

# Wikipedia and Medicine

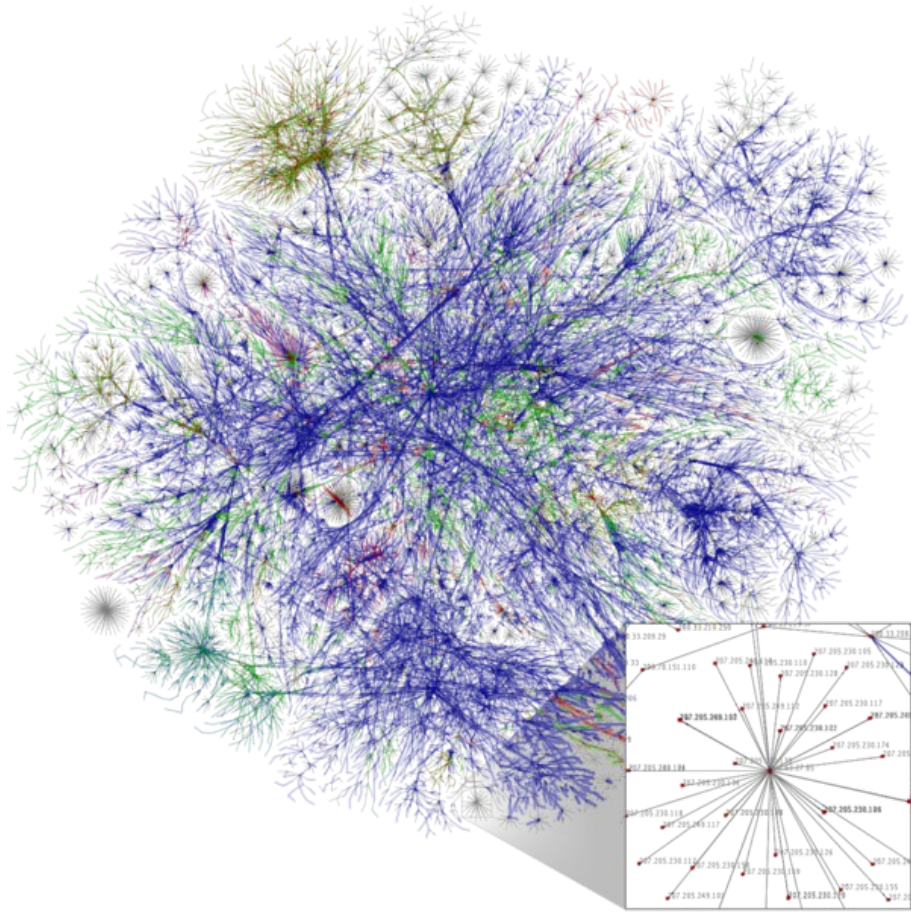
James Heilman  
MD, CCFP(EM), Wikipedian  
Nov. 4th, 2017



# A bit about myself

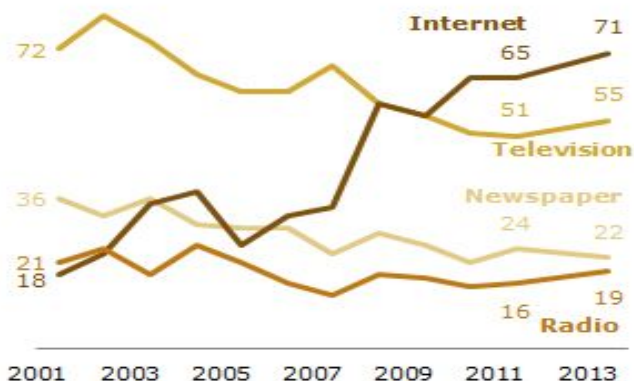
- Small town ER doc
- Affiliated with UBC but long way away (~800 Km)
- Became involved >10 years ago after coming across a poor quality medical article
- An active volunteer ever since



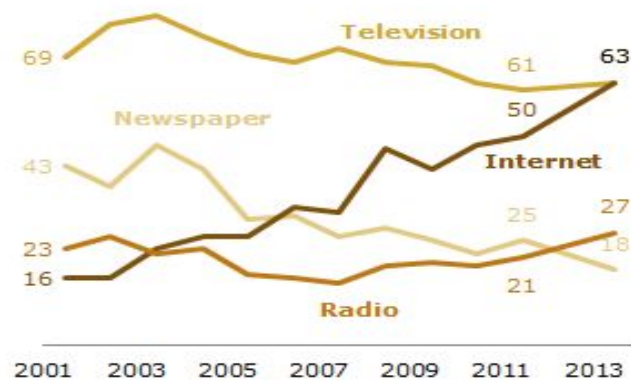


## Main Source for National and International News

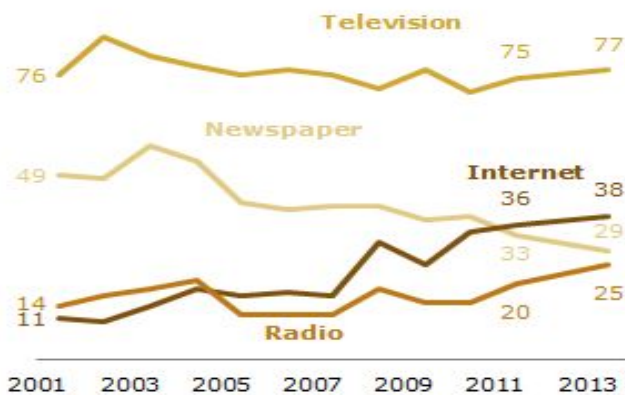
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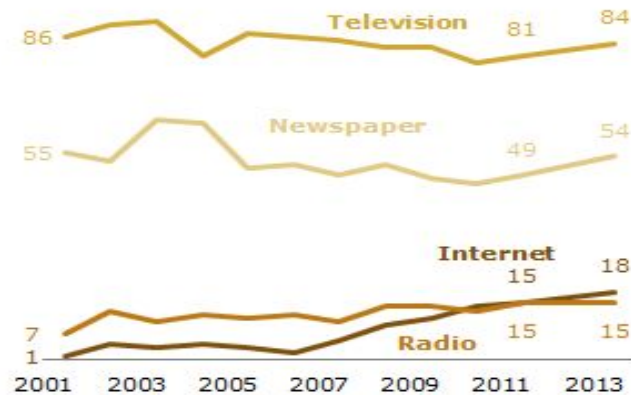
30-49



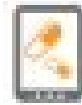
50-64



65+



# STATE OF HEALTHCARE SEARCHES ONLINE



PATIENTS SPEND MORE TIME ONLINE THAN WITH THE DOCTOR

In a year, the average American visits the doctor **3 times**, but spends more than **52 hours** on the Internet looking for health information.



# Medical education

- 70% digital / 30% paper (2015 US)
- 30% of students do not read textbooks, whether digital or not (2017)
- Informal survey of ~20 UCSF students, one had bought a textbook (but had not opened it)

# Is Wikipedia Read by Nearly Everyone?



# Some numbers

- 5th most popular website globally (first four Google, Youtube, Facebook, and Baidu)
- ~500 million people visit per month via ~1.4 billion devices
- 15 billion page of content
- > half via mobile

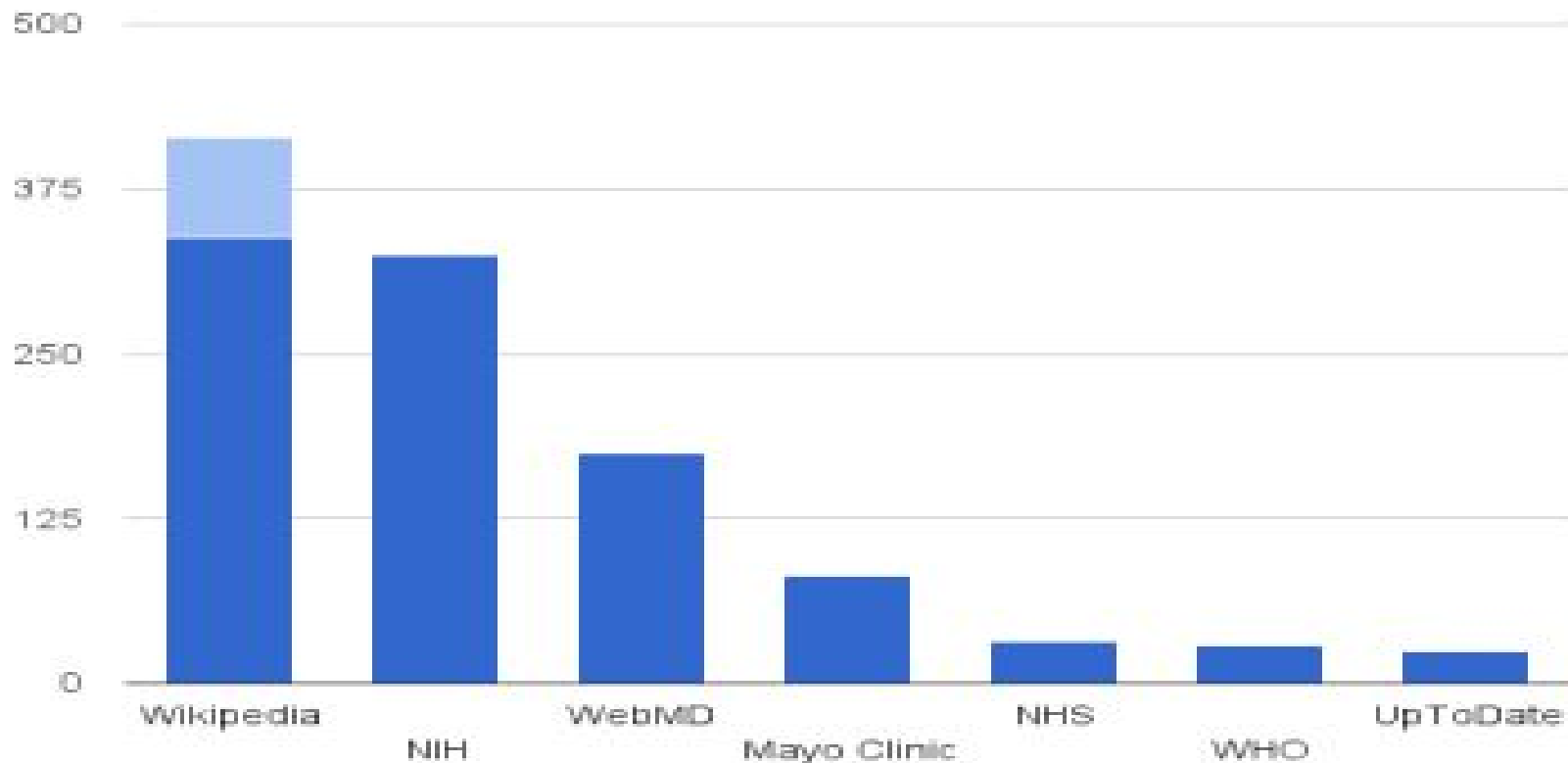


# Medical views (2013)

~7 billion pageview    ~160,000 article

- 3% of all pageviews / 0.5% of articles
- Half of views are for English
- Next most popular languages: Spanish and German (Dutch is 10th)
- > 60% of views by mobile

Page views (millions), July 2014



[J Med Internet Res.](#) 2015 Mar 4;17(3):e62. doi: 10.2196/jmir.4069.

## **Wikipedia and medicine: quantifying readership, editors, and the significance of natural language.**

Heilman JM<sup>1</sup>, West AG.

# Medical stats

- 50% to 100% of **physicians** use WP
- 35 to 70% of **pharmacists** admit to its use
- 94% of **medical students** use WP
- 20 to 60% of **journalists**
- Frequent use by **policy makers**

# Why do 94% of medical students use Wikipedia?

- Easy access
- Understandable

Med Teach. 2013 Apr;35(4):337. doi: 10.3109/0142159X.2012.737064. Epub 2012 Nov 8.

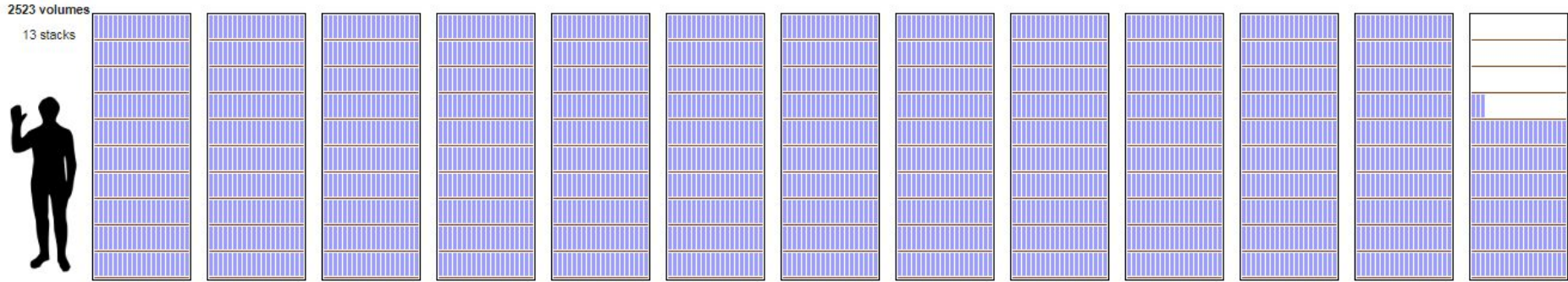
**Wikipedia use amongst medical students - new insights into the digital revolution.**

Allahwala UK, Nadkarni A, Sebaratnam DF.

# Does Wikipedia Cover Nearly Everything?



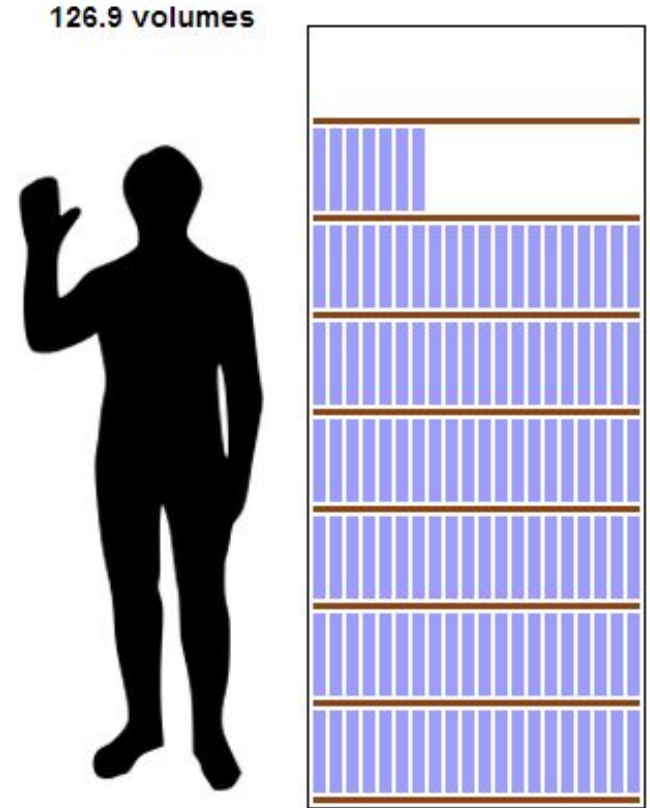
# Size of the English version as of Jan 2017<sup>(9)</sup>



- Largest reference work on the Internet
- Equivalent to ~2520 volumes of the Encyclopaedia Britannica
- ~43 million articles in 295 languages (5.5 million in English)

# Size of the medical content across all languages in 2013

- Equivalent to ~127 volumes of the Encyclopedia Britannica
- ~5,000 articles in Dutch



# Does Wikipedia Have a Huge Number of Editors?





# Wikipedia generally

Anyone can edit but not everyone does!

- 80,000 people contribute >5 edits a month
- 12,000 people contribute more than 100 edits a month
- Generally volunteers and working for free
- Self governing communities

# Medical editors (2016)

270 editors made more than  
250 edits

- Numbers level between 2008-2016
- 224,000 accounts made 1.1 M edits
- Half in English (6 in Dutch)

# Who are they?

- Half healthcare professionals
- 52% Masters, PhD or MD
- 33% Bachelor's degree
- 80% male, 10% female, 10% would rather not say

# Why do they edit?

Learning

Positive about  
Wikipedia

Responsibility

Enjoyable



# Is Wikipedia Reliable?



# [*citation needed*]

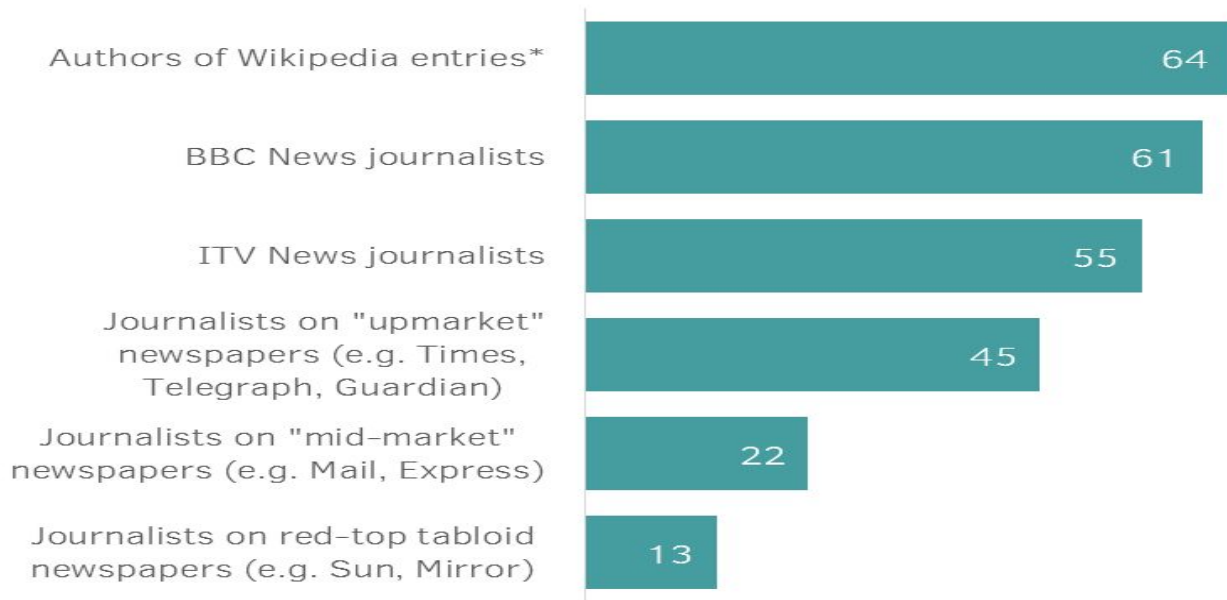
- Depends on definition and compared to what
- There is no perfect source
- Verifiability not Truth
- As accurate as Britannica in 2005 and 2012
- Internal peer review
- Could WP be better? Definitely!



# Public Perception of Reliability

## Trust in Wikipedia authors compared to journalists

*Figures show percentages saying they trust each group to tell the truth "a great deal" or "a fair amount"*

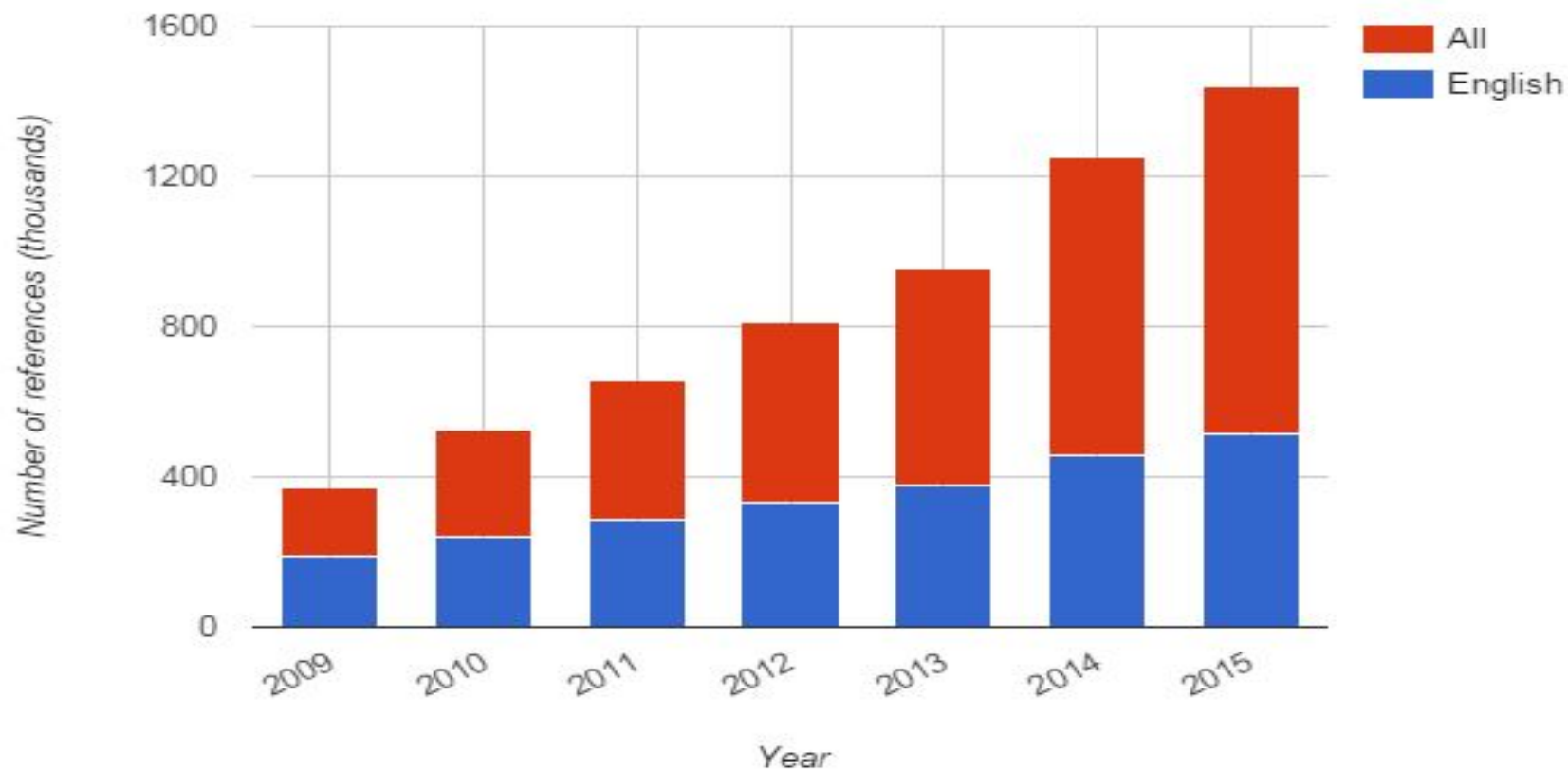


\* Survey for Wikipedia authors conducted 7-8 August 2014; survey for journalists conducted 16-17 October 2013

# Better than UpToDate/Textbooks for Medical Students

- Students given a quiz (30 min)
- Randomized to either UpToDate, textbook, or Wikipedia (30 min)
- Retested on same test (30 min)
- WP resulted in better test scores
- WP had better search and interlinking





## Causes [ edit source ]

*Main article: Causes of schizophrenia*

A combination of genetic and environmental factors play a role in the development of schizophrenia.<sup>[9][14]</sup> People with a family history of schizophrenia who have a transient psychosis have a 20–40% chance of being diagnosed one year later.<sup>[55]</sup>

### Genetics

Estimates of heritability vary because of the difficulty in separating genetic and environmental influences;<sup>[56]</sup> averages of 0.80 have been given.<sup>[57]</sup> The greatest single risk factor for developing schizophrenia is having a first-degree relative with the disease (risk is 6.5%); more than 40% of monozygotic twins of those with schizophrenia are also affected. If one parent is affected the risk is about 13% and if both are affected the risk is nearly 50%.<sup>[57]</sup>

Many genes are believed to be involved in schizophrenia, each of small effect and unknown transmission and expression.<sup>[13][14]</sup> Many possible candidates have been proposed, including specific copy number variations, *NOTCH4*, and histone protein loci.<sup>[58]</sup> A number of genome-wide associations such as zinc finger protein 804A have also been linked.<sup>[59]</sup> There appears to be overlap in the genetics of schizophrenia and bipolar disorder.<sup>[60]</sup> Evidence is emerging that the genetic architecture of schizophrenia involved both common and rare risk variation.<sup>[61]</sup>

Assuming a hereditary basis, one question from evolutionary psychology is why genes that increase the likelihood of psychosis evolved, assuming the condition would have been maladaptive from an evolutionary point of view. One idea is that genes are involved in the evolution of language and human nature, but to date such ideas remain little more than hypothetical in nature.<sup>[62][63]</sup>

### Environment [ edit source ]

Environmental factors associated with the development of schizophrenia include the living environment, drug use, and prenatal stressors.<sup>[9]</sup>

Parenting style seems to have no major effect, although people with supportive parents do better than those with critical or hostile parents.<sup>[14]</sup> Childhood trauma, death of a parent, and being bullied or abused increase the risk of psychosis.<sup>[64]</sup> Living in an urban environment during childhood or as an adult has consistently been found to increase the risk of schizophrenia by a factor of two,<sup>[9][14]</sup> even after taking into account drug use, ethnic group, and size of social group.<sup>[65]</sup> Other factors that play an important role include social isolation and immigration related to social adversity, racial discrimination, family dysfunction, unemployment, and poor housing conditions.<sup>[14][66]</sup>

It has been hypothesized that in some people, development of schizophrenia is related to intestinal tract dysfunction such as seen with non-celiac gluten sensitivity or abnormalities in the intestinal flora.<sup>[67]</sup> A subgroup of persons with schizophrenia present an immune response to gluten different from that found in people with celiac, with elevated levels of certain serum biomarkers of gluten sensitivity such as anti-gliadin IgG or anti-gliadin IgA antibodies.<sup>[68]</sup>

### Substance use [ edit source ]

About half of those with schizophrenia use drugs or alcohol excessively.<sup>[69]</sup> Amphetamine, cocaine, and to a lesser extent alcohol, can result in a transient stimulant psychosis or alcohol-related psychosis that presents very similarly to schizophrenia.<sup>[14][70]</sup> Although it is not generally believed to be a cause of the illness, people with schizophrenia use nicotine at much higher rates than the general population.<sup>[71]</sup>

Alcohol abuse can occasionally cause the development of a chronic, substance-induced psychotic disorder via a kindling mechanism.<sup>[72]</sup> Alcohol use is not associated with an earlier onset of psychosis.<sup>[73]</sup>

# Most used journals



THE LANCET

Volume 377 · Number 9762 · Pages 271-352 · January 22-28, 2011

[www.thelancet.com](http://www.thelancet.com)



THE COCHRANE  
COLLABORATION®

**JAMA**<sup>®</sup>  
The Journal of the American Medical Association



**nature** International weekly journal of science



The **NEW ENGLAND**  
JOURNAL of MEDICINE

# Wikipedia's Peer Review



- Article rating scale
- Medicine has 63 FAs and 212 GAs
  - <1% of all articles
  - 40% of top importance articles

# Open Medicine

A peer-reviewed, independent, open-access journal.

- Bringing Wikipedia's medical articles to FA followed by publication under the authors real names
- First article published by Open Medicine
- PLOS Medicine and Epilepsia interested
- Academic credit for Wikipedians

## Dengue fever: a Wikipedia clinical review

James M Heilman, Jacob De Wolff, Graham M Beards, Brian J Basden

### ABSTRACT

Dengue fever, also known as breakbone fever, is a mosquito-borne infectious tropical disease caused by the dengue virus. Symptoms include fever, headache, muscle and joint pains, and a characteristic skin rash that is similar to measles. In a small proportion of cases, the disease develops into life-threatening dengue hemorrhagic fever, which results in bleeding, thrombocytopenia, and leakage of blood plasma, or into dengue shock syndrome, in which dangerously low blood pressure occurs. Treatment of acute dengue fever is supportive, with either oral or intravenous rehydration for mild or moderate disease and use of intravenous fluids and blood transfusion for more severe cases. Along with attempts to eliminate the mosquito vector, work is ongoing to develop a vaccine and medication targeted directly at the virus.

**James M. Heilman**, MD, CCFP(EM), is the Emergency Department Head at the East Kootenay Regional Hospital, Cranbrook, British Columbia, and is also a Clinical Instructor in the Department of Emergency Medicine, The University of British Columbia, Vancouver, British Columbia. **Jacob De Wolff**, MRCP(UK), is a Consultant in Acute Medicine and High Dependency Medicine at Northwick Park Hospital, Harrow, Middlesex, UK. **Graham M. Beards**, DSc, FIBMS, is a Clinical and Biomedical Scientist in blood science at Walsall Manor Hospital, Walsall, UK. **Brian J. Basden**, BSc, is a Researcher with Battelle Memorial Institute, Atlanta, Georgia.

**Competing interests:** James Heilman and Brian Basden are board members of the Wiki Project Med Foundation. Jacob De Wolff is a board member of Wiki Project Med Foundation and the founder of WikiProject Medicine. Graham Beards is a Featured Article Coordinator for the English Wikipedia. No financial competing interests declared.

**Funding:** No funding was received for the preparation of this article.

**Correspondence:** Dr. James Heilman, East Kootenay Regional Hospital, 13–24th Avenue N, Cranbrook BC V1C 3H9; [jmh649@gmail.com](mailto:jmh649@gmail.com)

➤ **DENGUE FEVER, ALSO KNOWN AS BREAKBONE FEVER,** is a mosquito-borne infectious tropical disease caused by the dengue virus. This disease occurs primarily in

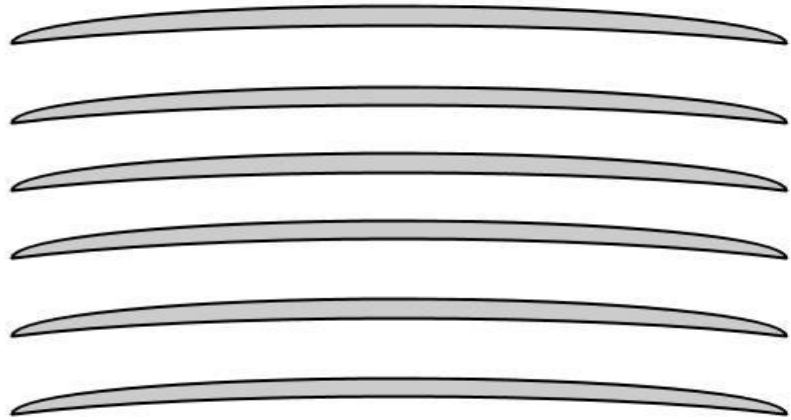
have symptoms recover spontaneously.<sup>3</sup> In a small proportion of cases, the disease progresses to a more severe form, life-threatening dengue hemorrhagic fever,

# Wiki Journal of Medicine

- Open access journal
- Started in March 2014
- No associated costs
- Has DOI and ISSN
- ~20 articles published
- Pubmed indexing in the works
- Hosted on Wikiversity but maybe one day an independent sister project?



# Layers of quality assurance



- Bots
- New change patrol
- Watch lists
- Admins
- Blacklisting links
- COI detection







- Used by a lots of schools to detect “copy and paste” issues
- Giving us free access
- Bot built that checks each new edit over a certain size since Aug 2014
- Flags concerns for human follow up



# Medical Translation Project



# 3 Steps

Article improvement

Translation

Access



# Two article tracks



- Short
- 3 to 4 paragraphs
- Leads of English articles  
~750 words
- Goal – 1,000 (912)

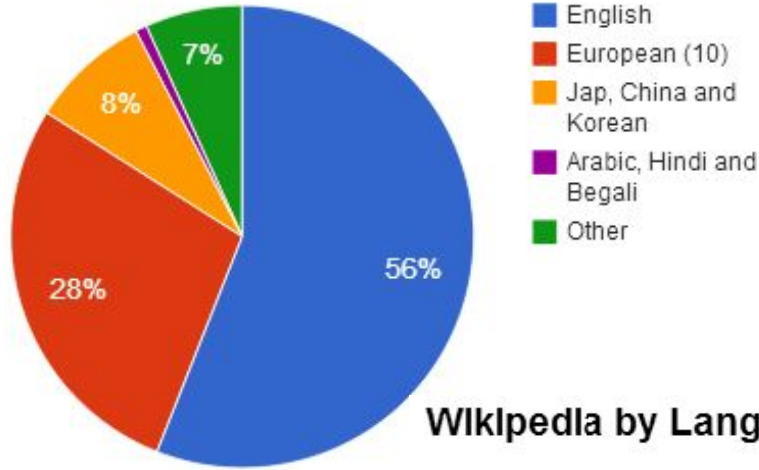
- Full
- Brought to GA/FA
- 2,500-10,000 words
- Goal – 100 (33)



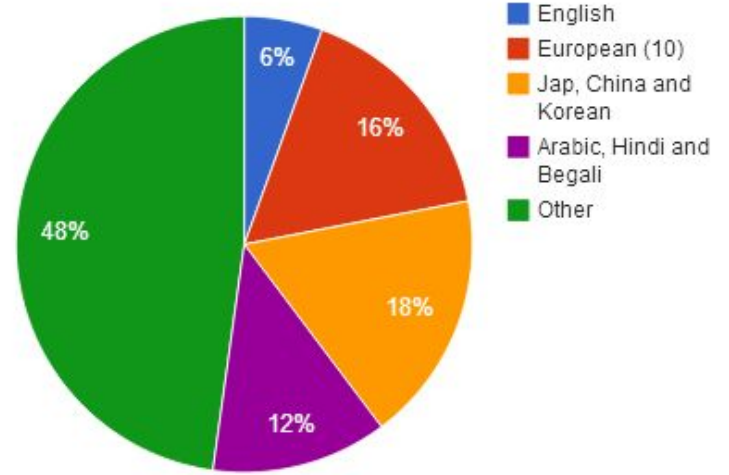
- Translation
  - 100+ languages
  - >5 million words



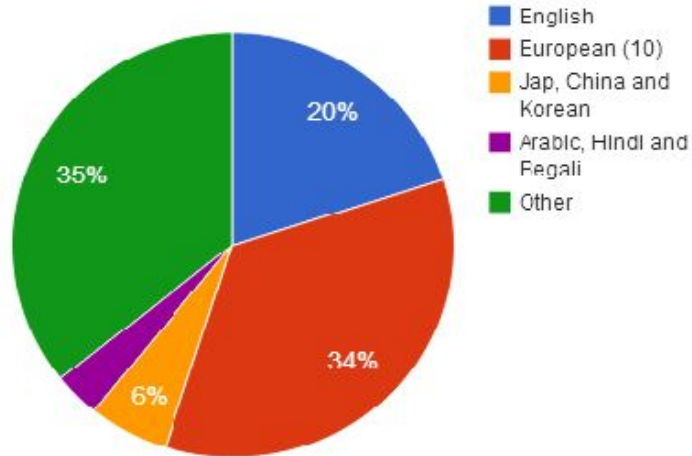
## Internet by Language



## World By Language



## Wikipedia by Language



**European:** German, French, Italian, Spanish, Dutch, Polish, Russian, Portuguese, Swedish

# Why is this needed?

- Every day thousands die for a lack of health care and a major factor is poor access to understandable information
  - More than half of people from Africa said that a friend or family member could have been saved if they'd had information in their own language
  - Many believe fluids should be withheld if their child has diarrhea
- Issue: Little health care content exists in most languages

# Improving Content





# Writing simple articles

- Simple is Key
- 3 or 4 paragraphs
- Every sentence referenced
- Topics
  - Diseases
  - Essential medicines
  - Sanitation / engineering
- Working with a number of medical schools to improve content





# UCSF Medical Student Elective



- Six rounds of students (5, 7, 16, 15, 7, 22)
- 4 weeks working on just Wikipedia
- 2 intensive days discussing how WP works
- Number of mainspace edits per student (~35)
- Pharmacy students worked on WHO Essential Meds in collaboration with folks at WHO
- Others schools creating efforts
  - Multi year projects for med students in Israel
  - Students clubs



# Partnerships

- Started in 2012 with TWB
- All human translators (not machines)
- Google translate “works” in about 70 languages
- Some languages have improved content specifically for their audience
- Working with National Taiwan University College of Medicine



**TRANSLATORS**  
WITHOUT BORDERS



**WIKIMEDIA**  
TAIWAN

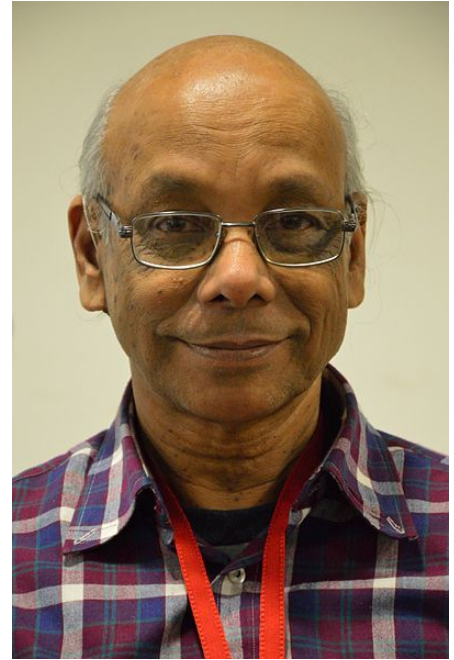
# Students find it useful

“Participating in this project **changed my perspective on knowledge**. In finding a balance between using precise professional terms and common words to explain a medical condition, I learned a lot. It has **helped me to have better communication** with my patients”

**Aaron Huang**

# Language Champions

- Oriya (40 million native speakers)
- Small community of 15 editors (5 plus edits)
- Subas Chandra Rout
- 800+ articles translated
- Some of the first content to exist online



By Biswarup Ganguly on Commons



# Ebola

- The most used internet site in Liberia, Sierra Leone and Guinea for Ebola
- Greater than CNN, CDC and WHO
- Content available in more than 115 languages
- ~100 M pageviews in 2014



# Digital Last Mile

FACT:

**3.9 billion people are not online, many of them because they can't pay for it, others because of lack of infrastructure: NO ACCESS.**

- **Silver lining**

- a. Cell phones are widespread (6/7 people)

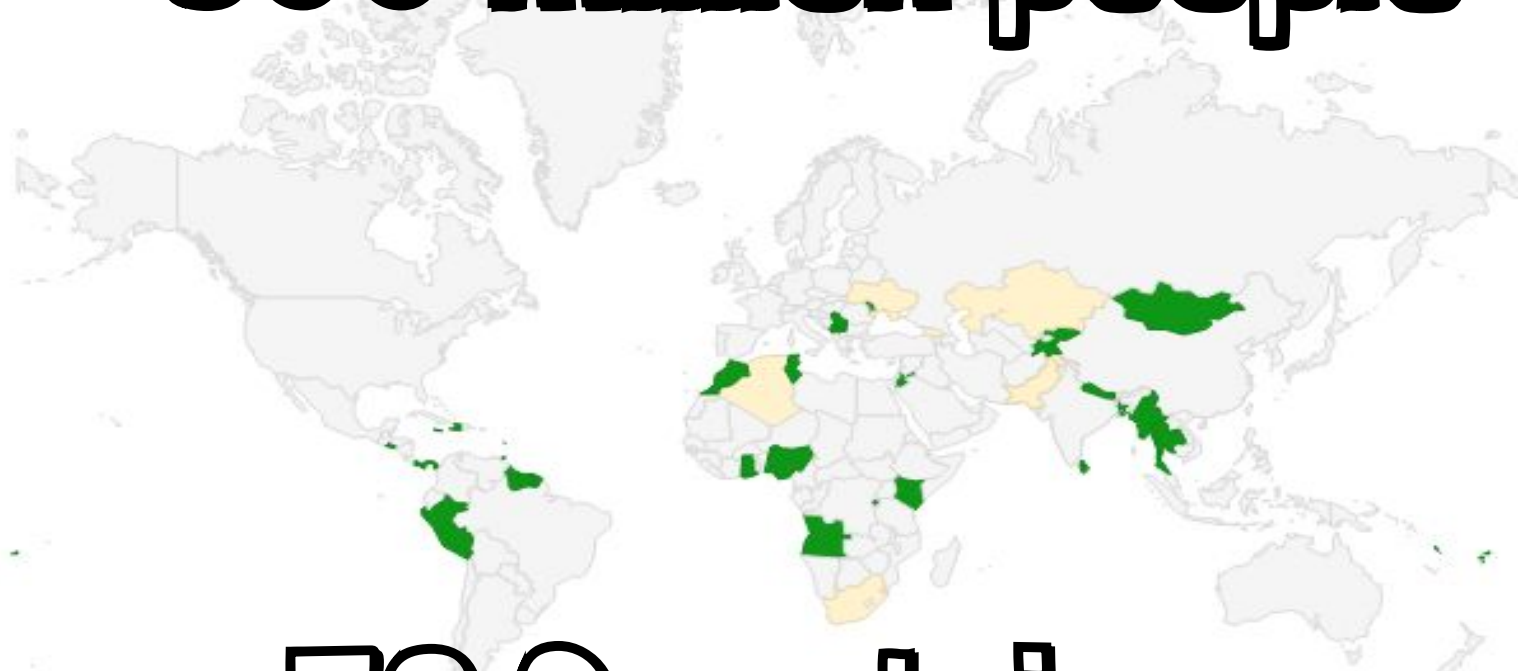
- **Number of solutions**

- a. Cell phone companies to give Wikipedia access without data charges

- b. Download content (apps) to phone's SD card for later use

- c. Offline distribution systems

~300 million people



52 Countries



We have an offline version of our medical content. **Download the Android app** and access this content when there is no Internet.



- Partially offline solution
- Built in collaboration with WMCH/Kiwix in 2015
- Includes diseases, anatomy, sanitation, physiology, dentistry, and medication content
- 1.2Gb (4.2Gb with videos, 130Mb mini version)
- > 75% of downloads from Global South



# The App



- Overall rating of 4.7
  - ~250 k of downloads for android
  - 10 language versions
  - ZIMs in other languages but no apps yet
  - iOS recently launched
- “Brilliant. Wikimedia, by providing these very useful contents for free and in such a simple and easy to use app, you are serving humanity.”

# Internet-in-a-Box

- Fully offline solution
- Allows ~ 30 people to connect via wifi at any one time
- Allows both the viewing of the content on the device and downloading of the medical apps
- Does not connect to the general Internet
- Can be powered by a battery or solar panel





# Content adjusted to area

- Being used in DR, Guatemala, Peru, Syrian refugee camp, among others
- Build up of modules, other resources such as national guidelines, video content
- Costs \$40 USD a device
- Available “commercially”
- Instructions on how to make your own



box.lan/home/ 3

**Internet in a Box** Feedback

 **Medical Encyclopedia in English**  
A complete collection of all health care, anatomy, and medication related topics from Wikipedia in an offline format. Like Wikipedia all content is open access, meaning that it is free to download, reuse, share, and build upon.  
Download the offline app  
[org.kiwix.wikipedia.en.medicine.apk](http://org.kiwix.wikipedia.en.medicine.apk)

 **Enciclopedia Médica Offline de Wikipedia**  
Se trata de una colección completa de todos los temas de Wikipedia sobre los cuidados relacionados con la salud, la anatomía y la medicación, en un formato que no necesita conexión a Internet.  
Descargar la aplicación sin conexión  
[org.kiwix.wikipedia.es.medicine.apk](http://org.kiwix.wikipedia.es.medicine.apk)

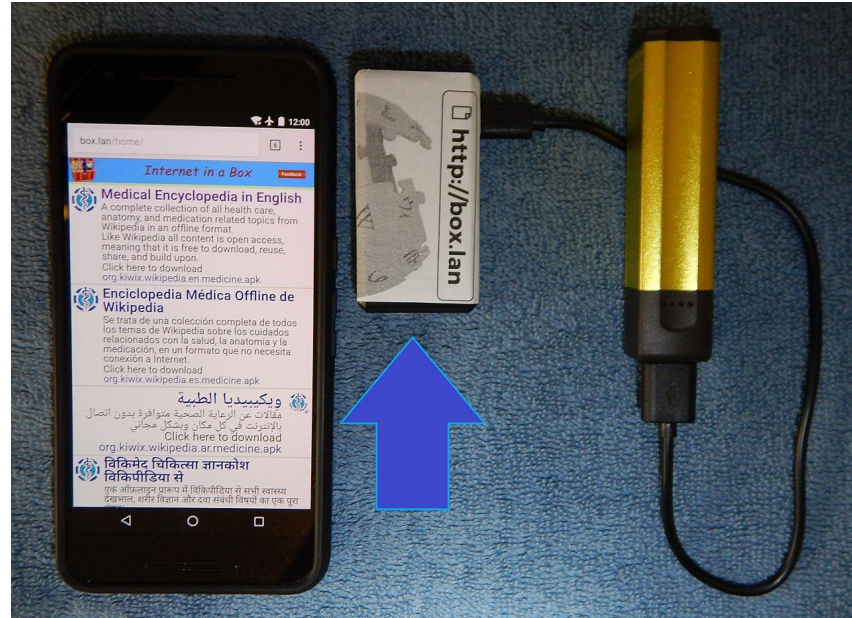
**ويكيبيديا الطبية**  
مقالات عن الرعاية الصحية متوفرة بدون اتصال بالإنترنت في كل مكان وبشكل مجاني  
إضغط هنا لتحميل  
[org.kiwix.wikipedia.ar.medicine.apk](http://org.kiwix.wikipedia.ar.medicine.apk)

 **The Global Emergency Medicine Wiki**  
WikFM The Global Emergency Medicine Wiki

# Try it Out! / More on Meta

- Wifi: Internet-in-a-Box
- Password: None
- Need to turn off your cellular data
- Type: <http://box.lan> into the browser
- Try it out online:

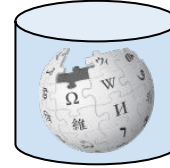
<http://medbox.iiab.me/home/>



# Next Steps

- Module library
  - Allow donations (licenses?)
  - Tools for building modules
  - Hosting?
- Collections
  - Selection of modules and create an image
  - Image hosting at Internet Archive

Module  
Library

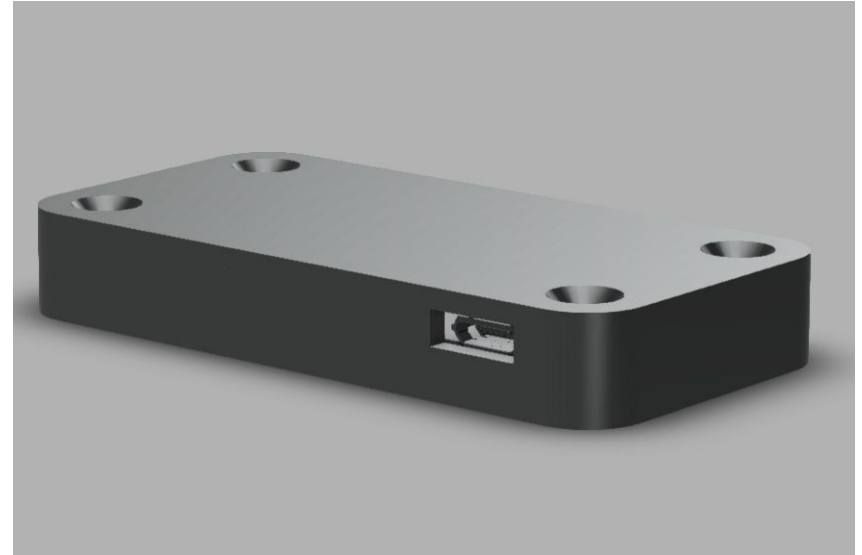


Collections



# Next versions

- Slimmer case
  - 1.1 cm
  - 2.4 cm
  - 6.5 cm
- 32 Gb microSD
  - CDC module
  - Video working
- Edu version (K to 12)



# Further Partners



National Institutes of Health  
*Turning Discovery Into Health*



Cochrane



CENTERS FOR DISEASE  
CONTROL AND PREVENTION



Mount  
Sinai



CANCER  
RESEARCH  
UK

# You?





Add your name to our open letter -- [facebook.com/FreeAccessToWikipedia](https://facebook.com/FreeAccessToWikipedia)

# Questions?

**James Heilman**

**jmh649@gmail.com**

<https://meta.wikimedia.org/wiki/WPME>  
D

<https://enwp.org/User:Doc James>

*“Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing.”*

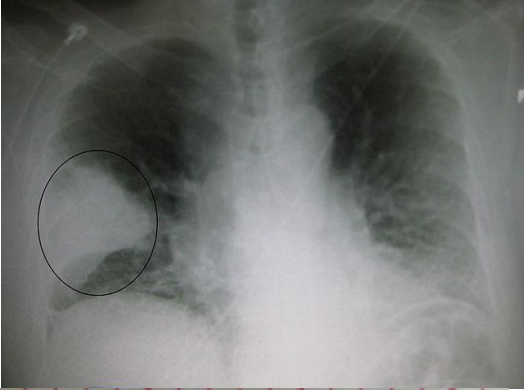
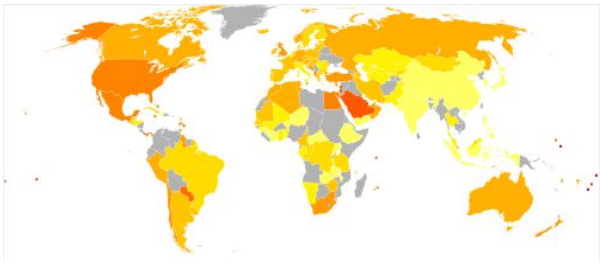




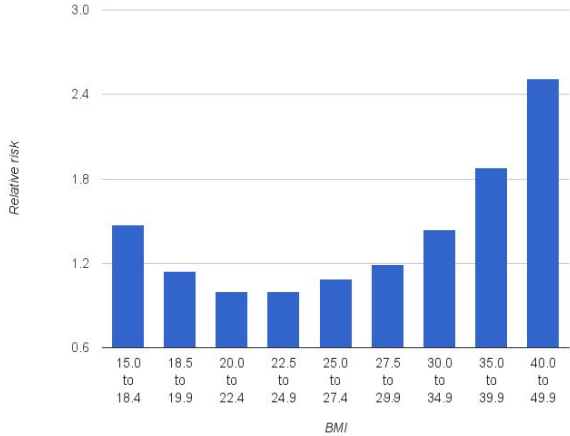
# Can you Edit?



# Adding pictures



Relative risk of mortality by BMI in White US women

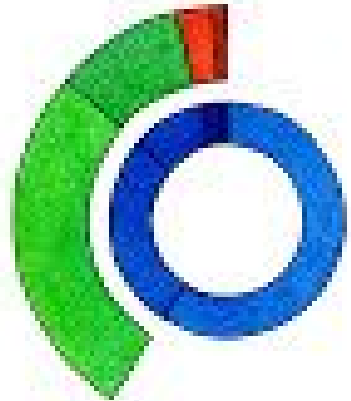


# Collaboration with HealthPhone and Osmosis

- Working on a partnership to give 8Gb microSD cards to all healthcare providers in India
- Developing health care videos
  - >240 by Osmosis
  - > 5.5 million views last few months
  - Subtitles being translated into other languages

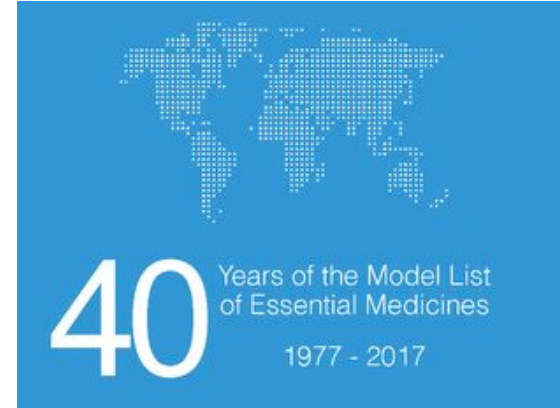


**HealthPhone™**  
HEALTH IN YOUR HANDS



# World Health Organization

- Improved all 440 essential medicines articles
- WHO agreed to release the list under a CC BY SA 3.0 IGO license
- Brought the article to featured list status
- Was on the main page for a day in 2017



# Editing (WP:MEDHOW)

[edit]

- Find excellent quality source
- Hit the edit / edit source button
- Put the ideas in your own words using easy to understand English
- Format the reference
- Explain what you have done in the edit summary

# Sources (WP:MEDRS)



This page in a nutshell: Ideal sources for [biomedical](#) and health material include [literature reviews](#) or [systematic reviews](#) in reliable, third-party, published secondary sources (such as reputable [medical journals](#)), recognised standard textbooks by experts in a field, or [medical guidelines](#) and position statements from national or international expert bodies.

# Manual of style (WP:MEDMOS)

- Naming and ordering of sections
- References go after punctuation
- We use very few capital letters
- Do not use “inside net” urls
- New WYSIWYG editor

**New Way**



# WP:Visual Editor

- 客家語/Hak-kâ-ngî
- 한국어
- Հայերեն
- हिन्दी
- Hrvatski
- Ido
- Bahasa Indonesia
- ★ Italiano
- עברית
- Қазақша
- Kreyòl ayisyen
- Қырғызча
- Latina
- Latviešu
- Lëtzebuergesch
- Lietuvių
- Magyar
- Македонски
- मराठी
- Bahasa Melayu
- Nederlands
- नेपाल भाषा
- 日本語
- Norsk bokmål
- Norsk nynorsk
- ଓଡ଼ିଆ
- Oʻzbekcha/Ўзбекча
- Polski
- Portugués
- Română
- Русский
- Simplific...

← → Paragraph A Cite Insert Ω ? ⚠ ≡ || Save page

[tophi](#). Extensive tophi may lead to chronic [arthritis](#) due to bone erosion.<sup>[4]</sup> Elevated levels of uric acid may also lead to crystals precipitating in the [kidneys](#), resulting in [stone](#) formation and subsequent [urate nephropathy](#).<sup>[5]</sup>


New text<sup>[6]</sup>

Cancel Add a citation

Automatic Manual Re-use

URL or DOI

Generate

 Gout presenting in the metatarsal-phalangeal joint of the big toe: Note the slight redness of the skin overlying the joint.

...levels in the blood, is the underlying cause of gout. This can position, or [underexcretion](#) of [urate](#), the salts of uric acid.<sup>[2]</sup> of [hyperuricemia](#) in about 90% of cases, while overproduction of [peruricemia](#) develop gout at some point in their lifetimes.<sup>[8]</sup> [ricemia](#). When levels are between 415 and 530  $\mu\text{mol/l}$  (7 and 8.9 mg/dl), the risk is 0.5% per year, while in those with a level greater than 535  $\mu\text{mol/l}$  (9 mg/dL), the risk is 4.5% per year.<sup>[1]</sup>

## Lifestyle

Dietary causes account for about 12% of gout,<sup>[2]</sup> and include a strong association with the consumption of alcohol, [fructose](#)-sweetened drinks, meat, and seafood.<sup>[4][9]</sup> Other triggers include [physical trauma](#) and surgery.<sup>[7]</sup>

Studies in the early [2000s](#) have found that other dietary factors once believed associated are, in fact, not.<sup>[10]</sup><sup>[11]</sup> Specifically, moderate consumption of [purine-rich](#) vegetables (e.g. beans, peas, lentils, and spinach) are not associated with the development of gout.<sup>[12]</sup> Neither is total consumption of protein.<sup>[10][12]</sup> Alcohol consumption is a factor, with wine presenting somewhat less of a risk than beer and spirits.<sup>[13]</sup>

The consumption of [coffee](#), [vitamin C](#), and [dairy products](#), as well as physical fitness, appear to decrease the risk.<sup>[14][15]</sup><sup>[16]</sup> This is believed partly due to their effect in reducing [insulin resistance](#).<sup>[16]</sup>



The Wikimedia Foundation is holding a referendum to gather more input into the development and usage of an opt-in personal image hiding feature. [Learn more and share your view.](#)

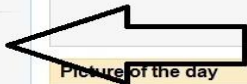
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- Village pump

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#### Picture of the Year 2010

In mid-August 2010 ESO Photo Ambassador Yuri Beletsky snapped this amazing photo at ESO's Paranal Observatory. A group of astronomers were observing the centre of the Milky Way using the laser guide star facility at Yepun, one of the four Unit Telescopes of the Very Large Telescope (VLT). (POTD)



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**Old Way**


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- Largest cancer charity in the UK
- Hired a WiR in mid 2014, John Bryne
- Improved pancreatic (FA), brain, and esophageal cancer articles
- Donated 520+ images
- Viewed 32+ million times
- In at least 20 languages
- 275 people trained on editing

# Adding a summary of a meta analysis

- Think newspaper headline
- One or two sentences
- Do not need publication type, author names, publishing source -> in the reference
- Add it to the appropriate section / lead

## Intravenous magnesium sulfate for treating adults with acute asthma in the emergency department.

Kew KM<sup>1</sup>, Kirtchuk L, Michell CJ.

### ⊕ Author information

#### Abstract

**BACKGROUND:** Asthma is a chronic respiratory condition characterised by airways inflammation, constriction of airway smooth muscle and structural alteration of the airways that is at least partially reversible. Exacerbations of asthma can be life threatening and place a significant burden on healthcare services. Various guidelines have been published to inform management personnel in the acute setting; several include the use of a single bolus of intravenous magnesium sulfate (IV MgSO<sub>4</sub>) in cases that do not respond to first-line treatment. However, the effectiveness of this approach remains unclear, particularly in less severe cases.

**OBJECTIVES:** To assess the safety and efficacy of IV MgSO<sub>4</sub> in adults treated for acute asthma in the emergency department.

**MAIN RESULTS:** Fourteen studies met the inclusion criteria, randomly assigning 2313 people with acute asthma to the comparisons of interest in this review. Most studies were double-blinded trials comparing a single infusion of 1.2 g or 2 g IV MgSO<sub>4</sub> over 15 to 30 minutes versus a matching placebo. Eleven were conducted at a single centre, and three were multi-centre trials. Participants in almost all of the studies had already been given at least oxygen, nebulised short-acting beta<sub>2</sub>-agonists and IV corticosteroids in the ED; in some studies, investigators also administered ipratropium bromide. Ten studies included only adults, and four included both adults and children; these were included because the mean age of participants was over 18 years. Intravenous MgSO<sub>4</sub> reduced hospital admissions compared with placebo (odds ratio (OR) 0.75, 95% confidence interval (CI) 0.60 to 0.92; I(2) = 28%, P value 0.18; n = 972; high-quality evidence). In absolute terms, this odds ratio translates into a reduction of seven hospital admissions for every 100 adults treated with IV MgSO<sub>4</sub> (95% CI two to 13 fewer). The test for subgroup differences revealed no statistical heterogeneity between the three severity subgroups (I(2) = 0%, P value 0.73) or between the four studies that administered nebulised ipratropium bromide as a co-medication and those that did not (I(2) = 0%, P value 0.82). Sensitivity analyses in which unpublished data and studies at high risk for blinding were removed from the primary analysis did not change conclusions. Within the secondary outcomes, high- and moderate-quality evidence across three spirometric indices suggests some improvement in lung function with IV MgSO<sub>4</sub>. No difference was found between IV MgSO<sub>4</sub> and placebo for most of the non-spirometric secondary outcomes, all of which were rated as low or moderate quality (intensive care admissions, ED treatment duration, length of hospital stay, readmission, respiration rate, systolic blood pressure). Adverse events were inconsistently reported and were not meta-analysed. The most commonly cited adverse events in the IV MgSO<sub>4</sub> groups were flushing, fatigue, nausea and headache and hypotension (low blood pressure).

**AUTHORS' CONCLUSIONS:** This review provides evidence that a single infusion of 1.2 g or 2 g IV MgSO<sub>4</sub> over 15 to 30 minutes reduces hospital admissions and improves lung function in adults with acute asthma who have not responded sufficiently to oxygen, nebulised short-acting beta<sub>2</sub>-agonists and IV corticosteroids. Differences in the ways the trials were conducted made it difficult for the review authors to assess whether severity of the exacerbation or additional co-medications altered the treatment effect of IV MgSO<sub>4</sub>. Limited evidence was found for other measures of benefit and safety. Studies conducted in these populations should clearly define baseline severity parameters and systematically record adverse events. Studies recruiting participants with exacerbations of varying severity should consider subgrouping results on the basis of accepted severity classifications.

**Magnesium sulfate** may help those who are having an asthma attack who do not improve after other treatments.<sup>[2]</sup> This benefit includes a reduced need for hospital admission.<sup>[2]</sup>



# Writing simple articles

- Disease related articles cover:
  - definition and symptoms
  - causes and diagnosis
  - prevention and treatment
  - epidemiology and history
- All currently reviewed by me
- Currently >800 ready for translation

## Access

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## News

*Nature* **438**, 900-901 (15 December 2005) | doi:10.1038/438900a; Published online 14 December 2005





### Special Report Internet encyclopaedias go head to head

Jim Giles

**Jimmy Wales' Wikipedia comes close to Britannica in terms of the accuracy of its science entries, a *Nature* investigation finds.** [▲ Top](#)

**UPDATE:** see details of how the data were collected for this article in the [supplementary information](#).

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open innovation  
challenges

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Building a Nuclear Security

# Future research

Q: How much does the packaging of content affect peoples assessment of its reliability?

Methods: Take a WP article and make it appear like the BMJ and vice versa. Give pairs of these articles randomly to academics to review using the DISCERN score

**Sachit Koirala** Jul 19, 2016 at 10:53 AM  15  0



Brilliant. Wikimedia, by providing these very useful contents for free and in such a simple and easy to use app, you are serving humanity.

**Yemwa Phiri** Jun 21, 2017 at 5:31 AM  0  0



Was looking for solution to my offline research ,then it came my way....life saver i love it

Jun 16, 2017 at 10:01 AM  0  0



covers a wide range of topics with precise & understandable explanations. thanks!

**Evans Mensah** Jun 11, 2017



Can't ask for more

**Abdullahi Isse** Jun 4, 2017 at 12:44 PM  0



This is a life saver, absolutely marvellous

**Kavit Shastri** Jun 24, 2017



Amazzzzzing!

**Larry Kotei** Jun 4, 2017



Great for offline work!

**PINTU MONDAL** Jun 12, 2017 at 2:59 AM  0  0



Awesome... I have nothing to say... Speechless... Very informative.

**Hamimudin Ubaidulla** Jun 11, 2017 at 2:26 AM  0  0



Very user friendly, informative and comprehensive. It's can be easily understood by the layman.

**ayaz safi** Jun 24, 2017 at 9:02 AM  0  0



Wish that the app should had 1000 stars options and we could give it

# The New York Times

MEDIA

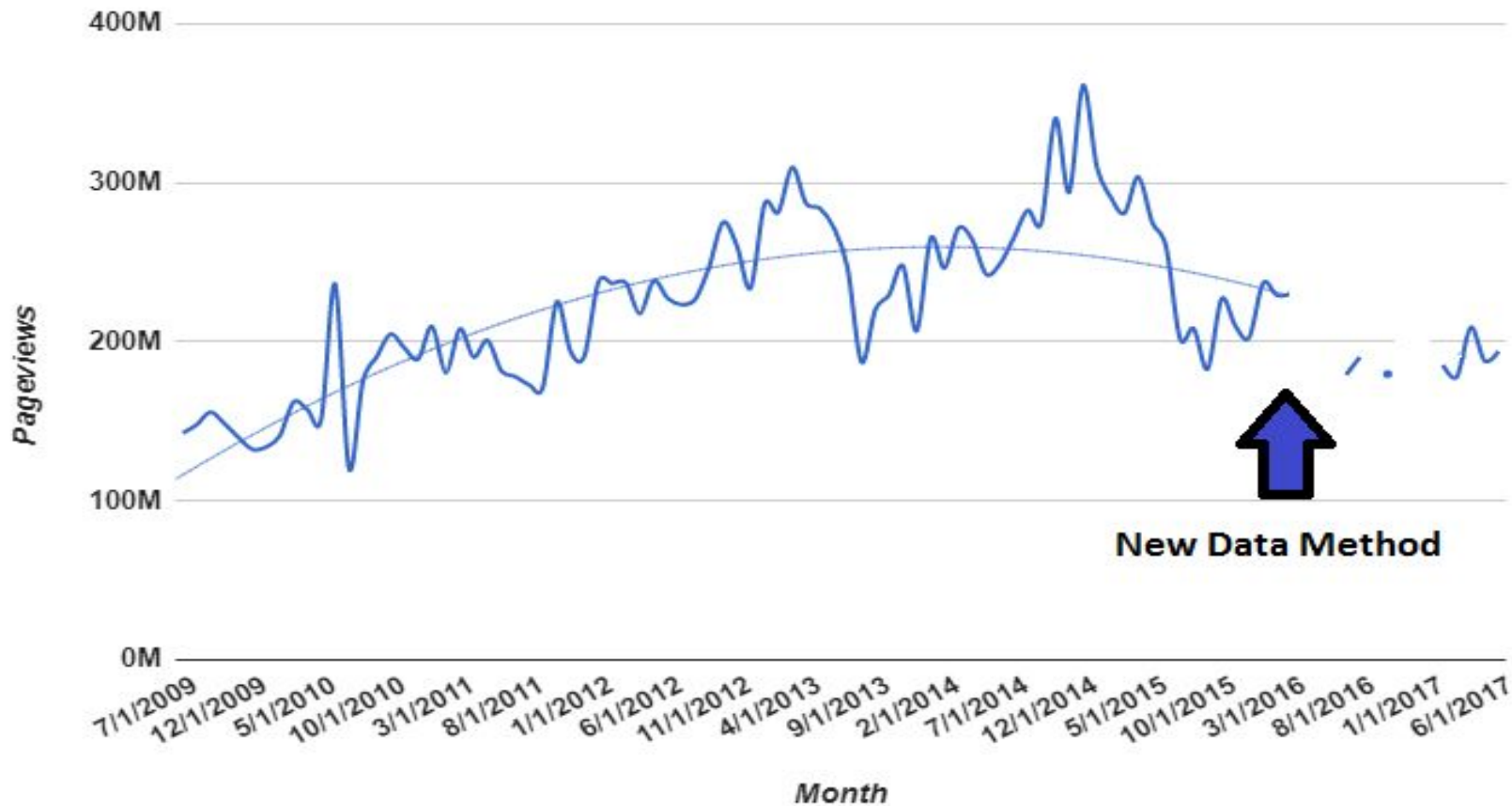
## Wikipedia Emerges as Trusted Internet Source for Ebola Information

By NOAM COHEN OCT. 26, 2014



**“I try to convince  
people to edit  
Wikipedia not  
simply use it.”**

## Estimates Medical Pageviews (Accounting for Mobile)



Course Dates	Number of students	Number of pages edited	Days of active editing	Number of edits during course	Average views per page per day over course days	Total views during course
Nov – Dec 2013	5	5	28 days	176	3,279	459,071
April 2014	7	7	28 days	181	1,455	285,233
Nov 2014	16	16	28 days	727	513	229,761
Nov 2015	15	15	26 days	444	1,628	500,708
March 2016	7	1	28 days	347	2,536	71,016
Nov – Dec 2016	22	14	27 days	850	490	185,107
March 2017	8	7	25 days	236	680	94,161
<b>TOTALS</b>	<b>80</b>	<b>65</b>	<b>190 days of student effort</b>	<b>2,961</b>	<b>1,512</b>	<b>1,825,057</b>

**UCSF medical students students have made nearly 3,000 improvements to Wikipedia pages viewed on average over 1,500 times per day**



**Who has used Wikipedia?**



**Who has edited Wikipedia?**