PA programmes and one third (n = 183) of the preschools with systematic PA programmes are small institutions (<40 children). Especially a lack of facilities, personnel and financial resources influences the implementation of systematic PA programmes. Preschools with a systematic PA programme carry out significantly more often specific activities to promote the social interaction of children (p = .01). Moreover, the association between parental socialization behaviour (e.g. encouragement, modelling) and the PA of children can be assessed.

## Conclusions

Only one out of four preschools implements systematic PA programmes. Preschools with a systematic PA programme conduct other health related activities to a greater extent than preschools without such programmes. It can be assumed that in preschools with a systematic PA programme the PA and the peer interactions of children are more intense. Interventions should improve the health related framework conditions to enable preschools to implement systematic PA promotion.

## Supporting a healthy lifestyle by structured physical activity promotion at primary school

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## Background

The intervention ‘fit for pisa’ supplements the mandatory two hours of physical education per week for the entire school term with additional three hours at five primary schools in Goettingen. The evaluation shows the effects of this enhancement to health status, leisure activities and the education of the students in the long run. The study is funded by the German Federal Ministry of Education and Research.

## Methods

Besides the school entry examination, annual medical anamneses and examinations are carried out since the 1st up to the 4th grade as well as one and two years after completion of the intervention. At the end of the 6th grade in the longitudinal approach 120 students (Intervention group [IG]: n = 63; Control group [CG]: n = 57) were asked about their physical activity behaviour in school physical education and leisure time. A parallel parent questionnaire allows to determinate the connections to socio-demographic features. The analyses are controlled for sex and social state.

## Results

At the end of the 4th grade, and one year after completion of the intervention, students of the IG are significantly more often physical active (4th: p = .009; 5th: p = .04) than students of the CG students. At the end of the 6th grade the physical activity

level has been equalized (p = .24). Only a quarter (26%) of the 4th grade students of the IG spend more than one hour per day in front of TV; in the CG more than a half (52%; p = .001). There is still a significant difference between students of IG and CG at the end of the 5th grade (p = .03). The analyses at the end of the 6th grade revealed a non-significant difference (p = .14), anymore. Adjusted analyses of body-mass-index show no difference at the end of the 4th (p = .86) and 5th grade (p = .38).

## Conclusions

The curricular integration of daily physical education in school contributes considerably to a sustainable improvement of children’s activity level and towards an active organization of student’s leisure time activity.

As it was implemented in the school setting, the intervention will contribute to improving the equality of opportunities for all children, including those from socially disadvantaged communities, which frequently lack an adequate infrastructure of recreational facilities encouraging physical activity.

## Connection between adolescents’ body image, eating habits, physical activity and dieting: case of Baltic countries

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## Background

Transition nature of adolescence can influence the perception of body image. Differences in perceived body image may have an effect on lifestyle (eating habits, physical activity) and weight control measures, as dieting which can be detrimental to health outcomes.

The aim of this paper was to examine whether perceived body image impacts on adolescent eating behaviour, physical activity and dieting in Baltic region countries.

## Methods

The study is based on a cross-national Healthy Behaviour of School-Aged Children survey, in 2010. A case includes Lithuania, Latvia and Estonia data. The questionnaire was distributed to 11, 13 and 15 years old boys and girls (total n = 13 857). The body image assessed by a single question: do you think your body is...? Three groups of combined responses were analyzed (feeling thin, normal and fat). Logistic regression model was used to explore the associations between body image and eating habits, physical activity, dieting in young people.

## Results

According to the study findings, significant associations between body image and daily fruit consumption were found only in Lithuanian boys who responded seeing themselves fat (OR:0.7; 95% CI = 0.58–0.90).

Perceived body image as fat had connections with lower daily sweets consumption among boys (Lithuania OR:0.74; 95% CI = 0.59–0.92; Latvia OR 0.67; 95% CI = 0.53–0.85; Estonia OR:0.59; k95% CI = 0.52–0.82) and girls (Lithuania OR:0.81; CI = 0.67–0.97; Estonia OR: 0.77; 95% CI = 0.64–0.93). Similar associations with lower daily cola consumption were found in Latvian boys (OR:0.65; 95% CI = 0.46–0.92).

Strong associations between body image and dieting as well as lower daily physical activity were found in all Baltic countries, especially in those with perceived “fat” body image.

## Conclusion

Perception of body image had influence on life style and dieting among adolescents in all Baltic countries. Seeing the body fat had strong connections with dieting in both sexes and should be considered as a major public health problem in regards of damaging effects on health.

## D.7. MORTALITY

### Does timing matter? The assessment of inequalities in all cause mortality using area based deprivation

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#### Background

Geographically based measures of deprivation are often used to assess inequalities in health and mortality. Such geographical measures change over time but comparisons are sometimes based on a measure derived at a single time point. We compare how the assessment of inequalities changes if we apply deprivation measures from different times.

#### Methods

Geocoded mortality and population data were available for all deaths by age and sex 2008–10. Age standardised mortality rates were constructed by five year age groups for men and women. Inequalities in mortality were assessed based on the Scottish Index of Multiple Deprivation (SIMD) with data drawn from 2001 and 2009. The SIMD is operationalized at the small area level (mean population ~780); the income domain provides a count of the proportion in receipt of means tested benefits. Differences in mortality rates, according to the year of the SIMD, were examined by sex, age and deprivation deciles. The mortality ratio (R1:10) was calculated to measure relative inequality between the most and least deprived deciles. The slope index of inequality (SII) per 100,000 population was calculated to summarize absolute inequalities.

#### Results

The results show differences according to the year on which the SIMD was based. Some of these contrast sharply. R1:10 for men aged 40–44 using SIMD 2001 is 10.1, but only 9.5 using SIMD 2009. Also the direction of the effect is not consistent. For example, the SII of mortality for men aged 25–29 (2001 SII = 179 2009 SII = 186) and 30–34 (2001 SII = 273 2009 SII = 286) is higher using SIMD 2001 for men aged 40–44 (2001 SII = 623 2009 SII = 607) is higher using SIMD 2009. R1:10 for women aged 55–59 is 3.5 using SIMD 2001 and 4.2 using SIMD 2009. The SII also shows greater absolute inequality among women at younger ages using SIMD 2009 compared to SIMD 2001 but lower levels of inequality at older ages.

#### Conclusion

The choice of the year in which area based measures are grounded can influence the magnitude of effects found in an unpredictable manner. Changes to the construction of area based measures of deprivation have implications for comparability of findings over time.

### The contribution of mortality amenable to health care and health policy to socioeconomic differences in life expectancy

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#### Background

Growing mortality differences between socioeconomic groups have been reported both in Finland and other industrialised countries during the last decades. While health behaviours and other lifestyle factors are important in contributing to health

differences, health care may also play a role. The aim was to study socioeconomic differences in life expectancy at age 35 (LE35) and between ages 35 and 74 (LE35-74) from 1996 to 2007 in Finland. We analysed the contribution of mortality amenable to health care (AM) and lifestyle related health policy measures to socioeconomic differences in life expectancy in 2006–07 and examined contributions of the changes from 1996 to 2007.

#### Methods

The register derived study data were based on an 11% random sample of Finnish residents in 1988–2007 and an oversample of deaths together comprising 80% of those died during the years. LE35 and LE35-74 was calculated for 1996–97 and 2006–07 by income decile and gender, and the difference in LE between the richest and the poorest deciles was decomposed by cause of death (AM, ischaemic heart disease (IHD), alcohol related mortality, lung cancer, other causes).

#### Results

Overall, the difference in LE35 between the extreme income deciles was 11.6 years among men and 4.2 years among women in 2006–07. During the study period, socioeconomic differences increased by 3.4 and 1.7 years, respectively. The difference in LE35-74 was 7.2 and 2.3 in 2006–07 and increased by 1.9 and 1.0 years.

In 2006–07, the contribution of AM to socioeconomic disparity was 9% among men and 17% among women in both LE35 and LE35-74. IHD mortality accounted for 19% and 22% of the differences in LE35 and less in LE35-74 (15% and 10%). Alcohol related mortality accounted for 29% and 25% of the difference in LE35, and somewhat more in LE35-74 (33% and 29%). In comparison, other causes accounted for 37% and 32% of the difference in LE35, and 40% in both genders in LE35-74. The increase in income group differences was mainly due to increase in alcohol related mortality.

#### Conclusions

Both lifestyle and health care contribute to socioeconomic differences in life expectancy. Policy measures and equity in access to and quality of health care need to be addressed when tackling socioeconomic health inequities.

### Social comparisons, income deprivation and mortality-a longitudinal study in a Swedish population 1990–2006

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#### Background

The importance of income for health and mortality has been analysed thoroughly. One hypothesized mechanism within this relation has been relative deprivation, arguing social comparisons of income and economic resources in relation to comparable others to be of importance. In previous studies we have shown that having an income less than 70% of the mean income in the individual's reference group is related to poor self-rated health and anxiety among men (Åberg Yngwe et al. 2003; 2005; 2007). For women measures more closely related to daily consumption and the possibility to "make ends meet" had a larger impact on health. In the following study, we have taken this one step further by analysing the importance of relative deprivation in relation to mortality.

#### Methods

Analyses were based on prospective longitudinal data from the Swedish population with baseline collection in 1990 and mortality follow-up until 2006. The data were based on a

linkage of the National Population and Housing Censuses, the Total Population Register (RTB), the Longitudinal Data Base on Education, Income and Employment (LOUISE), the Cause of Death Register and inpatient registers. When restricting the data to individuals alive January 1st 1990 and aged 25–64 years, the data included a total of 4.6 million individuals, for whom we conducted a mortality follow-up until 2006. Relative deprivation was defined as having an income below 70% of the mean income in the individuals' reference group. Reference groups were defined by combining social class, age groups and living region.

### Results

Results show that having an income less than 70% of the mean income in the individual's reference group was significantly related to mortality, also after adjustment for age group, marital status and occupation (Men: HR 1.41 (CI 1.38–1.44); Women: 1.07 (1.06–1.09)). To separate the effect of relative deprivation, we adjusted for absolute income. Results still showed a significant effect among men (Men: HR 1.17 (1.14–1.20); Women: 1.02 (0.99–1.04)).

### Conclusion

The following study show that being relatively deprived in relation to comparable others, a reference group, is related to mortality. A result that resembles previous findings on self-rated health.

## An epidemiologic study of risk factors for mortality in earthquakes

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Among the different public health consequences of acute events, mortality is one of the greatest contributors to the impact of affected population. In the case of acute natural disasters such as earthquakes, the direct public health effects are immediate and often devastating. In the past 20 years, earthquakes have killed 509 229 and injured 1 462 321 people around the globe. Recent earthquakes such as the one that hit L'Aquila, Italy, in year 2009 remind us that important earthquake-related public health risks are also present in Europe. This research investigates the physical, demographic and socio-economic determinants of earthquake mortality. From an epidemiologic point of view, earthquakes can be seen as a disease whose mortality can be linked to a number of contributing factors.

This ecological study focuses on earthquakes using multi country data for the last 40 years. The analysis is conducted with data from three main databases: EM-DAT, PAGER-CAT and EXPO-CAT. As a first step is the identification of fatal earthquakes and their location; then regarding relevant physical and environmental information concerning each event. And the final step is to identify all the possible factors that may have an effect in mortality. Collinearity issues were dealt with by computing variance inflation factors to identify collinear variables and dropping some of them. After dropping the collinear variables, 30 covariates remained and a sample of

700 earthquakes. Since this study aims at modeling the number of deaths on the basis of various factors it employs statistical procedures including generalized linear models and more specifically zero-inflated models due to the extreme incidence of zeros in the response variable. The additional data exploration tools applied, the model selection approach and the explanation of the model validation steps will also be discussed.

This study will provide policy makers a feasible methodological approach that makes possible to take measurements by identifying a set of important factors in producing high mortality, which could be easily retrieved from administrative and statistical data.

## The future of mortality in The Netherlands

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### Background

What will be the major causes of death, for Dutch citizens, in the year 2020? How will the causes of death differ between men and women? Will life expectancy continue to increase until 2020? This research aims to answer these questions.

### Methods

In order to accurately forecast life expectancy, mortality risks for a selection of primary causes of death have been estimated for both sexes and separate age groups. This mortality risk estimation is based on mortality data provided by the Central Bureau of Statistics for the period 1979–2010. Furthermore, the national population forecast of 2010–2060 was included, to account for changes in size of different age groups.

### Results

The mortality risk will decrease for almost all causes of death. If existing trends will continue over the next decade, mortality risks will halve between 2010 and 2020. The absolute number of mortality due to heart disease will decrease. Mortality due to oesophagus cancer will increase both for men and for women. Remarkable is the increase of lung cancer mortality of women, while lung cancer mortality of men will decrease further. Although mortality risk of women will remain lower than mortality risk of men, more women will die of lung cancer than men will.

### Conclusions

A significant shift in causes of death will occur between 2010 and 2020. Cancer will become the major cause of death for men and women. Lung cancer will be both for men and for women the number one cause of death. Although decreasing, stroke will still be both for men and for women one of the most often-occurring causes of death. Life expectancy will increase for both men and women but less for women than for men. The most important reason for this is the opposite trend in lung cancer mortality for men and women.

## E.7. INEQUALITIES AND HEALTH

### Socioeconomic differences in health-related behaviour of Finnish adolescents

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### Background

Socioeconomic differences in lifestyle and health are well known. Lifestyle factors such as health-related behaviors are acquired already in childhood and unhealthy habits remain till adulthood. Family environment, which includes parents' own nutritional habits, availability of healthy foods at home, parenting styles as well as parents' socioeconomic position

(SEP) are associated with child's health behavior. The aim of this study was to examine differences in health-related behavior between adolescents in upper secondary school and vocational school. Differences in food behavior and meal pattern as well as in other lifestyle factors were analyzed.

#### Methods

The data are derived from the cross-sectional School Health Promotion Study, conducted by THL. The data are gathered by an anonymous classroom questionnaire in all 1st and 2nd grades of upper secondary school and vocational school. The questionnaire covers for example living conditions, school experiences, health-related behavior e.g. food behavior and meal pattern, smoking and use of intoxicants. About 90% of the municipalities participate in the School Health Promotion Study. In this study we used data from years 2008 and 2009. Students aged 16 to 20 years in upper secondary school (n = 49 051) and vocational school (n = 39 191) were included in the analysis. The data were analyzed by multiple logistic regression modeling.

#### Results

Adolescents in upper secondary school consumed vegetables and fruits more often than those in vocational school. Meal pattern consisting of three meals a day was more common among those with higher SEP. Students in upper secondary school ate breakfast, school lunch and family dinner more commonly compared to those in vocational school. Differences in other lifestyle factors were also pronounced in this study; smoking, alcohol use, inadequate physical activity and lack of sleep were more common among adolescents in vocational school.

#### Conclusions

Adolescents in vocational school had less healthy lifestyle compared to those in upper secondary school. To reduce the socioeconomic inequalities in health more emphasis should be given to narrow the differences in health-related behaviors among adolescents. More allocated approach in health education need therefore to be acquired.

### Employment and mental health issues-Reducing Health Inequalities in Europe

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#### Issue

Loss of employment has a negative effect on mental health and recovery. Excessive or insufficient challenge or other stress-related problems at work can lead to sick-absence from work or reduced productivity as a result of boredom, loss of energy, motivation or other physical or mental health problems. Thus, the underlying study focuses on adults who are faced with mild to moderate mental health issues and have had a time off work due to this illness. Main aims are to reduce health inequalities in Europe with respect to people with mental health issues and to support them staying in job. Toolkits for practical work were created for patients, health care workers, social workers and employers.

#### Description

Involved partner countries are Bulgaria, Germany, Spain and the United Kingdom. The underlying methodology comprises interviews, according to a manual with mental health patients, medical staff, social workers and employers according to e.g. health in general, mental health, working situation, preventive strategies and support. All interviews were recorded, transcribed and analyzed descriptively.

#### Results

Preliminary results show a great need for support in the field of mental health and job relating aspects. Especially structure, adjusted volume of work and secure jobs are very important

for people with mental health issues. However, excessive demands and work-related stress often occur, which can lead to mental illness. For employers, it requires more extensive education, so that they could adapt the situation and the ability to work of employees with mental health issues. It also needs a better link between hospitalization and the reentering into working life.

#### Lessons

Toolkits for use by patients, general practitioners and employers to improve the understanding and management of people with mental health issues were established. Main emphasis are to improve health of workers, reducing health inequalities, promote positive links between health and work, start at an early stage with intervention, e.g. on organizational level, support with regard to stay and return to work. The mentioned toolkit was tested in Bulgaria. Afterwards, the toolkit will be published in the different country languages.

This study is funded by the European Commission (PROGRESS).

### Explaining (the) educational differences in long term sickness absence in an 8-year follow-up

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#### Background

There is a marked socioeconomic gradient in sickness absence but the causes of this gradient are poorly known. This study examined educational differences in long-term sickness absence in an 8-year follow-up.

#### Methods

In the population-based sample of 5835 Finns aged 30–64 years (participation 89%), we focused on persons who had been employed at any time during the past 12 months (n = 3 946). A novel method to predict average number of sickness absence days per working year was developed.

#### Results

The difference in the sickness absence days per working year in 8-year follow-up between the highest and lowest educational level was clear among both men (3.19 days/year vs. 7.97 days/year, difference 4.78 days/year) and women (4.40 days/year vs. 10.09 days/year, difference 5.69 days/year). Among men, adjusting for physical and psychosocial working conditions as well as health behaviour (especially smoking) and obesity attenuated the difference by 24%, to 2.90 days. Among women, adjusting for health, health behaviour, and physical and psychosocial working conditions attenuated the difference by 2.12 days (26%).

#### Conclusions

Our results suggest that improvements in working conditions, especially in physical working conditions, and reducing smoking particularly in employees with low level of education may markedly reduce educational differences in sickness absence.

### Socio-economic differences in the prevalence of type 2 diabetes among rural disadvantaged population in Bulgaria

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#### Background

Epidemiological information on cardiovascular risk factors for rural Bulgarian population is extremely limited. The aim of the

present study is to present the prevalence of type 2 diabetes among adult (45–74 years) men and women living in rural north-eastern Bulgaria and to examine for socioeconomic differences with respect to diabetes prevalence among this disadvantaged population.

#### Methods

Cross sectional study of diabetes prevalence, socio-economic factors (education and employment), and other risk factors ascertained by physical examination and interview.

#### Settings

Interviews and physical examinations were conducted in temporary study examination centers usually located in a central municipal building in 12 out of 16 in total villages of Varna region, north eastern Bulgaria. Participants: 685 women, and 498 men, aged 45 to 74 years, randomly selected from the population registers of the respective villages were included in the sample-representative with respect to ethnic group, education and marital status.

#### Results

The prevalence of diabetes was 26.7% (95% CI 23.5–30.1) in women and 21.1% (95% CI 17.7–24.8) in men. Diabetes prevalence was strongly associated with age for both genders. The prevalence among men 45–54 years of age was 11.3%, for 55–64 years-22.2%, and for 65–74 years-27.1%. The prevalence among women for the three age groups was: 19.4%, 26.2%, and 32.5% respectively. The probability of diabetes increased with lower level of education ( $p=0.013$ ) and for unemployed as compared to the employed ( $p<0.0001$ ).

#### Conclusions

Diabetes prevalence and awareness is patterned by SES in both women and men among rural Bulgarian population. Efforts to prevent diabetes in this disadvantaged group need to address the factors that place those of low SES at higher risk.

### Decomposing socioeconomic inequalities in self assessed health in Turkey

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#### Background

Self-assessed health (SAH) is an important proxy for morbidity and future health status of individuals. Studies on determinants and distribution of SAH are very limited in Turkey and data mostly come from only one region of the country. This study aims to measure the socioeconomic inequalities in SAH and tries to evaluate the determinants of such inequalities in terms of their contributions for the first time in Turkey.

#### Methods

Data from Turkish part of World Health Survey 2003 with 10 287 respondents over 18 years old was used for the analysis. Concentration index (CI) of SAH was calculated as a measure of socioeconomic inequalities in health and contributions of each determinant to inequality were evaluated using decomposition method.

#### Results

Mean score of SAH was 3.58 and 952 participants (8.4%) rated their health status as bad or very bad. The CI for SAH was -0.17. In the multiple logistic regression secondary, primary or less than primary school education, not being married and lowest wealth quintile significantly increased the risk of having poor SAH. The largest contributions to inequality in SAH were attributed to education level (70.7%), household economic status (9.7%) and geographical area lived in (8.4%).

#### Conclusions

The findings indicate that socioeconomic inequalities measured by SAH exist in Turkey. Education, household wealth,

and geographical area lived in had the largest contributions to SAH inequality. These inequalities need to be explicitly addressed and vulnerable subgroups should be targeted to reduce the socioeconomic disparities and improve health level of the population.

### Can a participatory urban intervention approach increase social capital and mental health in an low socioeconomic residential area in a Swedish city?

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#### Background

A growing body of evidence supports the notion that mental health in a population could be improved by interventions, which increase the social capital.

#### Aim

To investigate whether an intervention based on participatory characteristics could improve social capital and mental health in an urban low socioeconomic residential area.

#### Methods

A participatory intervention aiming at upgrading the physical and psychosocial environment was launched in 2003 in a residential area in the city of Helsingborg, Sweden. A random sample was drawn from the adult population at baseline and 72% ( $n=630$ ) agreed to be interviewed. A highly structured questionnaire was used which contained GHQ12 and HCL25 to measure mental health. Social capital was assessed by means of a new instrument designed to separate several different types of social capital, e.g. general trust in others and bonding and bridging social capital. All individuals who were interviewed at baseline who still lived in the area were re-invited to a follow-up interview three years later. The response rate was 75% ( $n=396$ ).

#### Results

Several types of social capital increased moderately between baseline and follow-up in the studied sample. The increase was most prominent regarding bridging social capital (trust), but this was only significant (from 29 to 20%) in individuals who were born in another country than Sweden. A statistically significant decrease in the prevalence of low mental health score (from 42 to 28%), as well as in the proportion who stated a high level of everyday stress (from 34 to 23%) and feeling of marginalization (from 32 to 22%), was also noted in this group. Regarding self-rated health score, no significant change was noted between baseline and follow-up.

#### Conclusion

The findings support the notion that an intervention on residential area level, based on participatory features, could improve the social capital and mental health in the population of that area. However, it seemed like the effect was most obvious in the immigrant population in the area. The findings are of interest when designing interventions in order to increase health equity.

### Horizontal Inequity of Access to Health Care in Italy in the mid 2000s

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#### Background

Horizontal inequity of access to health care-i.e., unequal access for equal need-is seen as a major barrier to improving population health. Hence, the extent to which such inequity manifests itself is considered a key indicator of the



performance of any health care system. This talk provides new evidence on whether, and to what extent, patterns of access to health care deviate from the ideal of horizontal equity in a country with a universal and egalitarian health care system: Italy.

#### Methods

Using data from a large-scale sample survey (n=107,605) conducted by the Italian National Institute of Statistics in 2005, and multilevel logistic regression, we examine how the probability of utilizing a set of health care services varies among individuals with equal need but different socioeconomic status (SES). Along with the standard indicators of health care utilization (general practitioner visits, specialist visits, and hospitalization), we consider two outcomes neglected in previous research: propensity to take basic medical tests and use of diagnostic services. Also, in addition to the usual estimation of population-averaged horizontal inequity, we carry out a stratified analysis aimed at providing distinct estimates of inequity for each level of need.

#### Results

We find that in the whole population (a) use of primary care is slightly inequitable in favor of the less well-off, (b) hospitalization is generally equitable, and (c) use of basic medical tests, specialist care, and diagnostic services is significantly inequitable in favor of the well-off. Stratifying the analysis by level of need for health care, we find that population-averaged estimates of inequity hide interesting patterns of heterogeneity: for all the health services that exhibit an overall bias in favor of the well-off, the degree of inequity decreases as the level of need increases.

#### Conclusions

Our analyses show that, overall, Italy exhibits a significant degree of horizontal inequity of access to some key health services. The stratified analysis, however, suggests that such inequity mainly affects the distribution of benefits of prevention and early diagnosis across SES groups. Addressing this issue might be an important policy goal for the Italian National Health Service.

### Disentangling Policy mechanisms: A review of the literature on gender based inequalities in smoking

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#### Background

Tobacco use explains about half the socioeconomic position difference (as measured through social class, income or education) in death rate. French epidemiological data shows that girls smoke significantly more than boys. This situation indicates that some 'unknown' mechanisms have been involved making smoking policies less effective for girls than boys. This generates a phenomenon of 'gender base inequality in tobacco use' among adolescents. To identify these mechanisms is the objective of this literature review.

#### Method

A literature review was conducted using Medline with key words: young, smoking, inequalities, gender, policy and mechanism.

#### Results

Our review of the literature indicates limited research for gender based health inequalities in terms of smoking and most specifically on the mechanisms responsible in youth. Identifying mechanisms associated with adolescent smoking as they relate to age is important to elicit information useful for the primary prevention of several major cancers. Although various factors have been associated with adolescent smoking, the precise timing of when these factors begin to manifest themselves in adolescent smoking is less well understood. In other words, being able to identify risk factors for smoking that are more common at certain ages will allow prevention efforts to be better timed in the young persons' life. Sex and age frequently compound the impact of socioeconomic disadvantage on tobacco use. Girls appear to have different reasons for smoking than boys; for example psychological and physical health issues, inconsistent levels of exposure due to family and peer tobacco use, targeted advertising, social customs accommodating to tobacco, tension reduction, stimulation and remarkably weight concerns and looking 'cool'. They respond differently to the policies, boys being more responsive than girls to changes in the price of cigarettes. Some protective factors like sports, recreational activities and computer games have the same effects on both genders.

#### Conclusion

Evidence on the mechanisms involved in gender-based inequalities in tobacco use is still lacking. This calls for more research to understand how teenage girls and young women are impacted by situational factors such as tobacco control policies

## F.7. PUBLIC HEALTH IN COUNTRIES

### Perceived challenges to public health in Central and Eastern Europe: a qualitative analysis

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#### Background

There is a major gradient in burden of disease between Central and Eastern Europe compared to Western Europe.

Many of the underlying causes and risk factors are amenable to public health interventions. The purpose of the study was to explore perceptions of public health experts from Central and Eastern European countries on public health challenges in their countries.

#### Methods

We invited 179 public health experts from Central and Eastern European countries to a 2-day workshop in Berlin, Germany. A total of 25 public health experts from 14 countries participated in May 2008. The workshop was structured into 8 sessions of 1.5 hours each, with the topic areas covering coronary heart disease, stroke, prevention, obesity, alcohol, tobacco, tuberculosis, and HIV/AIDS. The workshop was recorded and the proceedings transcribed verbatim. The transcripts were entered into atlas.ti for content analysis and coded according to the session headings. After analysis of the content of each session discussion, a re-coding of the discussions took place based on the themes that emerged from the analysis.

## Results

Themes discussed recurred across disease entities and sessions. Major themes were the relationship between clinical medicine and public health, the need for public health funding, and the problems of proving the effectiveness of disease prevention. Areas for action identified included the need to engage with the public, to create a better scientific basis for public health interventions, to identify “best practices” of disease prevention, and to implement registries/surveillance instruments. The need for improved data collection was seen throughout all areas discussed, as was the need to harmonize data across countries.

## Conclusions

To reduce health inequalities across Europe, closer collaboration of countries across Europe seems important in order to learn from each other. A more credible scientific basis for effective public health interventions is urgently needed. The monitoring of health trends is crucial to evaluate the impact of public health programmes.

## Patterns of hospital admissions in England: 2008–2011

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### Background

Hospital admissions are still increasing in the 21st century and may be due to population growth from both new births and immigrants. Reducing unnecessary hospital admissions and bed days shall continue to play a crucial role in reductions in medical and social resources. Therefore, it is aimed to investigate geographic variations and seasonal patterns of all hospital admissions in England in the recent years and hypothesized to have higher admissions in the deprived areas.

### Methods

Data were extracted from Hospital Episode Statistics, British Household Panel Survey, National Statistics, and The English Indices of Deprivation between 2008 and 2011. Primary diagnosis was used to capture hospital admissions by International Classification of Disease codes. Linear regression models were performed and 95% confidence intervals were estimated.

### Results

Hospital admissions were significantly and positively associated with population size (Beta 0.74, 95%CI 0.46 to 1.05,  $P=0.001$ ) and prevalence of deprivation (after adjustments; Beta 0.42, 95%CI 0.07 to 0.37,  $P=0.012$ ) at the regional level. Admissions owing to disease of respiratory system varied by seasons while others have remained stable throughout the year. Geographic variations were seen in disease of genitourinary system, cause due to pregnancy, childbirth, and puerperium, disease of circulatory system, symptoms not specified, and external causes. There were even bigger variations from different age groups.

### Conclusions

Hospital admissions varied across regions and months of the year in England and are correlated with prevalence of deprivation at the area level. Future efforts on reducing hospital admissions may need to be regional specific.

## Mortality forecast due to climate change: a case study in Arkhangelsk city in Northwest Russia

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### Background

The WHO project “Climate change health impact and adaptation for the north of the Russian Federation” is conducted in Arkhangelsk region, Northwest Russia. It was studied the climate change impact on the daily mortality. This study confirms that daily mortality associates with air temperature and increases in Arkhangelsk city during heat waves and cold spells.

### Aim

to carry out the mortality forecast caused by climate change between predictable (2041–2060) and base periods (1980–1999) in Arkhangelsk, Northwest Russia.

### Methods

Daily mortality counts for the 1999–2008 were obtained from the Federal State Statistics Service and constructed for deaths from several causes: ischemic heart disease, cerebrovascular diseases, respiratory diseases, all non-accidental and external causes in two age groups (30–64 and 65+). Predictable temperature scenarios were obtained from the Main Geophysical Observatory. A2 temperature scenario has been chosen for analysis due to availability of temperature waves change to the middle of 21 century by regionalization ensemble of climatic models of the general circulation of atmosphere and ocean. In a basis of the epidemiological forecast there were two mechanisms of the air temperature change impact on mortality-through the associations between air temperature and mortality and temperature waves. Mortality forecast caused by climate change was studied by poisson regression models.

### Results

In the group of cold temperatures climate warming leads to mortality decrease, in the group of warm temperatures-to mortality increase. With 95% significance relative decrease in mortality was documented for the following causes: cerebrovascular diseases in age group 30–64 and 65+ ( $-4,0\% \pm 1,3$  and  $-3,7\% \pm 1,6$ , respectively), respiratory diseases in age group 30–64 and 65+ ( $-4,4\% \pm 1,2$  and  $-2,6\% \pm 0,8$ , respectively), all non-accidental causes in age group 65+ ( $-1,3\% \pm 0,5$ ) and external causes in age group 65+ ( $-2,6\% \pm 0,8$ ). For the study period temp of mortality increase in summer is exceeded by decrease in the winter.

### Conclusions

This study confirms that climate warming will lead to mortality decrease between predictable (2041–2060) and base periods (1980–1999) in Arkhangelsk.

## Knowledge and Practices on Salt Intake amongst the Maltese Population

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### Background

The purpose of this study was to assess knowledge and practices towards salt intake among the adult population of Malta. Cardiovascular diseases are the highest cause of mortality in Malta over recent decades. Evidence shows that salt intake is a major contributing factor for raised Blood Pressure [BP] and thus cardiovascular diseases [CD]. Cardiovascular diseases present a major challenge to public health due to the costs required to control and treat these diseases.

### Methods

A cross sectional telephone survey was undertaken in 2011, on 100 randomly selected Maltese citizens. A specifically designed questionnaire was used for data collection.

### Results

77 female and 23 male participated with a mean age of 49.09 years and the most represented group being the 65 and over (27%). The majority (97%) believed salt could damage their

health. Blood pressure, stroke and heart disease were amongst the highest diseases associated with high salt intake. Attempts to reduce salt intake were higher in the older age groups ( $p$ -value  $<0.001$ ). There were no difference by gender and educational background. The majority (90%) were unable to identify the maximum recommended daily salt intake. 30 participants were aware of some promotional activity carried out in relation to salt. There were no real attempts described at reducing the salt intake among participants.

### Conclusions

The majority of participants know the ill effects of a high salt intake and associate it with cardiovascular diseases. Nonetheless, most respondents still do not take any action regarding their salt intake. There is also a lack of practical awareness on salt especially in terms of actual daily recommended intake. It is suggested that a different approach be taken to increase population awareness on salt intake as current promotional activities appear to have little positive action.

### Cross-border paediatric patient care pathways between Malta and the UK: a qualitative study of the professionals' policy makers' and parents' views

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### Background

Cross-border care has become more prominent in the European Union (EU) in the past decade culminating in the adoption of the Directive on patients' rights in 2011. Patient and professional mobility is increasing but how can patients know that the care they receive is high quality and safe, and that different Member States are capable of providing continuity where some parts of the care process are shared? The Malta-UK cross-border collaboration is one of the longest-standing in the EU and is based on a reciprocal agreement that gives patients access to highly specialised care that cannot be delivered locally because demand is too low, cost too high and in some cases could compromise patient safety. This study aims to describe the paediatric cross-border care pathways between Malta and the UK from the health professionals', policy makers' and parents' perspective in order to inform policy and service development.

### Methods

We conducted 25 semi-structured face-to-face interviews with health professionals, policy makers, and parents of patients. We recruited Consultant Paediatricians from Mater Dei Hospital in Malta, the Royal Marsden Hospital and Great Ormond Street Hospital in England. A random systematic sample of 11 (8%) children referred for treatment abroad in 2011 was drawn up and their parents were interviewed. We conducted qualitative thematic analysis of the data.

### Results

Preliminary research findings suggest that health professionals and policy makers view the Malta-UK collaboration positively with its strengths arising out of longevity and enduring personal relationships. The service is seen as successful at delivering timely access to high quality care and this is facilitated by a well established support system. Patients and their families have broadly positive experiences of care. However they face psychological, financial, communication and cultural challenges.

### Conclusions

Cross-border care pathways can successfully support access to high quality specialised care that is acceptable to health professionals and patients. The Malta-UK collaboration is a useful model for cross-border care in the EU and our research

findings enable us to share good practice and make recommendations to overcome challenges.

### Public health innovation and research in the United Kingdom (2009–2012)

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### Background

The poster will describe the UK sub-study for Public Health Innovation and Research in Europe (PHIRE), a 30-month European Union (EU) project (2010–2013), coordinated by the European Public Health Association (EUPHA) and building on two previous European projects: Strengthening Public Health Research in Europe (SPHERE) and Strengthening Engagement in Public Health Research (STEPS). PHIRE is intended to strengthen public health (PH) research and to increase governmental engagement; to enhance engagement by National Public Health Associations and to facilitate better coordination and collaboration among PH stakeholders. In the UK PHIRE aims to map the PH research system; to create a database of existing PH projects and programmes; to understand relationships between PH research stakeholders and to evaluate the impact of European PH research projects and funding in the UK.

### Methods

This is a complex qualitative study, but also an intervention in itself, aiming through audit to induce and promote change and increase awareness. Collection and analysis of data on structures, functions and funding is undertaken through literature review; questionnaires; interviews; stakeholder analysis and focus groups.

### Results

Preliminary results show that although a full range of public health research fields, including health promotion, health services epidemiology, surveillance, management, and wider determinants was commissioned in the UK in 2010 and funding has been increased over the last 10 years:

- the UK PH research system is complex and multilevel with a variety of funding sources and research providers.
- the roles and responsibilities of strategic stakeholders are unclear and overlapping.
- there is poor collaboration between the Department of Health and other Departments and funders (regions, universities, and independent foundations)

### Conclusions

Public Health research appears to be becoming more of a priority in the UK but there is a substantial problem of coordination and communication. Results from this study will provide an evidence base for benchmarking UK PH research with other European countries-and it is hoped-contribute to the work of PHIRE in eventual effective translation of PH research into policy and practice.

### Trends in prevalence of high multimorbidity patients in Klaipeda region, Lithuania

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### Background

Burden of chronic non-communicable diseases and increasing multimorbidity is one of most challenging issue for health care systems. Research studies found that 2% of population with

very high level of multimorbidity consume 30% of overall health care resources. The research aims to investigate trends in the prevalence of multimorbid patients in Klaipeda region (Lithuania) during the years 2009–2011. The research is done under the EU Baltic Sea Region Program's flagship project Imprim.

#### Methods

An observational retrospective study was performed using non-personalized population data from the Klaipeda Territorial Sickness Fund database. The research population included 414 000 inhabitants in Klaipeda region. Johns Hopkins ACG software was used to group the population into six Resource Utilization Bands (RUB) which range from non-users (RUB 0) to a very high multimorbidity group (RUB 5).

#### Results

During investigation period (2009–2011) prevalence of patients with very high multimorbidity (RUB 5) increased from 7,8 per 1000 to 8,2 per 1000 ( $p < 0.05$ ). There were more multimorbid patients among male population (8,6/1000) while among female population it increased from 7,1/1000 to 7,8/1000 ( $p < 0,001$ ). High comorbidity burden in urban areas remained stable-7,5/1000, while in rural areas it increased from 8,5/1000 to 9,6/1000. The most significant increase of multimorbidity were in age group 45–64 (from 12,5/1000 to 13,5/1000) and 80 plus (from 10,7/1000 to 11,9/1000) ( $p < 0.001$ ).

#### Conclusions

The most significant increase of multimorbidity was among female population, age groups 45–64, 80+ and within the rural population. Further research studies are needed to investigate health care consumption and to make policy conclusions to achieve more appropriate and equitable care for different population groups.

### Association between the consumption of cariogenic food and knowledge of oral health among adolescents

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#### Background

The type of food consumed during adolescence have a significant impact on the development of chronic diseases, including, oral diseases and obesity, so it is justified to study the rate of missing, decayed and filled teeth (DMFT), index body mass index (BMI) and knowledge of oral health in adolescents. The objectives of the study are to characterize the type of food intake in adolescents; assess the association between BMI and type of food, DMFT and knowledge on oral health.

#### Methods

Epidemiological study conducted on a random sample of clusters (schools) of 661 adolescents (56.3% girls and 43.7% boys) with mean age of 13.2 years (SD=1,139) to attend public schools in the central region of Portugal. It was applied a questionnaire about anticariogenic, cariostatic and cariogenic food frequency. Observation of the mouth for evaluation of the DMFT index, according to WHO criteria. Assessment of anthropometric data (BMI).

#### Results

The DMFT index is 2.23 (SD=2.48). Mass Index (BMI) has an average value of 21.23 (DP=3.543). Most adolescents are a moderate anticariogenic food intake (50.7%), cariostatic (57.5%) and cariogenic (73.1%). Adolescents with a higher BMI consume less cariogenic foods ( $r = -0.1343$ ,  $p = 0.001$ ) and adolescents with a higher value of DMFT consume more cariogenic foods ( $r = 0,160$ ,  $p = 0.000$ ). The value of  $t$  reveals that the consumption of cariogenic foods explains 1.8% of the variance in BMI and 2.6% of the DMFT. Adolescents who consume less foods with cariogenic effect have better knowledge on oral health ( $r = -0,165$ ,  $p = 0.003$ ), and have a higher BMI ( $r = -0.1343$ ,  $p = 0.001$ ), and adolescents who consume more food indeed cariogenic have a poorer DMFT index ( $r = 0,160$ ,  $p = 0.000$ ). Revealing the value of  $t$  that the consumption of cariogenic foods explains 2.7%, 1.8% and 2.6% of the variance of knowledge in oral health, BMI and DMFT.

#### Conclusions

Adolescents who consume more cariogenic foods have less knowledge of oral health and worst DMFT index. The knowledge-based educational intervention in oral health and nutrition is relevant, so you get good results with fewer resources.

## G.7. ETHICS IN PUBLIC HEALTH

### Evidence-based public health practice-Challenges and steps forward

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#### Problem

Decisions on investing in public health interventions have limitedly been based on scientific evidence. With prevailing economic and financial challenges, the issue of evidence-based public health has come to influence choices made by decision makers. The Swedish National Institute of Public Health (SNIPH) received a government commission to determine which evidence grading system should be applied for assessing effective public health interventions in Sweden. The SNIPH subsequently adopted the GRADE framework.

#### Description of the problem

To describe the challenges of assessing the quality of evidence of public health interventions and practice. The SNIPH

conducted in October 2011 an international workshop to discuss the challenges and potential solutions of different grading systems in public health.

#### Results

We identified a number challenges. (1) Public health interventions tend to be complex and multi-component. This has implications on defining the outcome (PICO) question, conducting the search, interpreting of results, assessing indirectness and inconsistency, and using process evaluation studies. (2) Outcomes of interest may include health outcomes at both the individual and community levels, and non-health outcomes such as environmental impact. Also, these outcomes might follow long causal pathways and have different levels of indirectness. An outcome framework helps in clarifying the relationship between different types of outcomes and in deciding which level provides 'direct enough' evidence. Such frameworks can be supported by both empirical and theoretical considerations. (3) Given settings will inevitably change across included studies, a higher level of heterogeneity may be acceptable when assessing inconsistency.

(4) Assessment of public health interventions benefit from a wide range of study designs. In the GRADE approach, all observational studies starting as low quality evidence doesn't help in discriminating between these different designs.

#### Lessons

A systematic approach to evidence-based public health is a necessary and important step in strategic investment in public health. Practical challenges in grading of evidence and developing guidelines for public health practice are being noted and will be discussed during the seminar.

### Using films to teach public health and ethics.

#### A pilot study

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#### Background

The course Health, disease and films, has been designed for graduate nursing students of the Nursing School (University of Barcelona; course 2011–12) but might also be of interest to senior nursing and allied health professionals. The course aims to provide a better understanding of moving pictures and how they influence our assumptions about public health and ethical issues.

Feature films were selected based on availability and relationship to public health and ethics. The course examines the presentation of PH issues in films as follows:

Miss Ever's Boys (J. Sargent, 1997), City of Good (Fernando Meirelles, 2002), The Constant Gardener (F. Meirelles, 2005), The Painted Veil (J. Curran, 2006), Precious (L. Daniels, 2009) and Erin Brockovich (Steven Soderbergh, 2000)

Students watch these films through a PH lens and discuss the background of the main topics raised in the film's plot.

In addition to viewing these films and participating in class discussions, groups of up to three students have to give an oral presentation on a film that they choose. Final presentation are to be 10–15 minutes long and are to include a film clip that shows the value of the story in addressing the PH issue.

#### Data collection and results

A 5 item, four-point Likert type scale Satisfaction survey was developed to evaluate the effectiveness of this teaching strategy, with 4 being Strongly agree, 3 being Agree, 2 being Disagree and 1 being Strongly Disagree. The survey included an open-ended item for comments.

Statements and mean score with standard deviation (SD).

1. My perceptions of the PH problems have changed after viewing the film (3,45; SD = 0,88)
2. I consider the films a valid experience to learn about PH and ethics in nursing practice (3,67; SD = 1,72)
3. The plot helps to bring attention to the interventions performed by the health care professionals (3,03; SD = 0,95)
4. The use of films in teaching/learning PH and ethics is enjoyable (3,22; SD = 1,27)
5. I gained understanding of the PH and ethics from the other groups' presentations (3,31; SD = 0,82)

#### Conclusion

Evaluations from students indicate the strategy is a positive experience for them.

### Training Program in Reproduction, Early Development, and the Impact on Health in Ontario and Quebec

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#### Background

A training program in Reproduction, Early Development, and the Impact on Health (REDIH) was initiated in 2009 by researchers specializing in biomedical, clinical, population health and ethics research from six collaborating Universities in Quebec, Ontario and Health Canada. This presentation reports the findings from the first two years of the six-year program. The findings have informed changes to and direction for the program and may also inform other professional programs currently using a mentor/trainee program, or programs that may want to adopt one.

#### Objectives

The purpose of the program is to provide training in order to develop the next generation of reproductive biologists and to move the field forward. The W(e)Learn conceptual framework to design, deliver and evaluate the training program. Semi-annual training sessions for mentors (university faculty and federal government research scientists; experienced researchers) and trainees (M.Sc. and Ph.D. students, and postdoctoral fellows) were the main venues for the diverse training modules (workshops in presentation skills, peer review and writing skills, knowledge translation, regulatory issues, careers in industry, ethics, to name a few).

#### Results

Findings from the quantitative survey results were triangulated with the qualitative themes that emerged from focus groups. Trainees recognized and appreciated three main improvements implemented into the second year of the REDIH training session as a result of their feedback: (a) objectives and expectations were made clearer, (b) laboratory visits and more hands-on learning had been implemented, and (c) segregation between trainees and mentors had been greatly reduced.

#### Conclusions

This study demonstrated that evaluation is critical for program design, improvement and long-term success. Perceptions of quality were strongly linked to a fit between participants' experiences, needs, wants, and perceived competencies; a formal evaluation process; and project administrators and the curriculum committee respecting and responding to the participants' feedback via the evaluators. The mentorship training program, guided by a conceptual framework, resulted in an innovative supplementary training for these future reproductive medicine researchers.

### Perception of Muslim women aged 15–49 on abortion in Turkey

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#### Background

Abortion is an important health problem in the world. The aim of this study was to determine the ideas of Muslim women about induced abortion, to determine if the family planning is accepted as a sin and to examine the attitudes of women towards induced abortion in some certain cases.

#### Method

This descriptive study was conducted on 419 women aged 18 and over who attended the three primary health care centers for any reason in Talas, Kayseri Province during May 2012. A questionnaire included 55 questions was administered. Five midwives collected the data with face to face interviews.

#### Results

The mean age of the 419 women was  $34.0 \pm 7.7$  and mean education year was  $9.1 \pm 3.7$ . Of the group, 75.7% were housewives. Sixty five women had consanguineous marriages. The mean age of the first marriage was  $20.8 \pm 3.4$  (13–35) and the mean age of first pregnancy was  $22.0 \pm 3.7$  (14–36). Fifty

three women had undergone at least one induced abortion and 67 women had at least one unwanted child. Out of 419 women 187 (44.6%) of them said that ideal number of children had to be three. The first three contraceptive methods that were used as family planning were condom (121 women), intrauterine device (72 women) and withdraw (52 women) respectively and 85.9% stated that the methods which they were used should be decided by the couples. Of the group, 24.1% of them thought that having tube ligation and 25.5% thought having vasectomy was a sin. 4.8% thought using intrauterine device, 3.6% thought using condom, 3.3% thought using pills and 3.8% thought using needles as a sin. While 80.7% of the women thought that abortion was a sin, 11.0% weren't sure. We asked whether abortion is a sin in some cases. Women mentioned the following cases not a sin; having of a baby with disabilities in pregnancy (30.3%), mother's life is threatened (53.5%), the mother is victim of rape (41.8%), and the gestation age is less than 10 weeks (16.2%) and husband forced to abortion (20.5%). 30.3% of the women thought that women could give abortion decision alone. 90.7% thought that abortion was a murder and 65.7% thought it should have been forbidden in the world, 84.4% thought it conflicted to moral/religious values and 62.8% of them thought abortion should be forbidden by Religious Affairs.

### **Do the Media Have Any Responsibility of Public Education in Health? The Evaluation of Newspapers About How a Health Issue Takes Place, While The Subject is on Agenda**

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#### **Background**

Media coverage of health-related issues can potentially shape individual beliefs, attitudes and behaviors about illness' management. News and texts performed by people in this sector are important at public education at health. We aimed to evaluate how a health issue takes place in the media while the subject is on the agenda.

#### **Method**

This study was planned as a retrospective content analysis of 3 highest circulated Turkish newspapers for 2 consecutive years. Flu's a good example issue for explaining our purpose. Influenza outbreak news began coming at mid-May, 2009 from the world and late September, 2009 from Turkey. The study was decided to start at May 2011 and 2 years' newspapers were analysed retrospectively from then (01.05.2009–30.04.2011). The data was collected through a structured questionnaire at the archives of Turkish National Library. Descriptive statistics were used to summarize data whereas chi-square, t-test were used to compare groups by SPSS 15.0 (alpha value was taken as 0.05).

#### **Results**

There were 496 flu news at first study year and 50 at the second. More than 300 of the news were between Oct-December 2009 period whereas there were only 14 news at the same season at second study year. News types were similar (case reports, immunization and prevention) at both study years. The source of the news were mostly leaders and managers' explanations at first study year, however it was journalists' work at second. At the first study year, most H1N1 news were at first and upper page, 59.1% were at least 2 column long, 75.0% of them had visual material, and 98.1% of these visual materials were pictures. Of the news at second study year; 90.0% were at middle pages, two thirds at lower pages, mostly only 1 column long and only one third had visual material. There was significant difference with every variable that was checked at content analysis ( $p < 0.05$ ).

### **Conclusion**

The results indicate that the newspapers are looking at the trades, when the topic is at agenda there are many and wide field news about it. Media is important at both public education at health, health communication and prevention of health. Also as media reaches community regularly, it has an important role at providing information for public when the health issue isn't a problem.

### **Ethical approach in medical education-Romania, November 2011-March 2012**

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#### **Background**

In the medical profession, in order to develop clinical and practical skills, it is required the contact of the medical students with patients, but this involves elements of medical ethics and personal conduct. Although the education of future physicians is important for society, ethical dilemmas arise from how patients benefit from the participation of students in medical care and how ethics influence behavior of medical students towards patients. Many patients are willing to allow the students participation, suggesting that potential perceived risk is lower than the personal benefits and for society as a whole.

#### **Methods**

We studied data from 385 Romanian medical students who completed survey questionnaire during a period of five months. To evaluate the perception of medical students on the ethical aspect of the relationship with the patient, we introduced questions about the approach of medical ethics, distribution of risks, benefits and respect for patient autonomy. The data obtained were correlated with the environment of origin of respondents, the option for medical or surgical specialty, and religion.

#### **Results**

288 (72%) of respondents indicated ethical conduct as part of the qualities of a physician, while 361 (93%) have pointed out that professionalism is a priority item. Since to be a good doctor, 330 (85%) responded that it is necessary efficiency of medical care, they also indicated that sometimes effectiveness may interfere with the medical ethics 277 (72%) ( $p < 0.001$ ). At the same time, regarding the importance of personal ethics in the medical profession, 289 (75%) were of the opinion that this is primordial. Only 111 (28.7%) of medical students were of the opinion that ethical standards apply in the medical system.

#### **Conclusions**

Developing an educational process of ethical approach, conduct and clinical practice, as early as the first years of medical training is an important issue. Implementing ethical principles in educating medical students can lead to transformation of future behavior of physicians, initiate patient awareness and responsibility towards the front of the medical act. The approach of ethics in medical education should be proactive, innovative procedures having a determinant role in improving the quality of medical care.

### **Opinions about sexuality in a Romanian population**

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#### **Background**

It is widely accepted that human sexuality is influenced by a web of biological, psychological, social, cultural, ethical and

religious factors. In this context, we ran a Grant (IDEL 72/2008, financially supported by CNCISIS-UEFISCSU) aimed to evaluate the sexual-reproductive health quality of a Romanian population.

#### Methods

The survey included 1.200 people, men and women, equally distributed by residence environment (urban/rural), age groups (18–75 years) and instruction level. Subjects answered a questionnaire including 111 items, ten of them referring to the subjects' agreement regarding some sexuality "myths".

#### Results

About 38% of the subjects consider "men are leaders when about sex", the percentages being higher ( $p < 0.001$ ) for men, old people, rural inhabitants and especially elementary educated people (53.8% vs. 17.7%). A similar statistical distribution of the answers is found when asking about "a woman should never refuse her partner". A number of 270 subjects (22.5%) consider "men should not give utterance to their feelings", especially men, less educated people ( $p < 0.001$ ) and people from rural communities ( $p = 0.024$ ). About half of the subjects ( $N = 581$ , 48.4%) consider "sex always is nice and romantic", with no significant differences between subgroups.

#### Conclusions

Being an elementary educated person over the age of 55 living in a village seems to be the most likely conditions to agree to the "myths" about sexuality. Health-care providers should take into account the need to educate disadvantaged groups in order to reduce sexual health inequalities that arise from the different roles of women and men, or the unequal power relationships between them.

### Systematic method for ethical reflection in infectious disease control

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### Background

Health care professionals that work in the field of infectious disease control are often confronted with ethical dilemmas. The classical ethical debate in this field focuses on questions concerning quarantine, isolation and mandatory treatment and hereby addresses the underlying issue of individual liberties and public interests. In daily practice however, interventions as quarantine, isolation or mandatory treatment are hardly ever used. The ethical debate here concerns far less intrusive measures. Although the interventions used in daily practice are less intervenient, they nonetheless address the same issue of individual liberties and the common good. Daily practice may therefore also benefit from systematic ethical reflection. Various tools have been developed for systematic ethical reflection in medical practice. The moral problems raised by daily practice of infectious disease control however extend beyond the ethical arena from medical ethics, where patient autonomy and informed consent are often central. Professionals working in the field of infectious diseases need to place their ethical reflection in the context of public health and the common good. The tools that are used for ethical reflection in medical ethics are therefore not suitable for systematic reflection in this field of study.

#### Objectives

The objectives of our project are to explore the variety of common moral problems in infectious disease control, to analyse those problems following a systematic method, and to develop a training aimed at enabling infectious disease control professionals to apply the reflection method in their own team discussions.

#### Results

We identified 9 moral issues characteristic for infectious disease control. We designed a methodology for systematic ethical reflection in daily practice of infectious disease control (1) and performed a number of systematic ethical reflections (2–10). A training of two sessions of 3 and 2.5 hour duration, with a 4 weeks interpose, was developed. The preliminary results of the evaluations show that professionals see the roadmap as a useful tool for ethical reflection, rate the training as effective, however also state that two trainings session is not enough to learn to use the methodology on their own.

## H.7. HEALTH POLICY 2

### Implementing the "Health in All Policies" strategy on community level to promote sustainability. Example of an Austrian Health Promotion project concerning cardiovascular health

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#### Background

Following the WHO strategy "Health 21", the sustainable support of health has become the key objective of community health promotion. The paradigm change from the strict implementation of programmes to organizational development using a systemic management approach can be seen as the guiding principle in supporting sustainability in health promotion.

#### Methods

Through the participative implementation of the basic health promotions concepts (settings approach, capacity building, "Health In All" Policies, organizational development) within a regional project, it was possible to introduce developmental processes to encourage sustainability. In this way, pre-existing health promoting structures in different areas of community organisations were strengthened and new structures were built, to create key conditions for promoting the health of the local

population. Multipliers played a key role in enabling access to hitherto hard-to-reach target groups. Due to their close proximity to settings, multipliers are important intermediaries concerning health promoting lifestyles.

#### Results

Using systemic management approaches from the field of organizational development, "health" was anchored in local authority settings by establishing an obligatory "community charter" and appointing health promotion representatives within councils. Such organisational development processes enable many groups to be reached in this region, despite generally poor health behavior, low incomes, high unemployment rate and low socioeconomic status. The accompanying process support requires extensive measures to enhance perspectives and competencies beyond the project's scope.

#### Conclusions

This project shows that it is possible to implement the "Health in All Policies" strategy into practice on a community level. Organizations and communities are social systems with autopoietic process patterns. The realization of sustainable health promotion can be achieved through the establishment and utilization of well-functioning organisational and communication structures. Further research is needed on consistent criteria and guidelines to integrate and implement the "Health in All Policies" strategy at community level.

## Alcohol-related injuries during the period of alcohol control policy implementation in Lithuania

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### Aim

To evaluate the changes in mortality and the years of potential life lost due to alcohol-related injuries, as well as the impact of alcohol-related injuries on life expectancy during the period of the implementation of comprehensive alcohol control policy in Lithuania.

### Methods

Data on deaths from injuries (ICD-10 codes V01-Y98) of the able-bodied population (aged 15–64 years) during 2006–2009 was obtained from the Lithuanian Department of Statistics. Age-standardized rates of alcohol-related mortality and years of potential life lost (YPLL) per 100,000 population due to injuries and the impact of alcohol-related injuries on life expectancy were calculated. The results of forensic autopsies were the basis for the alcohol-attributable fraction.

### Results

Age-standardized mortality rates from alcohol-related injuries for the 15–64 year old population declined both among males and among females throughout 2006–2009 in Lithuania. Mortality from traffic accidents displayed the most notable decline. The age-standardized YPLL/100,000 of the able-bodied population due to alcohol-related injuries was 2,285.6 (4,067.5 for males and 573.6 for females) in 2009. In 2009, YPLL/100,000 due to alcohol-related injuries declined by 16.3% while, due to alcohol-related traffic accidents-by 51.2% as compared to 2006. However, YPLL/100,000 due to alcohol-related suicides increased among males. A 15–64 years old decedent lost an average of 21.2 years of life due to alcohol-related injuries (21.6 years on average per male and 19.1 per female). The impact of alcohol-related injuries on life expectancy decreased from 1.14 years (1.86 for males and 0.34 for females) in 2006 to 0.97 years (1.62 for males and 0.26 for females) in 2009.

### Conclusions

The positive changes in mortality and YPLL due to alcohol-related injuries and the impact of alcohol-related injuries on life expectancy indicate successful implementation of evidence-based alcohol control measures. Known effective and cost-effective programs to reduce levels of drinking should, therefore, be implemented, which may, in turn, lead to even more significant reduction of the alcohol-attributable burden of injury.

## Policy process-the 'black box' of the health policy research

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The tradition of health services and policy research has often mainly focused on the measurement and evaluation of outcomes. This approach disregards many factors influencing the decision making process, particularly the actual policy making process itself. It has been assessed that if the outcomes are evaluated without knowledge of the processes, the outcome by itself seldom produces a road map for policy makers because they do not know what produced the observed outcome. There is a need to study and evaluate policy processes in a way that would open up and explain what happens in the "black box" of the decision-making and reveal the processes that enable to improve policies. This means recognising the processes, which tend to better lead to desired outcomes of the chosen policies, interventions and projects-or which lead to a failure.

The policy analysis that originates from the academic policy analysis tradition of political science focuses on the study of the entire policy making process and considers the formulation of the policy content, the policy making environment, the context of the policy development, actors, the implementation process and evaluation. This process-oriented approach pays attention to the question: how does the chosen policy have the intended effects? In this approach the key question is not just simply to describe the problem but to offer a more comprehensive framework for thinking about health policy programmes or interventions and to offer possible solutions to policy makers. It seems that this tradition is poorly understood by public health researchers. There is often a significant gap in public health research dealing with policy processes and the governmental policy making related to health.

The aim of the paper is first to analyse what are the basic assumptions in the policy analysis research tradition, and second discuss why process-oriented health policy research is needed also within public health research field.

## How the boundary spanner can help to establish Healthy Public Policy: an analysis of three cases in Amsterdam The Netherlands, 2011/2012

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### Background

In order to reduce health inequalities it is necessary to address determinants outside the policy health sector. The policy sectors involved with these so-called social determinants often do not have public health as their primary goal, or are not acquainted with the impact of their policies on public health. A boundary spanner can help to convince these policy sectors of the importance of health and explain how to take account of health so that it is integrated and as a result Healthy Public Policy (HPP) is developed. We present three case studies in the city district Amsterdam New West, The Netherlands, in which we explore the added value of the boundary spanner in the policy process. We considered the boundary spanner to be successful if he was able to establish cooperation between science and policy and/or was able to transferring knowledge about social determinants of health to the non-health sectors.

### Methods

The research is a developmental evaluation with document analysis of policy documents and open interviews and observation. The research approach is action research.

### Results

The boundary spanner was supported by other scientists, who offered back up in a formalized and an ad hoc setting. In the first case the boundary spanner failed, due to lack of involvement of all levels of the municipality. In both other cases the boundary spanner succeeded in establishing cooperation. However, only in the third case knowledge transfer succeeded completely, mainly because the content and the amount of knowledge possible to transfer within the limited time, was better adapted to the specific case.

### Conclusion

The boundary spanner contributed to the making of HPP. Conditions that appeared to be crucial for the effectiveness of the boundary spanner include the involvement of all levels of the municipality, and the formation of collaborative groups with representatives of the scientific and policy world that support the boundary spanner.

## Public health in the Arab world at a crossroad

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The Arab world has been undergoing transformative changes since early 2011. Yet, the profound implications for public health are yet to be seriously debated. I review socioeconomic and political characteristics that define the context and determinants of health status, of health systems and of public health. A defining feature of the region is the diversity and large variation in economic resources and human development. I review recent research and data on population health, disease burden, and health systems to draw a picture of public health and the challenges that it faces today. I show that Arab countries have made important progress in health and development but important gaps remain. Specifically that there are profound inequalities both inter- and intra-countries. These health conditions and inequalities reflect the diverse political, economic and social determinants and pose important challenges for public health. However, the current historical moment in the Arab world raises new challenges, for example related to destruction of public health infrastructure, but also opportunities, for example related to mobilization of health professionals as part of street struggle or newly-empowered political elites, revisions of the social contract, and proposals and plans for reforming or rebuilding social services. I argue that it cannot be assumed that public health gains would flow automatically from political and social change. This requires deliberate action by a new public health aligned with, or as part of, rising social forces. I suggest that public health, as a field of education, as a field of research, and as a field of practice, is at a crossroad that touches on its ethos and purpose. While public health is dominated today by an apolitical, technical, sectoral, professional and biomedical outlook and aligned with ruling classes, the public health that can respond to the current historical moment would need to be political, comprehensive, multisectoral, grassroots-based and multidisciplinary and aligned with the cause of justice. How we now develop the public health workforce and organize public health action need to be radically changed.

### **Impact of Dutch smoking restriction policy in hospitality venues on lower and higher SES smokers: the role of self-awareness and abstainer self-identity** Winifred Gebhardt

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#### **Background**

In July 2008 a smoking restriction policy (SRP) in hospitality venues (HV) was installed in The Netherlands. This study examines how, in 2011, lower and higher socio-economic (SES) smokers felt that this had changed their (smoker and abstainer) self-identity, attitude towards smoking, personal norm, self-awareness and social influence (injunctive, descriptive, societal norm), and if such changes were related to changes in motivation to quit, and smoking behavior.

#### **Methods**

710 smokers completed an online questionnaire. Measures were based on temporal comparisons, i.e. comparing one's present state to that before HV SRP.

#### **Results**

Smokers were positive about SRP in restaurants, but negative about SRP in bars. Only 16% had become more motivated to quit after HV SRP, and 13% less so. Still, almost 50% of the respondents would like to quit within 6 months. 41% of the lower SES smokers had done >1 attempt since HV SRP, vs. 49% of higher SES smokers ( $X(1) = 4.09$ ;  $p = .043$ ). Regression analyses showed that present motivation was related to perceived changes in abstainer identity, self-awareness and personal norm (Adj.  $R^2 = 26\%$ ;  $p < .000$ ). No interaction effects for SES emerged. Changes in motivation since HV SRP was related to perceived changes in self-awareness,

personal norm, injunctive norm, societal norm, and abstainer identity (Adj.  $R^2 = 34\%$ ;  $p < .000$ ). An interaction effect indicated that changes in abstainer identity were most strongly related to the outcome for higher SES smokers. Finally, having performed >1 serious quit attempt since HV SRP was related to perceived changes in attitude, abstainer identity, and descriptive norm (Cox & Snell  $R^2 = 17\%$ ). Changes in attitude were most strongly related to the outcome for lower SES smokers and descriptive norm for higher SES smokers.

#### **Conclusions**

Perceived changes since HV SRP in abstainer identity and self-awareness were important for all outcomes. This implies that when wanting to change, smokers need to become more aware of themselves smoking, and become more and more convinced that being a "non-smoker" is part of who they authentically are. As such quitting smoking is a transitional process, and the focus of future policy measures should be on the part of identity of smokers that relates to being a "non-smoker".

### **Out of pocket spending-a solution to health expenditure?**

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#### **Background**

Out-of-pocket spending (OPS) is widely spread among Latin America, accounting in Chile for more than 40% of total health spending in the 2000s. Although public spending on health has grown steadily since the 1990s, the contribution of Chilean families through direct payments remains high, both in the public and private insurance. Economic theory suggests that relying on OPS to finance healthcare tends to diminish resources for economic development, while several research have proven that this is the most unequal way to fund healthcare. This paper focused on non-communicable chronic diseases (NCD) to estimate the impact of OPS on financial equity and welfare using household-level data.

#### **Method**

We first estimated the probability that families demand medical care due to chronic non-communicable problems, using a binomial logistic model. Then, using ordinary least square we estimated the magnitude of household expenditures associated with chronic diseases, by including a selection term derived from the first step to avoid bias estimates. Data came from two nationally representative surveys: the National Socioeconomic Characterization Survey 2009 and the Household Budget Survey 2007. Data from the former were complemented with data on the structure of households' expenditure from the latter.

#### **Results**

Education level of household head, the number of chronic conditions affecting family members, outpatient visits, hospitalization days, household income and insurance type were significantly and positively correlated to OPS ( $p < 0.05$ ). The spending burden across income groups is regressive, since the lower-middle income groups devote a higher share of their income compared with higher-income groups.

#### **Conclusions**

Lower-middle income individuals with chronic diseases and their families are particularly exposed to income and welfare losses since they bear a stronger OPS burden than the richest and the poorest. The prevalence of chronic diseases deepens inequalities in health financing, which means that reducing the prevalence of NCD would entail some improvement of the financial protection standards. Our results confirmed that the Chilean health system is unfairly financed.

## (Adverse) effects of out-of-pocket-payments in health care

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### Background

Health care expenditures are rising in many countries. This might be caused by the fact that there is no direct relation between health care use and costs, since, for example, these costs have been paid by the insurance. If patients do not fully face the costs, this might lead to excessive use of health care and thereby contribute to growing expenditures. To reduce this excessive and possible improper use of health care, and herewith to reduce health care expenditures, different out-of-pocket-payments for health care use have been introduced. Out-of-pocket-payments mainly aim at a funding shift and more efficient use of health care by health care consumers. The objective of this study is to gain insight into changes in health care use by consumers due to these payments. We focused on two effects: efficiency and equity. We examined whether only inappropriate, or also appropriate health care use is affected and whether it lead to possible inequalities in health status between groups. In our study we focused on two different

types of out-of-pocket-payments on consumers: deductibles and co-payment for inappropriate use of the Emergency Ward.

### Methods

The effects of deductibles and co-payment for the Emergency Ward were measured among members of the Dutch Health Care Consumer Panel in two different surveys. Data were available for deductibles for 1,059 respondents (response rate 68%) and for co-payment for Emergency Ward for 1,114 respondents (response rate 75%).

### Results

Only a small percentage respondents state that they use less health care due to the deductibles. They also state that they do not use health care inappropriately. The higher the out-of-pocket-payments, the more barriers consumers experience to make use of health care. Results indicate that out-of-pocket-payments also reduce appropriate health care use. Preliminary results show that they appear to create inequalities between groups.

### Conclusions

The effects of out-of-pocket-payments depend on the height of the out-of-pocket payments. The higher the out-of-pocket payment the more it reduces health care use. The effect on efficiency seems to be small. Negative side effect is the reduction of appropriate use. Furthermore, out-of-pocket-payments seem to create inequalities between groups.

## 1.7. PATIENTS PERSPECTIVES AND CONSUMER CHOICES

### Patients' criteria for good physician's practice (Bulgaria 2011)

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### Background

The transition of Bulgarian healthcare sector from state regulated monopoly to competitive market system involves the development of health services marketing as well as growing importance of patients' opinion and appraisal of physicians practice and quality of health services. The future market success of health services' providers depends highly on their knowledge about patients' needs and expectations.

The aim of the study is to identify the real patients' criteria for physicians' appraisal in order to bring evidence to health care providers in the process of improving health services efficiency and responsiveness to consumers' needs.

### Methods

In 2011 standardized interviews were conducted by specially trained interviewers with 1340 patients in 14 medical centres and diagnostic-consulting centres located in 8 regional cities in Bulgaria. The questionnaire consisted of questions concerning information about the way of receiving the patient, patient-physician communication, duration of medical examination, physician's explanations about diagnoses, treatment and outcome perspectives and the attitude of the physician to the patient.

### Results

According to the patients' responses more than 70% of the physicians didn't give a smile while receiving them; 47% of them didn't even look at the entering patient; 23% didn't pay any attention to the patient and the entire communication was left to the nurse. Only 23% of the physicians spent enough time to listen carefully to patients' complaints and 5% refused the patient a hearing. In most of the cases (32%) the examination duration was 20 minutes on average, and 43% of the patients claimed that there was no examination at all.

The majority of physicians (86%) didn't explain logically and in details the diagnostic methods, the nature of disease, the treatment alternatives, unwanted and side drug effects and outcome perspectives.

### Conclusions

Despite of the ongoing health reform in Bulgaria the patients' opinion about physicians' behaviour and practice demonstrates a great gap between patients' expectations about good medical practice and real situation in healthcare settings. The major problems of health services market lie in the lack of appropriate communication between healthcare providers and consumers.

### Patients' behaviour as an important factor for physician-patient communication (Bulgaria 2011)

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### Background

Most of the research on physician-patients' relationships stress on physicians' behavior, patients' needs satisfaction, patients' rights protection and patients' criteria for physicians' appraisal. In our previous studies we found that in spite of the present competitive market environment a limited number of physicians practice according to the modern market management and communications. Studies on physicians' criteria to appraise patients' behaviour are very rare in our country.

The aim of this study is to identify the real physicians' criteria for patients' appraisal in order to improve the physician-patients' communication.

### Methods

Standardized interviews were performed with randomly selected 413 physicians in April-June 2011. Most of participants were general practitioners (231-56%), followed by specialists in out-patient care (98-24%) and 84 (20%) physicians from 3 public and 4 private hospitals. All physicians

were interviewed during their working hours. They were asked to formulate their perceptions on patients' behaviour to gain physicians' confidence, liking and sympathy and what type of patients' behaviour is more likely to lead to physicians' disapproval.

### Results

The majority of interviewed physicians (36%) pointed out as the most important characteristics of patients' behaviour to be polite, smiling and good-natured. Far below in the ranking of the patients' appearance and hygiene. Most of the respondents (41%) considered the complaining about the examinations and on the behaviour of other physicians a bad characteristics of patients' behaviour. The other 28% of respondents disapproved patients that come to see them with a prepared statement about their diagnosis and treatment; 13% pointed out as most annoying the presence of accompanying persons that are hyperactive or panicked and act like patients' competent mentors; 10% were annoyed of being asked straight from the door about the price of the examination and manipulations.

### Conclusions

This study identified unfriendly behaviour and patients' complains from other physicians as most repellent for doctors. Our findings reveal that often patients are not able to gain real sympathy and devotedness of the physician which influences the communication and treatment process.

## Determinants of patient choice of health care providers: a scoping review

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### Background

In several North-Western European countries, a demand-driven health care system has been implemented that stresses the importance of patient choice of health care providers. Patients are assumed to actively choose the best provider with the lowest costs. This selection prompts providers to compete for them by improving their value-for-money ratio. However, quality and costs may not be the only information kinds that patients use during their selection process. Therefore, it is time to gather information on what is known about the factors that influence patients' choices. In the current study, we aim to describe the findings and range of research concerning this issue and to identify knowledge gaps.

### Methods

We performed a specific kind of literature review: a scoping review. Its aim is to appreciate the breadth of knowledge that is available on a particular topic. First, we identified research questions and searched literature in Embase, Medline and PubMed. Second, we selected the literature, and finally, we charted and summarized the information.

### Results

116 studies were included. Patients' choices are determined by a complex interplay between patient and provider characteristics. Several patient characteristics determine whether and how patients choose. Patients take a variety of structure, process and outcome characteristics of providers into account and differ in the relative importance they attach to all characteristics.

### Conclusions

Different patients make different choices in different situations. Objective quality information has a relatively limited influence on the choices of many patients and patients base their decisions on a variety of provider characteristics. The assumptions made in health policy regarding patient choice may therefore be an oversimplification of reality. As a result,

patient choice of health care providers may not have the expected effects in countries in which patient choice has a pivotal role as a mechanism to improve the quality and efficiency of health care.

## Enrollees seem positive about selective contracting by their health insurer

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### Background

In the last decades, health care systems in several European countries changed from a supply-oriented system to a demand-oriented system based on managed competition. In a system of managed competition, health insurers are supposed to prudently purchase care on behalf of their enrollees and channel them to contracted care providers in order to improve health care quality and reduce health care costs. In order to reach these goals, it is crucial that enrollees accept their health insurer's involvement in their provider choice. The objective of this study is to find out under which conditions enrollees accept this and in how far enrollees already involve their health insurer by asking for information when choosing a care provider.

### Methods

In December 2012 questionnaires were sent to 7.082 members of the Insurants Panel (response 78%). Respondents were asked about two main aspects: (1) how they feel about their health insurer not contracting care providers that provide insufficient quality and (2) if they want advice from their health insurer when choosing a care provider. Also, respondents who recently visited a hospital or specialist were asked whether or not they consulted their health insurer before choosing a hospital or specialist. Lastly, the influence of respondents' views on their health insurers' knowledge about quality of providers and the influence of background characteristics will be analyzed.

### Results

Most respondents (65%) agree with their health insurer not contracting care providers that provide insufficient quality and also many respondents (41%) want advice from their health insurer. Respondents who are negative about these aspects explain that they would rather choose by themselves and/or that they do not trust their health insurer's intentions. Very few respondents who recently visited a hospital or specialist, have consulted their health insurer before they chose a care provider. Data are now further analyzed.

### Conclusion

Preliminary results show that although a lot of enrollees seem positive about their health insurer's involvement in their provider choice, a small percentage of enrollees actually consult their health insurer. The reason for enrollees to be negative about their health insurers' involvement seems to be a lack of trust

## Consumer mobility in the Dutch health insurance system: the role of collectives

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### Background

In the last decades, health care reforms based on introducing managed competition have been implemented in several countries. The policy assumption is that managed competition leads to lower prices and increases the quality of health care. In The Netherlands the system of managed competition was introduced in 2006.

Consumer mobility is an important element. Every year, during an annual enrolment period, consumers who are not satisfied with the premium or quality of care can switch insurer. This should force insurers to strive for a good balance between price and quality. The premium is the most important reason for individuals to switch. This might result in price competition only, instead of also having competition based on quality of care. Quality improvements can potentially be achieved by collectives. In contrast to individuals, collectives can negotiate with insurers on both price and quality of care. Because of the threat of losing a large number of insured, collectives might exert more influence on insurers than individuals. On the other hand collectives might also decrease consumer mobility. The aim of this study was to assess the role of collective contracts in relation to consumer mobility.

#### Methods

Questionnaires have been sent to members of the Dutch Health Care Consumer Panel. Data are available for the years 2006 to 2009, 2011 and 2012. The response rates on the questionnaires range from 58% to 81%. Among others, questions were aimed at measuring the number of collectively insured and whether joining a collective is a switching reason.

#### Results

A high number of individuals are insured via collective contracts; ranging from 55% of all those insured during 2006, increasing to 70% in 2012. The percentage of switchers that indicate the wish to join a collective contract with another insurer as switching reason differs over years. In 2012 20% of the switchers indicated this, compared to 6% in 2011, 22% in 2009, 11% in 2008, 37% in 2007 and 57% in 2006. The data are now further analysed.

#### Conclusion

Preliminary results show that the number of people collectively insured has increased. It appears that collectives do not hamper consumer mobility, since there is a periodic increase in the number of switchers due to the wish of joining a collective.

### Perceptions of the general population for the current pharmaceutical policy in Greece

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#### Background

The continuously changing economic conditions in Greece in the last two years in conjunction with the anachronistic system of supply and charging of medicines led to the need for reform of pharmaceutical policy, in order to serve the needs of the insured persons, and the sustainability of the public health care system.

#### Objectives

The present study aimed to examine the perceptions of the general population for the current pharmaceutical policy in Greece. The study was conducted as part of the national survey ‘‘Hellas Health IV’’, which was held in autumn 2011. Respondents were selected by means of a three stage, proportional to size sampling design. The total population of the sample was 1008 adults. The sample was representative of the Greek population in age and residency. The data was collected through personal interviews, and the response rate was 45.8%.

#### Results

The 30% of the respondents reported that they are not familiar with the current pharmaceutical policy. The seventy percent (70%) of the rest know that pharmaceutical policy has changed in the last two years, while 45% of them evaluate changes as positive/very positive. The largest change was the electronic prescribing (70%), followed by the reduction of the drug prices (12%). Equally important, is that 32% of the respondents selected to pay additionally for medication even though they

have health insurance coverage, due to bureaucracy. A large percentage (61%) believes that the participation rate of the insured to the medication is very high.

#### Conclusions

Even though the pharmaceutical policy has changed over the last two years, the general population in Greece has not been informed about these changes. Although changes like electronic prescribing evaluated very positively in many cases, the bureaucracy continues to have a negative impact to insureds, which prefer to pay themselves for the medication, in order to avoid it.

### Desirability of early identification of Duchenne Muscular Dystrophy (DMD): parent’s experiences of the period prior to diagnosis

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Duchenne Muscular Dystrophy (DMD), X-linked recessively inherited, is the most common progressive muscular disorder in children. Early diagnosis could offer opportunities for timely initiation of treatment possibilities, genetic counselling, and prevent a long diagnostic quest. Despite the availability of a test, DMD is not included in the newborn screening programs. Ethical concerns, e.g. parents would not be able to enjoy the first carefree years of their child before learning that the child is affected with DMD, are considered strong arguments for not considering DMD screening. However, this has never been properly assessed.

#### Aim

This study aimed to explore the way in which parents experienced the period from their child’s birth to the time the diagnosis was made.

#### Method

A qualitative face-to-face semi-structured interview was held with parents of sons affected with DMD.

#### Results

8 parent-couples, invited by the Dutch Duchenne Parent project, participated. They reported minor worries starting shortly after birth, increasing over time. All parents wished they had known the diagnosis earlier, preferably before the child was two years of age, for they regretted the way they had treated their child during the period in which they were unaware of the disorder in their child.

#### Conclusion

A true carefree period seemingly does not exist. Early diagnosis would have enabled parents to treat their child in the best possible way, adjusted to their child’s condition (‘good parenting’). This emerging need for ‘good parenting’, parents expressed, by far outweighed the possibility of enjoying a carefree period in the child.

### Romanian Population’s Knowledge about the Use of Ionizing Radiations in Medical Diagnosis

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**Background**

There has been a continual increase lately in using radiations for getting diagnosis information, due to the general technical progress. The appearance of private centres of medical radio-diagnosis contributed even more to the increase of medical exposures and of the doses in-taken by the population. Patients do not perceive radiations as a risk and their wishes to be examined radiologically cannot be taken into consideration without the written consent of a specialist.

**Methods**

In order to know the level of the population's knowledge about the effects of ionizing radiations, we investigated a number of 1,000 patients in the rural area in the waiting rooms of radiological units and 1,000 in the urban area, using a questionnaire applied on three age groups: 0–15, 15–45, and over 45 years old (in the first group parents were interviewed when children were too young). The educational level of the subjects was also taken into account.

**Results**

A significant difference ( $p < 0.01$ ) was registered between the patients in the rural area and those in the urban one, but also among the patients with different educational levels, thus: 78%

of the people in the rural areas do not know the negative effects of the exposure to radiations compared to 55% in the urban areas, and 60% of those with medium studies compared to 45% of those with university studies, respectively.

The highly educated patients get their information from the Internet, which does not necessarily represent the most reliable source of information.

Twenty per cent of the patients resort to radiology services of their own initiative and especially if they were not content with the negative results they had got, while 80% of the patients do not receive an individual form that mentions their in-taken radiation dose from the examination.

**Conclusions**

Most of the subjects have no knowledge regarding the risks of unjustified exposure to ionizing radiations; even if they know these risks, their decision is to take this kind of examination, considering that it is the best method of diagnosis in order to eliminate suspicions. Any unjustified examination raises the costs, increases the patient's exposure, and wastes the time of the radiology staff, consequently being against the medical ethics.

## K.7. USE OF MEDICINES

**Self-medication in public health**

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**Background**

There are numerous proposals from public health professionals how to reform health care sector to achieve better health of the consumers/patients. One way of empowering the patient/consumer in the health care system is to promote the 'self-medication', which is present in every community. According to World Health Organization self-medication is a medication of oneself without professional supervision so as to alleviate an illness or a condition. Level of knowledge about self-medication among consumers is quite low though.

**Methods**

A systematic review was conducted. MEDLINE via Pubmed was searched using example keywords: "self-care", "self-medication", "OTC", "over the counter", "health policy", "public health". Available reports of World Self Medication Industry and Association of the European Self-Medication Industry were also included, as well as reports from Polish centers of public opinion. 172 articles were found primarily and 63 of them were chosen to analysis.

**Results**

Analyzed materials show that high percentage of consumers from all over the world use different OTC drugs. Data from British Department of Health indicates that self-medication improves overall health of community and increases patient's satisfaction. High percentage of primary care and emergency services regards mild and harmless conditions, therefore promotion of self-medication can save the time and costs of health care maintenance. Self-medication transfers significant part of treatment cost from payer to consumer. Simulations show that changing status of 5% prescription to OTC drugs generates 16 billion euro annually in 25 EU countries.

**Conclusions**

In most of analyzed reports a self-medication seems to have a positive impact on public health. Most of the publications show positive influence of the phenomenon on public health,

although there is a need to point also threats, such as: low level of health literacy among consumers, lack of 'academic' approach to research, non-compliance, drug and food interactions, adverse drug reactions, polipharmacy and a risk of fake drugs. Mechanisms of control and vigilant monitoring should be developed by EU agencies (e.g. EMA) to ensure possible highest positive influence of self-medication on public health.

**The role of self-management abilities on physical health and depressive symptoms among patients with cardiovascular diseases, chronic obstructive pulmonary disease, and diabetes**

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**Background**

This study aimed to identify the predictive role of direct resources (educational level and marital status) and self-management abilities on physical health and depressive symptoms in patients with cardiovascular diseases (CVD), diabetes, or chronic obstructive pulmonary disease (COPD).

**Methods**

Our cross-sectional questionnaire-based study included 1570 CVD patients, 917 COPD patients, and 412 patients with diabetes.

**Results**

Physical health and depressive symptoms of COPD patients was lower than those of CVD and diabetic patients. Correlation analyses indicated that self-management abilities were strong indicators for physical health and depressive symptoms (all  $p < 0.001$ ). This relationship was strongest for depressive symptoms. Self-management abilities were related to educational level in all groups (all  $p < 0.001$ ). Regression analyses revealed that self-management abilities were strong predictors of physical health and depressive symptoms in all three patient groups (all  $p < 0.001$ ).

**Conclusions**

This research showed that self-management abilities are strong predictors of physical health and depressive symptoms. Interventions that improve self-management abilities may counteract a decline in physical health and depressive

symptoms. Such interventions may be important tools in the prevention of the loss of self-management abilities, because they may motivate people who are not yet experiencing serious problems.

### Contraception usage and situation regarding the abortion among women in reproductive age in Macedonia in 2010

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#### Background

Earlier researches showed low usage rate of oral contraceptives (OC) and barrier contraception (BC) among women in reproductive age (RA) in Macedonia. Costs for OC and BC are not covered by the Health insurance fund of Macedonia (HIFM). The official health statistics shows decrease in the rate of performed abortions in Macedonia, yet the unofficial sources state that there is a rise of abortion rates. This study was aimed to show the rate of usage of OC and barrier contraception among women in reproductive age in Macedonia, but also to determine the factors that are influencing their usage. Also the aim is to show the abortion rate among women in RA, the main reasons for abortion and health care services related to abortion.

#### Methods

Population based survey conducted on representative random sample, including 1346 women in RA. Data analysis included defining of frequencies and correlation of different variables.

#### Results

In the past 12 months 6% of the women used OC and 2,2% used BC. Contraceptive methods like interrupted intercourse and calendar based method were used among 14,3% of women. Women showed lack of knowledge for different OC and BC, since 40,8%-50,7% of women do not know anything about their efficiency.

14,5% of the women have performed abortion in certain period of their life. Main reasons for performing the abortion are: poor living conditions (14,5%) and financial inability to raise the child (18,6%). 59,9% of the abortions were performed in public health care institutions (PHCI), although law provides that abortions could be performed only in PHCI. 21,5% of the women that performed abortion did not receive proper counseling for the procedure and use of contraception.

#### Conclusions

There is a need for introducing state organized inclusive health and sexual education. OC should be financially covered by the HIFM. Gynecologists in the primary health care should provide mandatory counseling of their patients regarding family planning and use of contraception. There is a need for process of accreditation of the health facilities that can perform abortion regardless of their status of public or private. Health care facilities where abortions are performed must provide counseling about the procedure and contraception use of their clients.

### Contraceptive use in rural and urban areas in Bangladesh, India and Pakistan. An analysis of the Demographic and Health Surveys

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#### Introduction

Fast population growth due to high fertility still is an important issue in Bangladesh, India and Pakistan. Factors such as patterns of contraceptive use and geographical settings need to be considered when designing family planning

programs. This study investigates the differences in prevalence of contraceptive use between rural and urban areas in Bangladesh, India and Pakistan, and attempts to determine significant factors associated with contraceptive use.

#### Methods

Secondary data analysis was based on Demographic and Health Surveys from Bangladesh (2007), India (2005/2006), and Pakistan (2006/2007). First, bivariable analysis of possible determinants stratified by country and place of urban-rural residence was performed. Then we performed multivariable binary logistic regression analyses to identify significant factors. Models goodness-of-fit were also tested.

#### Results

The prevalence rate of contraceptive use differed between countries with Bangladesh having the highest (54.8%) and Pakistan having the lowest rate (31.0%). According to multivariable logistic regression analyses, higher odds ratios (ORs) were observed for higher number of children and higher ages. Women living in urban areas were more likely to use contraceptives than women living in rural areas (OR 1.12 [CI 95% 1.09–1.16]). The likelihood of contraceptive use differed significantly between countries. The variance explained by the included influencing factors also differed between countries. The model was most suitable for India, accounting for 45.9% of the variance of contraceptive use.

#### Conclusion

This study found significant differences in contraceptive use between countries and place of residence where country characteristics proved to be more influential than regional characteristics. Furthermore, significant factors were not identical between countries. Thus, family planning programmes should take into account state and regional differences while developing strategies and interventions. As the prevalence of contraceptive use is lower in rural areas, these areas should get more attention by the concerned authorities.

### Trends in consumption of psychopharmaceuticals in the City of Zagreb-Croatia in comparison to Sarajevo-Bosnia and Herzegovina 2006–2009

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#### Background

To compare outpatient consumption and quality of psychotropic drug prescribing between Croatia and Bosnia & Herzegovina 2006–2009.

#### Methods

Data on drug utilization from Zagreb Municipal Pharmacy and Sarajevo Public Pharmacy were used to calculate the number of defined daily doses (DDD) and DDD per 1000 inhabitants per day (DDD/TID) using the WHO Anatomical-Therapeutic-Chemical methodology. On DDD/TID calculation, data from the 2001 census were used, according to which the population of Zagreb was 770 058. According to the latest data published by Federal Office of Statistics, the population of Sarajevo was 423 645. The Drug Utilization 90%(DU90%) method is used as a criterion of prescribing quality. The rationality of prescribing is evaluated by use of the Eurostat Ratio indicators

#### Results

Total utilization of psychopharmaceuticals increased in both cities; however, it was higher in Zagreb than in Sarajevo throughout the study period. From 2006 to 2009, the utilization of psycholeptics increased in Zagreb by 2% (from 74.5 to 76.1 DDD/TID) and decreased in Sarajevo by 1.3% (from 62.4 to 61.6 DDD/TID). The utilization of psychoanaleptics increased in both cities, greater in Sarajevo (87.5%)

than in Zagreb (11.8%). The utilization of anxiolytics decreased in Zagreb by 2.2% and in Sarajevo by even 21.6%. The utilization of antidepressants increased in both cities, with a predominance of SSRI over TCA utilization; in Zagreb and Sarajevo, SSRI accounted for 92.1% and 80.4% of total antidepressant utilization, respectively. The anxiolytic/antidepressant ratio decreased by 12.6% in Zagreb (from 2.87 to 2.51) and by 58.7% in Sarajevo (from 5.66 to 2.34). Outpatient utilization of antipsychotics increased significantly in Sarajevo, predominated by typical ones, whereas in Zagreb the utilization of antipsychotics was stable, predominated by atypical ones.

### Conclusions

In Croatia and Bosnia & Herzegovina, there was an obvious tendency to follow western trends in drug prescribing, as demonstrated by the increased use of antidepressants and reduced use of anxiolytics, however, greater efforts need to be invested. Decline of ratio anxiolytics/antidepressants is indication of improvement of GPs prescribing habits.

### Conservative treatments of metatarsal fractures: a comparative evaluation between plaster bandage and Barouk® technology in an Italian hospital

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### Background

most of non-displaced fractures of the fifth metatarsal heal with symptomatic, non-operative care in a cast immobilisation or in a hard-soled shoe. To date, no studies have investigated the effectiveness of the Barouk® post-operative shoe in the treatment of proximal fifth metatarsal fractures or compared this technology with conventional plaster bandaging.

The aim of this study was to compare the effectiveness, cost of fracture management, and the patient's perceived quality of life between treatment with the Barouk® post-operative shoe and a conventional plaster bandage.

### Methods

this prospective, randomized longitudinal study involved n.61 patients attending the emergency department of Rivoli Hospital (Italy), from April to December 2011 because of an isolated non-displaced fracture of the fifth metatarsal. The outcome variables were: fracture healing; complications; patient's quality of life as measured with the EuroQol-5D health status questionnaire; direct and indirect costs of treatment. Differences in the mobility of a patient were explored using a multivariate analysis model.

### Results

of the n.61 patients, n.37 were fitted with a Barouk® post-operative shoe and n.24 with other treatment. As compared to treatment with a plaster bandage, fracture management using the Barouk® shoe was associated with a higher probability of recovery ( $p=0.021$ ) and fewer complications ( $p=0.006$ ), particularly oedema ( $p=0.034$ ) and osteoporosis ( $p=0.019$ ). Neither treatment option was associated with high patient satisfaction ( $p=0.208$ ). Analysis of each of the five dimensions (mobility, self-care, usual activities, pain and anxiety) showed a statistically significant difference between the two groups for usual activities only [work, work at home] ( $p=0.012$ ). Unexpectedly, there was no statistically significant difference in mobility ( $p=0.498$ ).

The plaster bandage was the more expensive of the two, especially with regard to the direct costs covered by national health care and out-of-pocket payment by patients (€ 123.20 versus € 94.95, on average, respectively).

### Conclusions

in the conservative treatment of non-displaced fifth metatarsal fractures, the Barouk® forefoot shoe meets the clinical criteria of effectiveness, efficiency and safety.

### The role of education in adherence to Highly Active Antiretroviral Therapy (HAART): a systematic review

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### Background

Suboptimal adherence to Highly Active Antiretroviral Therapy (HAART) is an emerging public health priority. There is contrasting evidence about the association between socio-demographic predictors and HAART adherence. The aim of this study was to perform a systematic review of the literature assessing the impact of educational level on adherence to treatment in HIV infected patients from 1999 to 2011.

### Methods

A systematic search was performed using Pubmed and Scopus database. Key search terms used included "HAART", "adherence", "compliance" and "educational level". The inclusion criteria used for each study were: (a) the age of HIV-infected patients was eighteen or older (b) the patient residence was in developed countries. Studies focused on specific behavioral or psychosocial characteristics or HAART naïve patients were excluded.

### Results

Among 210 potentially relevant articles, 18 comparative observational studies, concerning an overall population of 7288, were included in the review. Around 60% of research designs were longitudinal. Papers differed by methodological adherence measurement: 10 studies used self-reported questionnaire, 5 individual interview and 3 other tools as pills count. Eight out of 18 papers (39%-including 3692 individuals) showed that subjects with low educational level were less likely to be adherent to HAART than subjects with higher level.

### Conclusions

Educational level seems to be a noticeable factor to consider in policy and practice, in order to improve the HIV treatment adherence.

### Knowledge, attitude and practice of family planning methods among the rural females of Bagbahara block Mahasamund district in Chhattisgarh State

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### Objectives

To assess the knowledge, attitude and practice of family planning methods, and factors that could affect their use, among the rural females of reproductive age group (15–49years)

### Background

If many women in Chhattisgarh are not using family planning, it is not due to a lack of knowledge. Knowledge of contraception is nearly universal: 98 percent of currently married women know at least one modern family planning method.

### Methods

A total of 326 females of reproductive age group (15–49years) from the rural areas of Bagbahara block of Mahasamund district in Chhattisgarh state were selected randomly and interviewed with the help of semistructured interview schedule, which consists of demographic data, questions related to knowledge, attitude and practice of different contraceptive methods and factors affecting the use of these Methods: Results: Most of the respondents (79%) were aware of at least one contraceptive method. The most common source of information on contraception was Health staffs (46%),

followed by ASHA (Mitanin) workers (42.5%), media (7.5%) and relatives/friends (4%). Knowledge of non contraceptive benefits of family planning methods was claimed by only 19% of the respondents, while knowledge about various adverse effects was reported by 32% of the respondents. About 62% of respondents showed favourable attitude towards family planning methods while other (34%) are against it and rest 4% didn't responded. About 53% of respondents had ever used any family planning methods. 26% respondents were using contraceptive methods at the time of study. Intrauterine

devices were the most commonly used method (46%) followed by condom (22%), female sterilization (21%) and oral contraceptive pills (11%).

#### Conclusions

This study reveals that with increase in level of education, awareness also increased. Most of the respondents have the considerable knowledge and favourable attitude towards contraceptive methods but a wide knowledge practice gap was evident in this study.

## L.7. WORK AND SICKNESS ABSENCE

### Duration of sick leave, wage, Health Insurance: Evidence from French linked employer-employee

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In France, daily benefit allowances paid out in 2008 by the Statutory National Health Insurance amounted to 11.3 billion Euros. Broken down, 54% covered sickness benefits, 24% maternity benefits and 22% occupational accidents, representing over 5% of health costs.

The aim of this article was to reveal the relationships between the duration of sick leave, income and Health Insurance.

To achieve this, we reformulated the theoretical model developed by Allen (1981) taking into account the specificity of the French model. The equilibrium properties of the model shows the existence of an indeterminate income effect on the duration of sick leave and that the Health Insurance rules equally modify the duration.

Our study is based on data from the merger of two administrative files; one from the National Health Insurance and the other from the National Pension Fund. We thus have a data base containing information on benefit recipients, their professional careers, their health care consumption, sick leaves, the employees' professional context and certain characteristics of the companies employing them. Using this data base, we are able to study the relationships between health, work, professional career and company characteristics. In order to remove the indeterminate effect of income, 4 variables were used: current income level, wage progression rate since the beginning of the working career, wage progression over the last two years and efficiency wage. To take into account the characteristics of the French health insurance system, we take an individual variable into consideration (Chronic disease), a company characteristic variable (size of firm) and a variable differentiating between the Alsace Moselle insurance regime from the general regime.

We estimated a discrete time proportional hazard model taking unobserved heterogeneity into account for both the male and female subsamples. The estimation results show that current income has a negative effect on the duration of sick leave. On the contrary, a significant long-term wage progression tends to reduce the duration of sick leave for men but lengthens it for women. Moreover, the different Health insurance modalities appear to modify employees' behaviour concerning sick leave.

### Does diagnosis-specific sickness absence predict suicidal behaviour?— A nationwide register-based study in Sweden

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#### Background

Sickness absence is increasingly recognized as a good global measure of health, but less is known about the predictive value of sickness absence for future suicidal behaviour. This study aimed to examine diagnosis-specific sickness absence as a risk marker for suicide attempt and suicide.

#### Method

This is a population-based prospective cohort study. All non-retired people (N=4,923,404; 16–64 years) who lived in Sweden at the end of 2004 were followed with respect to suicide attempt and suicide (2005–2010). Hazard ratios (HR) and 95% Confidence intervals (CI) for suicidal behaviours were calculated, using people with no new sick-leave spells during 2005 as reference.

#### Results

The preliminary results show that in analyses adjusted for socio-demographic factors and previous inpatient care due to mental disorders and suicide attempt, sickness absence in 2005 was predictive of suicide attempt (HR 3.4; 95% CI: 3.3–3.6) and suicide (HR 2.4; 95% CI: 2.2–2.6). The risk of suicide attempt was 6.3 times higher (95% CI: 6.0–6.7) for those with sickness absence for mental diagnoses, followed by nervous diagnoses; infection; injuries; ill-defined conditions; digestive, circulatory, musculoskeletal, genitourinary, or metabolic diagnoses; cancer; respiratory diagnoses (range of HR: 1.6–2.9). Suicide risk was highest among individuals with sickness absence due to mental diagnoses (HR 5.1; 95% CI: 4.4–5.8), followed by ill-defined conditions; circulatory, or respiratory diagnoses; injuries and musculoskeletal diagnoses (range of HR: 1.7–2.5).

#### Conclusions

Sickness absence may provide an important risk marker for identifying groups at high risk of suicide attempt and suicide, especially for mental diagnoses. The potential for suicide prevention should also be considered for individuals sickness absent due to some other somatic diagnoses.

### Belgian employers' policies, knowledge and expectations regarding return to work management

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#### Background

In Belgium, little is known on return to work (RTW) management in small and medium size enterprises (SME). RTW management may reduce sickness absence burden, which is a major public health problem. This study objective was to describe Belgian SME employers' policies, knowledge and expectations regarding RTW management. Research reports



on Belgian SME perspectives on RTW were not found; our study aims at closing this gap in literature.

#### Methods

A descriptive study using a written, home-made questionnaire, and an open-question interview was conducted. 46 SME's, of all kind of industries, employing 100 to 200 employees were asked to participate. The questionnaire, addressed to the human resource manager (HRM), involved four parts to:

1. describe the enterprise RTW procedures,
2. assess the HRM knowledge on RTW legal regulations and occupational physician (OP) involvement,
3. explore the enterprise expectations for involvement of the occupational health services (OHS) in RTW management the future.

In the interview, with the researcher, HRM comments were discussed.

The questionnaire and interview focus was on sickness absences exceeding 1 month.

#### Results

(83%) of 46 SME's participated.

1. RTW procedures were limited: 50% of participants had an all-round RTW policy; 95% had a well-defined procedure for the RTW examination by the OP; 58% had a defined procedure for maintaining a contact with the sick-listed worker; 45% informed the worker on the possibility to meet the OP during the sickness absence period in order to prepare work resumption; 16% systematically organised a worker-supervisor meeting when the worker comes back at work.
2. HRM knowledge was rather poor: 26% wrongly thought that the OP may check the sick leave medical validity; 37% knew that the employer must inform the OP about any sick leave longer than 4 weeks; 37% had a good knowledge of the obligatory pre-return to work visit.
3. HRMs expressed expectations on: a) knowledge transfer about RTW regulations; b) coaching or education of the supervisors in RTW management; c) support in development and implementation of RTW procedures.

#### Conclusions

To improve RTW policies and knowledge in SME's, information campaigns and practical support offered by OHS is suggested.

### Mortality after disability retirement due to mental disorders by sociodemographic factors and cause of death

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#### Background

Mental disorders are a key cause of disability retirement. These disorders reflect severe medical conditions that contribute to a high risk of mortality. Variations by different mental disorders, sociodemographic factors and causes of death are nevertheless poorly understood. We examined sociodemographic differences in all-cause and cause-specific mortality after disability retirement due to depression and other mental disorders as compared to the population in general.

#### Methods

The data comprised a nationally representative sample of the Finnish population aged 30–64 in 1996 with no prior mental-health-based pensions (N=354,256). Using Cox regression analysis with disability retirement due to mental disorders as a time-varying covariate, the study population was followed up for mortality from 1997 to 2007.

#### Results

Among both genders all-cause mortality was around two-fold in disability retirement due depression and over three-fold in other mental disorders as compared to the general population. Overmortality was higher in alcohol-related diseases, suicides and other external causes than in cardiovascular and cancer mortality, and it was particularly high in suicides among women. Overmortality was generally higher among younger age groups, non-manual classes, and those living with spouse and children, but the effects of these sociodemographic factors varied largely by gender, whether retirement was due to depression or other mental disorders, as well as by cause of death.

#### Conclusions

Mortality among Finnish disability retirees due to mental disorders as compared to the general population is highest in groups with lower overall levels of mortality, i.e. among younger adults, those in higher social classes, and those living with family members. In these groups, there may either be a stronger selection of those with more severe ill-health and social problems into disability retirement, or more unfavourable effects of retirement itself on health and well-being. As mental disorders are non-fatal conditions, overmortality among disability retirees due to mental disorders is likely to be caused by comorbid somatic conditions as well as broader social disadvantages.

### Patterns of sick leave's association with work characteristics among employees in the municipal eldercare in Aarhus, Denmark: A cross-sectional study

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#### Background

Frequent, short-term sick leave has been suggested to be associated with a poor psychosocial working environment, whereas long-term sick leave is more likely to be associated with a poor health. However, studies are inconsistent with respect to this hypothesis.

#### Aim

To study the association between individual psychosocial work factors and two different measures of sick leave.

#### Material and methods

Employees from the municipal eldercare in Aarhus employed throughout 2005, who responded to the questionnaire "Working in the eldercare" containing work factor scales ranging from 0–100, were included. Workplace-registered sick leave records started and/or ended in 2005 were used. Total sick leave days were dichotomised (0–14 / above 14) and number of sick leave spells were dichotomised (5–13 spells / 1–2 spells). The latter pattern was defined by an equal median total sickness absence duration of 26 calendar days per year (min-max: 15–56) in each category; but one group having many spells another group having few spells. Logistic regression models were used to find statistical associations, adjusted for age, occupation and health factors.

#### Results

Response rate 2,584 (77%) employees, 96% being female. Median absence was 5 (min-max: 0–581) calendar days. Median number of spells was 2 (min-max: 0–13). The odds ratio (OR) of having many short spells compared to 1–2 long spells was 0.87 (95% CI: 0.75–1.00) for a ten points increase in "influence at work" and 0.71 (95% CI: 0.53–0.96) for "physical workload". High influence OR=0.94 (95% CI: 0.90–0.99) and high physical workload OR=1.15 (95% CI: 1.03–1.28) along with nine other work factors were statistically significantly associated with the risk of having more than 14 sick leave days.

## Conclusions

Low influence at work was associated with many absence days and many short spells of absence compared to high influence. The same pattern was not observed for physical workload. By keeping the median duration of sick leave per year constant high physical workload was associated with few but long spells. Possibly, many short sick leave spells may be used as an indicator of a poor psychosocial working environment.

## Assessment of health-related absence and associated factors among university employees in Ankara (2010)

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### Background

Every year, millions of workdays are lost due to sickness and disability, associated with occupational and non-occupational causes. This study aimed to assess health-related absence and associated factors in one of the biggest universities in Turkey, for evidence-based planning.

### Methods

The study group included all employees (n=8549) of a university in Ankara/ Turkey. Electronical data from different institutional databases were retrieved with permission and merged for the period between Jan 1-Dec 31, 2010. Final data including sociodemographics, work-related characteristics, sickness and pregnancy-related absence were analysed by SPSS 18.0; where descriptive statistics, chi-square, t test ve ANOVA were used.

### Results

Of the 8549 employees, 51.1% were women, with a mean age of  $39.3 \pm 10.0$  years. In one year, the prevalence of health-related absence at least once was 23.0%. Out of those with any absence, 20.6% submitted health-related reports at least three times, where the frequency was highest among those employed in the university hospital for both genders ( $p < 0.05$ ). Among women with absence, "sickness" was the underlying reason for 90.4%, whereas absence for "pregnancy" and for "both causes" were 2.9% and 6.7%, respectively. Both the prevalence and duration of absence among women and administrative personnel were found to be significantly higher than men and academic personnel ( $p < 0.001$ ) for all causes and for sickness only, whereas absence was significantly lower in the 65+ age group for both genders ( $p < 0.001$ ). There was no significant seasonal pattern, with highest prevalence in march, june, and october. For all health-related causes, mean workdays lost per employee per year was  $4.8 \pm 19.2$  days (1.4% of total employed days), whereas mean workdays lost for sickness-related causes was  $3.7 \pm 14.5$  days per employee per year (1.1% of total employed days).

### Conclusions

The study showed that the mean workdays lost due to health-related causes was similar to data from US and Europe. However, occupational causes of absence, especially in frequently absent employees needs further exploration. Sickness and other health-related absence at work need to be regularly assessed, where efforts are needed to identify occupation-related causes for possible interventions.

## Influence of morbidity, absenteeism and educational level on work ability index score in a sample of Greek employees

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## Background

Work ability can be defined as the ability of a worker to perform his job, taking into account the specific work demands, individual health condition and mental resources. The Work Ability Index (WAI) allows for the evaluation of work ability from the perspective of the worker's own perception, based on ten questions that address seven dimensions.

### Methods

A cross sectional survey in a sample of 970 workers from a shipyard industry in Greece was carried out in 2006 in order to translate and validate the Greek version of Work Ability Index. WAI scores were compared across various parameters which we anticipated to be related to work ability, including sickness absence, morbidity and educational level.

### Results

Employees with reported annual sick leave duration above 10 days exhibited significantly lower WAI scores (40.1 points) compared with those with less days of absenteeism (43.1 points,  $p < 0.01$ ). Higher educational level ( $>9$  years) was associated with higher WAI scores (43.4 points) compared to lower education (42 points,  $p < 0.05$ ). As expected, morbidity exhibits a marked effect in WAI, causing a decrease in WAI score of about 3 points for each additional diagnosed disease ((b-coefficient = -2.86, 95% CI -3.12 to -2.59,  $p < 0.001$ ). Mental disorders were associated with lower WAI scores compared to employees without mental health problems, but after excluding co-morbidity, musculoskeletal, digestive and cardiovascular diseases had the largest negative associations

### Conclusions

The results show a high influence of various parameters on work ability, which support the discriminatory validity of WAI. Occupational health personnel should monitor and evaluate sickness absence and morbidity as factors significantly related to work ability and additionally should utilise WAI in preventive strategies.

## Socio-economic determinants of sickness absence in 2001, 2006, and 2011, among Finnish municipal employees

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### Background

The association of key socio-economic dimensions, namely education, occupational class, and income, and sickness absence is well known. Also, time trends of socio-economic determinants of sickness absence in the 1990s have been studied. The aim of this study is to analyze 1) time trends and 2) changes in relative importance of socio-economic determinants of sickness absence in the 2000s.

### Methods

The study included municipal employees of the City of Helsinki, aged 25–59 in the beginning of the year 2001, 2006, and 2011. The number of participants varied from 20 094 to 23 952 women and 5871 to 6258 men yearly. Education, occupational class, and individual income were used as indicators of socio-economic position. The outcome was number of medically certified 3 days or longer sickness absence during one-year follow-up. Poisson regression was used.

### Results

The average number of sickness absence increased by 10% among women and decreased by 3% among men from 2001 to 2011. Steep socio-economic gradients were evident showing that low education, occupational class, and individual income were associated with high subsequent sickness absence. When analyzing all socio-economic determinants together, inequalities by education and occupational class decreased and inequalities by individual income increased from 2001 to 2011.

### Conclusions

Education, occupational class, and individual income remained all independent determinants of sickness absence. The absolute inequalities remained large from 2001 to 2011,

but relative importance changed. The results reflect also overall increase in educational level and decrease of the number of manual workers in the workforce. Increase of the importance of individual income needs more research.

## M.7 QUALITY OF LIFE IN CHRONIC DISEASES

### The associations between adolescent patients' self-rated physical and mental health, and their parents' mental well-being

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#### Background

End-stage renal disease (ESRD), is a progressive chronic disease with serious consequences on quality of life of patients and also their family members. Both the patients and parents experience a variety of psychosocial strains which may have adverse effects on social and family life. Previous studies focused either on adolescents' or parents' health but did not evaluate the association between adolescent's physical and mental health and their parents' well-being. The aim of this study was to assess the self-rated physical and mental health of adolescents with ESRD and to explore their relationships with their parents' well-being.

#### Methods

The sample consisted of all adolescents with ESRD in Slovakia treated by dialysis or after receiving kidney graft; n=21 patients of age 14–19 years (15.97 ± 2.63 years, 28.6% girls). Medical and sociodemographic data were obtained from medical records and a structured interview. Self-rated health was measured using the Short Form Health Survey 36 (SF-36) from which the Physical and Mental Components Summary (PCS, MCS) were calculated. The adolescents' parents (age 41.14 ± 6.27 years; 81.0% mothers) completed forms for distress (PSI, GHQ-12) and anxiety and depression (HADS). Data were analysed using linear regression analyses with the bootstrap procedure.

#### Results

Adjusted for patients' age, gender and treatment modality, patients' PCS was significantly associated with their parents' psychological distress (B = 0.16, 95%CI = 0.01; 0.32), depression (B = 0.17, 95%CI = 0.00; 0.33) and social dysfunction (B = 0.17, 95%CI = 0.00; 0.33). Patients' MCS was not associated with parents' mental well-being.

#### Conclusions

There is a significant association between self-rated physical health of adolescents with ESRD and their parents' well-being. Support should thus be targeted both at adolescent ESRD patients and at their parents.

### Depression and diabetes: are there any consequences on self-care?

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#### Background

Diabetes is a medical condition growing in number swiftly. The medical community agrees that optimal outcomes in diabetes require diligent self-management, including eating a healthy diet, exercising, and regular glucose monitoring. Unfortunately among diabetic patients depression is twice as common as compared with subjects without diabetes. Depression not only affects mood but compromises functioning as well.

#### Methods

In the present cross sectional study, we investigated the presence of depression and its consequences of self management of diabetes. In a representative sample of 477 diabetics, in evidence of the ambulatory services of two major hospitals from Romania, in 2011. The patients were asked to answer to a questionnaire with demographical items. Self management behaviors were evaluated by using the revised version of the Summary of Diabetes Self-Care Activities and The Patient Health Questionnaire was used to assess depressive illness. Important elements of evolution and treatment were obtained from their medical records. Data was statistically analyzed

#### Results

The sample was in majority formed by type 2 diabetics, average age being 53.5 (min: 18; max 85). Depression was found at 14.5% of the sample, major depression at 8.2%. Depression increased with age and was more frequent for women; only major depression correlated significantly with gender (exact sig. two sided = .036). Depressed patients were prone not to know the last value of their glycated hemoglobin. Depression (major or not) predicted an inadequate behavior regarding a minimal exercising plan (at least 30 min per day) (U = 911, z = -3.17, p = .002, r = -.25). Though non statistically significant, the number of days per month in which the diet plan and the foot hygiene measures were carried out was smaller for depressive patients.

#### Conclusions

This study highlights suboptimal coping with self care management measures in patients with depression. These patients need support for self-management activities such as lifestyle modifications and medication adherence. Further research is needed to evaluate whether integrating depression screening and treatment into comprehensive care of diabetes could enhance self-management and patient outcomes.

### Coping and its importance for quality of life in patients with multiple sclerosis

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## Background

Multiple sclerosis (MS) is a chronic inflammatory disease of the central nervous system that causes high levels of distress for patients. The aim of this study was to analyse the associations between coping strategies used to be related to MS, and to the physical and mental components of health-related quality of life (HRQoL).

## Methods

The study comprised 109 MS patients (response rate 78.4%) from Eastern Slovakia (78% women, mean age  $40.0 \pm 9.2$ ). Patients filled in the Short-Form Health Survey (SF-36) measuring HRQoL and the Coping Self-Efficacy Scale (CSE) measuring three coping strategies: problem-focused coping, getting support from family and friends and stopping unpleasant emotions and thoughts. Disability was assessed using the Expanded Disability Status Scale (EDSS). The associations between EDSS, CSE and SF-36 were analysed with linear regression using the both components of the SF-36, the Physical Component Summary (PCS) and the Mental Component Summary (MCS).

## Results

EDSS and age were significantly associated with PCS, but not with MCS. All three types of coping strategies showed a significant association with MCS: problem-focused coping ( $\beta^2 = 0.58$ ,  $p < 0.05$ ), coping focused on getting support ( $\beta = 0.53$ ,  $p < 0.05$ ), and coping focused on stopping unpleasant emotions and thoughts ( $\beta = 0.62$ ,  $p < 0.05$ ), but not with PCS. The regression models for all three coping types explained 30%, 24% and 36%, respectively, of the MCS total variance. PCS was explained predominantly by EDSS and age. Other variables did not show any significant association with PCS or MCS.

## Conclusions

An association between three types of coping and MCS was found. Stopping unpleasant emotions and thoughts explained most of the variance in the MCS. Thus patients, their caregivers and health professionals might be educated about effective coping strategy like decreasing negative emotions and thoughts. This could improve the mental quality of life of MS patients.

## The benefits of nature-culture interplay on health, environment and wellbeing-Three evaluation studies

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## Introduction

Researchers have investigated the potential of nature-culture-health activities in terms of their health-promoting properties. The shaping of health-promoting settings at work, in hospitals, in schools, and in local communities has therefore been significantly supported by the WHO.

## Aim

To present results from three evaluation studies focusing on how art, music, nature and culture have a beneficial impact on health and wellbeing.

## Method

The first evaluation study describes the subjective experiences of people partaking in nature-culture-health activities at the National Centre for Nature-Culture-Health (NaCuHeal) in Asker, a municipality west of Oslo. The second evaluation study highlights the way that music can act as a sort of folk-medical practice in our contemporary culture to maintain, improve, or change health status, though it is administered in a non-professional setting. The third evaluation paper presents results from a study conducted by Eastern Norway Research Institute [ENRI] in collaboration with the Fron Rehabilitation Centre, Norway in 2008–2009. Qualitative methods were used. Patterns, tendencies, and main characteristics have been explored. A

total number from the three evaluations consists of ninety ( $n = 90$ ) in-depth ethnographic interviews and open narratives from men and women (age, 23–79) with long-term illnesses or diseases.

## Results

A common theme, and hence a major finding, is that nature-culture-health experiences may, from a salutogenic perspective, help participants to construct a meaning, to identify coping mechanisms, and to revitalize the energetic and resourceful parts of the self. Through participation in Nature-Culture-Health activities, hidden resources and creativity are awakened. Participants feel good about themselves and what they do is appreciated. In this way, one can strengthen the salutogenic factors in a person's life.

## Conclusion

These evaluation studies indicate how art, music, and nature-culture-health activities may have a beneficial impact on health and wellbeing, and hence be useful for rehabilitation. A salutogenic approach could create a solid theoretical framework for health promotion and it may counteract events leading to sickness absence.

## Attending religious services, depression and health-related quality of life in Parkinson's disease patients

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## Background

Recent studies have shown a significant inverse association between attending religious services and depressive symptoms across the general population and in clinical samples. Religious acts rather than religious orientation seem to dominate the relationship between religiosity and psychological well-being. We aimed to explore how depression is associated with health-related quality of life (HRQOL) in patients with Parkinson's disease (PD) who attend religious services and in those who do not.

## Methods

The sample consisted of 124 patients (47.6% female; mean age  $68.1 \pm 8.4$  years; mean disease duration  $6.3 \pm 5.5$  years). Attending religious services was obtained from a self-report sociodemographic questionnaire (Do you attend a religious service? Yes ( $N = 81$ )/No ( $N = 43$ )). Disease severity was measured using the Unified Parkinson Disease Rating Scale (UPDRS), depression with the Hospital Anxiety and Depression Scale (HADS; subscale HADS-D) and HRQOL with the Parkinson's Disease Questionnaire-39. Data were analysed using multiple linear regression.

## Results

The model consisting of age, education, disease duration, disease severity and depression explained 64% of the total variance of HRQOL in PD patients attending religious services, of which 14% was explained by depression. The above model explained 80% of the total variance of HRQOL in the group of PD patients who did not attend religious services, of which 38% was explained by depression.

## Conclusions

It seems that the association between depression and HRQOL differs between Parkinson disease patients who attend religious services and those who do not. Our results underline a very recent research finding showing that an extrinsic orientation to religion might protect or might delay the onset of depression.

## Beneficial effect of continuous subcutaneous insulin infusion on diabetes-specific quality of life in youths with type 1 diabetes mellitus

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### Background

The main aim in diabetes management is to achieve as normal as possible glycemic control. Patients should be treated with intensive insulin therapy either with continuous subcutaneous insulin infusion (CSII) or with multiple daily injections (MDI). Although the number of patients treated with CSII is growing rapidly there is an issue about the advantages of insulin pump therapy over the MDI. Objective: to compare diabetes-specific quality of life (QoL) and cardiorespiratory fitness in youths (aged 8–18 years) with T1DM treated with CSII to those being on MDI therapy. Furthermore, predictors of QoL and metabolic control were also evaluated.

### Methods

112 patients treated with CSII (56 girls and 56 boys) and 169 subjects treated with MDI (78 girls and 91 boys) matched for age and diabetes duration were assessed with the Pediatric Quality of Life Inventory™ 3.0 Diabetes Module. As a measure of cardiorespiratory fitness, VO<sub>2</sub>max was evaluated from the 20 meter shuttle run test.

### Results

Youth on CSII treatment had significantly higher QoL total score according to both child self-report (CSR) (73.06 ± 12.17 vs. 69.25 ± 12.66; *p* = 0.020) and parent proxy-report (PPR) (69.90 ± 11.95 vs. 66.54 ± 12.08; *p* = 0.033). Somatic symptoms are less problem in CSII group than in MDI group (CSR: 67.18 ± 12.55 vs. 61.36 ± 13.49; *p* = 0.001; PPR: 65.70 ± 11.93 vs. 60.01 ± 12.48; *p* = 0.001). We observed less diabetes-related worry in youth with CSII therapy than with MDI therapy (CSR: 71.43 ± 20.66 vs. 62.00 ± 19.13; *p* = 0.000; PPR: 66.89 ± 20.90 vs. 57.09 ± 21.70; *p* = 0.001). There were no significant differences between the two groups regarding HbA<sub>1c</sub>, insulin dose, BMI z-score and VO<sub>2</sub>max (comparing by gender). Both the diabetes-specific QoL ( $\beta$  = 0.383, *t* = 6.388; *p* = 0.000, *R*<sup>2</sup> = 0.147) and the HbA<sub>1c</sub> ( $\beta$  = -0.353, *t* = -5.813; *p* = 0.000, *R*<sup>2</sup> = 0.125) were significantly predicted only by the maximal oxygen consumption.

### Conclusion

These findings suggest that intensive insulin therapy with either CSII or MDI is efficient, but CSII group had less diabetes-related fear and symptoms than the MDI group. Furthermore good cardiorespiratory fitness has an important role in achieving better metabolic control and favourable quality of life that should be taken into account in the diabetes treatment and care in childhood.

## Hostility as a predictor of health-related quality of life among coronary heart disease patients: does ethnicity matter?

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### Background

Roma have been shown to have higher mortality and morbidity due to coronary heart disease (CHD) than the general population. The impact of CHD on health-related

quality of life (HRQoL) is well-documented. Additionally, some studies indicate that low socioeconomic status could be related to lower HRQoL, with hostility playing an important mediating role. However, evidence on this topic is almost entirely lacking for Roma CHD patients. Thus, the aims of this study were to assess differences in HRQoL between Roma and non-Roma patients and to determine whether differences in hostility contribute to this association.

### Methods

543 CHD patients (mean age 57.68 ± 7.38, 27.3% female) scheduled for coronary angiography, 79 (14.5%) of whom were Roma, were examined. Hostility was measured using the 27-item Cook-Medley Scale and HRQoL using the Short Form Health Survey 36 (SF-36), from which both a Mental and a Physical Component Summary (MCS, PCS) were calculated. The relationship between HRQoL, hostility and ethnicity was examined using regression analyses.

### Results

Roma ethnicity was associated with higher hostility (17.07 vs. 14.68, *p* < 0.001), poorer MCS (*B* = -4.76; [95% confidence interval = -8.00; -1.51]) as well as poorer PCS (*B* = -5.24; [-8.50; -1.98]) when controlled for age and gender. Furthermore, a higher level of hostility was associated with poorer MCS when controlled for Roma ethnicity, age and gender (*B* = -8.30; [95% confidence interval = -1.09; -0.57]). Adding hostility into the model weakened the strength of the association between Roma ethnicity and MCS (*B* = -2.79; [-5.94; 0.36]). A similar pattern was not present regarding Roma ethnicity, hostility and PCS (*B* = -5.06; [-8.39; -1.74]).

### Conclusion

Roma ethnicity is associated with poorer MCS and PCS of HRQoL. Furthermore, this study indicates that hostility could play an important mediating role in the association between Roma ethnicity and mental HRQoL; however, further confirmation is needed. Our findings show that the poorer HRQoL of Roma CHD patients requires attention in both care and research, with special attention on the role of hostility.

## Type of treatment and quality of life in patients after acute myocardial infarction

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### Background

The importance of Quality of Life (QL) has been increasing, following the change in the concept of Health. It no longer is considered the individual as a binomial health/disease and now it is approached in a holistic aspect. The relationship between health and QL has existed since the birth of social medicine in the 18th and 19th centuries. The discussion on QL, technological advances and the advent of Intensive Care Units has helped to extend the patients' lives, that before were unrecoverable. There is no doubt that exist a recognition, and an awareness, of the importance of acute myocardial infarction (AMI) in individuals' QL. We intend to relate the treatment of AMI with QL, bearing in mind that is a multidimensional, subjective and dynamic concept.

### Methods

It is a quantitative and cross study. The sample was consisted of 131 subjects with a medical diagnosis of AMI for at least six months and whose last episode. We used a questionnaire (sociodemographic characterization and QL-NewMac QLMI) self-applied to patients in an outpatient setting who were attended at the outpatient Hospital Viseu.

They have ages between 41 and 86 years (average = 67.11 ± 11.78). 74.0% are men. The type of treatment made after the AMI, 45.8% was primary-Percutaneous Coronary Intervention

(pPCI), 35.9% Percutaneous Coronary Intervention, 9.9% Coronary artery bypass grafting (CABG), 4.6% symptomatic treatment and 3.8% thrombolytic therapy.

#### Results

We found that most individuals have a high QL (67.9%) in subgroups: emotional (66.4%), physical (64.1%), social (71.0%). Patients who underwent primary angioplasty have a better perception of QL. We proved by multiple comparison of averages (ANOVA and Tukey) that the statistical differences are located in:

- emotional dimension ( $F=9.378$ ,  $p=0.000$ ;  $R^2=0.023$ ) between pPCI and PCI ( $p=0.000$ ); pPCI and CABG ( $p=0.003$ );

- physical dimension ( $F=8.218$ ,  $p=0.000$ ;  $R^2=0.21$ ) between pPCI and PCI ( $p=0.000$ ); pPCI and CABG ( $p=0.001$ );
- social dimension ( $F=7.341$ ,  $p=0.000$ ;  $R^2=0.19$ ), between pPCI and PCI ( $p=0.000$ ); pPCI and CABG ( $p=0.001$ ).

#### Conclusions

The assessment of perceived of QL allows a better knowledge and adaptation to the patient's condition. We found that the type of treatment is a determining factor in QL of individuals victims of AMI.

## O.7. RISK FACTORS OF MENTAL HEALTH

### Social determinants and equity in access to prenatal care in an Italian region (2010)

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#### Background

Equity in health care is defined as equal access to available care for equal need, equal utilization for equal need, equal quality of care for all. Many governments have made commitments to tackle inequities in access but making this policy operational will be difficult without a clear picture of what is currently known about equity of access to health care services.

#### Methods

To identify the possible role of various social determinants to equity in access to prenatal care in Umbria, an Italian Region, during the period 2010, we utilized data obtained from routine maternity discharge data. Prenatal care indicators are indicators of inadequate or late access to first visit (increased to 12 weeks gestational) and low number of visits (lower than 4). Logistic regression models were used to analyze the magnitude of various social indicators, such as citizenship, occupation, residence, education, and parity with respect to prenatal care indicators.

#### Results

The study included 8525 mothers. Significant differences in prenatal care indicators were documented. In multivariate analysis model, foreign national has been confirmed to be strongly associated with having made the first visit later than the 12th week, particularly for African women (99% CI = 2.2–4.1); with a low number of prenatal visits, particularly for Asian women (99% CI = 2.5–6.7). Having made the first visit beyond the 12th week was associated with even more variables: young age (<20 years) (99% CI = 1.7–6.8), pluriparity (99% CI = 1.2–1.8) and rural residency (99% CI = 1.1–1.5). Having made a low number of visits was associated with even more variables: low educational qualifications (99% CI = 1.4–2.3), condition of housewife (99% CI = 1.3–2.2) and of unemployment (99% CI = 1.2–2.3).

#### Conclusion

The study shows that some maternal factors put women at a disadvantage in relation to access to adequate prenatal care. Access inadequate prenatal care is a public health problem, resulting in risk of complications during birth and neonatal mortality. Policies measures aimed at social-demographic inequalities will reduce adverse perinatal events. More research is needed to explore possible mechanisms underlying social determinants and access inadequate prenatal care and necessary to help improve maternal and fetal health.

### Green qualities in the neighbourhood and mental health-results from a longitudinal cohort study in Southern Sweden

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#### Background

Poor mental health is a major global issue and causality is complex, partly due to the often multifactorial background. Since many factors can contribute to the onset, synergistic effects of person- and place- factors may potentially be preventive. Nature has been suggested as one such positive place-factor-by for example its stress reducing impact. In this cohort study we tested the effect of defined green qualities (Serene, Space, Wild, Culture, Lush) in the environment at baseline on mental health at follow-up. We also studied interaction effects on mental health of those place factors and varied person factors (financial stress, living conditions, and physical activity).

#### Methods

Data on person factors were extracted from a longitudinal (years 1999/2000 and 2005) population health survey ( $n=24\,945$ ). The participants were geocoded and linked to data on green qualities from landscape assessments, and stored in the Geographical Information System (GIS). Crude odds ratios (OR) and 95% confidence intervals (CI) were calculated, and multivariate logistic analyses were performed. Relative Excess Risk due to Interaction (RERI) was evaluated.

#### Results

Mental health was not affected by access to the chosen green qualities, neither in terms of amount nor in terms of any specific quality. However, we found a reduced risk for poor mental health at follow-up among women, through a significant interaction effect between physical activity and access to the qualities Serene or Space. For men the tendencies were similar, though not significant. Otherwise no statistically certain synergistic effects were found.

#### Conclusions

The results do not directly support the hypothesis of a preventive mental health effect by access to the green qualities. However, the additive effect of serene nature to physical activity contributed to better mental health at follow-up. Prevention is considered the most cost-effective instrument to fight major risk factors for mental health and other non-communicable diseases. If certain green qualities have a preventive effect, objective landscape assessments may be an important tool in public health work. This study stresses the

importance of considering interaction effects when dealing with disorders of multifactorial background.

### The Mental Health Risks economic crisis in Spain: Evidence from Primary Care Centres, 2006 and 2010

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#### Background

Spain has experienced one of the deepest recessions among European countries affected by the economic crisis that began in 2007. We investigated the effects of the recession on the frequency of mood, anxiety, somatoform, alcohol-related, and eating disorders among those visiting Spanish primary care settings.

#### Methods

A geographical and proportionally distributed group of primary care (PC) physicians selected into the study a random sample of patients attending primary care centres. These patients were administered the PRIME-MD instrument for the assessment of mental disorders, in 2006 and again in 2010, before and during the financial crisis. Multivariate logistic regression models were used to assess the relationship of unemployment, mortgage payment difficulties, and eviction on risks of mental health disorders.

#### Results

Compared with the pre-crisis period of 2006, the 2010 survey revealed substantial increases in the proportion of patients with mood, anxiety, somatoform, and alcohol-related disorders ( $p < 0.0001$ ), but not in eating disorders ( $p = 0.172$ ), after adjusting for variations in survey sample size, age, gender, marital status, educational attainment, and urban residence. Mood disorders, particularly major depression (19.4% increase) and dysthymia (10.8), showed the greatest rise, followed by anxiety disorders including generalized anxiety disorder (8.4) and panic attack disorder (7.3). Both alcohol dependence and alcohol abuse rose significantly, by 4.6% and 2.4% (OR = 11.6 and 4.5,  $p < 0.001$ ), respectively. After correcting for the risks of unemployment, we observed a significant rise in attendance with depression associated with mortgage repayment difficulties (OR = 2.12,  $p < 0.001$ ) and evictions (OR = 2.95,  $p < 0.001$ ).

#### Conclusions

Recession has significantly increased the frequency of mental health disorders and alcohol abuse among primary care attendees in Spain, particularly among families experiencing unemployment and mortgage payment difficulties. Expanding mental health services in primary care settings to at-risk groups may help cope with rising mental health disorders in areas affected by recession.

### Street trees and anti-depressant use in London, UK Cross sectional analyses 2009–2010

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#### Background

While most European countries contain an increasingly urban population, growing evidence suggests an association between access to nature and mental wellbeing. However, much of this

evidence is based on self-report data. We examine the association between the number of trees lining streets in areas of London, and an objective measure of mental health, namely rates of antidepressant prescription.

#### Methods

Anonymous, cross-sectional data were obtained concerning the numbers of street trees and antidepressant prescriptions for each of 18 London boroughs. Adjustments were made for each borough's length of streets and total population. Multivariate analyses were used to determine the relationship between street tree density and quantity of prescriptions/1000 population, controlling for a range of area level social indicators.

#### Results

A significant relationship is observed between street trees/km street, and the quantity of antidepressant prescriptions/1000 population, with higher street tree density being associated with fewer prescriptions, univariate regression  $r = -0.368$ ,  $p < 0.05$ . In a multiple regression model controlling for potential confounders, the relationship remains significant after adjusting for: socio-economic status, employment, access to prescribers, mean age and prevalence of smoking. For each increasing quintile of street tree density, antidepressant prescriptions fell by 13.3 (95% CI = 1.2–25.4) per 1000 residents.

#### Conclusions

Prescription rates for antidepressants are lower in areas which have a greater density of street trees, even after controlling for area level indicators of deprivation. This evidence may assist local policy makers in conserving and managing street trees in a manner sympathetic to the wellbeing of urban populations. Our on-going research seeks to test this relationship in other areas, and other types of green space, and to take account of other possible confounders, using individual level data.

### Mental Health Care Financing: A Comparative Analysis of Seven Countries

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The objective of this study is to give a description and comparison of mental health care financing in selected seven countries of Central and Eastern European Countries (Bulgaria, the Czech Republic, Hungary, Moldova, Poland, Romania, and Slovakia). In all countries, the tax-financed system was transformed to public health insurance one, though the countries differ in the implementation. Bulgaria and Moldova face the problem of a large number of non-insured persons that do not pay insurance premium. Bulgaria has a dual financing of mental health services. All the inpatient mental health services have been financed by the government. On the other hand, the outpatient mental health services are financed by the National Health Insurance Fund. Mental health care is relatively underfinanced in comparison to physical health care in all selected countries. Although the financial resources devoted to health and to mental health are lower in comparison to Western Europe, the countries finance large numbers of institutional-based mental health services. There is an effort to prepare strategic mental health documents and update them if necessary. Even if the implementation of some plans failed, the strategic vision of community-based mental health services was prepared and disseminated.

### Association of environmental factors and the stress level among slum dwellers—a cross sectional study in the megacity Dhaka, Bangladesh

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## Background

Slum dwellers are heavily exposed to noise, water and air pollution because of poorly managed residential environment. According to our knowledge, the impact of such environmental problems on their stress is poorly acknowledged in Bangladesh. Therefore we investigated the association of environmental factors and the stress level of slum dwellers using a cross sectional study.

## Methods

This study is a household-based cross sectional study embedded in a cohort study within the framework of the Dhaka-INNOVATE project (funded by German Research Foundation). A total of 2,600 slum dwellers (one respondent per household) from Dhaka were interviewed using a pre-tested questionnaire. The stress level was assessed by the Perceived Stress Scale (PSS) by Cohen et al in 1983. The PSS included four Likert scale questions with five answers and their sums (stress index) ranged from 0=high stress to 16=no stress. A multiple linear regression -adjusted for sex, age, education and daily working hours- was performed to assess the association of stress index with environmental factors such as garbage management, stagnant water, air pollution, and housing conditions.

## Results

In total, 1919 respondents (sex ratio 1:1, mean age 34 years  $\pm$  13.09) were included in analysis. Overall, the mean stress level was 8.01 (SD 2.54). Environmental factors namely stagnant water surrounding the house, air pollution, provisional housing, house used for living and other purposes, and collection of garbage inside house were significantly associated with an increased level of stress.

## Discussion

Environmental factors seem to have some impact on the stress level among slum dwellers. Possible biases related to respondents' feelings and validity of stress index may alter the findings of the study. Therefore further studies to test the reliability and validity of the PSS are required in Bangladesh. Our results are partly consistent with the findings of a study (Gruebner et al. 2012) which focused on mental health among slum dwellers in Dhaka and identified determinants reflecting environmental, socioeconomic (i.e. satisfaction with job) and individual factors (i.e. sex).

## On the relationship between geomagnetic disturbances and suicide in Northwest of Russia and Finnish Lapland

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The biological effects of geomagnetic disturbances on human health are mostly expressed at high (polar) latitudes. The seasonal distribution of suicide occurrence in Kirovsk (Murmansk region, Russia) from 1948 until 2010 was studied. We've revealed three peaks (March-May ( $p < 0.001$ ), July ( $p < 0.01$ ) and October ( $p < 0.001$ ))

coinciding with maxima in the distribution of the more intensive ( $A_p > 150$  nT) geomagnetic storms. It has been also shown that socioeconomic factors do not essentially affect the dynamics of suicides. A total of 926 episodes of suicide were recorded. Suicide is determined by three factors: state of organism, status of agents and state of the environment. MTM spectral analysis was used for the search of periodicities. The results evidenced two cycles which may be related to solar activity and (or) lunar tidal influences (10 years and 16–21.3 years respectively). In addition, the risk of suicide was associated with the lunar cycle. A comparative analysis of suicide rates in Kirovsk, Archangelsk region and Finland showed a significant decreasing trend (in Finland and Archangelsk region) and a similar, but weak, trend in Kirovsk during the last two decades. Moreover, the suicide rate in Kirovsk increased periodically three times over the period (in 1994, 2003 and 2007). The results obtained seems to demand the further studies in the field taking into account the recent increase of economic activity in this region.

## Breastfeeding is negatively affected by prenatal depression and reduces postpartum depression

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## Background

The World Health Organization and the European Commission Directorate for Public Health both recommend exclusive breastfeeding for the first six months of life. Despite the established benefits of breastfeeding, rates are still low, and even though rates of breastfeeding initiation are high, there is a marked decline in breastfeeding during the first few weeks, and exclusive breastfeeding at 6-months postpartum is rare. Identification of women at risk for early cessation of breastfeeding is an health priority. This prospective cohort study explored the effects of prenatal and postpartum depression on breastfeeding and the effect of breastfeeding on postpartum depression.

## Methods

The Edinburgh Postpartum Depression Scale was administered to 145 women at the 1st, 2nd and 3rd trimester, and at the neonatal period and 3-months postpartum. Data regarding exclusive breastfeeding were collected until 12-months postpartum. Data analyses were performed using repeated measures analyses of variance, and logistic and multiple linear regressions.

## Results

The results showed that depression scores at the 3rd trimester, but not at 3-months postpartum, were the best predictors of the length of exclusive breastfeeding. The results also showed a significant decrease in depression scores from childbirth to 3-months postpartum in women who maintained exclusive breastfeeding for 3 or more months.

## Conclusions

This study suggests that screening for depression symptoms during pregnancy can help identify women at risk for early cessation of exclusive breastfeeding, and that breastfeeding may help reduce symptoms of depression from childbirth to 3-months postpartum.



## Q.7. REPRODUCTIVE HEALTH AND LIFE STYLE

### Disparities in hospital length of stay after childbirth in France

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#### Objective

Hospital length-of-stay (LOS) after childbirth has decreased significantly over the past 20 years in most Western countries. It is a matter of concern for families, medical professionals and health care planners because early discharge, without home support by midwives or others practitioners, is associated with an increased risk of maternal and neonatal morbidity. We aimed to study LOS after childbirth and its determinants among women who had a vaginal delivery in France.

#### Population and method

We studied 10 302 women with vaginal deliveries from the 2010 French National Perinatal Survey based on a nationally representative sample of births. Data were collected from an interview with the new mother and from medical records in the maternity unit. Maternal, neonatal and maternity unit's characteristics were studied, well as the region of childbirth. Logistic regression analyses were used to study determinants of short postpartum stays, defined as a LOS  $\leq 3$  days.

#### Results

29% of women had a LOS  $\leq 3$  days. LOS  $\leq 3$  days was more common among multiparas (ORa = 2.0 95%CI (1.8–2.3) for parity 2 and ORa = 2.9 95%CI (2.5–3.4) for parity  $\leq 3$  compared to parity 1), women who bottle-fed their newborn and those who delivered in Greater Parisian Region (ORa = 2.8 95%CI (2.5–3.2)). There was no clear trend between educational level and LOS. LOS  $\leq 3$  days was more frequent in large or teaching units than in small or private units, whatever the region. In the Greater Parisian Region, the proportion of LOS  $\leq 3$  days ranged from 16.7% in private units <1000 del/year to 72.9% in teaching units  $\leq 3000$  del/y. Similar associations with maternity unit characteristics were found after adjusting for individual characteristics.

#### Conclusion

LOS varies mainly according to place of delivery. Postpartum discharge in the 3 days following delivery is not common in France, but the trends towards short LOS will continue due to economic pressures and the concentration of births in large public units. In France, few mothers have home visits by midwives after discharge and home services should be developed to ensure continuity of medical care between maternity units and home for women discharged early in order to reduce neonatal readmissions and maternal difficulties.

### Images of future and family planning among the university students

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#### Background

For the stabilization of the population of Hungary the birth of 2.4 children per family would be desirable. However this volume at the moment does not exceed 1.3. Young couples tend to have their first child at a later time moreover the single way of living also spreading within the society.

#### Object

The main aim of our study was to examine the correlation between family and carrier planning in the university students. We searched the number of children the students were about

to have and the possible date of their first childbearing. We had a closer look at the effects of examples set by parents and finally compared our results regarding the different ideas of childbearing of male and female students.

#### Methods

A total of 417 students (232 females 21.35  $\pm$  2.15 y/o and 185 males 20.95  $\pm$  2.74 y/o) from the invited 500 students completed a questionnaire at the University of Miskolc. The participants were asked to prioritize the following values on a scale: marriage, material well-being, diploma, secure job, balanced partnership.

#### Results

Diploma and the balanced partnership considered to be the most relevant in the majority of students. The marriage and the child bearing were the least importance by both sexes. Students plan to have 2.1 children in average that is less than the desired 2.4. Students' mothers gave birth to their first child at the average age of 22.9, but girls intended to have the first child at age of 27, the boys at 29. Students were willing to have the same number of children as in their own families. We detected deviation in the families with three children (7.1% of the total) where only 1.8% of the students wanted to follow the family tradition; the others wanted to have only one or two siblings.

#### Conclusion

The results of our research supported the tendency that the importance of career planning is greater than one of family planning. It would be essential to have first child at ideal biological and physical age. The flexible lecture, examination schedule, tuition-free education, establishment of nurseries and kindergartens at the universities premises are with vital importance. Establishment of a family-friendly university environment might increase the childbearing spirit of the university students.

### Implementation of preconception care in the city of Leiden in The Netherlands

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Preconception care is known to be effective in changing unhealthy behavior and in enabling timely diagnosis of pregnancy risk factors. Our previous study, 'Parents-to-be' showed that a preconception consultation contributes to the promotion of a healthy lifestyle and to a reduction in risk factors at the start of pregnancy. However, the largest obstacle is to reach and motivate couples to come in for preconception consultation. Previous research by our group has shown that a single offer from the family physician yields insufficient responses. The response was especially low in groups with a low SES and in couples with an immigrant background. Since these are precisely the groups that will benefit most from a preconception consultation, we need to find additional strategies through which diverse groups of prospective parents can be reached.

We therefore aimed to raise awareness of the importance of preconception consultation in women in the city of Leiden in The Netherlands (March 2009–October 2011). Several strategies were used to inform women, such as use of mass media, direct invitation by a midwife and contact through social networks and intermediaries. The preconception care consultation is offered by specially trained midwives or family physicians.

15.6% of the pregnant women had heard of preconception care before being pregnant. In total 104 women came for preconception care. Ethnic minority health educators

successfully invited migrant women and women with a low level of education. A large proportion of consults was given to women in these groups. Most women had heard from preconception care from another person, being a ethnic minority health educators or a health care professional. Preconception care should be a standard part of antenatal care for women as it offers the opportunity for preventive measures to increase the health of mother and baby. Most couples do not know the first weeks of pregnancy are so important. Awareness should be further increased by making use of mass media campaigns and information through health care professionals.

### **Epidemiological studies on Polish women and tobacco smoking behaviour during their reproductive years and pregnancy in relation to the Developmental Origin of Health and Diseases hypothesis**

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#### **Background**

Tobacco smoking in women during pre-conception and pregnancy is well recognised to negatively affect the health of the newborn as well as its susceptibility to disease. This major three part study is focused on problems seen in smoking mothers and newborns together with youth lifestyle behaviour.

#### **Methods**

Studies on the effects of smoking were undertaken in Poland 2011, on over 4000 women during their reproductive age to investigate this problem further using survey questionnaires and clinical data. The results of a country wide survey on a randomised, similarly sized group of youngsters/young adults aged 14–24 years concerning healthy lifestyle behaviour, (involving smoking habits), was also included. Furthermore, using the Pregnancy-related Assessment Monitoring Survey, (PRAMS), format a randomised group of n = 3000 post-partum women and their newborns were assessed representing all obstetric hospital departments throughout Poland.

#### **Results**

A significantly reduced infant body mass was found when mothers smoked during pregnancy whilst smoking cessation had a positive increase on infant body mass whenever it occurred during this time. Smoking also caused 2% more premature births, a worse general condition of the newborn according to APGAR rating and a more frequent delivery by caesarean section. Women smokers also more often miscarried.

#### **Conclusions**

These studies confirmed that smoking has an important effect on birth outcomes and support the hypothesis that smoking influences newborn weight and through this the susceptibility to the so-called diseases of civilisation in later life. Preventative action, (appropriate education), can thus be formulated for both subjects and healthcare staff.

### **Effects of tobacco smoking during pregnancy on blood haematology in the mother and newborn**

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#### **Background**

It is known that smoking tobacco adversely affects haematological parameters in the blood of those smoking. This study is intended to demonstrate and assess the risk smoking carries on

mother and newborn blood homeostasis as well as newborn health.

#### **Methods**

During 2010–2011, nationwide studies and blood analyses were conducted in Poland on a randomised group of n = 6000 post-partum women and their newborns representing all obstetric hospital departments throughout Poland.

#### **Results**

Women who smoked all demonstrated higher haematocrit, concentrations of haemoglobin and packed red blood cells as did their newborns. It is suggested that this leads to an increased viscosity of blood, (hyperviscosity syndrome), where symptoms include spontaneous bleeding from mucous membranes, visual disturbances due to retinopathy, and neurologic symptoms ranging from headache and vertigo to seizures and coma which will occur in the subsequent years of the child's life.

#### **Conclusions**

Thus yet another reason for promoting/encouraging smoking cessation during pregnancy is apparent.

### **Maternal lifestyle and risk factors for adverse pregnancy outcomes: a pilot study in Cluj-Napoca, Romania**

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#### **Background**

Unhealthy behaviors during pregnancy, including cigarette smoking, alcohol intake, as well as environmental tobacco exposure (ETS) are established risk factors for an array of adverse pregnancy outcomes, such as miscarriage, low birth weight, premature birth and fetal growth restriction. However, all these are modifiable risk factors. The aim of this analysis was to examine the prevalence of lifestyle related risk factors in a sample of pregnant women in Romania.

#### **Methods**

The analysis used data from a cross-sectional pilot study assessing maternal lifestyle, stress, depression, anxiety and reproductive history in a sample of pregnant women in Cluj-Napoca, Romania. The instrument was a self-administered questionnaire. Study setting consisted of an obstetrics-gynecology clinic in Cluj-Napoca. Data was collected during February 2012, on a sample of 52 pregnant women attending prenatal care.

#### **Results**

Results suggest that more than 33% of the women in the sample reported smoking prior to pregnancy, while 9% of them continued smoking during pregnancy. Regarding ETS exposure, 44.2% of the pregnant women live with at least one smoker, 18% of them being exposed to cigarette smoke more than 3 hours a day. Also, 82.6% of pregnant women had at least one drink a week before getting pregnant, 8% had a drink at least once a week and 30% at least once a month, which decreased 12% having a drink once a month after learning about the pregnancy.

#### **Conclusion**

The pilot study's findings suggest a relatively high prevalence of risk behaviors, increasing the risk for adverse pregnancy outcomes. However, further research is needed to explore the extent, nature and determinants of these behaviors in order to inform preventive measures. Increasing education on prevention, encourage and support pregnant women to adopt healthier behaviors (stop smoking, reduce alcohol intake and avoid exposure to secondhand tobacco smoke) from the very beginning of the pregnancy, have to potential to positively impact pregnancy outcomes in Romania.

## Influence of women performing physical activity during pregnancy on newborn health in Poland

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### Background

It is recognised that levels of women's physical activity during pregnancy has a direct bearing on the method of delivery and the health of the newborn. This study investigates the relationship between maternal physical activity and newborn health in Poland focusing on problem areas.

### Methods

The subjects of this study were n=3000 post-partum women surveyed together with their newborns representing all obstetric hospital departments throughout Poland. The questionnaires were completed on a single day during the third week of September 2010. The women were also asked about the quantity, range and type of physical activity they did before becoming pregnant. In 2011 the Pregnancy Physical Activity Questionnaire was used for precisely measuring physical activity according to the standard metabolically equivalent (MET). In addition, comparisons were made between the types of delivery, infant weight and newborn status using the APGAR scale with the amount of physical activity performed by the mothers.

### Results

There was a positive relationship found between women's levels of physical activity and the newborn body mass ie. lowered incidences of intrauterine hypertrophy (macrosomia) and underweight and higher incidences of correct body mass, as well as fewer births by Caesarean Section were found in women that did more physical activity.

### Conclusions

The data thus support the now recognised benefits of physical activity in pregnancy and on the newborn. In order to improve this situation, education for women, medical staff and society in general is paramount and will be targeted to schools, medical universities, nursing colleges, media and post-graduates; especially GPs and gynaecologists.

## Pregnant women's empowerment during pregnancy surveillance

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### Background

Since the pregnancy is a period of physical and psychological adaptation, the concept of health promotion for pregnant women emerges. She must have sufficient and objective information in each stage of motherhood in order to achieve autonomy and empowerment. It becomes pertinent to study the factors that influence pregnant women's empowerment in order to improve it.

### Objectives

To describe the sociodemographic and obstetric profile of pregnant women; Relate the sociodemographic and obstetric variables with the empowerment of pregnant women; Relate information transmission during pregnancy with pregnant women's empowerment.

### Method

This is a non-experimental, quantitative, cross-sectional, descriptive and correlational study with a non-probability convenience sample (n=195). Data collection was made through a questionnaire comprising a sociodemographic component and obstetric history (previous and current) and a pregnant women's empowerment scale (KAMEDA; SHIMADA, 2008). This data collection instrument was administered to pregnant women in the third pregnancy trimester.

### Results

The pregnant women's empowerment is influenced by socio-demographic and obstetric variables. The information transmitted during pregnancy only affects pregnant women's empowerment in the information on questions relating to pregnancy and childbirth. The information's transmitter during the pregnancy (breastfeeding; feeding and weight gain in pregnancy; harmful habits in pregnancy and activity/rest) interact in the prediction of the pregnant women's empowerment.

### Conclusion

The health education during pregnancy is essential to the autonomy and empowerment of the pregnant women. Health professionals have an important role in information transmission during pregnancy, as confirmed by the results.

# R.7. MEASURING IN PUBLIC HEALTH EPIDEMIOLOGY

## The Impact of Food Hygiene Inspections on Microbiological Standards in Food Businesses

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### Issue/problem

There is currently no objective evidence of the impact of Environmental Health Practitioners' (EHP) food hygiene inspections.

### Description of the problem

An estimated million people suffered a foodborne illness in the UK in 2007 with 20,000 hospitalisations, 500 deaths and costs of nearly £1.5 billion. Local authorities prioritise food hygiene inspections on the basis of the level of risk associated with a particular type of premises e.g. a delicatessen will be inspected more frequently than a greengrocer. Food hygiene scores and compliance are based on the professional judgment of the EHP but there is no scientifically objective validation. This project is

assessing the objective impact of inspections and actions through microbiological testing of surfaces, foods and equipment before and after inspections/actions. The sampling has been targeted on butchers and other retailers and caterers handling both ready to eat and raw foods. A sampling framework has been developed to produce a microbiological baseline for food premises in Sandwell and to enable the impact of inspections/actions to be assessed against accepted standards.

### Results (effects/changes)

Statistical comparisons of microbiological standards before and after food safety actions at individual and food sector levels. The most effective interventions will be identified and where individual premises receive more than one intervention over the period multiple logistic regression will be used to identify the respective importance of those interventions. The influence of other factors such as the size, type of premises, hygiene practices and facilities etc on microbiological quality is also being described using logistic regression. Analysis will be completed by July 2012

## Lessons

The results of the analyses will determine the utility of EHP food hygiene inspections on the microbiological quality of foods, structures and equipment, and the influence of other factors. This intelligence will be used to inform the most effective and efficient food hygiene inspection strategy and practices.

## Prevention of vertical transmission of hepatitis b, Yerevan Armenia

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### Problem

Hepatitis “B” virus (HBV) is one of the major infections and global public health problem. Incidence and acute cases are common for adults, but chronic infection more often in infants and younger children. Consequences of chronic infections are manifested later in life and may result in liver cirrhosis, cancer and death. According to estimates of World Health Organization (WHO), there are 14 million people with chronic HBV in European region.

### Description

Following recommendations of WHO and other international organizations, in 2010 Ministry of Health of Armenia (MoH) and Rostropovich-Vishnevskaya Foundation (RVF) launched a program of prevention of vertical transmission of HBV by introducing prenatal hepatitis B surface antigen (HBsAg) screening of pregnant women and subsequent administration of HBIG to newborns of positive mothers in compliment to the existing universal infant HBV vaccination.

Results of screening are centralized at National Center for Disease Control and Prevention. Serum of all positive results on rapid testing sent to the central diagnostic laboratory in Yerevan where it was definitively tested for the same antigen using the Enzyme-linked Immunosorbent Assay (ELISA) method.

### Results

The prevalence of HBV infection in Armenia was explored using data accumulated from screening in City of Yerevan for the period-June 2010 to December 2011. The program uncovered serious problem of chronic hepatitis B carriage: 21 377 women tested, of those 224 confirmed HBsAg positive by ELISA. Results demonstrate prevalence of 1.05% of HBV infection among pregnant women.

Within 12 hours of birth HBIG and infant doze of HBV vaccine were administered to 190 newborns of positive mothers.

### Lessons

Prevalence provides evidence for decision on strategy to eliminate HBV vertical transmission: supplemental program of HBIG administration to interrupt transmission in compliment with neonatal HBV vaccine administration.

Should the supplemental program of HBIG administration be extended, a decision can be made to drop infant doze of HBV vaccine from routine immunization for all babies and apply a differentiated approach specifically targeted for babies at risk of infection.

## Burden of Tuberculosis in Umbria: a low-incidence Italian region with high immigrants rates (1999–2008)

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### Background

In Italy, Tuberculosis (TB) has increasingly become a disease for specific population subgroups such as immigrants. In 2008

TB incidence among Italians was 3.8/100.000, TB incidence among foreign born persons was 52,1/ 100.000.

### Methods

To describe the trend in TB incidence from 1999 to 2008 in Umbria: a low-incidence Italian region with high immigrants rates (9.7%), we utilized data obtained from the Regional Information System for Infectious Diseases. Personal data, citizenship, occupational status, professional position, sector of activity and site of the disease (pulmonary, extra-pulmonary and disseminated) of all notified TB cases were extracted. Using a linear regression model we estimated trends for number of cases and incidence rates; with a logistic regression model we estimated the effect of a set of covariates on the probability of being affected by TB.

### Result

590 TB cases were reported of whom 43% were immigrants. The annual proportion of foreign-born cases on the total TB notifications increased from 20.3% in 1999 to 49.2% in 2008. In 2008 39.7 new cases per 100.000 were registered among foreign-born subjects and 33.05/100.000 adding 20% of estimated irregular presences to the denominators. TB incidence among Italians was 3.8/100.000. But a linear regression analysis showed a statistically significant decreasing trend in the notification rate among foreign-born people (coef: -7.32, r<sup>2</sup>:0.57, p<0.05). 74.2% of reported TB cases were diagnosed with pulmonary disease, 23.1% had a diagnosis of extrapulmonary TB and only 2.7% with disseminated TB. The probability to be affected by extra-pulmonary is significantly larger in foreign patients (95% CI=0.48–1.07). Foreign unskilled workers report a higher probability to be affected by TB (95% CI=6.01–60.4) than Italy born ones (95% CI=0.75–2.45). Unemployment instead is significant only for the not-Italy born group (95% CI=2.78–6.13).

### Conclusion

Increasing immigration rates may affect TB epidemiology. The analysis of incidence trends is an important tool to identify specific sub-group at risk. TB among immigrants is a public health problem in Umbria and in Italy as well as in other low-incidence countries and it is characterized by particular clinical features and risk factors.

## Survey on knowledges, attitudes and practices of Italian residents of Public Health towards influenza vaccination

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Public Health Residents (PHRs) have to be considered of relevant interest among health care workers (HCWs) since they are strongly asked to recommend and perform influenza vaccination to other HCWs and general population. Nevertheless, Italian HCWs have influenza vaccination rates significantly below the 75% coverage proposed by International Public Health guidelines. In order to increase future coverage towards influenza vaccination, the aim of this study is to assess determinants associated with influenza vaccine uptake among Italian PHR.

A survey was carried out on PHRs attending 25 out 32 Post-Graduate University training programmes on Public Health in Italy (78.1%). Each participant was interviewed through an anonymous self-administered questionnaire including questions on knowledges, attitudes and practices dealing with influenza and influenza vaccination. Each questionnaire included five sections and twenty items. The questionnaire answers were entered in a database created within EpiInfo 3.5.1 software. Data were analyzed using the R statistical software package.

Response rate was 80.1% (365/456). Vaccination coverage was 22.2% for seasonal 2010–2011 influenza, 33.7% for seasonal 2011–2012 influenza. Medical residents who stated they were vaccinated against seasonal 2010–2011 influenza were significantly more likely to be vaccinated against 2011–2012 seasonal influenza (OR 42.07; 95% CI: 19.4–94.2). Vaccination against seasonal 2010–2011 influenza ( $p < 0.0001$ ), and seasonal 2011–2012 influenza ( $p < 0.0001$ ) were significantly more frequent in PHRs who were vaccinated more than three times in the previous five influenza seasons. Finally, PHRs who stated they participated to vaccination campaigns among general population were significantly more likely to be vaccinated against 2010–2011 (OR 3.19; 95% CI: 1.91–5.33) and 2011–2012 (OR 2.91; 95% CI: 1.82–4.64) seasonal influenza.

Influenza vaccine uptake among PHRs is more an habit than a ethical and professional responsibility. According to Italian PHRs multidisciplinary learning pathways (48.2%) and a better university training (23.3%) may implement vaccination knowledges in order to modify the current PHR attitudes to recommend influenza vaccination and to increase HCWs coverage and responsibility.

### The effect of Pandemrix vaccination on perinatal health in Finland 2009–2010

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#### Background

Immunisations during pregnancy, especially during the first trimester, have led to questions on their safety. Countries with nationwide health-care registers, high immunisation coverage and unique personal identifiers provide an optimal platform to study the safety of such immunisations. The aims of our study were to study the coverage of Pandemrix-vaccination during pregnancy and to investigate whether the vaccination had any effect on perinatal health between October 2009 and December 2010.

#### Methods

Information on all vaccinated women in reproductive age was linked to Medical Birth Register with data on 76 043 newborns and the Hospital Discharge Register with data on 12 510 spontaneous abortions treated in specialised health care (ICD 10 codes O00–O03).

#### Results

At least 13% of women with spontaneous abortion and 55% of women with delivery were vaccinated during pregnancy. Among parturients, the vaccination coverage was decreased among women aged less than 25 years (48%), smokers (50%), single women (51%), primiparous women (53%), and other than upper white collar women (54%). Women in rural area (57%) had the same coverage than women living in urban or semi-urban area (56%). All perinatal health outcomes were better among women who were vaccinated during pregnancy (adjusted ORs 0.45–0.71). The results were the same, even though the differences between the vaccinated and non-vaccinated smokers, or including women vaccinated before pregnancy in the analysis (adjusted ORs 0.61–0.94). The risk for spontaneous abortion was unchanged the first week after the vaccination (N=193) and the three following weeks (N=from 189 to 196).

#### Conclusions

Pandemrix vaccination during pregnancy did not have any adverse effects on the pregnancy and newborn. Further, immunization had protective effect on all the major perinatal outcomes studied.

### Awareness of HPV and of vaccination status among female school-going adolescents in Bremen und Bremerhaven, Germany

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#### Background

Low levels of human papillomavirus (HPV) awareness and knowledge have been observed in the few studies conducted among school-going adolescents. Such data are lacking in Germany.

We assessed the awareness of HPV-infection and of vaccine status among girls attending grades 8–13 in a school-based survey.

#### Methods

The study was conducted among girls aged 12–20 years attending 8 secondary schools in Bremen and Bremerhaven. Those with signed informed consent (parental for girls <18 years, otherwise own) completed an anonymous, self-administered questionnaire in school. The questionnaire included questions on demographic characteristics, about HPV awareness and on vaccination status. The items ‘ever heard of HPV’, ‘aware that HPV can cause cervical cancer’ and ‘aware of HPV vaccination possibility’ were combined to form the outcome variable ‘awareness of HPV’. We analysed the relationship between awareness of HPV, of vaccine status and vaccine uptake and several variables including age and migrant background using univariate and multivariate logistic regression.

#### Results

632 girls (31% of registered girls) completed the questionnaire and 32% had a migrant background. Half of the pupils had no awareness of HPV, 12% reported being vaccinated against HPV and 57% did not know whether or not they had been vaccinated against HPV. 52% of the pupils with no awareness of HPV were 12–14 years old and 80% had never had sex. Of those who reported being vaccinated against HPV, 52 (69%) were 15 years and older and 23 (31%) had a migrant background. Older age, migrant background, ever having sex and having been to a gynaecologist were significantly associated with awareness of HPV and of own vaccine status in univariate, but not in multivariate analyses. Only the variable ever been to a gynaecologist was significantly associated with self-reported vaccine uptake in univariate analyses.

#### Conclusion

Our results may be seen as an indication that female adolescents in Germany, irrespective of migrant background, are not adequately informed and counselled about HPV and associated issues. Factors contributing to unawareness of HPV vaccination status among adolescents need to be clarified as these might have implications for health prevention and communication strategies.

### Sickness absence theories: a taxonomy for researchers

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#### Background

The diverse theoretical explanations for sickness absence might confuse researchers and hampers development of the research area. The aim was to supply researchers with a taxonomy of different theories for sickness absence which have a basis in the social sciences.

#### Method

Empirical studies on sickness absence which were theory-driven and published after 1990 had been collected using various methods: systematic literature searches, reference

checks, and personal communication with colleagues. All theories found were labelled according to what they aimed to explain and how they explained this.

#### Results

Sickness absence theories can be categorized into (1) theories explaining sickness absence, (2) theories explaining sickness absence duration, and (3) theories that aim to understand sickness absence. The first group consists of: health-related theories; theories regarding the personality of employees; decisional theories and theories that combine work stress theory with decisional theory. The group of theories which explain sickness absence duration includes: phase-models;

work stress models; decisional theories, collaboration theories, and policy theories. Theories aiming at understanding describe the micro, meso or macro context of sickness absence.

#### Conclusions

Theories for sickness absence differ regarding scientific paradigm, focus, scientific discipline, amount of empirical studies using the theory, and whether the explanation lays in the individual or environment (or both). The taxonomy offers a useful tool for researchers that plan research on sickness absence or want to compare study outcomes. Recommendations for practice and research are made.

## S.7. PUBLIC HEALTH CAPACITIES

### Assessment of Public health professionals' knowledge and skills

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#### Objective

The purpose of this study was to evaluate the level of knowledge and skills of the professionals of Lithuanian Public Health (hereinafter-PH) sector based on the results of their self-assessment and the requirements for the level for knowledge and skills indicated by the experts.

#### Methods

The anonymous specialist questionnaire and expert questionnaire assessed the general and special competencies in early spring of 2011. Study included 308 PH professionals. Analysis was performed using descriptive statistical methods. The knowledge and skills were assessed in terms of points (on a scale of 1 to 5 (1-'no', 5-'excellent'), calculating the average.

#### Results

PH system of Lithuania comprised few levels of institutions: state, municipality and Non Government Organizations. There are PB centres, State Non Food Products Inspectorate and State Food and Veterinary Service, Municipality PH bureaus (MPHB) and other institutions where PH specialists are needed: schools, nurseries, hospitals and other. PH professionals working at the PH institutions for the general functional tasks have basic knowledge and skills, for special-good knowledge and skills. According to the experts in undertaking general and special functional duties specialists required excellent knowledge and skills.

According to experts, MPH professionals need to have very good skills and knowledge in the PH monitoring and health promotion functions, and the specialists had identified that they had the essential knowledge and skills. MPH professionals who worked in schools, and non bureaus schools PH professionals, had marked that they had sufficient knowledge and skills to perform functional tasks. Experts indicated that MPH specialists at schools ought to have higher competencies compared with the schools specialists. PH professionals at public administration institutions had identified that they had the basic knowledge and skills to carry out general and specific functional tasks. According to experts, specialists in the fulfilling functional tasks should have a fairly good knowledge and good skills.

#### Conclusions

PH professionals indicated that they have fairly good skills and knowledge, but the experts raised higher requirements than the most professionals have pointed out.

### Developing health promotion competencies in Finland by using blended learning

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The course Preventive Nursing 5 ECTS cr is included in the curriculum of a bachelor's degree programme in nursing. In there we have used different kinds of learning methods like lectures, learning-by-developing, face-to-face and virtual learning. The problem has been that students are not interested in knowledge of health promotion when we use traditional teacher-centered methods. In the beginning of the academic year 2010–2011, we started a pilot project the purpose which was changing the teaching methods in health promotion courses. We designed and piloted the preventive nursing course for adult learners by using blended learning methods.

The main objective of this pilot project was optimizing student engagement and restructuring and replacing traditional class contact hours. Other objectives were to increase nursing students' competencies in health promotion and create a positive attitude to health promotion in different contexts.

The structure of the course in preventive nursing was based on the framework of health promotion. In the beginning we, teachers and students, introduced ourselves by using the audio and video tools of Optima learning environment. We had a discussion forum for health promotion ethics and some other subthemes. We used personal and group learning diaries, the Adobe Connect Pro-online meetings and the GoogleDocs for group writing. Students liked this kind of independent training, where adult learners could organize their study time as it was suitable for them. The most students felt that they learnt more about health promotion than they thought in the beginning of the course. Students deepened their health promotion competencies. They mentioned that they now have a professional attitude to health promotion.

By-using new, flexible methods we inspired adult learners to adopt a broad view of health promotion as part of their daily working life and decision-making process. Health promotion is suitable for blended learning. Students need clear information about blended learning methods before starting the course. The results of this pilot project were encouraging. This kind of studying is flexible, independent of time and place and motivates students to be self-directed and to develop their general and professional competencies.

### Validation of an instrument on self-perceived level of competency among family physicians in Albania

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#### Background

We aimed to validate an instrument developed with the support of the EC Lifelong Learning Program tapping self-

perceived competency level of family physicians operating in primary health care system in Albania.

#### Methods

A representative sample of 57 family physicians in Tirana was interviewed twice (test-retest) in March-April 2012 [26 men and 31 women; median age: 46 years, inter-quartile range (IQR): 38–56 years]. A structured questionnaire was administered (and subsequently re-administered after two weeks) to family physicians including 37 items assessing their self-perceived level of competency concerning “patient care and safety” (8 items), “effectiveness and efficiency” (7 items), “equity and ethical practice” (8 items), “methods and tools” (5 items), “leadership and management” (4 items), and “continuing professional development” (5 items). Answers for each item of the tool ranged from 1 (“novice” = physicians have little or no knowledge/ability, or no previous experience of the competency described and need close supervision or instruction) to 5 (“expert” = physicians are the primary sources of knowledge and information in the medical field). An overall summary score (range: 37–185) and a subscale summary score for each domain were calculated for the test and retest. Cronbach’s alpha was used to assess the internal consistency for the test and retest, whereas Spearman’s correlation coefficient was employed to assess stability over time (test-retest reliability) of the instrument.

#### Results

Cronbach’s alpha was 0.87 for the test and 0.86 for the retest. Overall, Spearman’s rho was 0.84 ( $P < 0.001$ ); it was the lowest for the “leadership and management” domain (0.67,  $P < 0.001$ ) and the highest for the “patient care and safety” subscale (0.96,  $P < 0.001$ ). The median (IQR) summary score for the 37 items of the instrument was 96 (91–101) for the test and 97 (92–103) for the retest.

#### Conclusions

This recently developed tool showed relatively high internal consistency for both the test and the retest in this sample of family physicians in Albania. Furthermore, the fairly satisfactory stability over time of the instrument suggests a good potential for wide scale application to nationally representative samples of family physicians in Albanian settings.

### Patients self-perceived level of competency of their family physicians: A validation study in Tirana, Albania

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#### Background

Competencies in quality improvement are crucial for family physicians in order to foster patient care. Our aim was to validate a fairly recent tool (developed with the support of the EC Lifelong Learning Program) addressing family physicians’ competency level from the primary health care users’ perspective in transitional Albania.

#### Methods

A representative sample of 114 primary health care users in Tirana city aged 18+ years was interviewed in March-April 2012 (49 males and 65 females; mean age: 60 ± 15 years). Participants were asked to assess, from their standpoint, the level of competency of their respective family physicians regarding the following domains: patient care and safety (8 items), effectiveness and efficiency (7 items), equity and ethical practice (8 items), methods and tools (5 items), leadership and management (4 items), and continuing professional development (5 items). Answers for each item of the tool ranged from

1 (“novice” = physicians have little or no knowledge/ability, or no previous experience of the competency described and need close supervision or instruction) to 5 (“expert” = physicians are the primary sources of knowledge and information in the medical field). An overall summary score (including 37 items; range: 37–185) and a subscale summary score for each domain were calculated for all participants. Socioeconomic data were also collected. Cronbach’s alpha was used to assess the internal consistency of the full scale (37 items) and each of the 6 subscales.

#### Results

Overall, Cronbach’s alpha was 0.89 (0.82 in males and 0.91 in females). Cronbach’s alpha ranged from 0.84 for the “methods and tools” domain to 0.92 for the “patient care and safety” subscale. The mean summary score for the 37 items of the instrument was 89.3 ± 9.1 (88.7 ± 6.7 in males and 89.7 ± 10.6 in females). Overall, there was no correlation of the summary score with age, but a weak positive correlation with education.

#### Conclusions

In the Albanian context, we validated a simple tool tapping patients self-perceived level of competency of their family physicians regarding different domains of health care services. This instrument will be soon administered on a nationwide scale including a large representative sample of primary health care users in Albania.

### Essential Teaching Skills (ETS)

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#### Background

The most consistent responses from preceptors during a Faculty Development needs assessments were: “(1) We want to be better teachers, and (2) we want more in-house training.” To address these needs, the hybrid course “Essential Teaching Skills (ETS)” was developed.

#### Objectives

of the course were to (1) support preceptors in becoming more prepared, resourceful, effective teachers and; (2) increase FD participation by offering more in-house training. The course consists of a convenient package of skills identified by preceptors as essential to be an effective teacher in a four-hour workshop followed by four 30-minute online sessions. The first ETS course involved 15 preceptors (maximum allowed for MainPro-C accreditation), representing all seven of the universities teaching sites. A train-the-trainer session followed two weeks later and all 15 preceptors voluntarily returned for additional training and support in order to teach EST at their home site. Eight ETS courses (in both French and English) were delivered to a total of 93 DFM preceptors representing seven teaching sites. Three methods were used to evaluate the courses: Post-Workshop Survey; Post-Online Surveys after each of the first three online modules; the fourth online module is a reflection exercise and; Two Focus-Group Interviews (each with eight preceptors).

#### Results

Preceptors remarked on the importance of standardizing the approach to teaching across the DFM seven sites and participants from all sites appreciated the innovative dissemination offering convenience ‘in-house’ training. Community/rural practice preceptors valued the effort made to offer a session especially for them. The Francophone faculty who participated expressed appreciation for the efforts made to address their language needs. Success of the course can be attributed to first conducting a needs analysis and then addressing preceptors’ wants and concerns in a timely fashion through the efforts of an engaged and skilled cadre of medical education enthusiasts.

## Conclusion

It is our expectation that other Family Medicine Departments can benefit from our experiences and from using or adapting the ready-made ETS online modules that can be accessed at: <http://www.familymedicine.uottawa.ca/ets/>.

## Global Health in Medical Education: Student Rating Assessment of Global Health Courses in three Faculties of Medicine in Rome

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### Background

In response to the increasing recognition of the importance of Global Health (GH) in medical education, most of Italian medical schools introduced optional courses according to a standard curriculum, shared and updated by the Italian Network for Global Health Education. The main modules include issues concerning Health determinants, Globalization, Inequalities, Migration and International Health Cooperation. Student rating assessment provide essential data to enhance quality progressively.

### Objectives

During 2010–2011 academic year, in three Faculties of Medicine in Rome, an end-course questionnaire was submitted to medical (MS) and other health professional (OS) students, in order to evaluate student satisfaction with consistency of contents compared to the expectations, utility for future career, teachers' clarity, teaching methodologies, relevance of GH issues in current medical curriculum.

The satisfaction degree assessment was carried out by identifying 5 levels based on a score (from 0 to 27) obtained by the questionnaire. The 5 levels were labeled as not enough (score: 0–10), just right (score: 11–15), fairly good (score: 16–19), good (score: 20–23), excellent (score: 24–27). Frequency (N) and percentages (%) were calculated for each satisfaction degree comparing MS and OS. Inferential analyses were performed (x2 test at the 0.05 significance level).

### Results

All 113 students attending the courses answered the questionnaire: 89 (78.76%) were MS and 24 (21.24%) OS. No student reported not enough satisfaction. Just right satisfaction was reported by 4 (4.49%) MS and 1 (4.17%) OS. For 16 (17.98%) MS and 4 (16.67%) OS the course ranked fairly good satisfaction, while 46 (51.68%) MS and 14 (58.33%) OS accounted for good rating. Excellent degree was reached by 23 (25.84%) MS and 5 (20.83%) OS. No association between the level of satisfaction and the belonging to the degree courses (MS and OS students) was found ( $p > 0.05$ ).

### Conclusions

Our rating assessment shows appreciation of GH issues, because students experience the relevance in the globalized context and in their future leadership in Health, both for domestic and international careers. Further evaluations could support in the comprehension of other aspects in order to improve teaching quality.

## Quality assessment of education at Faculty of Medicine University of Sarajevo

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## Introduction

Goal of measurement of the quality assessment of students' satisfaction is identification of weak and outdated sections of medical education. By finding out the unnecessary aspects, it is possible to start with improvement of the educational system.

## Methodology

The survey was conducted on the sample of 108 students of the final year of the study of Medical faculty in Sarajevo in January 2012. Questionnaire had 24 process and outcome variables for the purpose of quality assessment of the education at the Faculty of medicine in Sarajevo. Given data in this research were compared with similar data collected in the year 2008 and results are compared using descriptive statistics methods.

## Results

The measurement of quality of realised lectures determined that above 90% students rated it very low with grades under 3 of possible 5, compared with average 3 in survey from 2008. Unpreparedness of independent service after finished medical education has raised to 70% of questioned students, compared to 53% in 2008. Ratio of educators and assistants to students was graded mostly with grades under 3 of possible 5 by more than 80% questioned participants. Students grading satisfaction with concept of preclinical training has peaked in low levels of grade 1 by 44% survey participants, what are similar results compared to 2008. The measurement of satisfaction with concept of clinical education determined even lower and embarrassing values of 94% negative attitudes and opinions by questioned students, compared with 83% in 2008. Availability of modern technical equipment at Faculty of Medicine is very low rated with grades under 2 by 87% of students.

## Discussion and Conclusion

The problems and weak points in medical education of Faculty of Medicine University of Sarajevo have persisted during period of more than a decade. There is urgent need of improving and reforming the educational system which will bring more practical clinical and preclinical work, patient-student contact and interaction with bigger full attendance of educators and tutors, all supported by new modern technical and informational technologies. On this way the achievement of independent and patient oriented work after received medical education is granted for future generations of doctors.

## Health workers capacity on gender based violence victims treatment in Serbia, in 2011

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### Background

Gender based violence (GBV) affects the health and well-being of women and their children and represents a great burden on health budget. The real frequency of GBV is understated a worldwide. The aim of research is to register health workers' (HW) experiences of GBV and their role as health care providers to the victims.

### Methods

Prevalent study done in 2011 in four regions of Serbia.

### Random sample

HW from government health organizations (HO) (n = 216).

### Instrument of research

the anonymous questionnaire. The participation in survey was voluntary.

### Data analysis

methods of descriptive & analytical statistics.

### Response rate

200 (92,59%) from 216.

### Results

Our tested were 93% female and 7% male HW from 18 cities and 39 HO. One third of them had own experiences with GBV, mostly at their work places. Attitude that there was low level of community awareness about GBV had 78% HW, while 20% of



them regarded that “some women ask to be beaten”. The opportunity for education on GBV had 27% of tested. More than ½ of HW had reluctance to intervene because they “didn’t know how to ask women”, “it’s not their responsibility”, “dread the consequences”. Even 58% of them didn’t record evidences of GBV victims; 70% didn’t use the guidelines for victims’ treatment. Follow-up strategy conducted ¼ of tested. Our tested most frequently introduced police department, social service and psychologist to the victims. Working teams actually functioning only within the three from 39 HO.

#### Conclusion

The results showed lack of HW education, their low capacities for GBV victims’ treatment, also the inefficient implementation of the policy documents and protocols within the HO. The need is to implement training programs for HW aiming to improve their professional capacities; create working teams within the HO; strengthen HO managers to allocate resources and implement policy documents; establish education on GBV in HW curriculum; conduct more rigorous control on reverence of policy documents.

#### Project: Training of health professionals on violence against women in Serbia, in 2011/12

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#### Background

Every 5th woman in EU is a victim of violence. Violence against woman (VAW) results in serious health consequences and violation of life quality. In Serbia formal education on VAW is insufficient. The aims of project were recruitment of health professionals’ (HP) capacities for work

with victims and improving quality of health services for abused women.

#### Methods

Qualitative and quantitative methods used for evaluation of adopted knowledge & skills and the seminars’ quality (analytical statistics & nominal scale of one to five). Instrument: target questionnaire and evaluation of educators. Target population was HP and Red Cross (RC) volunteers from four regions of Serbia. Sample was random (n = 240).

#### Results

During 10 months in 2011/12 eight two days seminars were realized (each of 12 working hours). The participants were 91,2% HP and 8,8% RC volunteers from 18 cities & 43 organizations. All of them accepted knowledge about different aspects of VAW, procedures of caring, community options for support, possibility of VAW prevention. Mastering of skills (initial interview, victims’ identification, assertive communication, designing working teams & promotion campaign, follow-up strategy) & quality of discussion in focus groups were significantly different between the participants from the several regions, which connected with the accessibility of HP’ post-graduated education and the specific demographic characteristics of those regions. HP evaluated the possibility applying the new knowledge & skills in routine practice with 4,85 of maximum five points. They mainly successfully created the guidelines for work and working teams adapted to their work places and the community. They regarded that training for HP, recording, monitoring, reporting about the cases of VAW must be obligation within the health organization.

#### Conclusion

Realized seminars justify need for this kind of education, aiming to upgrade health and life quality of abused women and their children.

## T.7. DIABETES

#### Forecasting Type 2 Diabetes prevalence to 2025: Validation of a simple Model

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#### Background

Current projections of diabetes prevalence are mostly based on demographic change. Explicitly including trends in obesity and other risk factors could improve the accuracy of the projections and assist in evaluating policy options for prevention.

#### Methods

We developed a model for 25–74 years old population of Turkey (1997–2025). The model integrates population, obesity and smoking trends to estimate future diabetes prevalence using a Markov approach. Model parameters were derived from the literature, except for diabetes incidence which was estimated using DISMOD II from the baseline estimation of diabetes prevalence. The model outputs were compared with subsequent diabetes prevalence surveys conducted in 2010.

#### Results

Diabetes Mellitus type II prevalence estimated by the model was 7.5% in 1997 (6.0%–9.0%), increasing to 16.1% (15.5%–21.1%) in 2010, the available year for validation. Comparisons of the model results with the observed prevalence in the TURDEP-II survey showed a close fit to the observed estimates. The observed prevalence of diabetes mellitus in

Turkey in 2010 was 14.9% (13.6% in men and 16.1% in women) and the estimated values by the model were 16.1% (14.9% in men and 17.1% in women). The forecasted prevalence for 2025 was 31.4% (28.2% in men and 34.6% in women).

If obesity prevalence declines by 10% and smoking decrease by 20% in 10 years from 2010, a 5.7% reduction in diabetes prevalence could be achieved in 2025 (3.7% in men and 6.8% in women).

#### Conclusions

This model provides a reasonably close estimate of diabetes prevalence for Turkey over the 1997–2025 period, compared with contemporary independent prevalence surveys in the same population. Diabetes burden is now a significant public health challenge, and our model predicts that its burden will increase significantly in the next two decades. Tackling obesity and other diabetes risk factors needs therefore urgent action.

#### A Brisighella heart study 8 year followup to define the effect of risk factors combination on development of Type2-diabetes

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#### Background

Brisighella Cohort study started in 1972 and till 1984 has remained an observational study. In future years, some

changes had been brought to interventional studies but in 1996 the Brisighella Heart Study Group led it back to an observational design. As in Framingham Heart Study Group (2007), the relevance of associated risk factors in order to determine the risk in developing chronic diseases has increased and induced some researchers in trying to build risk scores for the developing of type 2 diabetes.

#### Methods

This study used data from Brisighella Cohort study in an historical cohort design. We collected data regarding anthropometric measures (BMI), metabolic and cardiovascular risk factors (Blood pressure, Fasting glucose, Hdl and Triglycerides), and diabetes diagnosis. We created different variables made by combined risk factors in a vision of understanding the contribution to the arousal of diabetes. At the end we performed a multivariate logistic regression where combinations of risk conditions at the beginning of observation (1996) and diabetes diagnosis (2004) were correlated.

#### Results

Results show an increased probability of 24% in developing diabetes when BMI in men is higher. Fasting glucose (over 100 mg/dl) is also a predictive factor of developing diabetes after 8 years (OR 13,29;  $p=0,000$ ) and, if associated with high blood pressure ( $>130/85$  mm Hg or receiving therapy), increases the probability of developing diabetes by several times (WOMEN:OR 40,34;  $p=0,001$ ; MEN:26,507;  $p=0,005$ ). Other combined risk factors were not significant.

#### Conclusions

These data confirm that BMI and fasting glucose are important predictors for the development of diabetes in our patients. What we add is that the combination with high blood pressure can double or more the probability of acquiring the disease depending on gender. More data on score risk determination will be pursued. For determining healthcare impact on services, these scores are fundamental in order to plan future resources and clinical pathways.

### Prevalence of diabetes in Italy from 1980 to 2005 and the role of socioeconomic position

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#### Background

Prevalence of diabetes is increasing worldwide, and its inverse relation with socio-economic position has been established in several areas. However, very few studies have explored the time trend of this relation on a national basis. We studied the trend of diabetes prevalence in Italy by socioeconomic position in a representative sample of the Italian population from 1980 to 2005.

#### Methods

The study populations are the national representative samples of people aged  $>30$  years from the Italian Health Interview Surveys conducted by the National Institute of Statistics in the years 1980, 1983, 1987, 1990, 1994, 2000, 2005. Age-adjusted prevalence of diabetes was calculated, and its relationship with educational level was estimated fitting the Relative Index of Inequality (RII) in a logistic model adjusted for Body Mass Index (BMI) classified in overweight (OW) and obesity (OB). Interaction between socioeconomic position and region of residence was tested.

#### Results

During the study period age-adjusted prevalence of diabetes increased from 4.5% (95% CI=4.2–4.7) to 6.8% (95%

CI=6.5–7.0) in men, while it didn't change in women, from 5.9% (95% CI=5.6–6.2) to 6.1% (95% CI=5.9–6.3). In the same period, OW and OB increased from 47.5% (95% CI=46.9–48.1) to 59.0% (95% CI=58.5–59.5) in men and from 34.1% (95% CI=33.5–34.6) to 39.8 (95% CI=39.3–40.2) in women.

Among men, the RII for diabetes increased from 0.97 (95% CI=0.70–1.34) in 1980 to 1.69 (95% CI=1.44–1.98) in 2005; adjustment for BMI didn't affect RIIs. On the contrary, among women, the RII decreased from 4.18 (95% CI=2.72–6.42) to 2.62 (95% CI=2.17–3.15), and adjustment for BMI, slightly reduced these values. Interaction with area of residence was not significant.

#### Conclusions

Homogeneously in all regions of Italy, from 1980 to 2005 the age-adjusted prevalence of diabetes has increased in men and has not changed in women. Socioeconomic differences have emerged among men and have decreased among women. These trends are not explained by BMI among men and are only partially explained among women. Different factors other than increased BMI, such as psychosocial characteristics, social differences in case ascertainment or in survival, must be investigated.

### Ecological association between diabetes prevalence and air pollution in Italian provinces

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#### Background

People with diabetes have a higher risk of macrovascular complications (cerebro- and cardiovascular diseases). Some studies, suggested that during periods of high levels of air pollution, diabetic patients have increased susceptibility for vascular reactivity and doubled rates of hospital admission for heart disease.

#### Methods

The relationship between PM10 and NO2 levels and diagnosed age standardised diabetes prevalence in Italian provinces was modelled using multiple regression. The dataset was assembled from publicly available databases linking air pollution, hospital discharge and census databases in the period 2000–2010. Covariates included in the study were latitude, obesity, income, education level, physical activity, smoking, hypertension at the regional or province level of aggregation.

#### Results

Covariates were often correlated among each other and selection was carried out to decrease the variance inflation factor. In particular educational level were inversely related to obesity ( $b = -0.17$ ;  $p < 0.05$ ) at the regional level. Male diabetes prevalence decreases with increasing latitude ( $b = -0.07$ ; IC95% -1.2–0.2;  $p = 0.1$ ) and education level ( $b = -0.22$ ; IC95% -0.48, -0.17;  $p < 0.001$ ) but increases with increasing year median PM10 levels ( $b = 0.20$ ; IC95% 0.11–0.35;  $p < 0.001$ ). Female diabetes prevalence decreases with increasing latitude ( $b = -0.09$ ; IC95% -1.06, 0.05;  $p = 0.07$ ) and education level ( $b = -0.13$ ; IC95% -0.37, -0.03;  $p < 0.001$ ) but increases with increasing year median PM10 levels ( $b = 0.22$ ; IC95% 0.10, 0.28;  $p < 0.001$ ).

#### Conclusions

Other studies suggested that some biological mechanisms related to air pollution exposure and cardiovascular diseases may also be involved in the onset of type 2 diabetes. Our results suggest that air pollution may contribute to increase the diabetes prevalence in the adult Italian population and are consistent with finding in France and US populations.

## How perceived quality of GP care and disease knowledge in diabetes patients correlate with disease outcome

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### Background

In addition to good management by the doctor, for type 2 diabetes mellitus (DM2), good self-management is crucial for preventing debilitating and costly long term complications. However, it is not yet clear what influences disease self management. It is known that knowledge of the disease plays a role: more knowledge of the disease is related to better self-management, which is related to better health-outcomes. Better communication with the doctor in turn leads to more knowledge of the disease. One of the underlying mechanisms may be perceived quality of care. It is not known whether high perceived quality of care leads to better disease management and to better disease outcome. This study examined whether positive care experiences with the general practitioner (GP) and /or knowledge of the disease are correlated with better disease outcome.

### Methods

The Consumer Quality Index (CQI) Diabetes questionnaire, measuring patient experiences and knowledge of the disease, was sent to 3,384 DM2 patients in 21 GP practices in order to assess perceived quality of care and knowledge of the disease. In addition, medical data were retrieved from GP's medical records to assess disease outcomes. Experiences from the CQI on diabetes-specific communication were compared to disease outcomes and knowledge using regression analyses.

### Results

Patients with positive care experiences had better disease outcomes for a number of DM2-related measures, e.g. better creatinine levels, less hypertension, less manifest cardiovascular, cerebral and renal complications, and they exercised more. They were also better informed about the disease. Patients with more knowledge of the disease also showed better outcomes.

### Conclusions

High perceived quality of GP care and knowledge of the disease are both related to better disease-specific outcomes. High perceived quality of care is also related to a better understanding of the disease. Therefore, it is crucial for the GP to ensure the patient has knowledge of the disease, and also to invest in increasing the quality of care as perceived by the patient. Both will lead to better disease outcome.

## Diabetes Care in Former Soviet Union Countries; findings from multi-method rapid evaluation

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### Background

We present findings from a multi-county study assessing health systems performance using diabetes as a tracer. The study was conducted in five Former Soviet Union countries: Belarus, Russia, Ukraine, Moldova and Armenia and funded by the FP7-Health collaborative research project-Health in Time of Transition: Trends in Population Health and Health Policies in CIS countries.

### Methods

A multi-method evaluation instrument was developed drawing on rapid appraisal methods used in earlier studies. The instrument was piloted and administered in each country. It explores how health system functions to meet chronic disease care requirements, specifically, organisation, provision, training, communication and others. It takes into account also the

social determinants of effective care. Effective diabetes care is used as a tracer for evaluating system performance in terms of access, integration of care, responsiveness, health outcomes.

### Results

Role of primary care providers in diabetes management has changed little despite introduction of a family medicine practice. Endocrinologists still retain leading role in diagnosing, drug prescription, adjusting treatment regimen and patient education, with little support from nurses. Due to growing patient numbers and paperwork endocrinologists spend decreasing time treating patients with complex chronic conditions. Hospital services are often used as a point of entry. In all countries service delivery is fragmented and poorly coordinated. General practitioners and specialists do not work in teams and patient follow-up is inadequate. Across countries barriers to care differ. While in Belarus patients enjoy free services at all levels of care, in other countries hospital services are associated with high out-of-pocket expenditures. There are variations in access to drugs, self-monitoring equipment. Diabetes outcomes vary and while this can be attributed to health systems configuration and level of financing, other external factors play a role as well.

### Conclusions

The study adds to a knowledge how particular health system characteristics obstruct or enable care of patients with chronic conditions. It identifies core problems and offers opportunity to develop pragmatic policy options to address these gaps.

## Impact of disparities on potentially preventable hospitalization for diabetes: a systematic review

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### Background

Diabetes is one of the most common chronic diseases in nearly all countries, and the number of patients with diabetes is steadily increasing. Potentially preventable hospitalizations (PPH) are hospital admissions for Ambulatory care-sensitive conditions that should not required in-hospital treatment if timely and appropriate ambulatory care is provided. Prior studies suggests that inequalities have an influence on the rate of PPH for diabetes. A systematic review was performed to assess the impact of disparities on PPH for diabetes.

### Methods

A systematic review of the literature by querying electronic databases and hand searching was carried out. The selected studies were assessed for methodological quality independently by two authors, according to a score based on 5 potential sources of bias (methods of allocation to study group, data analysis and presentation of results, presence of baseline differences between the groups, objectivity of the outcome, completeness of follow up). This systematic review analyses the association between avoidable hospitalization and disparities measured by different indicators.

### Results

Literature review identified 14 relevant studies containing data for more than 1,370,000 admissions. The indicators of disparities used in these studies were gender, age, race/ethnicity, income, education level. Around 71% of the studies reported the significant effect of ethnic minorities, in univariate analysis (4 studies) or multiple analysis (6 studies). Males had a higher risk of avoidable hospitalization in multiple analysis models applied in 5 studies (43%). Around 36% of studies reported a significant effect of lower income on PPH. A single study dealing with education level showed no significant association with PPH.

## Conclusions

Disparities at potentially preventable hospitalization exist across a number of determinants for diabetes. Promoting equity in disease prevention and treatment should be a priority of any health care system.

## Early markers of cardiovascular and metabolic risk in Portuguese young adults

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### Background

The development of early markers of cardiovascular and metabolic disease is in medium and long term related to overweight, therefore, in the current nutritional context it's recommended the evaluation of individual risk factors as they are strong predictors of future health risk and co-morbidities. Objectives: To determine the arterial blood pressure (BP) and waist circumference (WC) values and to analyze its relation with the nutritional status in young adult couples.

### Methods

Cross-sectional and observational study conducted in 2011 with 792 couples, average age women 34,15 years (Dp = 5,01), men 36,1 years old (Dp = 5,34), residents in Portugal, NUTs III, Dao-Lafões sub-region. Anthropometric and WC evaluations were done and BMI classification, based on the WHO (2000) and IDF (2005) referentials. The BP was evaluated and

classified according to the Directorate General of Health norms (DGS 2004).

### Results

Globally 52,8% of the couples were overweight, 41,1% women (10,2% obese) and 64,4% men (14,8% obese). Overweight was significantly higher in couples with low instruction and income, older age and women from the rural areas.

Metabolic risk associated with WC was more evident in women (30,5% high risk, 24,9% very high risk) and in 29,7% and 13,4% men. Both men and women with pre-obesity and obesity show respectively high and very high risk of metabolic disease (women:  $\chi^2 = 404,90$ ;  $p = 0,000$ ; men:  $\chi^2 = 235,129$ ;  $p = 0,000$ ).

In 38,1%, 19,8% and 2,8% men BP values were classified as prehypertension and hypertension stage I and II respectively, comparing to 15,3%, 8,6% and 11,6% of women. Regarding cardiovascular risk it was found that obese women showed 30,9% and 50,0% hypertension stage I and II ( $\chi^2 = 75,165$ ;  $p = 0,000$ ) and obese men showed 20,3% and 11,1% respectively prehypertension and hypertension ( $\chi^2 = 32,602$ ;  $p = 0,001$ ).

### Conclusions

Results suggest positive and significant association between overweight and metabolic and cardiovascular risk. In the actual obesogenic context these evidence reinforce the importance of promoting family health and the need of effective interventions focused on controlling the factors and modifiable behaviors for metabolic and early cardiovascular disease as well as managing identified risk factors, preventing its development.

## U.7. HEALTH PROMOTION

### Building Community-Campus Partnerships to Prevent Infant Mortality: Lessons Learned from Building Capacity in Four U.S. Cities

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Despite progress, infant mortality rates (IMR) continue to be a significant public health problem in the United States. The U.S. ranks 41st among 191 countries in infant mortality rates (WHO, 2011). IMR among non-Hispanic black infants is 2.4 times that for non-Hispanic white infants (US DHHS, 2011). Since IMR is an important indicator of progress toward health equity, the US DHHS Office of Minority Health (OMH) has been developing and implementing a Preconception Peer Educators (PPE) Program. As for other components of the OMH national program A Healthy Baby Begins with You, the PPE Program aims to raise awareness about the disproportionately high infant mortality rates among African-Americans, and to promote preconception health behaviors among women of childbearing age and sexually active men as a key measure to help reduce the risk for infant mortality. To date, the program has trained more than 800 PPEs from colleges and universities across the United States. This presentation focuses on lessons learned from a partnership development and capacity building pilot program implemented in 4 U.S. Cities-Los Angeles, Nashville, Jacksonville, and Charlotte-to encourage campus-community partnerships, and ultimately, to support PPEs community outreach efforts; and to continue to involve local leaders and organizations in infant mortality prevention programming.

### Methods

Community participatory research, materials analysis, in-depth interviews with community-based organizations leaders and current peer educators; task force development.

Learning Objectives: At the end of this presentation, participants would be able to:

- Discuss lessons learned and key issues in building capacity for partnership development
- Identify key elements to be considered in developing partnership plans and issue-specific task forces, as it relates to community-campus partnerships
- Apply key learnings to the development of programs and partnerships for infant mortality prevention and to encourage the sustainability of all efforts at community level

### Parenting interventions as a population-based approach: the "prevention paradox" revisited

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### Background

The "preventive paradox", described by Geoffrey Rose, states that interventions that are valuable for the population may not necessarily benefit the individual. The preventive paradox may be acceptable if no harm is inflicted and if the cost of intervention is low per person. Parenting programs were not originally intended for universal use, but are increasingly applied as population-based interventions. Because of the costs and the effort involved it would not be desirable to aim for universal uptake of parenting programs and the preventive paradox could become a moral, behavioural, and economical problem. Still, targeted strategies are not a viable option.

### Aim

To identify the characteristics of parents who self-select into a universally offered parenting program-Triple P, the Positive Parenting Program.

### Methods

A cluster-randomised controlled trial was conducted in Uppsala, Sweden, with preschools as an arena for offering

the program. Questionnaires were collected at baseline, 12 and 18 months. Program exposure-consisting of parenting seminars and/or individual consultation sessions of 20–30 minutes was registered.

### Results

Over 18 months 32% of mothers and 17% of fathers self-selected into the intervention. These mothers reported higher levels of parental stress, more difficulty coping with stress, higher levels of behavioural problems in children, and lower levels of parental efficacy compared to those who did not self-select. They were also more likely to have higher education and a higher income. Self-selecting fathers reported higher levels of emotional problems in their children and higher levels of parental depression and anxiety. No differences based on SES were observed.

### Conclusions

A universal offer of a parenting program resulted in self-selection of participants who showed a vulnerability on the outcomes the program was intended to affect. Socioeconomic differences for participating mothers underline the need for efforts in line with proportionate universality. Allowing self-selection into universally offered parenting programs, while supporting marginalized groups specifically, may counteract the paradox described by Rose in that those who self-select into the intervention actually seem to need it and probably benefit from it.

## Health visiting in the context of parent-child preventive health care programmes

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### Background

Outreach services for expectant mothers, parents and children are integral parts of several preventive health care programmes throughout European countries. To date, the Austrian preventive health care programme has not provided health visiting services, though. Hence, there are no nationally available structures but rather a few isolated (regional) offers. Within a larger project aiming at the re-orientation of the actual Austrian parent-child programme, we informed the Austrian Ministry of Health about various outreach aspects, such as health visiting curricula and the efficacy of outreach services.

### Methods

Based on hand search, we collected curricula and professional profiles in 5 European countries (Germany, Austria, UK, Denmark, Sweden). For the impact analysis on health visiting services, we created an umbrella review (incl. reviews published between 2000 and 2010).

### Results

Germany and Austria have shown to provide curricula for certified caregivers and midwives which particularly emphasise the work with 'socially stressed persons/families'. Specialisations in specific groups can also be found in the UK, Denmark and Sweden, whereby the training programmes in these countries are also targeted to outreach work with expectant mothers, parents and children without risk/stress factors. For the umbrella review we included 6 reviews. Evidence of the positive influence of outreach services on children indicated amongst others, improvements in their cognitive, social and emotional development. Furthermore, the reviews reported on efficacy trends concerning the general physical health of mothers or the progression of post-partum depressions. However, the compiled end points also show contradictory findings which make further, in-depth research necessary.

### Conclusions

The presented findings indicate that outreach help is discussed above all in context with (socio-) medical risk/stress factors. Against the backdrop of socially determined health threats, the establishment of outreach services for particular target groups appears comprehensible. What particularly applies for Austria is that the gradual implementation of a low-threshold outreach programme can build upon already existing training possibilities and partly on international efficacy findings.

## Introducing triage of infants in preventive child health care to improve monitoring and guidance in The Netherlands

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### Background

Improving health behaviour remains a major challenge to public health, and this starts as early as from birth on. The shortage of physicians and increased attention for infants at risk for developing health problems call for a new organization of preventive child health care (PCH). This study assesses whether and how the triage care model allows for appropriate guidance of infants and their parents. Based on triage, infants are categorized in three risk groups (low, medium, high), each receiving different guidance. Triage stems from the emergency care sector and is newly introduced in PCH. The triage is based on risk factors and other professional considerations related to the potential risks for developing psychosocial problems, physical problems, or motor dysfunction.

### Methods

The triage care model is implemented in five Dutch well-baby clinics. Infants were included in the triage care model between April 1 2011 and April 1 2012, with a follow-up until October 1 2012. We analyze the way the triage care model is followed in practice (e.g. are infants seen according to the assigned guidance) and the triage considerations, as registered in the electronic child record. In addition, interviews with PCH-professionals are performed.

### Results

In total 351 infants are included, of which 225 (64%) in the low risk group, 68 (20%) in medium risk group, 58 (17%) in the high risk group. Due to the triage care model the physician now only sees half the amount of infants (medium and high risk group) than before. The gained time is used to focus on providing additional consultations and intersectoral collaboration. The latter exists of integral meetings with e.g. physiotherapists, educationalists and/or day-care centres, depending on each infant's situation.

### Conclusion

The triage care model offers early detection of potential developmental problems of children. Physicians are able to focus on infants at risk for developing health problems and gain time for interdisciplinary exchange of relevant information and expertise. Also, the early guidance and monitoring of high risk infants provides opportunity for early interventions. Early intervention increases the chance that infants will develop to their maximum potential.

## Health-Promoting School Development: Components of an Indicator-Toolbox as a quality assurance instrument in schools

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## Background

Organizational development is crucial to health promotion in schools. The study “School Development by using Health Management” is funded by the Federal Ministry of Education and Research and evaluates how the organization-referred intervention “Learning to Live Healthy” changes the health promotion direction of schools. This intervention is a new school health promotion strategy designed to develop schools into healthy environments for all those who work and study there. The aim of the study is to develop an Indicator-Toolbox that allows schools to evaluate 1) the achievement of objectives, 2) the implementation level of the measures and 3) the changes in their organization regarding health management.

## Methods

For the development of the Indicator-Toolbox appropriate indicators, measures and instruments are identified and screened. Possible measurements and instruments are selected followed by an assessment of the instruments. Overall, there are 24 assessment criteria composing of 6 science-relevant and 18 practice-relevant quality criteria. These steps are carried out involving expert groups (n=36) from practice and research. After using the first version of the Indicator-Toolbox, the instruments will be frequently updated.

## Results

The collection of the Indicator-Toolbox is available as a database for all participating schools (n=60) and includes 121 instruments at the moment. In the current version of the Indicator-Toolbox only free available instruments on the internet were included and evaluated. The Indicator-Toolbox contains instruments for different target groups in schools (pupils: n=59, teachers: n=43, parents: n=16, school directors: n=6). The instruments are assigned a total of 15 topics. The instruments treat most often the subject’s quality of teaching (37%), school climate (26%), communication and cooperation in schools (18%) and health behavior (16%).

## Conclusions

The identification of suitable performance indicators and metrics is central to the assessment of goals and goal achievement and, thus, to the measurement of changes and the assurance of quality. The indicators and metrics-independently defined and evaluated by the schools-must be easily comprehensible, determinable and evaluable.

## How health promotion for children in Spain could be improved?

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## Background

Health promotion interventions can positively interfere to prevent problems and promote children’s health. In particular, the joint action of family, school and health professionals (HP) can foster healthy habits and development in children. The Sinergia Project ([www.proyectosinergia.es](http://www.proyectosinergia.es)) started in 2009 inquiring about the needs and the factors that influence children’s health and the practices, opinions, values and beliefs of parents, teachers and HP.

## Methods

The study uses an Exploratory Mixed Methods design, which integrates qualitative and quantitative approaches. The findings from the qualitative study will be presented at this conference. Twenty-four focus groups were conducted in Navarra (Spain) to obtain information from parents with children aged less than 5 years old, teachers and HP.

## Results

HP focused on children’s physical health by collecting data about development and diet. They observed a lack of parental skills for children’s behavioural education that had an impact

on the psycho-social health of children. However, HP had difficulties to deal with psycho-social aspects of health due to lack of training, lack of time and due to their opinion that families do not expect that from them.

Parents emphasised the importance of psycho-social health and wellbeing, often using the term ‘happy’ or ‘playing with others’ to describe that a child was healthy. They had difficulties to discuss with HP about their concerns regarding children’s health. They were worried about being judged and felt that there was a lack of opportunities to interact openly with HP.

Lastly, teachers spent more time with children and they had the opportunity to identify health risks and problems more clearly, seeing children’s development globally. The communication however, between parents, teachers and particularly HP was not easy or even possible, which made it difficult to successfully deal with aspects that would benefit children’s health.

## Conclusions

Psycho-social aspects were important for parents, teachers and HP, although dealing with them was not straightforward for any of the groups alone. Improving communication between schools, health centres and families would help to promote health in a global way.

## Health information seeking behaviors and related parental sun exposure attitudes and practices: a pilot study in Cluj-Napoca, Romania

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## Introduction

Excessive sun exposure is the leading cause of skin cancer and other types of skin damage. Parental sun-protection practices can significantly reduce the risks of skin cancer associated with children’s excessive sun exposure. However, as healthy behaviors are formed at an early age, unhealthy parental attitudes and behaviors could impede children’s healthy sun exposure behaviors. Evidence shows that parents who seek information regarding children and sun exposure are more likely to develop healthy attitudes and behaviors related to sun exposure. The objective of this analysis is to examine the relationship between health information-seeking behavior regarding child health and parental behaviors and attitudes related to sun exposure in a sample of Romanian parents.

## Materials and Methods

This analysis used data from a cross-sectional study assessing children’s sun exposure, sun protection behaviors and parental attitudes in a sample of kindergartens in Cluj-Napoca, Romania. Data was collected between September-November 2010 and included a sample of 241 parents with children aged 3–6, attending both public and private kindergartens.

## Results

Results suggest that Romanian parents searching for child health information on the Internet had stronger intentions to protect their children from sunburns, healthier attitudes related to sun exposure and were more likely to engage in sun protective behaviors. Compared to using other media channels, internet use for child health information was positive related to parental intentions of using sunscreen ( $p < 0.01$ ) and keeping the child in shade ( $p < 0.01$ ). Moreover, 92% of parents using the internet held strong beliefs that unprotected sun exposure of their children increases the risk for skin disease ( $p < 0.10$ ) and 73% of parents engaged in applying sun screen on children’s face, neck, arms and legs ( $p < 0.01$ ).

## Conclusion

This pilot study’s findings show a relationship between health information-seeking behaviors and healthy sun exposure attitudes and behaviors of Romanian parents. Further

understanding of the impact of parental attitudes and behaviors on children's sun exposure behavior contributes to the development of appropriately targeted interventions, using the internet as the main health promotion media channel.

### Determinants in the Production of Health in Chilean Adolescents: An Empirical Approach through Non-Medical Consumption Goods

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#### Background

Child and adolescent obesity, especially abdominal, is associated with a high cardiovascular and metabolic risk; Western diet and sedentarism are strong environmental determinants. A longer life expectancy, trends in health spending and governmental budget constraints force to encourage behaviors that increase the stock of health in young populations to delay chronic diseases associated with overweight. According to the Health Production Model, the level of health depends on the amount of inputs individuals allocate to the production of health. The amount of health capital may depreciate but can be restocked by investing in medical care, diet, exercise, etc. Available research have not paid attention to non-medical consumption goods, such as exercise and food intake, while empirical evidence on the production of health among children and adolescents is scarce.

#### Method

Our objective was to investigate the factors associated with the production of health through diet and physical activity in Chilean adolescents. In a random sample of 1,692 high-school individuals from urban Santiago, we studied the production of health using an indicator that considered the quality of food intake and physical activity, and establishing good producer (GHP), intermediate producers (IHP) and poor producer (PHP). Nutritional status by BMI (weight/height<sup>2</sup>), waist circumference, socioeconomic status (SES), type of school as well as education level and activity of household head were assessed in each adolescent.

#### Results

There was 31% of GHP, 32% of IHP and 38% of PHP, with a significantly higher prevalence of the latter among obese individuals ( $p < 0.01$  and  $p < 0.001$ ). Health production was significantly associated with SES, type of school, education level and activity of household head, and gender ( $p < 0.001$ ). Prevalence of PHP was significantly higher at lower SES, activity and education of household head, and in women and public schools adolescents.

#### Conclusions

Results support the association between obesity and the quality of health production measured by food intake and physical activity. Socioeconomic factors and gender would be strongly associated with the quality of this kind of health production. We aimed at improving the understanding on young individuals' health production.

## W.7. MIGRANT HEALTH 2

### Upgrading health services for migrants in Malta: the experience of "Mare nostrum" project 2010–2011

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#### Background

Over recent years Malta has increasingly moved into the international spotlight as a front-line state for irregular migration from the African continent towards Europe. A systematic tuberculosis (TB) screening, followed by treatment of latent and active cases, is carried out at arrival and before release from detention, whereas concerning other diseases no actions are implemented. In order to identify the health need of migrants in Malta and carry out appropriate health policies, a clinical research study was performed in the framework of the European Union (EU) project "Mare Nostrum: common approach to upgrade asylum facilities in Italy and Malta" by the National Institute for Health, Migration and Poverty (NIHMP) of Rome, in close collaboration with the public health department in Malta.

#### Methods

From August 2010 to June 2011 a general health assessment and a specialist examination focusing on skin and infectious diseases of asylum seekers living in the Maltese open centres was performed. Socio-demographic characteristics and medical history, particularly regarding TB, medications, alcohol and drug consumption, sexual health, were collected in a database. Diagnoses were recorded according to the International Classification of Diseases (ICD-9 CM).

#### Results

Over a 10-month period, 2,216 migrants were included in the study and 5,214 examinations implemented. 82.7% were males, average age 25 years, minors 8.8%. Clinical

examinations led to the diagnosis of 5,077 diseases. From the analysis of the medical records, 31% of migrants resulted to be healthy. Skin diseases ranked first, accounting for the 22% of diagnoses, followed by respiratory diseases (19.8%) and gastro-enteric diseases (14.2%). Infectious diseases amounted to 2.7%.

#### Conclusion

Accurate data on migrants health are an essential precondition for monitoring and improving health, and providing appropriate and accessible health services to this population group. Due to the evident interaction between social factors and health, migrants are exposed to specific risk factors and access barriers to health services. Active health surveillance in the Maltese open centres has to be implemented and training programs on migrants health addressed to health professionals.

### Immigrants' perceptions of factors that influence access to quality healthcare in Spain, 2011–2012

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#### Background

The current 12.3% of migrants in Spain has modified the population profile to be attended by the national health system (NHS), which must adapt themselves to new needs. Yet, no study has targeted our objective: what and how contextual and population elements influence access to quality health care (HC) from the immigrants' perspective.

#### Methods

Three analysts per region, with heterogeneous backgrounds and wide knowledge of the context, executed a descriptive,

qualitative study with a phenomenological approach. A narrative content analysis was made over semi-structured individual interviews to a criterion sample of informants: users and potential users from Morocco (26), Romania (21) and Bolivia (27). Areas of study were three regions in Catalonia and Andalusia which had a high concentration of migrants and different predominant foreign nationalities. Data was triangulated, comparing that from different informant groups.

#### Results

Informants consider access to be simple with the Personal Healthcare Card (PHC); prescription and medical record issues appear linked to the temporary PHC in Andalusia.

In both regions they agreed in aspects as: lack of institutionally-provided information on the NHS, meagre personnel, language issues, long waiting times, lack of humane approach and discriminatory manners of some professionals. Social networks facilitated system entry information and informal translation. Dissent arose on opinions about easiness of getting the PHC, appointment-request circuits, opening times and economic barriers.

#### Conclusions

Despite the universal coverage offered by the Spanish NHS various barriers to obtain quality HC are shown. Some are faced once entered the NHS and point out the lacking adaptation of health services and personnel. Although regions share some aspects, contrast also emerged. Interviewees pointed discrimination as an important factor that generates a barrier for quality HC; also social support networks appeared as an important facilitator of accessing both autonomous regions.

### Prevalence of latent tuberculosis, syphilis, hepatitis B and C among asylum seekers in Malta

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#### Background

In recent years Malta has faced increasing immigration flows by sea from Libya. Public health policies addressed to prevent communicable diseases among migrants are focused on screening for tuberculosis (TB), whereas no screening activities concerning STIs have been adopted.

The objective of this study is to define the epidemiological profile of asylum seekers in Malta as regards syphilis, hepatitis B, C and latent TB, with the possible aim of improving the current screening policies.

#### Methods

Five hundred migrants living in open centres were screened between December 2010 and June 2011. A questionnaire focusing on socio-demographic characteristics, medical and sexual history was administered.

#### Results

The majority of persons studied were from Somalia (83.2%), 81.2% were males and average age was 26.5 years. Tuberculin skin test (TST) was positive in 225 migrants (45%). Latent syphilis was diagnosed in 11 migrants, hepatitis C in 3 and 31 patients were HBsAg positive.

#### Conclusion

Systematic screening for asymptomatic migrants in Malta is not suitable for hepatitis C and syphilis, given the low prevalence observed. On the contrary, it should be considered for hepatitis B. TST could be indicated as the first step of a two steps screening for migrants from countries with high TB incidence, but optimisation of screening protocols is needed for increasing cost-effectiveness ratio and reducing unnecessary tests. Efficacy and cost-effectiveness could also be achieved by further targeting screening to specific subgroups at higher

risk of reactivation, such as persons living with HIV and people affected by chronic diseases.

### Diabetes health interventions as social technologies: A longitudinal qualitative study of ethnic minorities' experiences and negotiation of socialities

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#### Background

Several ethnic minority groups in Western countries have a significantly higher prevalence of type 2 diabetes than the majority population. Further, marginalization may negatively affect health and access to healthcare services for this population. This poses new health education challenges in public health settings. Yet, few studies have explored how health education initiatives such as diabetes interventions are internalized by ethnic minorities, especially over time. This study investigates how Arabic Danes experienced municipal diabetes-management courses, as well as whether and how they integrated the courses 2.5 years later as part of everyday life.

#### Method

The study was designed longitudinal. It combined several qualitative methods: participant observations during diabetes-management courses in Arabic in three healthcare centers (19); in-depth and focus group interviews with course participants during and 2.5 years after the courses (20); and full-day participant observations in their homes (3-planned). We employed the concept 'social technologies' as a theoretical framework. The concept refers to a process whereby solutions provide the framework within which certain problems and problem-carriers are defined. The rationality of these solutions, found in institutional practices, reflects culturally and socially constructed ideals about the good life.

#### Results

Preliminary results show that the rationality of the diabetes courses was challenged by rationalities of the Arab Danes' everyday lives. The individual life world context influenced how the courses were integrated over time. Furthermore, the bio-sociality defined through the diabetes courses did not forge a collective identity among course participants in this case. Rather, they negotiated different socialities informed by a sense of inclusion, and by stories of migration.

#### Conclusions

The solutions presented through the diabetes courses did not meet the complexities of lived lives. However, the courses had another function than the intended; the shaping of a social platform. The results point to unexploited potentials for public health interventions for ethnic minorities if aspects of social network and inclusion are incorporated as a key priority in itself.

### Assessment of vitamin D status in Turkish immigrants and their descendants living in Berlin, Germany

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#### Background

Vitamin D deficiency is common in Northern and Middle European countries. However, data on migrants and their descendants to these countries is scarce. Therefore we aimed to examine the vitamin D concentration in a population with Turkish roots living in Berlin, Germany.

#### Methods

For this cross-sectional study, we drew a random sample of persons with Turkish first and/or last names from the



residents' registration office in Berlin with the aim to include 300 participants in total. We assessed medical history and sociodemographics by self-reported questionnaires and took blood samples for 25(OH)vitamin D measurement. Median and mean  $\pm$  standard deviation (SD) of the vitamin D concentration were compared regarding age, sex and womens' veiling behaviour.

### Results

Among the first 252 participants 127 were women (median age/mean  $\pm$  SD age: 40.0/ 41.8  $\pm$  12.6 (years) and 125 men (44.0/44.1  $\pm$  11.0 years). The 25(OH)vitamin D median/mean  $\pm$  SD concentration in women was 18.0/22.2  $\pm$  13.9 nmol/l and in men 17.0/22.0  $\pm$  13.2 nmol/l. Veiled women (25.3% of all participants) had a significantly lower vitamin D concentration than unveiled women (14.4  $\pm$  4.7 nmol/l versus 22.3  $\pm$  13.3 nmol/l;  $p = 0.027$ ).

99.2% of all participants had a vitamin D insufficiency (<75 nmol/l), 95.2% had values corresponding with a vitamin D deficiency (<50 nmol/l). Of all women 73.2% (in men 68.0%) showed concentrations <25 nmol/l and 11.8% women (in men 11.2%) <10 nmol/l. Mean  $\pm$  SD vitamin D concentration was different in the three age groups 18–29, 30–49 and 50–69 years (28.2  $\pm$  17.6, 20.9  $\pm$  12.5 and 22.2  $\pm$  13.4 nmol/l;  $p = 0.084$ ).

### Conclusions

Our preliminary results suggest that most residents with a Turkish migration background living in Berlin have serum vitamin D concentrations far below recommended levels. Comparisons with non-migrants from inner city districts of Berlin including analysis of potential confounding by e.g. socio-demographic factors will be in the focus of further evaluations.

## Immigrant women and maternal mortality in Western Europe: a meta-analysis of observational studies

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### Background

Recent progress in reducing maternal mortality within Western Europe has indicated a less favourable decline among immigrant women. For that reason it is of particular interest to conduct a systematic quantitative assessment of whether an excess risk of maternal mortality exists among immigrant women in Western Europe.

### Methods

We searched electronic databases and reference lists for eligible papers published 1970–2011 in Western European countries. All observational studies comparing maternal mortality risk between a majority population and a defined immigrant (foreign-born) population reporting relative risks (RR) or odds ratios (OR) with 95% confidence intervals (CIs) or data to calculate these were included. We performed a random-effects meta-analysis, and assessed statistical heterogeneity by the I<sup>2</sup> statistics. Further subgroup analyses were stratified into two time periods.

### Results

Seven studies with more than 37 million women and 3469 events of maternal mortality were included. The pooled estimate showed that immigrant women have a doubled risk of dying during or after pregnancy when compared with indigenous born women. The pooled risk estimate (RR) of 2.15 95% [CI = 1.68 to 2.75] corresponded to a risk difference

of 10 additional maternal deaths per 100,000 deliveries per year. The relative risk among immigrant women increased from 1.76 95% [CI = 1.21 to 2.55] in 1969 to 1990 to 2.41 95% [CI = 1.76 to 3.32] in 1991 to 2006.

### Conclusion

This meta-analysis showed that immigrant women in Western European countries have a doubled risk of dying during or after pregnancy when compared with indigenous born women. As most of these deaths are preventable, it is an urgent matter to pinpoint the direct causes of elevated maternal mortality among immigrant women and institute programs to prevent the large number of unnecessary deaths to vulnerable immigrant women. Better use of registry data to look at specific death causes, especially the timing of deaths, to identify modifiable risk factors of health care practices are of high importance.

## Prevalence of diseases previous and during pregnancy versus prenatal monitoring in Portuguese and immigrant women

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### Background

During pregnancy, the immigrant condition is a deciding factor in the search for healthcare and in the health of women.

### Objective

The aim of this study was to determine the prevalence of disease before and during pregnancy and prenatal monitoring in the health of Portuguese and immigrant pregnant women.

### Methods

We conducted a cross-sectional study involving 2407 mothers, 753 (31.3%) immigrant and 1654 (68.7%) Portuguese. The Portuguese mothers have a minimum age of 15 and a maximum age of 44 (mean age = 29.99  $\pm$  5.42) and the immigrants have a minimum age of 16 and a maximum of 45 (mean age = 29.30  $\pm$  5.76). The data collection protocol consisted of observing medical records and a face-to-face interview conducted by midwives in training. Data collection occurred on the second day of delivery, from 2010 to 2011, in 30 Portuguese maternity wards. We considered "Adequate Obstetric Surveillance" (AOS) if mothers had six or more appointments and the first had occurred during the first trimester. The prevalence was expressed in proportions. We used the Chi-square test to compare proportions.

### Results

Women who were monitored during pregnancy and who had no previous diseases (31.3% Portuguese and 35.6% immigrants) developed a disease during pregnancy. Of those who were monitored during pregnancy and who also had previous diseases (61.8% Portuguese and 62.5% immigrants) also developed diseases during pregnancy. As for the women who were not monitored during pregnancy and who had previous diseases (36.8% Portuguese and 57.1% immigrants) developed disease during pregnancy. Those who were not monitored during pregnancy and had no previous illnesses (26.0% Portuguese and 29.1% immigrant) developed disease during pregnancy. Whether or not they had previous diseases 57.1% of Portuguese women and 44.5% of immigrants who were monitored did not develop disease during pregnancy, whereas of those who were not monitored, (13.3% Portuguese and 28.3% immigrants), 3.6% of Portuguese women and 8.5% of immigrant women developed disease during pregnancy. The chi-square test shows that there is statistical significance between groups,  $p < 0.001$ .

**Conclusion**

Immigrant mothers presented worse health indicators related to monitoring and the presence of diseases before and during pregnancy.

**Health status of Roma Settlements Inhabitants in Slovakia with Connection to Selected Socio-economic Determinants of Health and Type of Roma Settlement**  
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**Background**

The aim of this study was, based on selected indicators, to analyse differences in health status and risk factors occurrence in the inhabitants of separated and segregated Roma settlements in context of socio-economical determinants of health. The differences between the separated and segregated settlements were assumed given the worse health care services access and geographical isolation of the segregated settlements.

**Methods**

The data were gathered in the East Slovakia in 45 Roma settlements. A questionnaire was used to collect required data. The questionnaire was divided into several sections such as

demography data, social and economic situation (income, housing, education level, occupational status) and health status and risk factors occurrence.

**Results**

The proportion of employed respondents was higher in the separated settlements (21% separated and segregated 18%). Respondents from the segregated settlements visited obligatory vaccination with their children less often than those from the separated settlements (78% / 90%). Gender, type of settlement, occupational status, education level, housing and income significantly influenced the respondent's attendance of preventive examinations and of obligatory vaccinations.

**Conclusions**

According to our results the inhabitants of the separated settlements are less exposed to risky behavior than the inhabitants of the segregated settlements. The reason for that could be mainly their geographic location and the associated lower education level. Description of selected socio-economic and biological health indicators will serve as a basis in creating of intervention programs and policy-making. A study of similar design has not yet been conducted in the Slovak Republic, therefore we are convinced it is necessary to continue in such monitoring and to compare the differences between types of Roma settlements.