doi: 10.1093/bja/aev456 Clinical Practice

Intraoperative transfusion practices in Europe

J. Meier^{1,*}, D. Filipescu², S. Kozek-Langenecker³, J. Llau Pitarch⁴, S. Mallett⁵, P. Martus⁶ and I. Matot⁷ and the ETPOS collaborators

¹Clinic of Anesthesiology and Intensive Care Medicine, Faculty of Medicine of the Kepler University Linz, Linz, Austria, ²Emergency Institute of Cardiovascular Disease, University Bucharest, Bucharest, Romania, ³Department of Anesthesiology and Intensive Care Medicine, EKH Evangelic Hospital Vienna, Vienna, Austria, ⁴Department of Anesthesiology and Intensive Care Medicine, Hospital Clínico Universitario de Valencia, Valencia, Spain, ⁵Department of Anesthesiology, Royal Free Hospital Hampstead NHS Trust, London, UK, ⁶Clinical Epidemiology, Eberhard Karls University Tübingen, Tübingen, Germany, and ⁷Department of Anesthesiology & Intensive Care Medicine & Pain, Tel Aviv Medical Centre, Tel Aviv, Israel

*Corresponding author. E-mail: jens.meier@gmail.com

Abstract

Background: Transfusion of allogeneic blood influences outcome after surgery. Despite widespread availability of transfusion guidelines, transfusion practices might vary among physicians, departments, hospitals and countries. Our aim was to determine the amount of packed red blood cells (pRBC) and blood products transfused intraoperatively, and to describe factors determining transfusion throughout Europe.

Methods: We did a prospective observational cohort study enrolling 5803 patients in 126 European centres that received at least one pRBC unit intraoperatively, during a continuous three month period in 2013.

Results: The overall intraoperative transfusion rate was 1.8%; 59% of transfusions were at least partially initiated as a result of a physiological transfusion trigger- mostly because of hypotension (55.4%) and/or tachycardia (30.7%). Haemoglobin (Hb)- based transfusion trigger alone initiated only 8.5% of transfusions. The Hb concentration [mean (sD)] just before transfusion was 8.1 (1.7) g dl⁻¹ and increased to 9.8 (1.8) g dl⁻¹ after transfusion. The mean number of intraoperatively transfused pRBC units was 2.5 (2.7) units (median 2).

Conclusions: Although European Society of Anaesthesiology transfusion guidelines are moderately implemented in Europe with respect to Hb threshold for transfusion (7–9 g dl⁻¹), there is still an urgent need for further educational efforts that focus on the number of pRBC units to be transfused at this threshold.

Clinical trial registration: NCT 01604083.

Key words: anaemia; anesthesia; blood transfusion; surgery; transfusion trigger

It is now considered good clinical practice to use a restrictive transfusion regimen into clinical pathways in order to minimize unnecessary use of allogeneic blood.^{1–3} This is consistent with the current 'patient blood management' (PBM) paradigm, a

multidisciplinary, multimodal approach to best transfusion practice. $^{4-6}$ However, despite the general belief that PBM is useful and improves outcome, implementation of all measures of this package is difficult, time consuming, and as a consequence

Accepted: November 24, 2015

© The Author 2016. Published by Oxford University Press on behalf of the British Journal of Anaesthesia.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/ licenses/by-nc/4.0/), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

Editor's key points

- There is marked variation in blood transfusion practices.
- Most transfusions given intraoperatively are for hypotension or other indicators of tissue hypoperfusion.
- A transfusion threshold or trigger is less relevant in the intraoperative setting.
- Single unit red cell transfusions should be used more often.

is seldom performed completely.^{6–8} The degree to which guidelines have resulted in consensus in community transfusion practice is unknown. Previous European studies evaluating transfusion practices were limited in size and pertained to a single country.^{9–11} Little is known about the intraoperative transfusion triggers used and the transfusion strategy applied in clinical practice across Europe.¹² Therefore, the primary goal of our study was to assess transfusion triggers and existing transfusion practices and the use of packed red blood cell (pRBC), fresh frozen plasma (FFP), and platelet transfusions in a large sample of European centres.

Methods

Study design and participants

The ETPOS (European Transfusion Practice and Outcome Study) protocol was designed as a prospective, observational, multicentre European study. Centres volunteered to participate in the study via the homepage of the European Society of Anaesthesiology (ESA). Each centre had to contact the local ethics committee and/or the relevant regulatory approving body in order to determine whether obtaining informed consent was necessary or could be waived. If informed consent was required, only patients that agreed to participate and signed a consent form were included in the study. The inclusion procedure stipulated postoperative informed consent for the usage of data obtained. If a patient died before consent could be obtained, data were not used. No centre started without all mandatory local ethical or regulatory requirements being fulfilled.

All patients undergoing an elective noncardiac surgical procedure at each of the participating hospitals were screened for inclusion. Only patients that received intraoperatively at least one pRBC unit during the study period (April 1st – December 31st, 2013) were included in the analysis. Data acquisition time was three consecutive months for each centre. There were no further specific inclusion criteria. The only exclusion criteria was age <18 yr and cardiothoracic, emergency, or trauma surgery.

Pre-study survey

Each centre participating in the study was asked to fill in a prestudy survey. The main characteristics requested were the size of the hospital (beds), specialities provided, and several aspects of the transfusion regimen and blood management of the hospital.

Data collection

Data were collected on patient characteristics (sex, age, body weight and height); ASA physical status; duration of anaesthesia; type of surgery; usage of point of care coagulation monitoring; laboratory values (Hb, INR, aPTT, platelets, fibrinogen) at beginning of surgery, just before transfusion of first pRBC, and at the end of surgery; reason for the transfusion of the first pRBC (Hb threshold, physiological transfusion triggers, transfusion relevant comorbidities, massive acute bleeding); fluid volume, blood products, and procoagulant drugs administered until end of surgery [pRBC, crystalloids, colloids, cell saver, FFP, platelet concentrates, tranexamic acid, prothrombin complex concentrate (PCC), fibrinogen, recombinant factor VIIa, cryopreciptate, factor XIII]; estimated volume loss until end of surgery (blood loss, urine output, other fluids). An overview of the protocol is provided in the appendix.

Primary endpoints were: (i) amount of pRBC and blood products and coagulation factors transfused, and (ii) factors determining transfusion of pRBC and blood products in different regions of Europe.

Data acquisition and quality management

The data collection and management was done using the Open-Clinica open source software, version 3.2. (Copyright[®] OpenClinica LLC and collaborators, Waltham, MA, USA, www.OpenClinica. com). Data were collected on paper by the physician providing anaesthesia and recorded afterwards into the study database. The login names and passwords were provided for registration of patients, monitoring of recruiting progress, query management, and source data verification and an internal communication platform. Automatic data entry plausibility checks and mandatory data items enforced high data quality. Furthermore three different data cleaning runs were done with several checks ensuring high data quality.

Statistical analysis

Our aim was to recruit as many participating hospitals as possible and to recruit every eligible patient receiving at least one pRBC during surgery in those hospitals. We anticipated that a minimum sample size of 10 000 patients would enable a precise estimate of current transfusion triggers throughout Europe. Therefore we aimed at 100 participating centres providing 100 patients each. This sample size was also expected to provide sufficient data to be able to describe transfusion practices in different settings.

We used SPSS (version 21.0) for data analysis. Categorical variables are presented as number (%) and continuous variables as mean (SD) when normally distributed or median (IQR) when not.

This study is registered with ClinicalTrials.gov, number NCT01604083.

Role of the funding source

The study was funded by a grant of the ESA Clinical Trial Network. An independent steering committee was responsible for study design, conduct, and data analysis. Members of the steering committee had full access to the study data and were solely responsible for interpretation of the data, drafting and critical revision of the report, and the decision to submit for publication.

Results

One hundred and twenty six hospitals of 30 European countries participated in the study (overview is given in the appendix).

Pre-study survey

An overview of the parameters included in the pre-study survey is given in Table 1.

Of the 126 centres with valid patients all 126 filled in the prestudy survey (with one being incomplete). Approximately a third of the centres (n=40) had less than 500 beds, 50 (40%) had between 500 and 1000 beds and 36 (28%) had more than 1000 beds. Table 1 Prestudy survey of participating hospitals (n=126): casemix, haemostasis and transfusion practices. Values are given as median (IQR) or %. INR, international normalized ratio, apTT, partial thromboplastin time, ACT, activated clotting time, TEG, thrombelastography, TEM, thrombelastometry; percentage values do not necessarily add up to 100% as multiple selections were possible

Hospital characteristics	
Beds	
<500	40
501–999	50
>1000	36
no. of operating theatres	18 (10–26)
no. of surgical procedures per yr	15 000 (7050–25 000)
(estimation)	13 000 (7 030 23 000)
no. of board certified anaesthetists	26 (13–47)
no. of anaesthetists in training	17 (7–30)
Hospital specialties	
Orthopaedics	88%
Visceral surgery	89%
Urology	86%
Gynaecology	90%
Vascular Surgery	79%
Trauma	80%
Ear Nose Throat	84%
Thoracic Surgery	63%
Cardiac Surgery	51%
Neurosurgery	67%
Hepato – biliary surgery	83%
Dental surgery	64%
Plastics	74%
Ophthalmology	73%
Estimated % of patients prepared with	
Oral iron	1 (0–5)
i.v. iron	1 (0–2)
Erythropoietin	0 (0–1)
Perioperative haemostasis monitoring	
- conventional monitoring	90%
- INR	90%
- apTT	85%
- fibrinogen	80%
- platelets	90%
- ACT	24%
Point of care monitoring	
- INR/apTT	18%
- TEG	16%
- ROTEM	30%
- Multiplate, Verify Now, Platelet	1 / 0/
Mapping	14%
Massive transfusion	
% of hospitals with transfusion	E 70/
protocols	57%
- based on packages	21%
- based on ratios	27%
- based on conventional coagulation	F.09/
tests	50%
- based on POC testing	31%
- based on experience	37%
Transfusion regimen	
- for pRBCs	liberal: 30%
	restrictive: 63%
- for FFPs	liberal: 31%
	restrictive: 63%
	Continued
	Continueu

Table 1 Continued

liberal: 12% restrictive: 82%
liberal: 13% restrictive: 80%
105010070
54%
46%
48%

Table 2 Patient and perioperative characteristics (n=5803)

Variable	
Age (yr)	63.7 (16.1)
Male	49%
BMI	26.2 (5.3)
ASA physical status	
Ι	5.5%
II	31.0%
III	45.9%
IV	16.5%
V	1.1%
Type of surgery	
Orthopaedic	21.6%
Lower gastrointestinal	12.4%
Vascular	9.9%
Upper gastrointestinal	9.3%
Hepatobiliary	7.9%
Gynaecological	7.5%
Urological	6.7%
Others	24.7%
Cancer Surgery	36.8%
Duration of Surgery (h)	4.1 (2.7)
Point of Care Device used	15.6%

The median number of operating theatres in each hospital was 18 (10–20). Most centres reported a higher number of board certified anaesthetists than anaesthetists in training. All relevant specialities were covered by the participating hospitals. A negligible amount of centres reported that they used measures to pre-optimize their patients before surgery with either iron or erythropoietin. Conventional coagulation tests were used by more than 90% of the centres, whereas point of care monitoring systems were implemented only by 14–30% of the centres depending on the specific monitoring device. Fifty seven percent of the hospitals use transfusion protocols, the majority of them based on conventional (laboratory) coagulation tests. Sixty three percent of the hospitals reported having a restrictive transfusion protocol implemented for pRBC, 63% for FFP, 82% for platelets and 80% for coagulation factors.

General data

In total 373 732 patients were screened (Table 2). The first patient was enrolled on April 1st, 2013, and the last patient December 31st, 2013. Data were obtained for 5929 patients for whom informed consent was obtained or waived, of which 126 were excluded, having been identified as duplicates or having missing transfusion data, leaving 5803 subjects for analysis (Table 1). A mean number of 45 (range: 1–165) patients were included per

Table 3 Transfusion data (n=5803). Values are reported as mean (sp). Hb, haemoglobin. INR, international normalized ratio, aPTT, activated partial thromboplastin time

Variable	No.	Value
Estimated blood loss (ml)		1392 (2040)
Begin of surgery		
Hb (g dl ^{-1})	5674	10.6 (2.4)
INR (%)	4500	1.2 (0.5)
aPTT (sec)	4004	33 (17)
Platelets (n microl ⁻¹)	5180	265 (132)
Fibrinogen (mg dl ⁻¹)	1838	400 (177)
Just before transfusion		
Hb (g dl ^{-1})	3977	8.1 (1.7)
INR (%)	630	1.4 (0.9)
aPTT (s)	570	43 (38)
Platelets (n microl ⁻¹)	844	209 (127)
Fibrinogen (mg dl ⁻¹)	481	297 (174)
End of surgery		
Hb (g dl ^{-1})	4352	9.8 (1.8)
INR (%)	1985	1.4 (4.7)
aPTT (s)	1944	38 (27)
Platelets (n microl ⁻¹)	2639	202 (119)
Fibrinogen (mg dl ⁻¹)	1402	307 (163)

Table 4 Blood product volume administered. pRBC, packed red blood cells, FFP, fresh frozen plasma, PCC, prothrombin complex concentrates

Blood product	Patients	Amount administered
pRBC –intraoperative	100%	2.5 (2.7) units
Crystalloids	99%	2434 (1784) ml
Colloids	65%	907 (711) ml
Cell Saver blood	6%	1116 (1388) ml
FFP	31%	4.5 (5.9) units
Platelet concentrate	7%	3.0 (4.1) units
Tranexamic acid	13%	1.4 (1.0) g
PCC	2%	1846 (1476) I.U.
Fibrinogen concentrate	5%	3.2 (2.4) g
Cryoprecipitate	1%	7.2 (5.8) units
Factor XIII	<1%	2119 (1338) I.U.
pRBC –postoperative	56%	3.7 (4.1) units

hospital and 193 (range: 5–783) per country. The study included almost equal numbers of females and males, with a mean age of 64 (13; range 18–100) yr, approximately half of whom were categorized into ASA class III. Orthopaedic and lower gastrointestinal surgery were performed most frequently and around third of the operations were for cancer. A point of care device for monitoring of blood coagulation was used in 15.6% of patients.

Course of transfusion

The mean reported blood loss was 1392 (2040) ml (Table 3). In general, 82% of the patients were anaemic as defined by the WHO criteria (male<13 g dl⁻¹, female<12 g dl⁻¹) preoperatively with baseline (pre-surgery) Hb concentration of 10.6 (2.4) g dl⁻¹. Before transfusion of the first pRBC, measured Hb concentration was 8.1 (1.7) g dl⁻¹ and increased to 9.8 (1.8) g dl⁻¹ at the end of surgery. The mean number of transfused pRBC was 2.5 (2.7) units (Median

Table 5 Reasons for transfusion of first packed red blood cell unit. Hb, haemoglobin; Sv_{O_2} , mixed venous oxygen saturation, $ScvO_2$, central venous oxygen saturation

Hb alone	8.5%
Hb & physiological trigger	8.2%
Hb & comorbidity	8.7%
Hb & physiological trigger & comorbidity	11.4%
physiological trigger irrespective of Hb	14.3%
physiological trigger & comorbidity	12.5%
physiological trigger & blood loss	7.1%
physiological trigger & blood loss & comorbidity	5.4%
Comorbidity alone	5.3%
Hb & physiological trigger & blood loss & comorbidity	4.6%
other combinations	14%
Physiological transfusion triggers	
Hypotension	55.4%
Tachycardia	30.7%
Acidosis	7.8%
Lactate	7.3%
Arrhythmia	5.1%
ECG	2.7%
ScvO ₂ or Sv _{O2}	3.4%
Other	10.2%
Comorbidity	
Cardiovascular	35.7%
Renal	8.1%
Pulmonary	7.7%
Haematological	6.9%
Gastrointestinal	6.4%
Others	8.6%

2 [IQR 2-2]). One third of patients received 1 pRBC and 41% of patients received 2 pRBC. There was no correlation between the Hb concentration before transfusion or at the end of surgery and the amount of pRBC units administered (correlation coefficient -0.1 and -0.2, respectively). Conventional coagulation tests varied only slightly over time.

Thirty one percent of patients received FFP and 7% of patients received platelets. In patients receiving FFP the mean amount administered was 4.5 (5.9) units and with platelets the mean amount was 3.0 (4.1) units. An overview for all other fluids administered is given in Table 4.

Reason for transfusion

An overview of the rationales for transfusion is given in Table 5. The most prevalent basis for transfusion of the first pRBC was the occurrence of a physiological transfusion trigger (14.3%). The second most important reason was the combination of a physiological transfusion trigger with a suspected or known comorbidity (12.5%). In total 58.9% were transfused at least in part as a result of a physiological transfusion trigger. Only 8.5% of transfusions have been administered solely because of an Hbbased transfusion trigger. If an Hb based transfusion trigger was used, the physician chose an Hb value of 8.1 (1.3) g dl^{-1} . Notably, most of the physiological transfusion triggers were not lactic acidosis (7.3%) or a decline of ScvO₂ (1.3%) but hypotension (55.4%) and tachycardia (30.7%). The most important comorbidity resulting in transfusion was cardiovascular (35.7%), whereas all other comorbidities were uncommon (<9%). Regression analysis found that the amount of pRBC administered decreased with age of patients, and was also not affected by the type of surgery.

	Restrictive (n=3738)	Liberal (n=2065)	P value
Haemoglobin value (g dl ⁻¹)			
Beginning of surgery	10.6 (2.5)	10.8 (2.4)	0.0004
Just before transfusion	8.0 (1.7)	8.4 (1.6)	0.0000
End of surgery	9.6 (1.7)	10.1 (1.8)	0.0000
Units administered			
pRBC –intraoperative	2.4 (2.5)	2.7 (2.5)	0.0000
FFP	4.1 (5.3)	5.2 (6.7)	0.0003
Platelet concentrate	3.1 (4.4)	2.9 (3.7)	0.89
pRBC –postoperative	1.9 (3.4)	2.3 (3.9)	0.0008
Estimated blood loss	1382 (2060) ml	1408 (2006) ml	0.22

Table 6 Perioperative characteristics according to self-reported restrictive or liberal red cell transfusion strategy. pRBC, packed red blood cells, FFP, fresh frozen plasma

Furthermore, the country had a minimal role, with only two pairwise comparisons between countries being statistically significant although of arguable clinical relevance. The size of the hospital and academic degree did not influence transfusion practice. Differences between single hospitals have were not analysed because of insufficient sample sizes.

Hospitals with different transfusion strategies

Sixty three percent of all hospitals stated to have a restrictive transfusion strategy in the pre-study survey, in contrast to the 37% with a liberal transfusion strategy. Hospitals with a restrictive strategy treated 64% of patients. Indeed, hospitals claiming a more restrictive strategy tended to transfuse at lower Hb concentrations and accept a lower Hb value post-transfusion. As a consequence, in these hospitals significantly less transfusions were needed despite comparable blood loss in both groups. Furthermore less postoperative transfusions and less substitution of FFP coagulation factors were necessary in the restrictive group (Table 6).

Discussion

It has been previously demonstrated that transfusion practice differs between different physicians, centres, and countries.^{9–11 13} For elective surgery, the hospital might therefore be the most important determinant of the number of administered transfusions, with some adopting programmes to reduce transfusions, while others negating the importance of PBM measures on perioperative outcome.¹⁴ There is growing evidence that a restrictive transfusion strategy can be used in most clinical settings, with published guide-lines focusing on PBM of the surgical patient.²⁴

We found that blood transfusions are rarely used in most surgical procedures, with only 1.8% transfused intraoperatively with pRBC. The intraoperative transfusion rate will depend, among other things, on a hospital's surgical casemix and transfusion practices. In the current study the pre-transfusion Hb concentration averaged 8.1 (1.7) g dl⁻¹. A Hb trigger of 7–9 g dl⁻¹ has been recommended during active bleeding by ESA guidelines.¹⁵ Thus, the old commonly used Hb threshold of 10 g dl⁻¹ is no longer the 'magic number' for transfusion, with European centres now practicing according to current transfusion guidelines, at least in the intraoperative period. The post-transfusion Hb, though, was unnecessarily high (9.8 (1.8) g dl⁻¹), suggesting that the decision to transfuse led to more than 1 pRBC unit at a time. Some hospitals that claimed to have a restrictive transfusion strategy transfused at rather high Hb concentrations. There is thus still a need for further educational efforts that focus restrictive transfusion approach and on the number of pRBC units to be transfused at this threshold.

The primary rationale for pRBC transfusion has not been previously studied in depth. The current study found that the most frequent triggers for pRBC administration are physiological parameters; 8.5% of transfusions were initiated based only on Hb value. It is worth noticing that if a physiological transfusion trigger had been used, the Hb value chosen for transfusion was 8.1 (1.3) g dl⁻¹, a level very close to the Hb value just before transfusion of the first pRBC in all patients. This fact suggests that in reality many clinicians use the Hb value as an adjunctive ('hidden') transfusion trigger, even if physiological triggers are believed to be the primary trigger. The physiological parameters used to trigger transfusion in the majority of patients were hypotension and tachycardia. The triggers with the highest discriminatory power to manifest tissue hypoxia (e.g. lactate and mixed venous central or central venous saturation) played only a secondary role. This may reflect the tendency of many anaesthetists to use the most easily accessible parameters (heart rate and bp) rather than those that require additional invasive catheters. It may also reflect the emphasis anaesthetists give to maintenance of haemodynamic stability, with less focus on tissue oxygenation.

Preoperative anaemia is one of the most important determinants of intraoperative transfusion, and therefore it had been recommended that elective surgery of anaemic patients should be postponed to enable adequate patient preparation.¹⁶ Furthermore, it has been demonstrated, that even mild or moderate preoperative anaemia is associated with significant morbidity and mortality.¹⁷ Therefore, PBM guidelines state that preoperative optimization of Hb is recommended to avoid unnecessary transfusions.^{1 2 4 6 18 19} The present study found that the majority of centres have not adopted this recommendation. Only 1% of centres prepared their patients with oral/i.v. iron and/or erythropoietin. As 82% of transfused patients in the current study were anaemic at the beginning of the surgery, it may be hypothesized that preoperative Hb optimization could have avoided transfusion to a certain extent. Because of the small number of patients that were pre-treated for their anaemia, we cannot determine whether those patients were less likely to be transfused.

Previous studies suggest that often more than 1 unit of pRBC are transfused once a decision to administer blood has been made, in part because of blood allocation strategies.²⁰ In our study more than 40% of patients had two pRBC units transfused; as less than 25% of patients received three or more units of pRBC it can be speculated that because two pRBC units is often ordered

initially, they were given as package. To overcome this problem Australia initiated a campaign, known as the 'one unit policy' where Hb levels are measured after each pRBC administered to determine the necessity for further transfusion. The results of the present study suggest that a similar campaign should be implemented across Europe.

In our study the mean estimated blood loss was 1392 (2040) ml, reflecting a high variability in blood loss, which warrants cautious interpretation of our data. Unlike in trauma, where massive transfusion protocols have been developed and shown to improve outcome,²¹ protocols for the administration of blood products in the actively bleeding patient in the operating room are missing. Modern guidelines promote use of a point of care monitoring and coagulation factor-based bleeding management.¹⁵ This was not the case in the present study. Almost half of the patients received FFP, platelet concentrates or coagulation factor concentrates. FFP, despite several adverse effects and poor efficacy²² is still the most commonly used agent during intraoperative bleeding, whereas in five percent and two percent of patients fibrinogen concentrate and PCC were used, respectively. Parameters of routine coagulation tests did not reveal coagulopathy either preoperatively and at the end of surgery. However, as immediate pre-transfusion coagulation tests were not documented for participating patients, conclusion regarding the appropriateness of the administration of FFP, platelets or coagulation factors cannot be made.

Our study has some limitations. We recorded selected data and might therefore miss some of the factors that might influence transfusion habits. We did not collect data on those not transfused intraoperatively, not in those transfused before or after surgery. We did not find clinically relevant differences between countries. As centres participating and procedures included varied essentially from country to country, differences in transfusion habits might be more centre-specific than country-specific.

Conclusion

Across Europe, the vast majority of elective surgical patients receiving one or more units of RBC intraoperatively are anaemic at the commencement of surgery (Hb 10.6 g dl⁻¹), and correction of anaemia before surgery deserves further study. Although the transfusion trigger (Hb 8.1 g dl⁻¹) is probably appropriate intraoperatively, post-transfusion Hb values were uniformly high (Hb 9.8 g dl⁻¹) suggesting opportunity to use a single unit transfusion stratagem. Physiological transfusion triggers seem to be the most important catalyst for transfusion intraoperatively. But the physiological triggers mainly used (hypotension and tachycardia) might have a low discriminative power for tissue hypoperfusion and often occur at Hb values that are considered safe for tissue oxygenation in most patients.

Authors' contributions

Study design/planning: all authors Study conduct: all authors and collaborators Data analysis: all authors Writing paper: all authors Revising paper: all authors

Acknowledgements

We want to thank the European Society of Anaesthesiology for helping in this research project through administrative support of the Clinical Trial Network. The authors are especially grateful to B. Leva and B. Plichon Research and Clinical Trial Coordinator in the European Society of Anaesthesiology. Thanks are also due to Prof. Dr. A. Hoeft (Bonn, Germany) Chairperson of the ESA Research Committee and the ESA CTN for his meaningful promotion and support. We are grateful to all investigators involved in data collection.

Declaration of interest

None declared.

Funding

The ESA sponsored and funded ETPOS with a grant from the ESA-Clinical Trial Network.

References

- Shander A, Van Aken H, Colomina MJ, et al. Patient blood management in Europe. Br J Anaesth [Internet] 2012 [cited 2015 Jan 11]; 109: 55–68
- Goodnough LT, Shander A. Patient blood management. Anesthesiology 2012; 116: 1367–76
- Spence RK, Erhard J. History of patient blood management. Best Pract Res Clin Anaesthesiol 2013; 27: 11–5
- Isbister JP. The three-pillar matrix of patient blood management-an overview. Best Pract Res Clin Anaesthesiol 2013; 27: 69–84
- Thomson A, Farmer S, Hofmann A, Isbister J, Shander A. Patient blood management - a new paradigm for transfusion medicine? ISBT Sci Ser 2009; 4: 423–35
- Kotzé A, Carter LA, Scally AJ. Effect of a patient blood management programme on preoperative anaemia, transfusion rate, and outcome after primary hip or knee arthroplasty: a quality improvement cycle. Br J Anaesth 2012; 108: 943–52
- Leahy MF, Roberts H, Mukhtar SA, et al. A pragmatic approach to embedding patient blood management in a tertiary hospital. Transfusion 2014; 54: 1133–45
- Lasocki S, Krauspe R, von Heymann C, Mezzacasa A, Chainey S, Spahn DR. PREPARE: the prevalence of perioperative anaemia and need for patient blood management in elective orthopaedic surgery: a multicentre, observational study. Eur J Anaesthesiol 2015; 32: 160–7
- 9. Gombotz H, Rehak PH, Shander A, Hofmann A. Blood use in elective surgery: the Austrian benchmark study. *Transfusion* 2007; **47**: 1468–80
- Gombotz H, Rehak PH, Shander A, Hofmann A. The second Austrian benchmark study for blood use in elective surgery: results and practice change. *Transfusion* [Internet] 2014; 54: 2646–57
- Qian F, Osler TM, Eaton MP, et al. Variation of Blood Transfusion in Patients Undergoing Major Noncardiac Surgery. Ann Surg 2012; 1
- Curley GF, Shehata N, Mazer CD, Hare GMT, Friedrich JO. Transfusion triggers for guiding RBC transfusion for cardiovascular surgery: a systematic review and meta-analysis. *Crit Care Med* 2014; 42: 2611–24
- Rosencher N, Ozier Y, Souied F, Lienhart A, Samama C-M. How can we explain the gap between randomised studies and 'real life' practice in postoperative transfusion triggers? Do we need to change recommended thresholds for transfusion? Eur J Anaesthesiol 2012; 460–1

- Pinheiro de Almeida J, Vincent J-L, Barbosa Gomes Galas FR, et al. Transfusion Requirements in Surgical Oncology Patients: A Prospective, Randomized Controlled Trial. Anesthesiology 2015; 122: 29–38
- Kozek-Langenecker SA, Afshari A, Albaladejo P, et al. Management of severe perioperative bleeding: guidelines from the European Society of Anaesthesiology. Eur J Anaesthesiol 2013; 30: 270–382
- Schneider C, Boddy AP, Fukuta J, Groom WD, Streets CG. Predicting blood transfusion in patients undergoing minimally invasive oesophagectomy. Int J Surg 2014; 12: 1342–7
- Musallam KM, Tamim HM, Richards T, et al. Preoperative anaemia and postoperative outcomes in non-cardiac surgery: a retrospective cohort study. Lancet 2011; 378: 1396–407
- Goodnough LT, Maniatis A, Earnshaw P, et al. Detection, evaluation, and management of preoperative anaemia in the elective orthopaedic surgical patient: NATA guidelines. Br J Anaesth 2011; 106: 13–22

- Enko D, Wallner F, Von-Goedecke A, Hirschmugl C, Auersperg V, Halwachs-Baumann G. The impact of an algorithm-guided management of preoperative anemia in perioperative hemoglobin level and transfusion of major orthopedic surgery patients. *Anemia* 2013; 2013
- 20. Berger MD, Gerber B, Arn K, Senn O, Schanz U, Stussi G. Significant reduction of red blood cell transfusion requirements by changing from a double-unit to a single-unit transfusion policy in patients receiving intensive chemotherapy or stem cell transplantation. *Haematologica* 2012; **97**: 116–22
- 21. Dente CJ, Shaz BH, Nicholas JM, *et al.* Improvements in early mortality and coagulopathy are sustained better in patients with blunt trauma after institution of a massive transfusion protocol in a civilian level I trauma center. *J Trauma* 2009; **66**: 1616–24
- 22. Chowdhury P, Saayman AG, Paulus U, Findlay GP, Collins PW. Efficacy of standard dose and 30 ml/kg fresh frozen plasma in correcting laboratory parameters of haemostasis in critically ill patients. Br J Haematol 2004; 69–73

Handling editor: P. S. Myles

Complete list of collaborators to be cited in Pubmed in alphabetical order

All members of the collaborators were involved in patient recruitment and data collection

Accurso	Giuseppe	Policlinico "P Giaccone" (University of Palermo)	Italy
Ahrens	Norbert	University Hospital Regensburg	Germany
Akan	Mert	Dokuz Eylul University Medicine Faculty	Turkey
Åkeröy	Kristin	Sahlgrenska University Hospital	Sweden
Aksoy	Omur	Istanbul University, Istanbul Medical Faculty	Turkey
Alanoğlu	Zekeriyye	Ankara University Faculty of Medicine	Turkey
Alfredo	Merten	Hospital Santa Creu I Sant Pau	Spain
Alkis	Neslihan	Ankara University Faculty of Medicine	Turkey
Almeida	Valentina	Hospital da Universidade de Coimbra	Portugal
Alousi	Mohammed	Royal Free Hospital Hampstead Nhs Trust	United Kingdom
Alves	Claudia	Hospital da Universidade de Coimbra	
Amaral		Hospital da Espirito Santo - Évora, E.P.E.	Portugal
Ambrosi	Joana	1 I I	Portugal
	Xavier	University Hospital Nantes-Hopital G et R Laënnec	France
Ana	Izquierdo	Hospital Clínico Universitario de Valencia	Spain
Anastase	Denisa	Orthopedics Hospital FOISOR	Romania
Andersson	Mona	Centralsjukhuset Kristianstad	Sweden
Andreou	Antonis	General air force hospital	Greece
Anthopoulos	Georgios	General air force hospital	Greece
Apanaviciute	Daiva	Kaunas Medical University Hospital, Hospital of Lithuanian University of Health Sciences	Lithuania
Arbelaez	Alejandro	Hospital Vall d Hebron	Spain
Arcade	Anne-Laure	University Hospital of Poitiers	France
Arion-Balescu	Carmen	Prof. D.Gerota Hospital	Romania
Arun	Oguzhan	Selcuk university faculty of medicine	Turkey
Azenha	Marta	Hospital da Universidade de Coimbra	Portugal
Bacalbasa	Nicolae	St. Andrei Emergency County Hospital Galati	Romania
Baeten	Wannes	Stedelijk Ziekenhuis Aalst	Belgium
Balandin	Alina	University Hospital Regensburg	Germany
Barquero López	Marta	Corporación Sanitaria Parc Taulí	Spain
Barsan	Victoria	University Emergency County Hospital Targu Mures	Romania
Bascuas	Begona	Hospital Universitario Lucus Augusti	Spain
Basora	Misericordia	Hospital Clinic Barcelona	Spain
Baumann	Holger	Academic Medical Centre, University of Amsterdam	Netherlands
Bayer	Andreas	University Hospital Munich	Germany
Bell	Andrea	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High	United Kingdom
		Heaton	Ū.
Belmonte Cuenca	Julio Zulauka Kazak	Hospital Son Llatzer	Spain
Bengisun	Zuleyha Kazak	Ufuk University Hospital	Turkey
Bento	Carlos	Hospital da Universidade de Coimbra	Portugal
Beran	Maud	ZOL Genk- St Jan Hospital Genk	Belgium
Bermudez Lopez	Maria	Hospital Universitario Lucus Augusti	Spain
Bernardino	Ana	Hospital da Universidade de Coimbra	Portugal
Berthelsen	Kasper Gymoese	University Hospital of North Norway, Tromsø	Norway
Bigat	Zekiye	Akdeniz University Hospital	Turkey
Bilshiene	Diana	Kaunas Medical University Hospital, Hospital of Lithuanian University of Health Sciences	Lithuania
Bilska	Marcela	University Hospital Hradec Kralove	Czech Republic
Bisbe Vives	Elvira	Hospital Mar-Esperança. Parc de Salut Mar	Spain
Biscioni	Tamara	Azienda USL n.5 di Pisa Ospedale F. Lotti	Italy
Björn	Heyse	Ghent University Hospital	Belgium
Blom	Tommi	Karolinska University Hospital Huddinge	Sweden
Bogdan Prodan	Alexandru	Emergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"	Romania
Bogdanovic Dvorscak	Matea	University hospital "Merkur"	Croatia
Boisson	Matthieu	University Hospital of Poitiers	France
		- •	Continue

Continued

Bolten	Jens	St George's Hospital	United Kingdom
Bona	Francesco	Institute for Cancer Research and treatment	Italy
Borg	Francis	Mater Dei Hospital	Malta
Boros	Cristian	Emergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.	Romania
		Iliescu"	
Borys	Michał	Medical University of Lublin	Poland
Boveroux	Pierre	Centre hospitalier Universitaire de Liège	Belgium
Boztug Uz	Neval	Akdeniz University Hospital	Turkey
Brettner	Florian	University Hospital Munich	Germany
Brisard	Laurent	University Hospital Nantes-Hopital G et R Laënnec	France
Britta	De Waal	Maastricht University Medical Center	Netherlands
Browne	Gail	Craigavon Area Hospital	United Kingdom
Budow	Kristin	University Hospital of Wuerzburg	Germany
Buerkle	Hartmut	University Hospital Freiburg	Germany
Buggy	Donal	Mater Misericordiae University Hospital	Ireland
Cain	Alistair	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High	United Kingdom
		Heaton	
Calancea	Esenia	Fundeni Clinical institute - Intensive Care Unit	Romania
Calarasu	Florenta	St. Andrei Emergency County Hospital Galati	Romania
Calder	Verity	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High	United Kingdom
		Heaton	
Camci	Ali Emre	Istanbul University, Istanbul Medical Faculty	Turkey
Campiglia	Laura	Ospedale Misericordia e Dolce - Usl4 Prato	Italy
Campos	Beatriz	Hospital da Universidade de Coimbra	Portugal
Camps	Angela	Hospital Vall d Hebron	Spain
Carlos	Delgado	Hospital Clínico Universitario de Valencia	Spain
Carreira	Claudia	Hospital da Universidade de Coimbra	Portugal
Carrilho	Alexandre	Centro Hospitalar De Lisboa Central- EPE Lisboa	Portugal
Carvalho	Peter	Royal Surrey County Hospital NHS Foundation Trust	United Kingdom
Cassinello	Concepcion	Hospital Miguel Servet	Spain
Cattan	Anat	Tel Aviv Medical Center	Israel
Cenni	Leonardo	Ospedale Misericordia e Dolce - Usl4 Prato	Italy
Cerny	Vladimir	University Hospital Hradec Kralove	Czech Republic
Ceyda Meço	Başak	Ankara University Faculty of Medicine	Turkey
Chesov	Ion	National Scientific an Practical Center of Emergency Medicine	Moldova
Chishti	Ahmed	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High Heaton	United Kingdom
Chupin	Anne-Marie	University Hospital Nantes-Hopital G et R Laënnec	France
Cikova	Andrea	University Hospital Bratislava Ružinov	Slovakia
Cindea	Iulia	Constanta County Emergency Hospital	Romania
Cintula	Daniel	St. Elizabeth s Cancer Institute and Medical faculty of Comenius University Bratislava,	Slovakia
Ciobanasu	Roxana	Fundeni Clinical institute	Romania
Clements	Deborah	Royal Surrey County Hospital NHS Foundation Trust	United Kingdom
Cobiletchi	Serghei	National Scientific an Practical Center of Emergency Medicine	Moldova
Coburn	Mark	University Hospital Aachen	Germany
Coghlan	Liz	Mater Misericordiae University Hospital	Ireland
Collyer	Thomas	Harrogate District Hospital	United Kingdom
Copotoiu	Sanda Maria	University Emergency County Hospital Targu Mures	Romania
Copotoiu	Ruxandra	University Emergency County Hospital Targu Mures	Romania
Corneci	Dan	Elias University Emergency Hospital	Romania
Cortegiani	Andrea	Policlinico "P Giaccone" (University of Palermo)	Italy
Coskunfirat	O.Koray	Akdeniz University Hospital	Turkey
Costea	Dan	Constanta County Emergency Hospital	Romania
Czuczwar	Mirosław	Medical University of Lublin	Poland
Davies	Katy	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High Heaton	United Kingdom
De Baerdemaeker	Luc	Ghent University Hospital	Belgium
De Hert	Stefan	Ghent University Hospital	Belgium
	Felicino	Institute for Cancer Research and treatment	Italy
Debernardi			-
Decagny	Sylvie	University Hospital Nantes-Hopital G et R Laënnec	France
	Sylvie Nesil	University Hospital Nantes-Hopital G et R Laennec Akdeniz University Hospital Elias University Emergency Hospital	France Turkey

MartínezMartínezDiasSandaCarto Hospitalar De Liaboa Cantral - EPE LiaboaPortugalDickinsonMatthewRoyal Surry County Hospital NIS Foundation TrustUnited KingdomDaganAncaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaDrocGabrielaFundeni Clinical InstituteRomaniaPortugalDurateSoniaHospital da Universidade de CoimbraPortugalDurateSoniaHospital da Universidade de CoimbraPortugalDurateSoniaHospital da Universidade de CoimbraPortugalDurateCoixonuChicologue Chicologue Chicologue ChicologuePortugalDurateCoixonuChicologue Chicologue Chicolo	Diana	Gómez	Hospital Santa Creu I Sant Pau	Spain
DickinomMatthewRoyal Surre's County Hospital NIS Foundation TrustUnited KingdomDobisoroAnnaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Biscu"RomaniaDrocGabrielaFundeni Clinical InstituteRomaniaDurateSoniaHospital da Universidad do CoimbraPortugalDurateSoniaHospital da Universidad do CoimbraPortugalDurkeNigelRettering General Hospital NIS Foundation TrustUnited KingdomEknekciPerihanUfuk Universidy HospitalDenmarkEknekciPerihanUfuk Universidy HospitalDenmarkElmaCiobaronCarigeron Area HospitalUnited KingdomPergusonAndrewCarigeron Area HospitalDuited KingdomPergusonAndrewCarigeron Area HospitalDuited KingdomPergusonAndrewCarigeron Area HospitalDuited KingdomPermándesMelisaHospital James Paget University Hospital NES Foundation TrustUnited KingdomPermándesJ.A.Hospital James Paget University Hospital NES Foundation TrustUnited KingdomPermándesJ.A.Hospital James Paget University Medical Center Johanes Gutenberg MainzGermanyPermándesJ.A.Hospital James Paget University NetworksSlovakiaPerméneDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaPerméneDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaPerifeRosemary <td< td=""><td></td><td></td><td>-</td><td>-</td></td<>			-	-
Dobiova DraganAncaUniversity liospital braidbava kužinovStovakaDraganAncaDarageroy Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaDrocGabrielaPunden Clinical InstituteRomaniaDuarkSoniaHospital da University de de CoimbraPortugalDuarkNigelRetenting General Hospital NRS Foundation TrustUnited KingdomEkclundKimRighbospitaler Coopenhagen University HospitalTruckyElenaCiohanuClinical Emergency Hospital of BacharestRomaniaEpileLauraCarigiyon Anse HospitalUnited KingdomErenaJohanHospital Imase Paget University Hospital NIS Foundation TrustUnited KingdomFernándezJ.A.Hospital Santa Creu I Sant FauPortugalFernándezJ.A.Hospital do Linieris de de CoimbraPortugalFernándezJ.A.Hospital MRS Foundation TrustUnited KingdomFernándezJ.A.Hospital General Hospital MRS Foundation TrustUnited KingdomFernándezJ.A.Hospital MRS Foundation TrustUnited KingdomFernándezJ.A.Hospital MRS Foundation TrustUnited KingdomFernándezJ.A.Hospital Santa Creu I Sant FauPort. C. C.ReskovaZoraUniversity Hospital MRS Foundation TrustUnited KingdomFernándezAndresUniversity Hospital MRS Foundation TrustUnited KingdomGalconaKatariaHospital Santa Creu I Sant FauSonikiaGalconaKa			1	0
DraganAncaEmergency institute of Cardiovascular Diseases inst. "Prof. C. C.BomaniaDrocGabrielaFundeni Clinical instituteRomaniaBornariaDurkNigelKettering General Hospital NIS Foundation TrustUnited KingdomDurkNigelKettering General Hospital NIS Foundation TrustDomarakEdeundKimHighespitalet - Coopenhagen University HospitalDomarakEdmakCiobamClinical Emergency Propriet of SucharestRomaniaElmahTraceyQueens HospitalUniversity HospitalUniversity HospitalElmahTraceyQueens HospitalUniversity HospitalUniversity HospitalPergusonAndrewCraigavon Area HospitalUniversity Hospital NIS Foundation TrustUniversity HospitalPergusonAndrewCraigavon Area HospitalNortherey HospitalPertugalPermandesMarioUniversity Hospital Structure Structure MariaSpainPermerMarioUniversity Hospital NIS Foundation TrustUnited KingdomPermineRosemaryKettering General Hospital NIS Foundation TrustUnited KingdomPillpescuDanicaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaPillpescuDanicaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaGalcohaKatarinaFacuity Hospital NIS Foundation TrustUnited KingdomPillpescuDanicaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaGalcoha				•
InfectorInfectorIntervalDrocGabrialHospital da Universidado de CoimbraPortugalDurateSoniaHospital da Universidy HospitalUnited KingdomLeklundKimKigehospitale' - Copenhagen University HospitalTurkeyEkelundKimKigehospitale' - Copenhagen University HospitalTurkeyElenaCicibanuCilnical Emergency Hospital OutcharestMomaniaElmaCicibanuCilnical Emergency Hospital OutcharestUnited KingdomEspieLauraCraigwora Area HospitalUnited KingdomFernandesMelisaHospital James Paget University Hospital NIS Foundation TrustUnited KingdomFernandesMelisaHospital James Paget University Hospital NIS Foundation TrustUnited KingdomFernerMarinUniversity Hospital NIS Foundation TrustUnited KingdomFernerBanielHospital Ant Sprintio Santo - Stora, P.E.EFortugalFernerBanielHospital Antalisava RudinovGarmanyFernerAndresUniversity Hospital INS Foundation TrustUnited KingdomFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. G.SonaniaIlassikoraZoraUniversity Hospital BandSonariaGarnerAndresUniversity Hospital BonGermanyGarnerAndresHospital Sinda Creu Jisonar republicSovakiaGarnerAndresKatenna Medical UniversityRussiaGarnerMattHospital University Hospital And S				
DurketSoniaHospital ds Universidy de de CombraPortugalDurketNigeKettering General Hospital DNIS Foundation TustUnited KingdomLikelundKimHigshospitale: Copenhagen University HospitalDemmarkBena C. GobanuClinical Emergency Hospital of BucharestKomalainEllimahTackeyOgeene HospitalUnited KingdomEspiteLauraCraigeon Area HospitalUnited KingdomEventtLynnHospital James Paget University Hospital NHS Foundation TrustUnited KingdomPergusonAndrewCraigeon Area HospitalUnited KingdomPermandesMelissHospital ds University Hospital NHS Foundation TrustUnited KingdomPernándezJ. A. Hospital ds Santo FousSpainSpainPernérineRosemaryKettering General Hospital NHS Foundation TrustUnited KingdomFernéreRosemaryKettering General Hospital NHSSpainGalkovaZoraUniversity Hospital Brutalava RužinovSlovakiaGalkovaKatarinaPaculty hospital, Nita, Slovak republicSlovakiaGalkovaKatarinaPaculty hospital, Nita, Slovak republicSpainGalkovaKatarinaPaculty Hospital, Nita, Slovak republicSpain <td>Dragan</td> <td></td> <td>Iliescu"</td> <td>Romania</td>	Dragan		Iliescu"	Romania
DunkMigelKettering General Hospital NHS Foundation TrustUnited KingdomEkkelundKimHighopitalet - Copenhagen University HospitalDemankEknekcjPerihanUfuk University HospitalDemarkEllmahGlobanClinical Energency Hospital of BucharestRomaniaEllmahTraceyQueens HospitalUnited KingdomEveretLynnHospital James Paget University Hospital NHS Foundation TrustUnited KingdomFernandesAndrewCraigwon Area HospitalUnited KingdomFernandesMariaHospital as trat CeruSpainFernandesJAHospital as trat SeruSpainFernandesMariaHospital da Expirito Santo - Even, E.E.NomaniaFernieRosemaryEntering General Hospital NHS Foundation TrustUnited KingdomFilipecuDanielaEntergency Institute of Cardiovascular Disease Inst. "Prof. C. C. MonaniaSpainFilipecuAnieHospital BonnGermanyFortAndreaUniversity Hospital Bratisava RužinovSlovakiaGaltovnKatariaFourth Hospital Sinta Crui Sonk republicSlovakiaGarciaIreneHospital Sinta Crui Sonk republicSlovakiaGarciaIreneKatarasek Upon Tyne Hospitals HitS Trust The Freeman Hospital Hith Intek KingdomHeatonGarciaViorelConstanta Courty Energency Hospital of Lithuanian UniversitySpainGarciaNatusKatarase Medical UniversityGereaSpainGarciaMarey <td></td> <td></td> <td></td> <td></td>				
İkelundKimRighospital-Copenhagen University HospitalDemantElemakçiPerihamUñik University Hospital of BucharestRomaniaElemahGiobanuClinical Energency Hospital of BucharestRomaniaElimahTraceyQueens HospitalUnited KingdomEyrettLynnHospital James Paget University Hospital NHS Foundation TrustUnited KingdomEvrettLynnHospital James Paget University Hospital NHS Foundation TrustUnited KingdomFernandesJ.A.Hospital Santa Cera I Sant PauSpainFerreraMarionUniversity Medical Center Johannes Gutenberg MainzGermanyFerreiraRosemaryKettering General Hospital NHS Foundation TrustUnited KingdomFlipscovDariaEmergency Institute Gardiovaccular Diseases Inst. "Prof. C. C.RomaniaFlipscovDariaUniversity Hospital Bratislava RužinovSlovakiaFontA.Hospital Santa Ceru I Sant PauSpainGarciaIrenHospital Val I HebronSpainGarciaIrenHospital Val I HebronSpainGarciaIrenHospital Val I HebronSpainGarciaIrenHospital Val HebronSpainGarciaIrenHospital Val HebronSpainGarciaIrenHospital Val Hebron <t< td=""><td></td><td></td><td></td><td></td></t<>				
LimekçiPerihanUniv University HöşitalTurkeyLilmahCiokanuCinical Emergency Höspital BucharestRomaniaLilmahTraceyQueens HöşitalUnited KingdomLipieLauraCraigavon Area HöşitalUnited KingdomFergueonAndrewCraigavon Area HöşitalUnited KingdomFergueonAndrewCraigavon Area HöşitalPortugalFernandesMelisseHöşital da Universidede de CoimbraPortugalFernerMarionUniversity Medical Center Johannes Gutenberg MainzGermanyFerreiraDanielHöşital da Diversity Bedical Center Johannes Gutenberg MainzGermanyFerreiraRosemayKettering General Höspital NES Foundation TrustUnited KingdomFilipescuDanielEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFilischerAndreasUniversity Höspital BonnGermanyFortA.Höspital Stata Creu I Sant PauSjovakaGarciaIreneHöspital Santa Creu I Sant PauSjovakaGarciaIreneHöspital Vall d HebronSpainGarciaIreneHöspital Vall d HebronSpainGarciaIreneHöspital University HöspitalKusenaGarciaIreneHöspital University HöspitalKusenaGarciaIreneHöspital University HöspitalKusenaGarciaIreneHöspital University HöspitalGreeceGarciaIreneHöspital University HöspitalGreece		•	0 I	-
IdeaGlobanuClinical Emergency Hospital of BucharestRomaniaElimahTraceyQueren HospitalUnited KingdomExpectLauraCraigavon Area HospitalUnited KingdomFergusonAndrewCraigavon Area HospitalUnited KingdomFermandesMelissaHospital James Paget University Hospital NHS Foundation TrustUnited KingdomFernandesJ.A.Hospital Santa Cerel Santo Forona, P. P.Z.PortugalFerreiraRosemaryKettering General Hospital NLS Foundation TrustUnited KingdomFerreiraRosemaryKettering General Hospital NLS Foundation TrustUnited KingdomFlipsecuDanielEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Ilescu"NomaniaFasikonaZornUniversity Hospital Ratislava RužinovSlovakiaGalcoraKatrinaFaculty hospital, Nita, Slovak republicSlovakiaGarciaIreneHospital Vall d TeloronSpainGarciaIreneHospital Vall d TeloronSpainGarciaIreneHospital Vall d TeloronSpainGarciaIreneHospital Vall d TeloronSpainGeneraAndreyKaunas Medical University Hospital of Lithuanian UniversityIdhuaniaGeneraYorelConstanta County Emergency Hospital GRomaniaGorciaIreneHospital TeneburgGenerancySpainGibsasGeorgeArtelato Diversity Hospital Alespital TeneburgSpainGorciaJosé ManuelControl Hospit				
ItimahTraceyQueens HospitalUnited KingdomEspieLauraCrágwon Area HospitalUnited KingdomPergusonAndrewCrágwon Area HospitalUnited KingdomPergusonAndrewCrágwon Area HospitalPortugalPernandesMelissaHospital Santo Creu I Sant PauSpainPernerMarionUnited KingdomSpainPernerMarionUnited KingdomGermanyPerreiraDanielHospital Santo Forva, L.P.E.PortugalFerreiraRosemayRetreiring General Hospital NFS Foundation TrustUnited KingdomFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFleischerAndreasUniversity Hospital Bartislava RužinovSlovakiaFerreiraConstantist Court Jospital Santo Foundation TrustUniversity Hospital Bartislava RužinovSlovakiaFerreiraAndreasUniversity Hospital Bartislava RužinovSlovakiaGalkovaKatarinaFaculty hospital Mira, Slovak republicSlovakiaGarciaIreneHospital Val HobronSpainGasenkampfAndreyKrasmoyarsk State Medical UniversityRusiaGelmanasAunaeKauma Medical University Hospital Al FoundationPortugalGibkasGermanyGereceAratianGereaceGasenkampfVorelConstanta Courty Emergency HospitalGreceeGasenkampfVorelConstanta Courty Emergency HospitalGreceeGorcakePertu	- 3			
IspieLauraCraigavon Area HospitalUnited KingdomPergusonAndrewCraigavon Area HospitalNinited KingdomPergusonAndrewCraigavon Area HospitalPortugalPernandesMelissaHiospital anta Care Losant PauSpainPerreiraDanielHospital anta Care Losant PauPortugalPerreiraDanielHospital do Espirito Santo - Forca, E.E.PortugalPerreiraRosemaryKettering General Hospital NIS Foundation TrustUnited KingdomFilipescuDanielEnregreycy Institute of Cardiovascular Diseases Inst. "Prof. C. C. Itescu"NomaniaFilipescuDanielEnregreycy Institute of Cardiovascular Diseases Inst. "Prof. C. C. Itescu"NomaniaFilipescuDanielEnregreycy Institute of Cardiovascular Diseases Inst. "Prof. C. C. Itescu"StovakiaFilipescuZoraUniversity Hospital Santa CoreStovakiaGalkovaKatarinaFeaulty hospital Nata, Stovak republicStovakiaGarciaIreneHospital Valid Hebron HeatonStovakiaGarciaIreneHospital University Hospital of Lithuanian University ItescueUnited KingdomGelmanasAndreyKatarina Caunty Enregrey Hospital of Lithuanian University ItescueUnited KingdomGoraskaGeorgeAretaieon University Hospital Alta Diversity Hospital ItescueSpainGilkanzPerreireUniversity Hospital Matie State Medical University Hospital ItescueSpainGarciaIreneHospital Universitario La Pas <td></td> <td></td> <td>o j i</td> <td></td>			o j i	
IverettLynnHospital James Paget University Hospital NHS Foundation TrustUnited KingdomFernandesMelissaHospital da Universidade de CoimbraPortugalFernandezJ.A.Hospital da Universidade de CoimbraPortugalFernerMarionUniversity Medical Center Johannes Gutenberg MainzGermanyFerrierDanielHospital do Dspinto Santo - Fovra, E.F.E.PortugalFerrierRosenaryKettering General Hospital Nts Foundation TrustUnited KingdomFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFilipescuAndreasUniversity Hospital Bratisava RužinovSlovakiaFentA.Hospital Santa Creu I Sant PauSpainGaktovaKatarinaFaculty hospital Rustisava RužinovSlovakiaGarciaTerneHospital Vall d'HebronSpainGarciaIterneHospital Vall d'HebronSpainGarciaTerneHospital Vall d'HebronRussiaGarciaFernandeKnasnoyarak State Medical UniversityRussiaGalemansAndreyKrasnoyarak State Medical UniversityRussiaGilaanzGeorgeArtateion University HospitalGreeceGordiaViorelConstanta County Emergency HospitalGreeceGordiaGeorgeArtateion University HospitalGreeceGordiaViorelHospital University HospitalGreeceGordiaJeanHospital University HospitalGreeceGordia <td></td> <td>,</td> <td></td> <td>•</td>		,		•
PerguonAndrewCraigavon Area HospitalUnited KingdomPernandesMissHospital & Universivisade de CoimbraSpainPernerinMarionUniversity Medical Center Johannes Gutenberg MainzGermanyPerreiraDanielHospital do Espitino Santo - Evona, LP.E.PortugalPerreiraDanielEngregncy Institute of Cardiovascular Diseases Inst. "Prof. C. C.MissionFilipescuDanielEngregncy Institute of Cardiovascular Diseases Inst. "Prof. C. C.MissionFilipescuDanielEngregncy Institute of Cardiovascular Diseases Inst. "Prof. C. C.MissionFentAndreasUniversity Hospital Bratislava RužinovSlovakiaFestoreAndreasUniversity Hospital Stata Center JosokSpainGarciaIreneHospital Nati, Slovak republicSpainGarciaIreneHospital Valid HebronSpainGarenaAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArunasKatunas Medical University Hospital of Lithuanian UniversityLithuaniaGibanzPerdadeHospital Valid Prophytal ProphytalGreeceGockelUniversity Hospital PreburgGermanyPortugalGoncalves AguiarJosé ManuelConstanta County Energency Hospital of Lithuanian UniversityPortugalGoncalves AguiarJosé ManuelConstanta County Energency Hospital of Lithuanian UniversityPortugalGoncalves AguiarJosé ManuelConstanta County Energency Hospital FraburgGermanyGoncalves Aguiar <td></td> <td></td> <td>• •</td> <td>0</td>			• •	0
ImageMelissaHospital Stant Core U San PauPortugalFernindezJ.A.Hospital Stant Core U San PauGermanyPerreirDanielHospital Stant Core U San PauGermanyPerreiraDanielHospital Stant Core U San PauPortugalFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.MarianoFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFilipescuAndreasUniversity Hospital Banta Shava NužinovSlovakiaFortA.Hospital Stanta Core U Sant PauSpainGalkovaKatarinaFaculty Hospital Istalsava NužinovSpainGarciaIreneHospital Vali d IebronSpainGarciaAndreyKrasnoyarsk State Medical UniversityRussiaGalkovaAndreyKrasnoyarsk State Medical UniversityRussiaGalsanzFernandoHospital University HospitalRomaniaGalsanzFernandoHospital University HospitalGermanyGokasGaorgeArtafeion University HospitalGermanyGokasGeorgeArtafeion University HospitalGermanyGoncalvez AguiarJeedaHospital University HospitalGermanyGoncalvez AguiarJeedaHospital University HospitalGermanyGordaJeedaHospital University HospitalGermanyGordaJeedaHospital University HospitalGermanyGarciaJeedaHospital University Hospi		,		•
FernándezJ.A.Hospital Santa Creu I Sant PauSpainFerneraDanielHospital do Espirito Santo - Evora, E.P.E.PortugalFerreiraRosemaryKettering General Hospital NtB Foundation TrustUnited KingdomFilipescuDanielEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFlesikovaZoraUniversity Hospital Bratislava RužinovSlovakiaFlesikovaAndreasUniversity Hospital Santa Creu I Sant PauSpainGatovaKatarinaFaculty Nospital, Nitra, Slovak republicSlovakiaGarciaIreneHospital Vall & HebronSpainGasenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGilasnaArunasKaunas Medical University Hospital of Lithuanian UniversityLithuaniaGilasnaFernandoHospital Universitario La PazSpainGoresViorelConstanta County Emergency HospitalGreeceGoresPietaloHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGoracalez MonzonVeronicaHospital Antersitario La PazSpainGorealez MonzonVeronicaHospital Antersitario Antersitario Universario de Vigo)SpainGarenaViorelConstanta County Emergency Hospital Countersario de Vigo)SpainGolasaGerogeAriteison University Hospital PreDurgGermanyGoracalez MonzonVeronicaHo	•		• •	•
FerneiraMarionUniversity Medical Center Johannes Gutenberg MainzGermanyPerreiraDanielHospital do Espirito Santo - Évora, E.P.E.PortugalFerrieRosemaryKettering General Hospital NFS Foundation TrustUnited KingdomFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFlasskovaZoraUniversity Hospital Bratislava RužinovSlovakiaFlasskovaZoraUniversity Hospital Santa Creu I Sant PauSpainGalkovaKatarinaFaculty Noprital, Nitra, Slovak republicSlovakiaGarciaIreneHospital Vall HebronSpainGarciaMatNewcastle Upon Tyne Hospital, NIST Inst The Freeman Hospital HighWnited KingdomGaenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArunasKaunas Medical University Hospital, Hospital of Lithuanian UniversityRussiaGilsanzFernahoHospital Vall HebronGereceGorosleViorelConstanta County Emergency HospitalRomaniaGilsanzFernahoHospital Alvisristino La PazSpainGokasGeorgeAretaieon University Hospital FreburgGermanyGonzalez MoriaJosé ManuelCentro Hospital al AlvisPortugalGonzalez MoriaJosé ManuelCentro Hospital of BucharestRomaniaGoroslaJiedadeHospital Alvis Litheorieo Complexo Hospital alvisSpainGotadaJosé ManuelCentro Hospital of BucharestRomania	Fernández	J.A.	•	•
FerrieRosemaryKettering General Hospital NHS Foundation TrustUnited KingdomFilipescuDanielaEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaFlassikovaZoraUniversity Hospital Bratislava RužinovSlovakiaFleischerAndressUniversity Hospital Santa Creu I Sant PauSpainGatkovaKatarinaFaculty hospital, Nitra, Slovak republicSovakiaGarciaIreneHospital Vall d HebronSpainGarciaIreneHospital Vall d HebronSpainGarenerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High delmanasUnited KingdomGelmanasAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasAndreyKrasnoyarsk State Medical UniversityRomaniaGilsanzFernandoHospital Inviersity HospitalGreeceGoregeAretaicon University HospitalGreeceSpainGoralez MonzonVeronicaHospital AreburgGeremanyGoralez MonzonVeronicaHospital AreburgGermanyGoralez MonzonVeronicaHospital AreburgGermanyGoraniez MonzonVeronicaHospital NatisceintoSpainGoraniez MonzonVeronicaHospital AreburgGermanyGoraniez MonzonVeronicaHospital AreburgGermanyGoraniez MonzonVeronicaHospital Araberopital Araberopital SubarestFranceGoraniez MonzonVeronicaHospital Araberopital Araberopital Subarest	Ferner	Marion	University Medical Center Johannes Gutenberg Mainz	-
FilipescuDaniela Interstry Hospital Bratislava RužinovRomaniaFlassikovaZoraUniversity Hospital Bratislava RužinovSlovakiaFleischerAndreasUniversity Hospital Bratislava RužinovSlovakiaGalkovaKatarinaFaculty hospital Creu I San PauSpainGalkovaKatarinaFaculty hospital, Nitra, Slovak republicSlovakiaGarciaIreneHospital Santa Creu I Sant PauSpainGarciaIreneHospital Vall d HebronSpainGarenerMattNevcaste Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomGasenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArunasKaunas Medical University Hospital Altapsital of Lithuanian UniversityIthuaniaGilsanzFernandoHospital University Hospital Altapsital of DireceSpainGokasGeorgeArtetaicon University HospitalGreeceGonesFieladeHospital da Universitade de CoimbraPortugalGonalves AguiarJesa ManuelCorcetor Hospital ar do PortoPortugalGonzalez MonzonVeronicaHospital Vaspital Alta ParbotItalyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGoralezInical Emergency Hospital Of BucharestRomaniaGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFrance	Ferreira	Daniel	Hospital do Espirito Santo - Évora, E.P.E.	Portugal
These, of FlassikovaZoraUniversity Hospital Bratislava RužinovSolvakiaFlassikovaZoraUniversity Hospital BonnGermanyFortA.Hospital Santa Creu I Sant PauSpainGalkovaKatarinaFaculty hospital, Nitra, Slovak republicSlovakiaGarciaIreneHospital Vall d HebronSpainGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomGasenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelemanasAndreyKrasnoyarsk State Medical University Hospital Hospital Hospital JulianaRomaniaGlisanzFernandoHospital University HospitalRomaniaGilsanzFernandoHospital University HospitalGreeceGordelUlrichUniversity HospitalGreeceGoncalves AguiarJosé ManuelCentro Hospital reburgGreeceGoncalves AguiarJosé ManuelCentro Hospital Arobital of Divitorsity HospitalPortugalGonzalez MonzonVeronicaHospital Autiversidade de CoimbraPortugalGonzalez MonzonVeronicaHospital Autiversidade de CoimbraPortugalGorandeJosé ManuelCentro Hospital Antech Pottal Of StatenceFranceGramigniElenaOspetale Miscricortílar do PortoPortugalGouraudJean PierrerUniversity Hospital Nates-Hoptal G & LaénnecFranceGramigniElenaOspetale Miscricortílar do PortoPortugalGraneNadréDial	Ferrie	Rosemary	Kettering General Hospital NHS Foundation Trust	United Kingdom
FleischerAndreasUniversity Hoespital BonnGermanyFontA.Hospital Santa Creu I Sant PauSpainGalkovaKatarinaFaculty Hospital, Nitra, Slovak republicSlovakiaGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonRussiaGasenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArunasKaunas Medical University Hospital of Lithuanian University of Health SciencesKinanaGilsanzFernandoHospital Universitario La PazSpainGikasaGeorgeArteion University HospitalGreeceGockasGeorgeArteion Hospital PreiburgGermanyGonzalez KomzonVeronicaHospital PreiburgPortugalGonzalez KomzonVeronicaHospital Aniversidade de CoimbraPortugalGorunalez KomzonVeronicaHospital Nantes-Hopital G et R LaënnecFranceGorunale KomzonVeronicaGorealez KomzonKussiaGorunaleJean-PierreUniversity Hospital PrabtoItalyGorunaleJean-PierreUniversity Hospital G et R LaënnecFranceGramigniElenaOspetale Misericorida e DolecUsl RussiaGorunaleJean-PierreUniversity Hospital Muster-Hopital G et R LaënnecFranceGramigniElenaOspetale Misericorida e DolecUsl RussiaGramigniElena<	Filipescu	Daniela		Romania
FontAHospital Santa Creu I Sant PauSpainGalkovaKatarinaFaculty hospital, Nitra, Slovak republicSlovakiaGarciaIreneHospital Vall A HebronSpainGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonGasenkampfAndreyKrasnoyarsk State Medical University of Health SciencesRussiaGherghinaViorelConstanta County Emergency HospitalRomaniaGiakanzFernandoHospital University HospitalGereceGobelUlrichUniversity Hospital FebruaryGereceGonzalez MonzoVeronicaHospital du University HospitalPortugalGornesPiedadeHospital du University Hospital robotoPortugalGonzalez MonzoVeronicaHospital du University Hospital FebruaryGermanyGornalez MonzonVeronicaHospital du Miversitafade de CianbraPortugalGornalez MonzonVeronicaHospital du Miversitafade de LiaennecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndréyUniversity Hospital MicharestSpainGrintescuIoanaClinical Emergency Hospital of BucharestSpainGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndré	Flassikova	Zora	University Hospital Bratislava Ružinov	Slovakia
GalkovaKatarinaFaculty hospital, Nitra, Slovak republicŚlovakiaGarciaIreneHospital Vall d HebronSpainGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomGasenkampfAndreyKrasnoyarsk State Medical University Hospital, Hospital of Lithuanian UniversityIthuaniaGelmanasArunasKaunas Medical University Hospital, Hospital of Lithuanian UniversityIthuaniaGilsanzFernandoConstanta County Emergency HospitalRomaniaGiokasGeorgeAretaleion University HospitalGermanyGomesPiedadeHospital ad University HospitalGermanyGonzalez MonzonVeronicaHospital ad Universidade de CoimbraPortugalGonzalez MonzonVeronicaHospital ad Deirocio (Complexo Hospitalario Universario de Vigo)SpainGotradez MonzonVeronicaHospital do Meixocio (Complexo Hospitalario Universario de Vigo)SpainGotraduJean-PierreUniversity Hospital Pitaler BushRomaniaGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuschElenaOspedale Misericordi a Dolce - Usl 4 PratoItalyGrintescuIoanaClinical Emergency Hospital BroCroatiaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuschEmiliaHospital Universitario La PazSpainGuschEmiliaHospital Bro<	Fleischer	Andreas	University Hoespital Bonn	Germany
GarciaIreneHospital Vall d HebronSpainGarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonGaenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArdreyKrasnoyarsk State Medical UniversityRussiaGhenanasArtunasConstanta County Emergency Hospital of Lithuanian UniversityKinuaniaGilsanzFernandoHospital University HospitalRomaniaGilsanzGeorgeAretaieion University HospitalGreeceGobelUlrichUniversity Hospital FreiburgGermanyGomesPiedadeHospital d university Hospital FreiburgGermanyGonalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean -PierreUniversity Hospital of BucharestRomaniaGrynyukAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean -PierreUniversity Mospital of BucharestRomaniaGrynyukAndriyUniversity Mospital of BucharestRomaniaGrynyukAndriyUniversity Mospital Market-Hopital G et R LaënnecFranceGuaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital University Hospital G et R LaënnecSpainGustinDenisUniversity Hospital MarketCroatiaGrytsanAlexeyKrasnoyarsk State Medical University<			•	•
GarnerMattNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighÚnited Kingdom HeatonGasenkampfAndreyKrasnoyarsk State Medical UniversityRussiaGelmanasArunasKaunas Medical University Hospital of Lithuanian University of Health SciencesLithuaniaGherghinaViorelConstanta County Emergency Hospital of Lithuanian University of Health SciencesSpainGiokasGeorgeAretaieion University Hospital PazSpainGokasGeorgeAretaieion University Hospital PreburgGermanyGomesPiedadeHospital da University Hospital PreburgGermanyGonzalez MonzonVeronicaHospital do Meixociro (Complexo Hospitalario Universario de Vigo)SpainGonzalez MonzonVeronicaHospital do Meixociro (Complexo Hospitalario Universario de Vigo)SpainGouraudJean-PierreUniversity Hospital PrederikenstiftGermanyGorunadJean-PierreUniversity Hospital PrederikenstiftGermaniaGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGryusanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital University Hospital "Merkur"CroatiaGryusanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital University Hospital Merkur"CroatiaGuaschEmiliaHospital BinoCzech RepublicHarazim <td< td=""><td></td><td>Katarina</td><td></td><td></td></td<>		Katarina		
HeatonHeatonGasenkampfAndreyKrasnoyarsk State Medical UniversityNeusiaGelmanasAndrayKaunas Medical University Hospital of Lithuanian UniversityLithuaniaGherghinaViorelConstanta County Emergency Hospital of Lithuanian UniversityLithuaniaGilsanzFernandoHospital Universitor La PazSpainGiokasGeorgeAretaieion University HospitalGreeceGoedelUlrichUniversity Hospital PreiburgGermanyGonçalves AguiarJosé ManuelCentro Hospitalada de CoimbraPortugalGonçalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixociro (Complexo Hospitalario Universario de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital of LucharestRomaniaGrintescuIoanaClinical Emergency Hospital of UniversityRuusiaGrytsanAlexeyKrasnoyarsk State Medical UniversityRuusiaGuschEmiliaHospital Marker-MarcinaSpainGuschEmiliaHospital BroCroatiaGustinDenisUniversity Mospital "Merkur"CroatiaGranigniElenaContro hospital" Merkur"CroatiaGrytsanAlexeyKrasnoyarsk State Medical University HospitalNorwayGustinDenisUniversity Hospital BroCzech RepublicHansGrégoryCentre hospital Bro </td <td></td> <td></td> <td></td> <td>*</td>				*
GelmanasArunasKaunas Medical University Hospital, Hospital of Lithuanian UniversityLithuaniaof Health Sciencesof Health SciencesRomaniaGilsanzFernandoHospital Universitario La PazSpainGiokasGeorgeAretaicion University HospitalGreeceGoebelUlrichUniversity Hospital PreiburgGermanyGoncasPiedadeHospital da Universidade de CoimbraPortugalGonçalves AguiarJosé ManuelCentro Hospital ar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGruaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital Universitario La PazSpainGuaschEniliaHospital Universitario La PazSpainGuaschEniliaHospital Universitario La PazSpainGuaschEniliaHospital BritoCroatiaHansGrégoryCentre hospitals NHS Trust The Freeman Hospital MisUnited KingdomHarazim	Garner	Matt		United Kingdom
of Health SciencesGherghinaViorelConstanta County Emergency HospitalRomaniaGilsanzFernandoHospital Universitario La PazSpainGiokasGeorgeAretaieion University HospitalGreeceGoebelUlrichUniversity Hospital FreiburgGermanyGomesPiedadeHospital da University Hospital PreiburgGermanyGonzalez MonzonVeronicaHospital da OrotoPortugalGotaschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGotaschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGotraclez MonzonVeronicaHospital da Maisericordia e Dolce - Usl4 PratoItalyGotraschalkJean-PiereUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGustinDenisUniversity hospital "Merkur"CroatiaGuaschEmiliaHospital Universitario La PazSpainGuaschEmiliaHospital Probital Frust The Freeman Hospital HighUnited KingdomHarazimHanaFaculty Hospital BrnoCzech RepublicHeatonIntersity of NavarraSpainSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHirschauerNicola <td< td=""><td></td><td>Andrey</td><td></td><td></td></td<>		Andrey		
GilsanzFernandoHospital Universitario La PazSpainGiokasGeorgeAretaieion University HospitalGreeceGoebelUlrichUniversity Hospital FreiburgGermanyGomesPiedadeHospital da Universidade de CoimbraPortugalGoncalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital da Universidade de CambraSpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGottschalkJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubijanaSloveniaGusathEmiliaHospital University nospital regeSpainGusachEmiliaHospital Universitario La PazSpainGusachEmiliaHospital Universitario La PazSpainGusachEmiliaHospital BrnoCzech RepublicHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University Hospitals NHS Trust The Freeman Hospital High HighamUniversity Hospital SnHS Trust The Freeman Hospital High United Kingdom HeatonHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonHoeftAndreasUniversity Hospital InnsbruckA	Gelmanas	Arunas		Lithuania
GiokasGeorgeAretaieion University HospitalGreeceGoebelUlrichUniversity Hospital FreiburgGermanyGomesPiedadeHospital da University Hospital reiburgPortugalGonçalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G te R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubijanaSloveniaGuaschEmiliaHospital Universitario La PazSpainGustnDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospital BrnoCzech RepublicHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHighamNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHeeftAndreasUniversity Hospital InnsbruckAustriaInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhoferNicoleMedical University Hospital InnsbruckAustriaInnerhoferPetra <td>Gherghina</td> <td>Viorel</td> <td></td> <td>Romania</td>	Gherghina	Viorel		Romania
GoebelUlrichUniversity Hospital PreiburgGermanyGomesPiedadeHospital da Universidade de CoimbraPortugalGonçalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGuschEmiliaHospital University Merkur"CroatiaGuschEmiliaHospital PreiburgKrasnoyarsk State Medical UniversitySpainGuschEniliaHospital Universitario La PazSpainGuschEniliaHospital Protopital "Merkur"CroatiaHansGrégoryCentre hospitaler Universitarie de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHidalgoFranciscoUniversity Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasMedical University Hospital InnsbruckAustriaInnerhoferPetraMedical University Hospital InnsbruckAus			•	-
GomesPiedadeHospital da Universidade de CoimbraPortugalGonçalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universino de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGuschEmiliaHospital Universitario La PazSpainGuschEmiliaHospital Provingeriatier UniversitarioBelgiumHansGrégoryCentre hospitaler Universitare de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasMedical University Hospital InnsbruckAustriaInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgium				
Gonçalves AguiarJosé ManuelCentro Hospitalar do PortoPortugalGonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGuschEmiliaHospital Universitario La PazSpainGustinDenisUniversity Hospital "Merkur"CroatiaGustinDenisUniversity Hospital BrnoCroatiaHansGrégoryCentre hospitalier Universitarie de LiègeBelgiumHidagoFranciscoUniversity of NavaraSpainHidagoFranciscoUniversity Mospital SNHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital InnsbruckAustriaInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJacobsStefanStedelijk Ziekenhuis AalstBelgium				,
Gonzalez MonzonVeronicaHospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)SpainGottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuJoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGuzschEmiliaHospital Universitario La PazSpainGuschEmiliaHospital Universitario La PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalis TinoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHeatonHeatonHeatonHeatonSurriaHoeftAndreasUniversity Hospital BonnGermanyGermanyInnerhofer-PetraMedical University Hospital InnsbruckAustriaInnerhofer-PetraMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJacobsNicolasDiakoniekrankenhaus FriederikenstiftGermany			•	
GottschalkAndréDiakoniekrankenhaus FriederikenstiftGermanyGouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGuschEmiliaHospital University Medical UniversityRussiaGuschEmiliaHospital University hospital "Merkur"CroatiaGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitarie de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyHoeftAndreasUniversity Hospital BonnGermanyHoeftAndreasUniversity Hospital Snust Trust The Freeman Hospital HighUnited KingdomHeatonHeatonGermanyAustriaInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus Friederikens				
GouraudJean-PierreUniversity Hospital Nantes-Hopital G et R LaënnecFranceGramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuschEmiliaHospital University Additive CarterSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitare de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHeatonHeatonHeatonHeatonHeatonHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaInnerhofer-StefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany			• • • • • • • • • • • • • • • • • • • •	-
GramigniElenaOspedale Misericordia e Dolce - Usl4 PratoItalyGrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital University na PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitarie de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University Hospitals NHS Trust The Freeman Hospital HighNorwayHidalgoFranciscoUniversity Hospitals NHS Trust The Freeman Hospital HighUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospital SINS Trust The Freeman Hospital HighGermanyInnerhoferNicolaMedical University Hospital InnsbruckAustriaInnerhoferNicoleMedical University Hospital InnsbruckAustriaInnerhoferNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgium				
GrintescuIoanaClinical Emergency Hospital of BucharestRomaniaGrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital Universitario La PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitario de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHischauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasNievexastle Upon Tyne Hospital InnsbruckGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicolaMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany				
GrynyukAndriyUniversity Medicine Centre LjubljanaSloveniaGrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital Universitario La PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitaire de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonHoeftAndreasNuiversity Hospital BonnGermanyHoeftAndreasUniversity Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicolaMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	0			,
GrytsanAlexeyKrasnoyarsk State Medical UniversityRussiaGuaschEmiliaHospital Universitario La PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitaire de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicolaStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany				
GuaschEmiliaHospital Universitario La PazSpainGustinDenisUniversity hospital "Merkur"CroatiaHansGrégoryCentre hospitalier Universitaire de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany				
HansGrégoryCentre hospitalier Universitaire de LiègeBelgiumHarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleStefanStedelijk Ziekenhuis AalstBelgiumJacobsStefanStedelijk Ziekenhuis AalstGermany				Spain
HarazimHanaFaculty Hospital BrnoCzech RepublicHervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hoespital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	Gustin	Denis	University hospital "Merkur"	Croatia
HervigToreHaukeland University HospitalNorwayHidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hoespital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckBelgiumJacobsStefanStedelijk Ziekenhuis AalstBelgium	Hans	Grégory		•
HidalgoFranciscoUniversity of NavarraSpainHighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckBelgiumJacobsStefanStedelijk Ziekenhuis AalstBelgium				
HighamCharleyNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited KingdomHoeftAndreasUniversity Hospital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	0			
HeatonHirschauerNicolaNewcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High HeatonUnited Kingdom HeatonHoeftAndreasUniversity Hoespital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	•			-
HeatonHoeftAndreasUniversity Hoespital BonnGermanyInnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer-NicoleMedical University Hospital InnsbruckAustriaPomperniggJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	Higham	Charley		United Kingdom
InnerhoferPetraMedical University Hospital InnsbruckAustriaInnerhofer- PomperniggNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	Hirschauer	Nicola		United Kingdom
Innerhofer- PomperniggNicoleMedical University Hospital InnsbruckAustriaJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany	Hoeft	Andreas	University Hoespital Bonn	Germany
PomperniggJacobsStefanStedelijk Ziekenhuis AalstBelgiumJakobsNicolasDiakoniekrankenhaus FriederikenstiftGermany		Petra		
Jakobs Nicolas Diakoniekrankenhaus Friederikenstift Germany		Nicole	Medical University Hospital Innsbruck	Austria
	Jacobs	Stefan	Stedelijk Ziekenhuis Aalst	Belgium
Jamaer Luc Jessa Ziekenhuis Hasselt Belgium	Jakobs	Nicolas		
	Jamaer	Luc	Jessa Ziekenhuis Hasselt	Belgium

Continued

James Jawad Iesus Ihanii Jipa Lavina Iokinen Iovanovic Jubera Kahn Karjagin Kasnik Katsanoulas Kelle Kelleher Kessler Kirigin Kiskira Kivik Klimi Klučka Koers Kontrimaviciut Koopman-van Gemert Korfiotis Kosinová Koursoumi Kozek Langenecker Kranke Kresic Krobot Kropman Kulikov Kvolik Kvrgic Kyttari Lagarto Lance Laufenberg Lauwick Lecoa Leech lidzborski Liliana Linda Llau Pitarch Lopes Lopez Lopez Alvarez Lorenzi Lorre Lucian Lupis Lupu Macas Macedo Maggi Mallett Mallor Manoleli Manolescu

Royal Free Hospital Hampstead Nhs Trust United Kingdom Sarah Monir Centralsjukhuset Kristianstad Sweden Ioana Hospital da Universidade de Coimbra Portugal Shaman Royal Marsden Hospital United Kingdom Nicoleta Fundeni Clinical institute Romania Iohanna University Hospital of Wuerzburg Germany Gordana Clinical Centre of Voivodina Serbia Maria Pilar Hospital Miguel Servet Spain David UCL Belgium Juri Tartu University Hospital Estonia Slovenia Darja General Hospital Slovenj Gradec Ippokrateio Hippokrateion General Hospital of Thessaloniki Konstantinos Greece Hened University Clinical Center Sarajevo Bosnia and Herzegovina Mortimer Mater Misericordiae University Hospital Ireland Florian University Hospital Bonn Germany Croatia Borana University Hospital "Sveti Duh" Olga Molaoi Hospital Greece North Estonian Center Estonia Peeter Pelagia "Alexandra" General Hospital of Athens Greece Faculty Hospital Brno Czech Republic Iozef Academic Medical Centre, University of Amsterdam Netherlands Lena Egle Vilnius University Hospital - Santariskiu Clinics Lithuania A.W.M.M. Albert schweitzer Hospital Netherlands Ippokrateio Hippokrateion General Hospital of Thessaloniki Demetrios Greece Martina Faculty Hospital Brno Czech Republic Eygenia Attikon University Hospital Greece Sibylle EKH Evangelic Hospital Vienna Austria Peter University Hospital of Wuerzburg Germany University Clinical Hospital Osijek Marina Croatia Renatas Generala Hospital Varazdin Croatia Lucienne Maastricht University Medical Center Netherlands Alexander Burdenko Neurosurgery Institute Russia Slavica University Clinical Hospital Osijek Croatia Ivana Clinical Centre of Voivodina Serbia Aikaterini Attikon University Hospital Greece Filipa Centro Hospitalar do Porto Portugal Marcus D. Maastricht University Medical Center Netherlands University Medical Center Johannes Gutenberg Mainz Rita Germany Severine Centre hospitalier Universitaire de Liège Belgium Jean-Pierre Centre hospitalier Universitaire de Liège Belgium Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High United Kingdom Leech Heaton Lionel Groupe Hospitalier Cochin France Hospital Clínico Universitario de Valencia Henao Spain Filipe Hospital Garcia de orta Portugal Juan Vicente Hospital Clínico Universitario de Valencia Spain Ana Hospital da Universidade de Coimbra Portugal Luis University of Navarra Spain Alexo Hospital do Meixoeiro (Complexo Hospitalario Universario de Vigo) Spain Irene Azienda USL n.5 di Pisa Ospedale F. Lotti Italy Gilbert CHD Vendée France Horhota Spital orasenesc Bolintin Vale Romania University hospital "Merkur" Croatia Tamara St. Andrei Emergency County Hospital Galati Mary Nicoleta Romania Andrius Lithuanian University of Health Sciences, Kaunas Clinics Lithuania Hospital da Universidade de Coimbra Ana Portugal Genaro Hospital Universitario La Paz Spain Susan Royal Free Hospital Hampstead Nhs Trust United Kingdom Thomas Hospital San Jorge Spain Alexandra Clinical Emergency Hospital of Bucharest Romania Elias University Emergency Hospital Romania Rely

Manufa	6	TT	C
Manrique	Susana	Hospital Vall d Hebron	Spain
Maquoi Marios-Konstantinos	Isabelle Tasoulis	Centre hospitalier Universitaire de Liège	Belgium
Marlos-Konstantinos Markovic Bozic	Jasmina	Aretaieion University Hospital University Medicine Centre Ljubljana	Greece Slovenia
Markus W.	Hollmann	Academic Medical Centre, University of Amsterdam	Netherlands
Marques	Margarida	Hospital da Universidade de Coimbra	Portugal
Martinez	Raul	Hospital Universitario La Paz	Spain
Martinez	Ever	Hospital Universitario La Paz	Spain
Martínez	Esther	Hospital Universitari Germans Trias I Pujol	Spain
Martinho	Helder	Hospital da Universidade de Coimbra	Portugal
Martins	Diogo	Centro Hospitalar de Lisboa Ocidental, E.P.E. Hospital de S. Francisco	Portugal
		Xavier	
Martires	Emilia	Hospital da Universidade de Coimbra	Portugal
Martus	Peter	Universitätsklinikum Tubingen	Germany
Matias Matot	Francisco Idit	Hospital da Universidade de Coimbra Tel Aviv Medical Center	Portugal Israel
Mauff	Susanne		
Mauli	Paula	University Medical Center Johannes Gutenberg Mainz Royal Free Hospital Hampstead Nhs Trust	Germany United Kingdom
Meier	Jens	Kepler University Clinic Linz	Austria
Merz	Hannah	Universitätsklinikum Tubingen	Germany
Meybohm	Patrick	University Hospital Frankfurt	Germany
Militello	Maria Grazia	Azienda USL n.5 di Pisa Ospedale F. Lotti	Italy
Mincu	Natalia	Prof. D.Gerota Hospital	Romania
Miranda	Maria Lina	Instituto Português Oncologia	Portugal
Mirea	Liliana	Clinical Emergency Hospital of Bucharest	Romania
Moghildea	Victoria	National Scientific an Practical Center of Emergency Medicine	Moldova
Moise	Alida	Prof. D.Gerota Hospital	Romania
Molano Diaz	Pablo	Hospital General De Mostoles	Spain
Moltó	Luís	Hospital Mar-Esperança. Parc de Salut Mar	Spain
Monedero	Pablo	University of Navarra	Spain
Moral	Victoria	Hospital Santa Creu I Sant Pau	Spain
Moreira	Zélia	Centro Hospitalar do Porto	Portugal
Moret	Enrique	Hospital Universitari Germans Trias I Pujol	Spain
Mulders	Freya	Jessa Ziekenhuis Hasselt	Belgium
Munteanu	Anna Maria	Orthopedics Hospital FOISOR	Romania
Nadia Diana	Kinast	Hospital Santa Creu I Sant Pau	Spain
Nair	Ashok	Royal Surrey County Hospital NHS Foundation Trust	United Kingdom
Neskovic	Vojislava	Military Medical Academy	Serbia
Ninane	Vincent	Centre hospitalier Universitaire de Liège	Belgium
Nitu	Denisa	Elias University Emergency Hospital	Romania
Oberhofer	Dagmar	University Hospital "Sveti Duh"	Croatia
Odeberg-Wernerman	Suzanne	Karolinska University Hospital Huddinge	Sweden
Oganjan	Juri Dilek	North Estonian Center	Estonia
Omur Oralla Maran		Dokuz Eylul University Medicine Faculty	Turkey
Orallo Moran Ozkardesler	Marian Angeles Sevda	Hospital do Meixoeiro (Complexo Hospitalario Universario de Vigo) Dokuz Eylul University Medicine Faculty	Spain Turkey
Pacasová	Rita	Faculty Hospital Brno	Czech Republic
Paklar	Nataša	University hospital "Merkur"	Croatia
Pandazi	Ageliki	Attikon University Hospital	Greece
Papaspyros	Fotios	Ippokrateio Hippokrateion General Hospital of Thessaloniki	Greece
Paraskeuopoulos	Tilemachos	Molaoi Hospital	Greece
Parente	Suzana	Centro Hospitalar de Lisboa Ocidental, E.P.E. Hospital de S. Francisco	Portugal
Paunescu	Marilena Alina	Xavier Emergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.	Romania
Pavičić Šarić	Jadranka	Iliescu" University hospital "Merkur"	Croatia
Pereira	Filipa	Centro Hospitalar do Porto	Portugal
Pereira	Elizabete	Hospital da Universidade de Coimbra	Portugal
Pereira	Luciane	Hospital da Universidade de Coimbra	Portugal
Perry	Chris	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High Heaton	United Kingdom
Petri	Attila	Colchester Hospital University Foundation Trust	United Kingdom
Petrovic	Uros	Military Medical Academy	Serbia
			Contin

			_
Pica	Silvia	Hospital Garcia de orta	Portugal
Pinheiro	Filipe	Hospital da Universidade de Coimbra	Portugal
Pinto	José	Centro Hospitalar De Lisboa Central- EPE Lisboa	Portugal
Pinto	Fernando	Hospital da Universidade de Coimbra	Portugal
Piwowarczyk	Paweł	Medical University of Lublin	Poland
Platteau	Sofie	Stedelijk Ziekenhuis Aalst	Belgium
Poeira	Rita	Centro Hospitalar De Lisboa Central- EPE Lisboa	Portugal
Popescu	Ravzan	Constanta County Emergency Hospital	Romania
Popica	Georgian	Elias University Emergency Hospital	Romania
Poredos	Peter	University Medicine Centre Ljubljana	Slovenia
Prasser	Christopher	University Hospital Regensburg	Germany
Preckel	Benedikt	Academic Medical Centre, University of Amsterdam	Netherlands
Prospiech	Audrey	UCL	Belgium
Pujol	,	Hospital Clinic Barcelona	Spain
Raimundo	Roger	*	-
Raineri	Ana Santi Maurizia	Hospital da Universidade de Coimbra	Portugal
	Santi Maurizio	Policlinico "P Giaccone" (University of Palermo)	Italy
Rakic	Dragana	Clinical Centre of Voivodina	Serbia
Ramadan	Mohammed	Queens Hospital	United Kingdom
Ramazanoğlu	Atilla	Akdeniz University Hospital	Turkey
Rantis	Athanasios	General air force hospital	Greece
Raquel	Ferrandis	Hospital Clínico Universitario de Valencia	Spain
Rätsep	Indrek	North Estonian Center	Estonia
Real	Catia	Hospital da Universidade de Coimbra	Portugal
Reikvam	Tore	Haukeland University Hospital	Norway
Reis	Ligia	Hospital do Espirito Santo - Évora, E.P.E.	Portugal
Rigal	Jean-	University Hospital Nantes-Hopital G et R Laënnec	France
	Christophe		
Rohner	Anne	University Hospital Bonn	Germany
Rokk	Alar	Tartu University Hospital	Estonia
Roman Fernandez	Adriana	Hospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)	Spain
Rosenberger	Peter	Universitätsklinikum Tubingen	Germany
Rossaint	Rolf	University Hospital Aachen	Germany
Rozec	Bertrand	University Hospital Nantes-Hopital G et R Laënnec	France
Rudolph	Till	Sahlgrenska University Hospital	Sweden
Saeed		Centralsjukhuset Kristianstad	Sweden
	Yousif		
Safonov	Sergej	Centralsjukhuset Kristianstad	Sweden
Saka	Esra	Istanbul University, Istanbul Medical Faculty	Turkey
Samama	Charles Marc	Groupe Hospitalier Cochin	France
Sánchez López	Óscar	Hospital General De Mostoles	Spain
Sanchez Perez	David	Hospital General De Mostoles	Spain
Sanchez Sanchez	Yvan Enrique	Hospital do Meixoeiro (Complexo Hospitalario Universario de Vigo)	Spain
Sandeep	Varma	Mid Yorkshire Hospitals NHS Trust; Pinderfields Hospital	United Kingdom
Sandu	Madalina Nina	St. Andrei Emergency County Hospital Galati	Romania
Sanlı	Suat	Akdeniz University Hospital	Turkey
Saraiva	Alexandra	Hospital da Universidade de Coimbra	Portugal
Scarlatescu	Ecaterina	Fundeni Clinical institute - Intensive Care Unit	Romania
Schiraldi	Renato	Hospital Universitario La Paz	Spain
Schittek	Gregor	Carl – Thiem Klinikum Cottbus	Germany
Schnitter	Bettina	University Hospital Freiburg	Germany
Schuster	Michael	University Medical Center Johannes Gutenberg Mainz	Germany
Seco	Carlos	Hospital da Universidade de Coimbra	Portugal
Selvi	Onur	Maltepe University	Turkey
Senard	Marc	Centre hospitalier Universitaire de Liège	Belgium
Serra	Sofia	Instituto Português Oncologia	Portugal
	Helena	Hospital Vall d Hebron	0
Serrano		*	Spain
Shmigelsky	Alexander	Burdenko Neurosurgery Institute	Russia
Silva	Luisa	Hospital da Universidade de Coimbra	Portugal
Simeson	Karen	Mid Yorkshire Hospitals NHS Trust; Pinderfields Hospital	United Kingdom
Singh	Rita	Newcastle Upon Tyne Hospitals NHS Trust The Freeman Hospital High Heaton	United Kingdom
Sipylaite	Jurate	Vilnius University Hospital - Santariskiu Clinics	Lithuania
Skitek	Kornel	Carl – Thiem Klinikum Cottbus	Germany
Skok	Ira	University Hospital "Sveti Duh"	Croatia
	-		

Continued

SmékalováOlgaFaculty Hospital BrnoCzech RepublicSmirnovaNadezdaNorth Estonian CenterEstoniaSofiaMachadoHospital Clínico Universitario de ValenciaSpainSoler Pedrola:MariaHospital Son LlatzerSpainSöndergaardSörenSahlgrenska University HospitalSwedenSörnusAlarTartu University HospitalEstoniaSørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergSournelidisChristosIppokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStevanovicAnaUniversity Hospital AachenGermanyStevanovicAnaUniversity Hospital ProgramSlovakiaStouračPetrFaculty Hospital BrnoCzech RepublicStouračPetrFaculty Hospital ProgramSloveniaStrivanSabinaUniversity Hospital BrnoCzech RepublicStrysLydiaUniversity Medicine Centre LjubljanaSloveniaStrysLydiaUniversity Hospital BrnoCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanyStrysLydiaUniversity Medical Center SarajevoBosnia andTaniaMorenoHospital Clínico Universitario de ValenciaSpainTaniaMorenoHospital Clínico BarcelonaSpainTarecoGloriaHospital Clínico BarcelonaSpain
SofiaMachadoHospital Clínico Universitario de ValenciaSpainSoler Pedrola:MariaHospital Son LlatzerSpainSöndergaardSörenSahlgrenska University HospitalSwedenSörmusAlarTartu University HospitalEstoniaSørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergHausbergSoler PedrokaSloveniaSoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"RomaniaStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital BrnoCzech RepublicStrivanSabinaUniversity Hospital BrnoCzech RepublicStriysLydiaUniversity Hospital Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTanaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
Soler Pedrola:MariaHospital Son LlatzerSpainSöndergaardSörenSahlgrenska University HospitalSwedenSörmusAlarTartu University HospitalEstoniaSørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergHausbergSomelidisChristosIppokrateion General Hospital of ThessalonikiGreeceSoumelidisChristosIppokrateion General Hospital of ThessalonikiGreeceSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaStevanovicAnaUniversity Medicine Centre LjubljanaSloveniaStevikovaJordanaFaculty hospital AachenGermanyStevikovaJordanaFaculty Hospital Nitra , Slovak republicSlovakiaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaStouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTenaBeatrizHospital Clínico BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
SöndergaardSörenSahlgrenska University HospitalSwedenSörmusAlarTartu University HospitalEstoniaSørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergHausbergSoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"RomaniaStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaStrivanSabinaUniversity Medicine Centre LjubljanaSloveniaStouračPetrFaculty Hospital BrooCzech RepublicStrivasJanaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Medical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
SõrmusAlarTartu University HospitalEstoniaSørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergHausbergSoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"GermanyStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital BrnoCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia andTaniaMorenoHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
SørvollIngvildUniversity Hospital of North Norway, TromsøNorwayHausbergHausbergSoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"RomaniaStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clinice BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
HausbergHausbergSoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaIliescu"Iliescu"StevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaSloveniaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTanaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
SoumelidisChristosIppokrateio Hippokrateion General Hospital of ThessalonikiGreeceSpindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.RomaniaIliescu"Iliescu"StevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaSloveniaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Medical Centre Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Offico Universitario de ValenciaSpainTanaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
Spindler YeselAlenkaUniversity Medicine Centre LjubljanaSloveniaStefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"RomaniaStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSloveniaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StefanMihaiEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Iliescu"RomaniaStevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSlovakiaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSlovakiaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Medical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StevanovicAnaUniversity Hospital AachenGermanyStevikovaJordanaFaculty hospital, Nitra , Slovak republicSlovakiaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTanaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StevikovaJordanaFaculty hospital, Nitra , Slovak republicSlovakiaStivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTanaBeatrizHospital Clínic BarcelonaSpainTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StivanSabinaUniversity Medicine Centre LjubljanaSloveniaŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
ŠtouračPetrFaculty Hospital BrnoCzech RepublicStriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StriteskaJanaUniversity Hospital Hradec KraloveCzech RepublicStrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
StrysLydiaUniversity Medical Center Johannes Gutenberg MainzGermanySuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínico BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
SuljevicIsmetUniversity Clinical Center SarajevoBosnia and HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
HerzegovinTaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
TaniaMorenoHospital Clínico Universitario de ValenciaSpainTarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clínic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
TarecoGloriaHospital do Espirito Santo - Évora, E.P.E.PortugalTenaBeatrizHospital Clinic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
TenaBeatrizHospital Clinic BarcelonaSpainTheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
TheodorakiKassianiAretaieion University HospitalGreeceTifreaMariusEmergency Institute of Cardiovascular Diseases Inst. "Prof. C. C.Romania
Tifrea Marius Emergency Institute of Cardiovascular Diseases Inst. "Prof. C. C. Romania
Tikuisis Renatas Vilnius University Hospital - Institute of Oncology Lithuania
Tolós Raquel Hospital Universitari Germans Trias I Pujol Spain
Tomasi Roland University Hospital Munich Germany
Tomescu Dana Fundeni Clinical institute - Intensive Care Unit Romania
TomkuteGabijaVilnius University Hospital - Santariskiu ClinicsLithuania
Tormos Pilar Hospital Vall d Hebron Spain
Trepenaitis Darius Kaunas Medical University Hospital, Hospital of Lithuanian University Lithuania
of Health Sciences
Troyan Galina Zaporizhzhia State Medical University Ukraine
Unic-Stojanovic Dragana Cardiovascular Institute Dedinje Belgrade Serbia
Unterrainer Axel Christian-Doppler-Klinik Austria
Uranjek Jasna General Hospital Slovenj Gradec Slovenja
Valsamidis Dimitrios "Alexandra" General Hospital of Athens Greece
van Dasselaar Nick Reinier De Graaf Gasthuis Delft Netherlands
Van Limmen Jurgen Ghent University Hospital Belgium
van Noord Peter Maastricht University Medical Center Netherlands
van Poorten J.F. Reinier De Graaf Gasthuis Delft Netherlands
Vanderlaenen Margot ZOL Genk- St Jan Hospital Genk Belgium
Varela Garcia Olalla Hospital do Meixoeiro (Complexo Hospitalario Universario de Vigo) Spain
Velasco Ana Hospital Universitario Lucus Augusti Spain
Veljovic Milic Military Medical Academy Serbia
Vera Bella Jorge Hospital San Jorge Spain
Vercauteren Marcel UZA Belgium
Verdouw Bas Reinier De Graaf Gasthuis Delft Netherlands
Verenkin Vladimir Tel Aviv Medical Center Israel
Veselovsky Tomas St. Elizabeth s Cancer Institute and Medical faculty of Comenius Slovakia
University Bratislava,
Vieira Helena Hospital da Universidade de Coimbra Portugal
Villar Tania Hospital Mar-Esperança. Parc de Salut Mar Spain
Visnja Ikic University Clinical Hospital Osijek Croatia
Voje Minca University Medicine Centre Ljubljana Slovenia
von Dossow- Vera University Hospital Munich Germany
Hanfstingl
Von Langen Daniel Medical University Hospital Innsbruck Austria
Vorotyntsev Sergiy Zaporizhzhia State Medical University Ukraine
Vujanovič Vojislav University Hospital Banja Luka Bosnia and
Herzegovin
Vukovic Rade Military Medical Academy Serbia

Watt	Philip	Kettering General Hospital NHS Foundation Trust	United Kingdom
Werner	Eva	University Hospital Regensburg	Germany
Wernerman	Jan	Karolinska University Hospital Huddinge	Sweden
Wittmann	Maria	University Hospital Bonn	Germany
Wright	Margaret	Hospital James Paget University Hospital NHS Foundation Trust	United Kingdom
Wunder	Christian	University Hospital of Wuerzburg	Germany
Wyffels	Piet	Ghent University Hospital	Belgium
Yakymenko	Yevgen	Zaporizhzhia State Medical University	Ukraine
Yıldırım	Çiğdem	Ankara University Faculty of Medicine	Turkey
Yılmaz	Hakan	Ufuk University Hospital	Turkey
Zacharowski	Kai	University Hospital Frankfurt	Germany
Záhorec	Roman	St. Elizabeth s Cancer Institute and Medical faculty of Comenius University Bratislava	Slovakia
Zarif	Maged	Hospital da Universidade de Coimbra	Portugal
Zielinska - Skitek	Ewa	Carl – Thiem Klinikum Cottbus	Germany
Zsisku	Lajos	Colchester Hospital University Foundation Trust	United Kingdom