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

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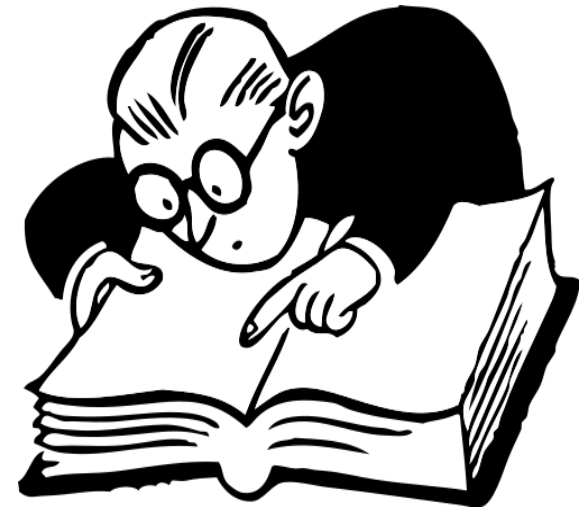[3]*Euro-Mediterranean Institute of Science and Technology*

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 undestand 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
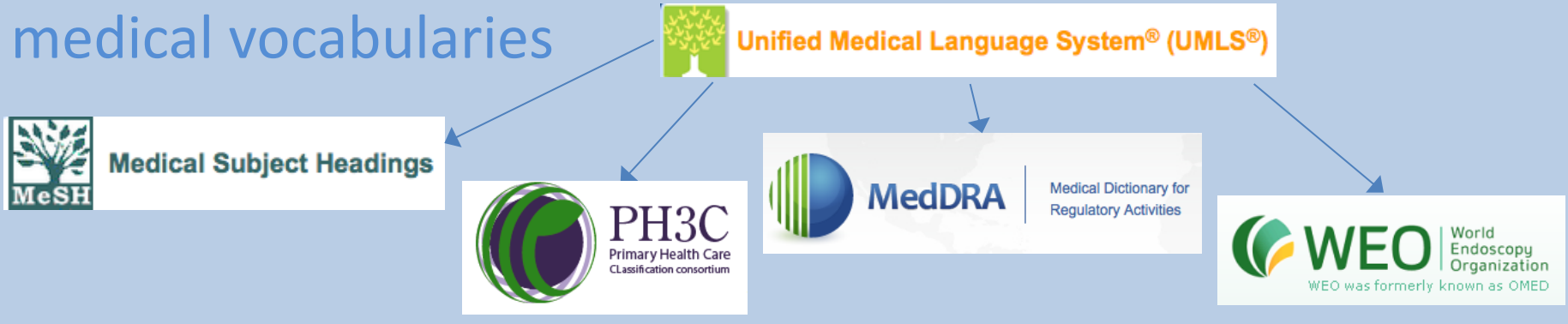
- Accessed in an unestablished order

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
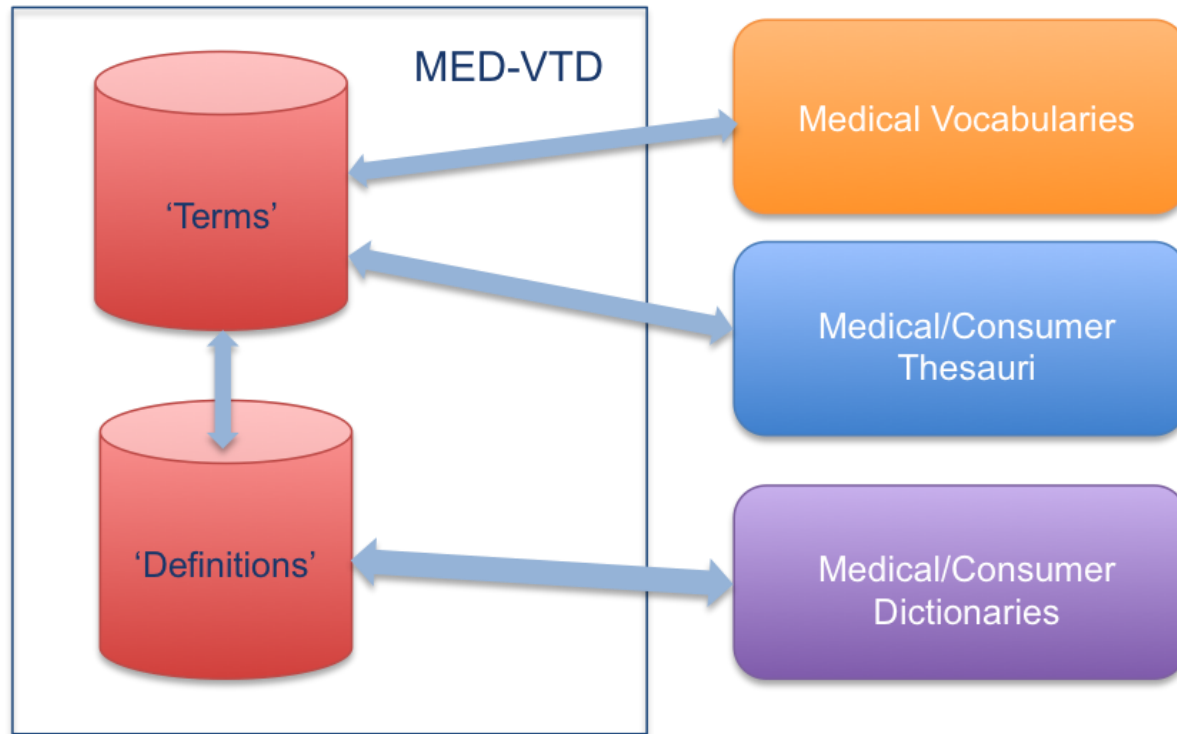
medical vocabularies

Unified Medical Language System® (UMLS®)

Medical Subject Headings

PH3C Primary Health Care CLassification consortium

MedDRA Medical Dictionary for Regulatory Activities

WEO World Endoscopy Organization
WEO was formerly known as OMED

medical-consumer thesauri

salus medicina in rete

Open Access, Collaborative Consumer Health Vocabulary Initiative

Italian Consumer Health Vocabulary

health-consumer dictionaries

ok SALUTE E BENESSERE

Dizionario Della Salute
Testo e immagini   Solo immagini
CERCA

Medicina e Biologia
Medicine & Biology
Dizionario enciclopedico di scienze mediche e biologiche e di biotecnologie
ITALIANO-INGLESE INGLESE-ITALIANO
Terza edizione
ZANICHELLI

MedlinePlus Trusted Health Information for You   Merriam-Webster

MED-VTD architecture

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

MED-VTD usage

SEARCH BY:

○ Italial/English Term   ○ CUI   ○ Italial/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	ENGLSH 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: [   ]

[submit]

Inserisci testo

Input: [   ]

[submit]

A further step: SIMPLE (2/3)

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

Inserisci testo

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RM encefalo (senza e con contrasto) del 06.06.2014:

Indicazione all'esame: evidenza TC di ☐sfumata opacità tondeggiante, 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: referto_3

A further step: SIMPLE (3/3)

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

Referto

RM encefalo (senza e con contrasto) del 06.06.2014:
x cervello

Indicazione all'esame: evidenza TC di sfumata opacitf tondeggiante, associata a ipodensitf 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).

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Strutture della linea mediana in asse.

Conclusioni: non evidenza di reperti patologici.

Encefalo:
Parte del sistema nervoso centrale contenuta nella cavita cranica che in unione con la parte caudale midollo spinale costituisce l asse cerebro-spinale. Comprende il cervello propriamente detto telencefalo e diencefalo il cervelletto e il tronco encefalico costituito da mesencefalo ponte di Varolio vedi Varolio ponte di e midollo allungato o bulbo spinale . (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

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DEGLI STUDI
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L'Università

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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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