

Towards an open, trustworthy and multilingual search engine for medical practitioners: **News from the European Khresmoi project**

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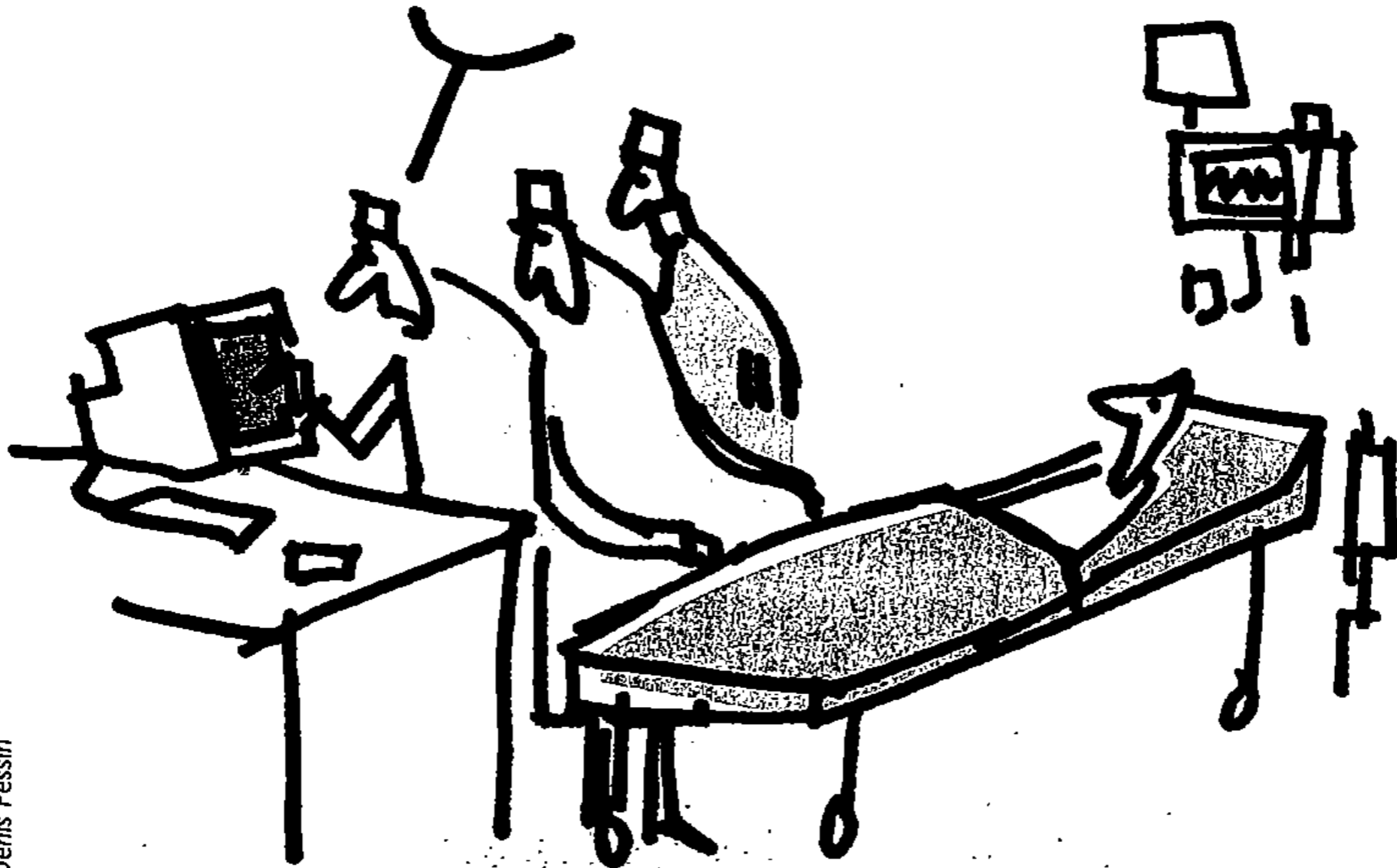
3) Society of Physicians in Vienna (Gesellschaft der Ärzte – Billrothhaus)

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Clinicians search for information frequently, but...

- Physicians have an unmet information need for **2 of every 3 patients** seen and **41% of the questions they pursued**
- PubMed searching takes a long time (30+ minutes, but **only 5 minutes available**)

DOES IT HURT
WHEN I PRESS HERE?



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Majority still relies on **pocket references and advice from colleagues**

However, an **upward trend** is reported in the literature

Availability of web access in practices has drastically increased

US study from 2009



86%

of physicians have used the Internet to gather health, medical, or prescription drug information

US study from 2009



92%

in office/clinical setting



88%

at home



59%

on a mobile
device

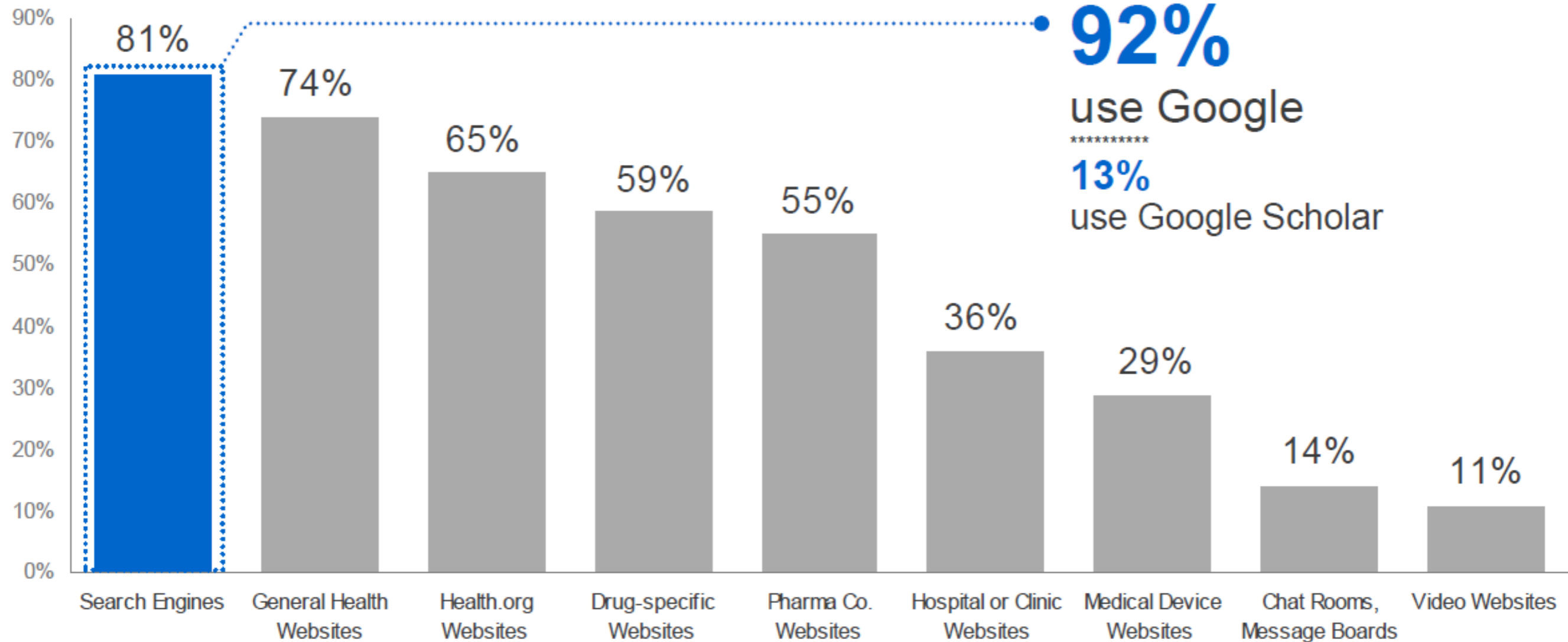


21%

in patient exam room

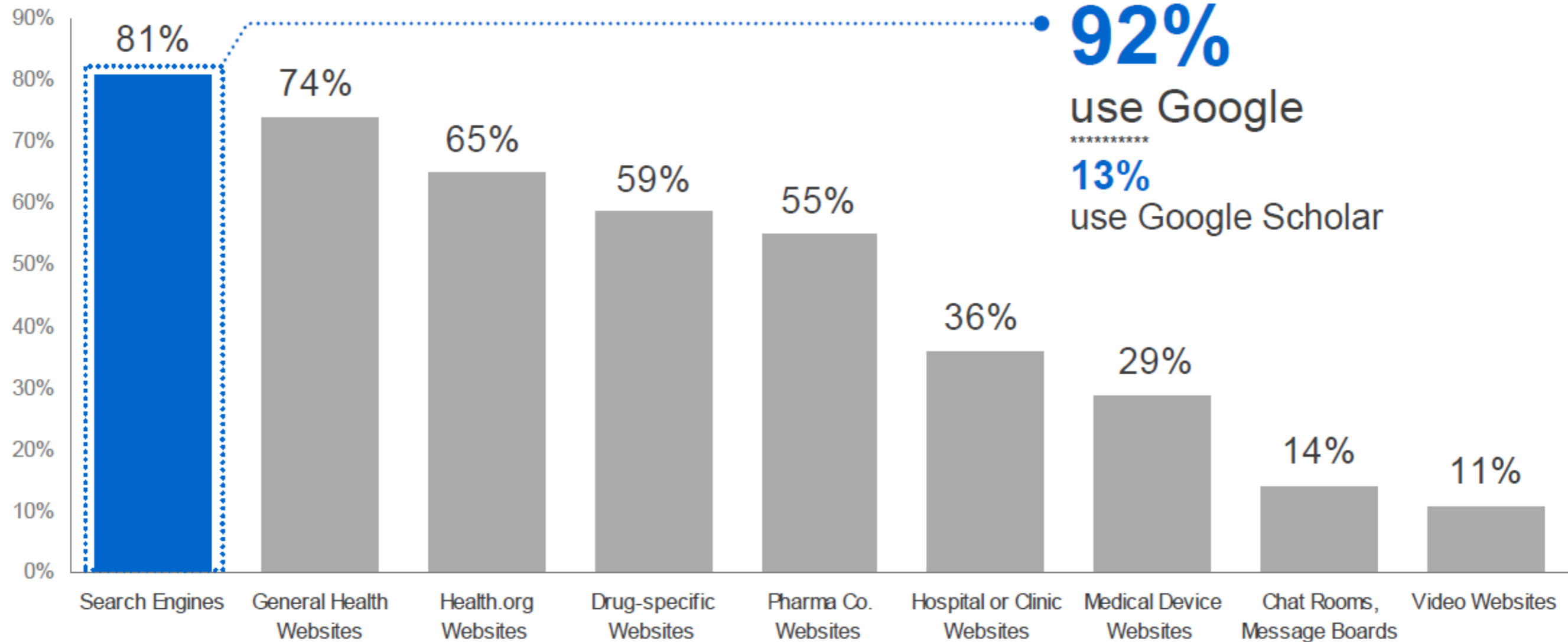
US study from 2009

Types of Websites Used



US study from 2009

Types of Websites Used



...study sponsored by 

The Google problem



cancer treatment Cerca
Circa 70.700.000 risultati (0,17 secondi) Ricerca avanzata

Cancer Management Link sponsorizzato
www.gehealthcare.com/esmo Multidisciplinary **Cancer** management GE HC @ ESMO 2010. Learn More

Suggerimento: [Cerca risultati solo in Italiano](#). Puoi specificare la lingua di ricerca su [Preferenze](#)

Cancer Treatment - National Cancer Institute ☆ - [[Traduci questa pagina](#)]
Information on standard, complementary, and alternative methods of **cancer treatment**, on specific anticancer drugs, and on drug development and approval.
www.cancer.gov/cancertopics/treatment - [Copia cache](#) - [Simili](#)

Types of Treatment - National Cancer Institute ☆ - [[Traduci questa pagina](#)]
Information on chemotherapy, radiation therapy, surgery, and other methods.
www.cancer.gov/cancertopics/treatment/types-of-treatment - [Copia cache](#)

Management of cancer - Wikipedia, the free encyclopedia
Chemotherapy is the **treatment** of **cancer** with drugs ("anticancer drugs") to kill **cancer** cells. In current usage, the term "chemotherapy" usually ...
en.wikipedia.org/wiki/Management_of_cancer - [Copia cache](#) - [Simili](#)

ScienceDirect - Cancer Treatment Reviews, Volume 36
The online version of **Cancer Treatment** Reviews on ScienceDirect, the platform for high quality peer-reviewed full-text publications in ...
www.sciencedirect.com/science/journal/03057372 - [Simili](#)

Cancer Treatment and Symptoms : Doctor-Reviewed Info
Treatment also varies based on the type of **cancer** and its stage. The term refers to how much it has grown and whether the tumor has spread from ...
health.yahoo.net/channel/cancer.html - [Copia cache](#)

HERBAL CANCER TREATMENT ☆ - [[Traduci questa pagina](#)]
This has shown potential as a treatment for AIDS and cancer. ... Some are available in **cancer treatment** centers or hospices, ...
www.lifepositive.com/ [Copia cache](#)

Cancer Treatment Link sponsorizzato
The leading European oncologists
Center of Oncology Spizhenko
www.CyberClinika.com
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The PubMed problem

Display Settings: Summary, 20 per page, Sorted by Recently Added

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Results: 1 to 20 of 111340

<< First < Prev Page 1 of 5567 Next > Last >>

- [Admission hyperglycemia is a reliable outcome predictor in children with severe traumatic brain injury.](#)
1. Aşlıoğlu N, Turna F, Paksu MS.
J Pediatr (Rio J). 2011 May 19;87(4). [Epub ahead of print]
PMID: 21597650 [PubMed - as supplied by publisher] **Free Article**
[Related citations](#)
- [Pediatric Sensorineural Hearing Loss. Part 2: Syndromic and Acquired Causes.](#)
2. Huang BY, Zdanski C, Castillo M.
AJNR Am J Neuroradiol. 2011 May 19. [Epub ahead of print]
PMID: 21596810 [PubMed - as supplied by publisher]
[Related citations](#)
- [Axonal Injury in Young Pediatric Head Trauma: A Comparison Study of \$\beta\$ -amyloid Precursor Protein \(\$\beta\$ -APP\) Immunohistochemical Staining in Traumatic and Nontraumatic Deaths*](#)
3. Johnson MW, Stoll L, Rubio A, Troncoso J, Pletnikova O, Fowler DR, Li L.
J Forensic Sci. 2011 May 19. doi: 10.1111/j.1556-4029.2011.01814.x. [Epub ahead of print]
PMID: 21595698 [PubMed - as supplied by publisher]
[Related citations](#)
- [Successful prevention of oral self-mutilation using a lip guard: a case report.](#)
4. Kumar P, Bhojraj N.
Spec Care Dentist. 2011 May;31(3):114-8. doi: 10.1111/j.1754-4505.2011.00188.x.
PMID: 21592166 [PubMed - in process]
[Related citations](#)
- [Treatment Outcomes of Chronic Post-Traumatic Headaches After Mild Head Trauma in US Soldiers: An Observational Study.](#)
5. Erickson JC.
Headache. 2011 May 17. doi: 10.1111/j.1526-4610.2011.01909.x. [Epub ahead of print]
PMID: 21592097 [PubMed - as supplied by publisher]
[Related citations](#)

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[Review \(10265\)](#)

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Also try:

[abusive head trauma](#)

[pediatric head trauma](#)

[minor head trauma](#)

[kuppermann head trauma](#)

[head trauma children](#)

Titles with your search terms

[Identification of children at very low risk of clinically-important brain injuries : \[Lancet. 2009\]](#)

[Incidence and predictors of intracranial hemorrhage after minor head t \[J Trauma. 2011\]](#)

[Cranial nerve injury after minor head trauma. \[J Neurosurg. 2010\]](#)

[See more...](#)

4717 free full-text articles in PubMed Central

[Median Nerve Palsy following Elastic Stable Intramedullary Nailing : \[Case Report Med. 2011\]](#)

[Congenital cleft of anterior arch and partial aplasia of the p \[J Korean Neurosurg Soc. 2011\]](#)

[Acoustic trauma increases cochlear and hair](#)

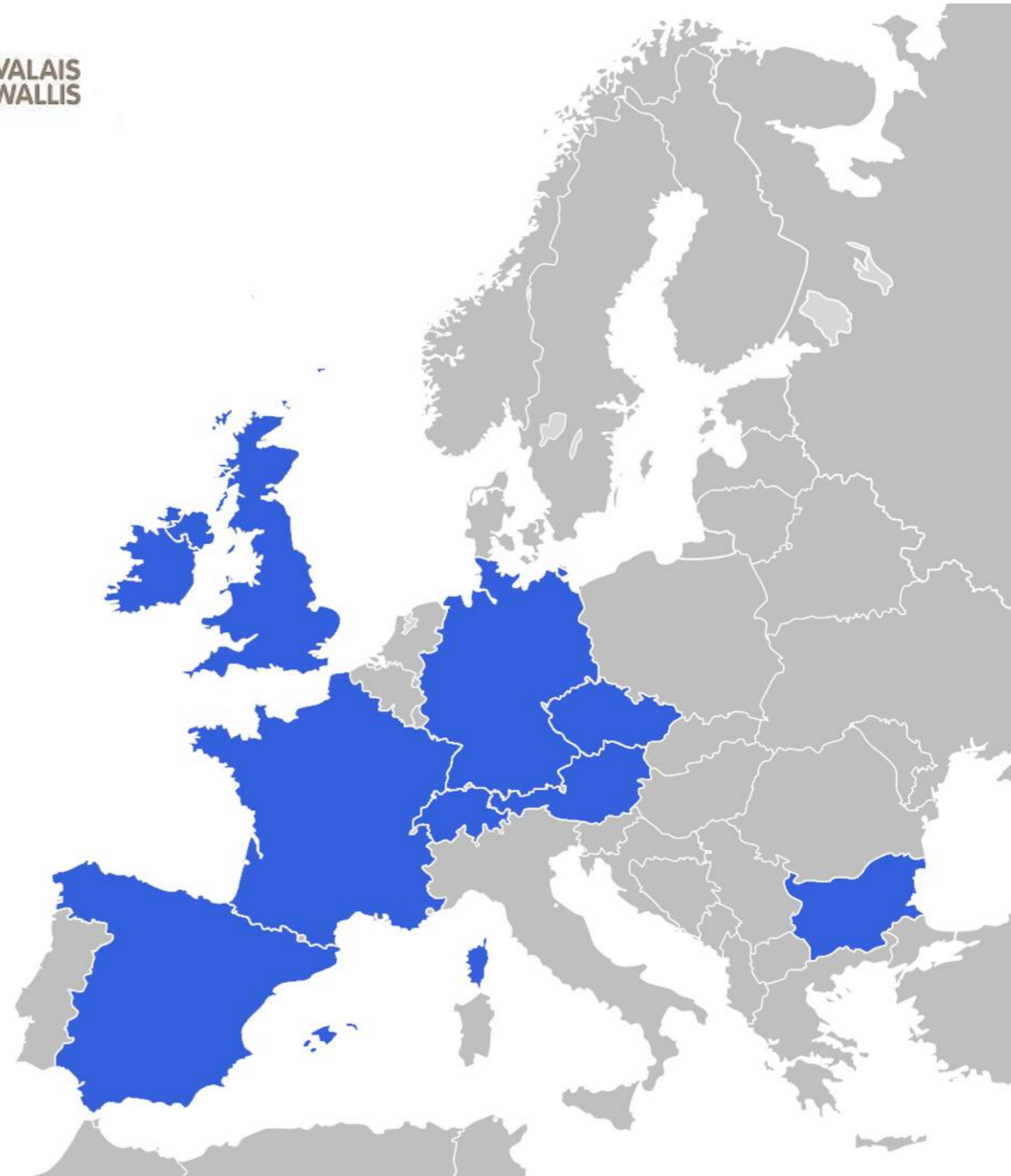
Information should be

- Easy to find (of course)
- **Openly available**
- In the **language** of the user
- At the **complexity level** required by the user
- **Trustworthy** and **reliable**
- Available on **mobile devices**



10 Million €
12 institutes, 9 countries
September 2010 – August 2014

Khresmoi Consortium



Public web pages are given a **seal of approval** based on a strict set of criteria



provided by



Developments are done in close collaboration with end users (e.g. medical doctors)



Society of Physicians in Vienna
(Gesellschaft der Ärzte,
'Billrothhaus')

Wie verbinden Sie sich mit dem Internet?
(Mehrfachantworten möglich)

- 1 Mittels Modem/Kabel/DSL
- 2 Mittels WIFI/Standleitung
- 3 Mittels USB Modem
- 4 Über ein Mobiltelefon/Smartphone
- 5 Sonstiges; bitte angeben: _____
- 6 Ich weiß es nicht

Welche(s) Gerät(e) nutzen Sie um sich mit dem Internet zu verbinden?

- 1 PC zuhause oder in der Arbeit
- 2 Laptop, Netbook
- 3 Mobiltelefon
- 4 Smartphone (z.B. iPhone, Blackberry)
- 5 Tablet (z.B. iPad, Samsung Galaxy)
- 6 Sonstiges; bitte angeben: _____

Wie oft verbinden Sie sich während einer ärztlichen Beratung oder Visite mit dem Internet?

- 1 Nie
- 2 Selten
- 3 Manchmal
- 4 Oft
- 5 Immer
- 6 Ich berate keine Patienten/mache keine Visiten

Nach welchen Informationen suchen Sie im Rahmen Ihrer täglichen ärztlichen Praxis/Tätigkeit?

- 1 Abkürzungen/Definitionen
- 2 Diagnostische Hilfe
- 3 Krankheitsbeschreibungen
- 4 Behandlungs-spezifische Information
- 6 Medikationsinformation
- 7 Präventionsmaßnahmen
- 9 Krankheitsursachen und Risikofaktoren
- 10 Klinische Studieninformationen/Wissenschaftliche Artikel
- 11 Patientenressourcen : Patientenbroschüren und Informationen (z.B. Selbsthilfegruppen)
- 12 Stellenanzeigen/Karrieremöglichkeiten
- 13 Medizinische Ausrüstung (z.B. für Überweisungen von Patienten)
- 14 Information über andere Ärzte/Institution (z.B. für Überweisungen von Patienten)
- 15 Medizinische Fortbildungsveranstaltungen

(excerpt)

Large-scale questionnaires
and interviews are
conducted with
medical professionals
and
the general population

BioMed Central	x	abstracts and articles in html (+ links to images) and/or PDF		English		Research articles	BioMed Central	Creative Commons Attribution License
NCBI BookShelf	x	digital biomedical books and monographs with links to PubMed, the biomedical bibliographic database.		English		Textbook	National Center for Biotechnology Information (NCBI)	public domain & copyright (transmission or reproduction of protected items beyond that allowed by fair use requires written permission of the copyright owner)
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Wikipedia biomedical articles	x	articles from Wikipedia	Details	English, many other languages		Web resource	Wikimedia Foundation, Inc.	Creative Commons Attribution-ShareAlike License or GNU Free Documentation License
Cochrane collection	x	Large collection of high-quality systematic reviews.	Details	English. Most summaries are also available in Spanish, some summaries are also available in German.		Systematic reviews	Cochrane	Normal copyright
MEDLINE	x	~20 millions abstracts covering all literature in health and life sciences	Details	English		Research articles	National Library of Medicine	
Guideline.gov	x	In the USA, the National Guideline Clearinghouse maintains a catalog of high-quality guidelines published by various organizations (mostly professional physician organizations)	see notes below table	English		Clinical guidelines	National Guideline Clearinghouse	
	x	Clinical practice guidelines of the UK	see	English		Clinical guidelines		

(excerpt)

A large collection of structured datasets and literature is collected, annotated and semantically integrated

Structured medical data and ontologies in
RDF/OWL format are unified with
unstructured text data



<http://khresmoi.eu>

Thanks for listening!