



An Online Multilingual Medical Vocabulary/ Thesaurus/Dictionary (MED-VTD) for Facilitating Understanding of Medical Texts

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Background

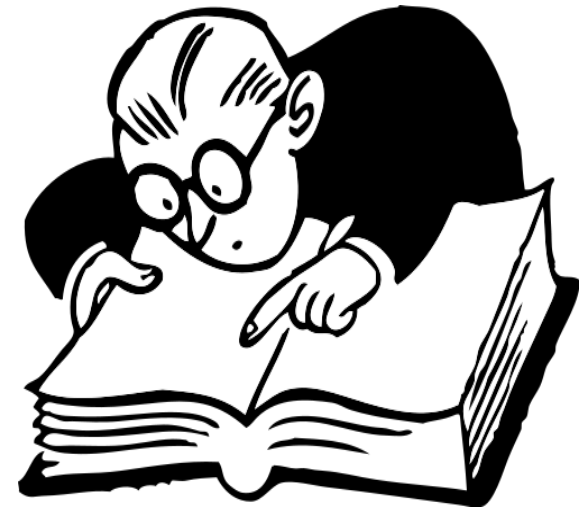
- Medical texts written by experts (e.g., physicians)
 - use their own language and communication style
- Often read by generic users (e.g., patients)
 - do not have same knowledge and terminology

Difficult for average user
to understand a medical text



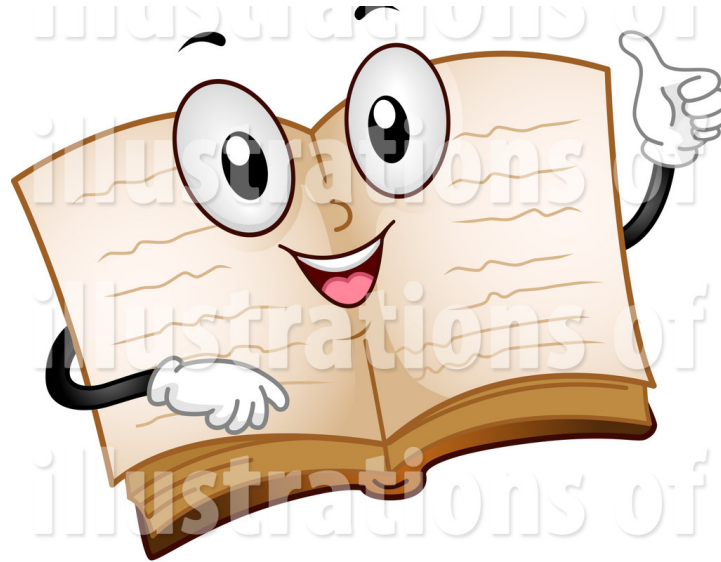
Understand a medical text

- Use of supplementary resources
 - online or not
- medical vocabulary
 - selective list of words and phrases used in the medical field
- medical-consumer thesaurus
 - synonyms and antonyms of medical terms
- health-consumer dictionary
 - info about the meaning of the terms
- Not always available
- Accessed in an unestablished order



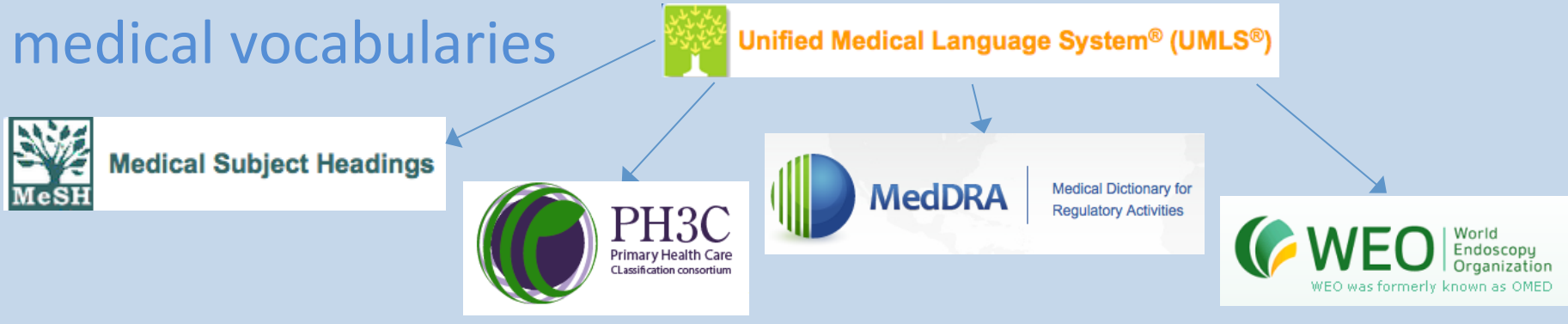
An automatic help for medical texts

- Users not required to increase their **knowledge** to understand the text being examined
- Knowledge **brought back** to user level so greatly facilitating his/her understanding and learning



Health online resources for experts and consumers

medical vocabularies



medical-consumer thesauri

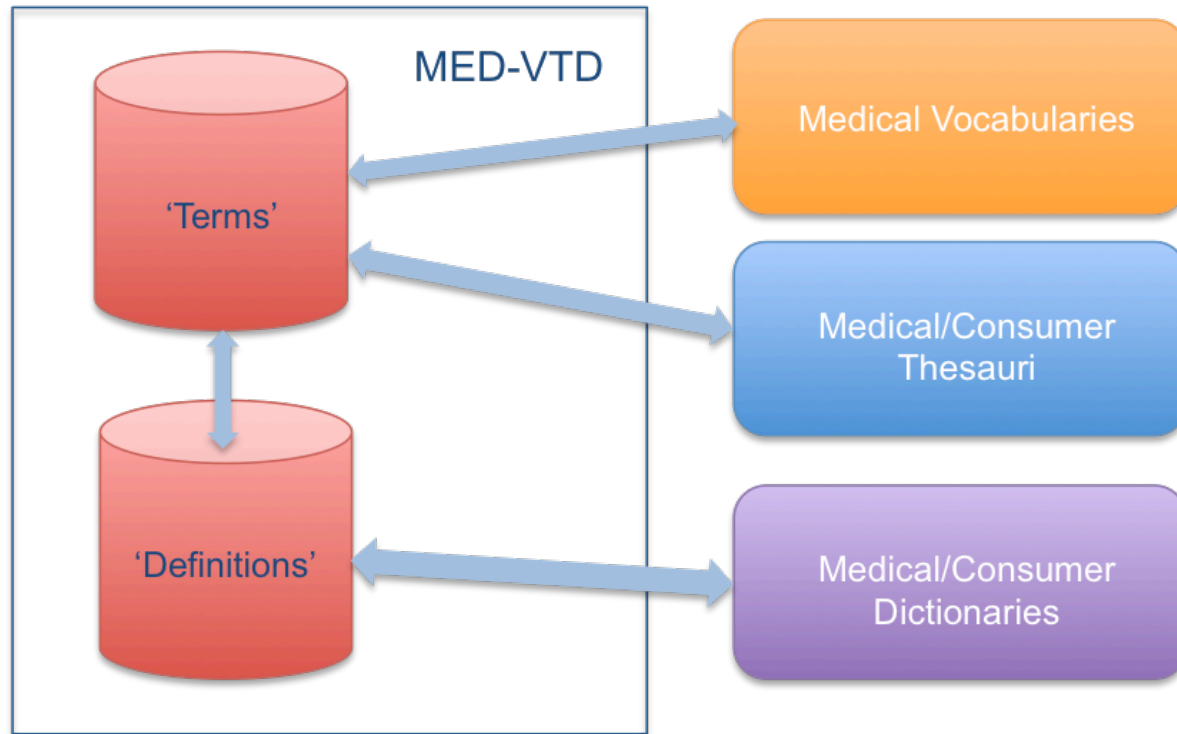


Italian
Consumer
Health
Vocabulary

health-consumer dictionaries



MED-VTD architecture



- Around 150.000 terms
- Around 60.000 definitions
- Hoepli online dictionary used for missing definitions

MED-VTD usage

SEARCH BY:

Italian/English Term CUI Italian/English CHV Preferred Name

Search

Please enter a CUI, Term or CHV Preferred Name to search.

CUI refers to the UMLS® concept code, Term is the term used by consumers



RESULT:

CUI	Italian Term	English Term	ITALIAN CHV	ENGLISH CHV	ITALIAN UMLS	ENGLISH UMLS	Explanation of Consumer Term
C0006104	encefalo	encephalon	cervello	brain	cervello	brain	L'insieme delle parti centrali del sistema nervoso, che comprendono il cervello, il cervelletto e il midollo allungato, e che sono contenute nella cavità del cranio.

NEW SEARCH

A further step: SIMPLE (1/3)

- Insert URL of any web page
- Or copy and paste any medical text

Inserisci URL

Url:

Inserisci testo

Input:

A further step: SIMPLE (2/3)

- Or select one of the available medical reports
 - system being tested by Italian hospitals

Inserisci testo

RM encefalo (senza e con contrasto) del 06.06.2014:

Indicazione all'esame: evidenza TC di □sfumata opacità tondeggianti, associata a ipodensità perilesionale in sede cortico-sottocorticale occipitale sx□ in paziente con pregresso K uterino ed ipertensione polmonare.

Dati tecnici: indagine eseguita in condizioni di base con sequenze DP e T2 FSE, FLAIR, T1 FSE, T1 FSPGR, DWI e dopo somministrazione di 10 ml di MdC (Multihance; T1 FSPGR).

Stima del GFR pari a 71.

Sia prima che dopo la somministrazione del MdC, non si apprezzano aree di alterato segnale a carico del parenchima nervoso cerebrale sovra e sottotentoriale.

Non patologiche aree di restrizione del segnale nella sequenza DWI.

Spazi liquorali peri-encefalici della volta e della base di ampiezza conservata.

Sistema ventricolare sovra e sottotentoriale di regolare morfologia e dimensioni.

Strutture della linea mediana in asse.

Input:

submit

Seleziona uno dei referti disponibili (e premi il tasto submit)

Referto:

A further step: SIMPLE (3/3)

- The application provides
 - a tooltip with the consumer term
 - a frame with the term definition

Referto

RMⁱ encefaloⁱ (senza e con contrastoⁱ) del 06.06.2014:
x cervello

Indicazioneⁱ all'esameⁱ: evidenza TCⁱ di sfumata opacità tondeggiante, associata a ipodensità perilesionale in sede cortico-sottocorticale occipitaleⁱ sx in pazienteⁱ con pregresso K uterinoⁱ ed ipertensioneⁱ polmonareⁱ.

Dati tecnici: indagineⁱ eseguita in condizioni di baseⁱ con sequenze DP e T2ⁱ FSE, FLAIR, T1ⁱ FSE, T1ⁱ FSPGR, DWI e dopo somministrazioneⁱ di 10 ml di MdCⁱ (Multihance; T1ⁱ FSPGR).

Stima del GFRⁱ pari a 71.

Sia prima che dopo la somministrazioneⁱ del MdCⁱ, non si apprezzano aree di alterato segnaleⁱ a carico del parenchimaⁱ nervosoⁱ cerebraleⁱ sovra e sottotentoriale. Non patologiche aree di restrizioneⁱ del segnaleⁱ nella sequenzaⁱ DWI. Spazi liquorali peri-encefalici della volta e della baseⁱ di ampiezzaⁱ conservata. Sistemaⁱ ventricolareⁱ sovra e sottotentoriale di regolare morfologia e dimensioni. Strutture della lineaⁱ medianaⁱ in asseⁱ.

Conclusioni: non evidenza di reperti patologici.

Encefalo:

Parteⁱ del sistemaⁱ nervosoⁱ centraleⁱ contenuta nella cavità cranica che in unione con la parteⁱ caudaleⁱ midolloⁱ spinaleⁱ costituisce l'asseⁱ cerebro-spinaleⁱ. Comprende il cervelloⁱ propriamente detto telencefaloⁱ e diencefaloⁱ il cervellettoⁱ e il troncoⁱ encefalico costituito da mesencefaloⁱ ponteⁱ di Varolio vedi Varolio ponteⁱ di e midolloⁱ allungato o bulboⁱ spinaleⁱ. (Ok Salute)

Encefalo (Encephalon) => Cervello (Brain)

technical

customer

Conclusions

- MED-VTD completed
- SIMPLE fully working
- More vocabularies, thesauri and dictionaries needed



Next: A site for patient empowerment

The screenshot shows the website for 'SIMPLE HEALTH 2.0' at the University of Palermo. The page features a navigation menu with links for HOME, PROJECTS, PEOPLE, PUBLICATIONS, and CONTACTS. The main content area is titled 'SIMPLE HEALTH 2.0' and describes the research work on simplifying search, understanding, analysis and learning of health and medical information for patient empowerment. It defines an empowered patient as someone who is aware of their health conditions and collaborates with healthcare professionals. A list of characteristics for an empowered patient is provided, including taking responsibility for health, understanding health conditions, finding needed information, participating in decision-making, and making informed choices. The page also mentions current projects, such as the 'Simplifier of Medical Texts for Patients and Less Expert users (SIMPLE)', the 'Medical Vocabulary/Thesaurus/Dictionary (MED-VTD)', and the 'Health SEARCH engine for different types of users (H_SEARCH)'. The University of Palermo logo is visible in the top left corner.

UNIVERSITÀ DEGLI STUDI DI PALERMO
L'Università

HOME | PROJECTS | PEOPLE | PUBLICATIONS | CONTACTS

HOME

SIMPLE HEALTH 2.0

This site describes the research work on simplifying search, understanding, analysis and learning of health and medical information for patient empowerment that is being carried out at the **Dept. of Mathematics and Computer Science of the University of Palermo** together with the **Anghelos Centre on Communication Studies**.

An empowered patient is a person who is aware of his/her health conditions and collaborates with health professionals for making the best health decisions concerning his/her health. In particular, an empowered patient:

- Takes responsibility for his/her health.
- Understands his/her health condition and its effects on his/her body.
- Understands medical information and is able to find needed information and ask questions to the healthcare professionals.
- Feels able to participate in decision-making with his/her healthcare professional.
- Feels able to make informed choices about treatment.
- Understands the need to make necessary changes to his/her lifestyle for managing his/her condition.

Patient empowerment puts the patient in the heart of services. It is about designing and delivering health and social care services in a way, which is inclusive and enables citizens to take control of their health care needs.

We are currently working on the following projects:

- A Simplifier of Medical Texts for Patients and Less Expert users (SIMPLE)
It is a system that takes an online text containing medical (technical) terms, translates them in simple or plain language and provides additional information with the same kind of language.
- Medical Vocabulary/Thesaurus/Dictionary (MED-VTD)
It is an online vocabulary of medical (technical) terms and their consumer equivalents that can be used to find the consumer translations of medical terms and viceversa. MED-VTD contains both English and Italian resources so that a translation of terms between the two languages can automatically be performed.
- A Health SEARCH engine for different types of users (H_SEARCH)
It is a search engine for health consumers that helps their research by classifying web pages on the basis of their level of health information and used language.
- A web search engine for creation of knowledge paths on the health field (U-MedSearch)
It is a health search engine that, for any keyword(s), provides four different lists of terms, and in turn of web pages, on the basis of the used language (consumer or expert) and correlation degree (strong or loose) with the keyword(s) thus



Thanks !

<http://www.math.unipa.it/simplehealth/>

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