

Medical Informatics



Piyush Gupta

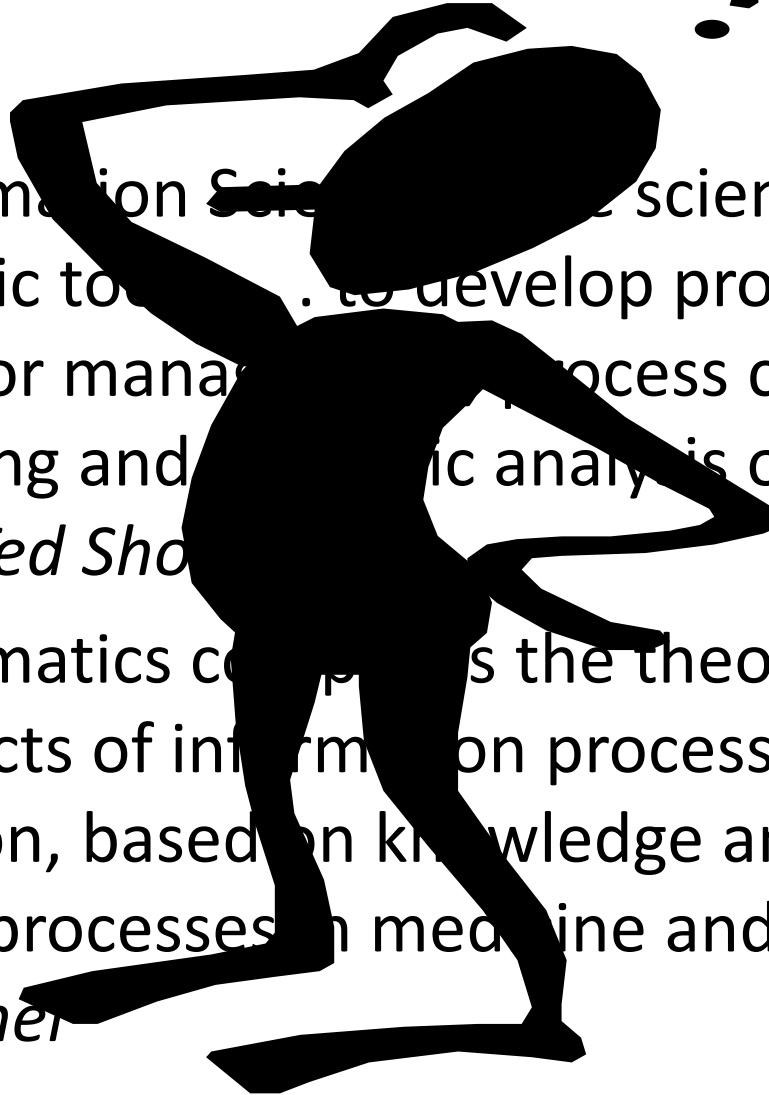
Professor of Pediatrics and
Editor-in-Chief
Indian Pediatrics

Medical Informatics

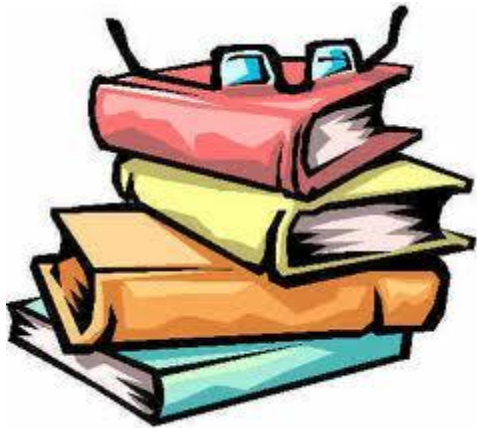
Definitions



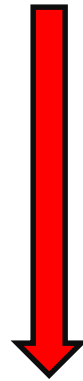
- Medical Informatics Science is the science of using system-analytic tools to develop procedures (algorithms) for management, process control, decision making and systematic analysis of medical knowledge - *Ted Shortliffe*
- Medical Informatics comprises the theoretical and practical aspects of information processing and communication, based on knowledge and experience derived from processes in medicine and health care - *Jan van Bemmel*



A Simple Definition



Information



Practice of Medicine



Who All Need Medical Informatics?



What Do PG students Need?

- Evidence based Knowledge (scholarly info)
- Skill learning (videos, podcasts)
- Thesis writing (literature retrieval)
- Make Presentations (resources)
- Clearance of doubts (interactive platform)
- Exchange of information between peers (email, social networking)

Traditional Information Gathering Devices



Information at Finger tips



Basic Requirements



Advanced Gadgets





Google Search I'm Feeling Lucky

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[Language Tools](#)

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bullet injuries - Google Search - Windows Internet Explorer

http://www.google.co.in/#hl=en&cp=15&gs_id=1b8xhrt&q=bullet+Injuries&pf=p&client=psy-ab&site=&source=hp&rlz=1R2ADFA_enIN438&pbx=1&oq=bullet+Injuries&aq=0&aqi=g1g-v3&aql=&gs_sm=ε

bullet Injuries

bullet Injuries

Search

Google bullet Injuries

Search

About 11,000,000 results (0.12 seconds)

Everything

[Gunshot Injuries: What Does a Radiologist Need to ... - RadioGraphics](http://radiographics.rsna.com/content/19/5/1358.full)
radiographics.rsna.com/content/19/5/1358.full
by AJ Wilson - 1999 - Cited by 18 - Related articles

Images

Maps

Videos

News

More

Bullet injuries are most severe in friable solid organs (eg, the liver and brain) (4), ...
Evaluation of bone injuries and the distribution of bone and bullet fragments ...

[Celebratory gunfire - Wikipedia, the free encyclopedia](http://en.wikipedia.org/wiki/Celebratory_gunfire)
en.wikipedia.org/wiki/Celebratory_gunfire

The practice may result in random death and injury from stray bullets. ... 1 Falling-bullet injuries; 2 Property damage; 3 Trends; 4 Notable incidents; 5 Penalties ...

New Delhi, Delhi

[How to Treat a Bullet Wound](http://www.wikihow.com/.../First_Aid_and_Emergencies)
www.wikihow.com > ... > First Aid and Emergencies

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7:00 PM
1/15/2012



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bullet injuries

Search

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[Scholar Preferences](#)
[Scholar Help](#)

Scholar [All articles](#) - [Recent articles](#)

Results 1 - 10 of about 11,100 for [bullet injuries](#). (0.10 seconds)

All Results

[M Levy](#)

[R Waters](#)

[E Degiannis](#)

[R Saadia](#)

[D Yashon](#)

[Prognosis and management of spinal cord and cauda equina **bullet injuries** in sixty-five civilians.](#)

D Yashon, JA Jane, RJ White - J Neurosurg, 1970 - [ncbi.nlm.nih.gov](#)

Prognosis and management of spinal cord and cauda equina **bullet injuries** in sixty-five civilians. Yashon D, Jane JA, White RJ. MeSH ...

[Cited by 21](#) - [Related Articles](#) - [Web Search](#)

[... profiles in spinal cord **injuries** and risk factors influencing recovery after penetrating **injuries** - all 4 versions »](#)

GC Velmahos, E Degiannis, K Hart, I Souter, R ... - Journal of Trauma-Injury Infection and Critical Care, 1995 - [jtrauma.com](#)

... The ongoing violence in our society has given penetrating wounds the first place in adult mortality, with a clear predominance of **bullet injuries** over stabs. ...

[Cited by 22](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)

[Plastic **bullet injuries** in Northern Ireland: experiences during a week of civil disturbance. - all 3 versions »](#)

JA Steele, SJ McBride, J Kelly, CH Dearden, LG ... - J Trauma, 1999 - [ncbi.nlm.nih.gov](#)

Click here to read Plastic **bullet injuries** in Northern Ireland: experiences during a week of civil disturbance. Steele JA, McBride ...



PLAN

Problem of Plenty on Net

Without a proper plan, you would be lost in the sea of Information

Therefore, have a PLAN

- Choose the most appropriate **place** to look
- Develop an effective **search strategy**
- Carry out the **search**
- Critically **evaluate** the results obtained

Appropriate Place?



Appropriate Place?

Will depend on what you are looking for !!!

- Data
 - WHO/ICMR/Govt of India/Planning commission/
- Journal References
 - Databases: PubMed / Medline/IndMED/ Scholar Google
- Full Text Articles
 - Free Open Access: Pubmed Central
 - Fee Based – From Libraries.
- Best Practices / Evidence Based Medicine
 - Cochrane Library

Interactive Pages

- Web 1.0 technology (static information)
 - www.uptodate.com
Peer reviewed evidence based resource
- Web 2.0 technology (dynamic information)
 - Wikis
 - Blogs
 - Podcasts/YouTube
 - Social bookmarking
 - Mobile web

Wikipedia: Is It Reliable for Medical Literature?

Infant mortality - Wikipedia, the free encyclopedia - Windows Internet Explorer

http://en.wikipedia.org/wiki/Infant_mortality

Wikipedia, the free encyclopedia

Article Talk

Read Edit View history Search

Log in / create account

Infant mortality

From Wikipedia, the free encyclopedia

It has been suggested that *Perinatal mortality* be merged into this article or section. (Discuss) Proposed since September 2009.

This article has multiple issues. Please help improve it or discuss these issues on the talk page.

- It needs additional citations for verification. Tagged since February 2009.
- It may require cleanup to meet Wikipedia's quality standards. Tagged since February 2009.
- It needs attention from an expert on the subject. Tagged since February 2009.

Infant mortality is defined as the number of *infant* deaths (one year of age or younger) per 1000 live births. Traditionally, the most common cause worldwide was *dehydration* from *diarrhea*. However, the spreading information about *Oral Re-hydration Solution* (a mixture of salts, sugar, and water) to mothers around the world has decreased the rate of children dying from dehydration. Currently, the most common cause is *pneumonia*. Other causes of infant mortality include: malnutrition, malaria, *congenital malformation*, infection and SIDS.

Infanticide, child abuse, child abandonment, and neglect also contribute to a lesser extent.^[*citation needed*] Related statistical categories:

- Perinatal mortality* only includes deaths between the foetal viability (22 weeks gestation) and the end of the 7th day after delivery.
- Neonatal mortality* only includes deaths in the first 28 days of life.
- Postneonatal mortality* only includes deaths after 28 days of life but before one year.
- Child mortality* includes deaths within the first five years after birth.

Contents [hide]

- Infant mortality rate
- Comparing infant mortality rates
- Infant mortality rate in war
- Global infant mortality trends
- Infant mortality rate in countries

World historical and predicted infant mortality rates per 1,000 births (1950–2050)
UN, medium variant, 2008 rev.^[2]

Years	Rate	Years	Rate
1950–1955	152	2000–2005	52

World infant mortality rates in 2008^[1]

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8:01 PM 1/15/2012

- Anybody can edit its content.
- Require constant updating and peer review

Blogs

- Written by one person or a group of contributors, focusing on a specific field
- Consist of commentary, images, videos, polls, review of journal articles, conference news etc.
- Anybody can post, unorganized, outdated can remain

Twitter

- Allows user to send messages of up to 140 characters to 'followers'. Problem of user fatigue.

These are as good as the person who is moderating the content

MedicalStudent.com

The screenshot shows a Windows Internet Explorer browser window displaying the MedicalStudent.com website. The browser's address bar shows the URL <http://www.medicalstudent.com/#Handheld>. The page features a red header with the MedicalStudent.com logo and tagline: "A digital library of authoritative medical information for all students of medicine. Curated by Michael P. D'Alessandro, M.D." Below the header, a navigation menu lists categories: Search, Learn, Communicate, and About Us. The Search section is expanded, showing links to SearchingMed.com and SearchingPediatrics.com. The bottom of the page includes a search bar and the logos for SearchingMed.com and SearchingPediatrics.com. The Windows taskbar at the bottom shows the system tray with the date and time: 10:17 AM, 1/15/2012.

Medical Student | Medical Education | Medical Textbook | Medical School | - MedicalStudent.com - Windows Internet Explorer

http://www.medicalstudent.com/#Handheld

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www.facebook.com Search 13°C f e y 268 Music Games CB

Favorites Suggested Sites Web Slice Gallery

Medical Student | Medi... Dalhousie Medicine Hand...

Page Safety Tools

MedicalStudent.com™
A digital library of authoritative medical information for all students of medicine
Curated by Michael P. D'Alessandro, M.D.

MedicalStudent.com: A digital library of authoritative medical information for the medical student and all students of medicine

- **Search**
 - [SearchingMed.com](#)
 - [SearchingPediatrics.com](#)
- **Learn**
 - [Medical Textbooks](#)
 - [Case Studies and Patient Simulations](#)
 - [Journals and MEDLINE](#)
 - [Professional Societies and Organizations](#)
 - [Handheld Computer Resources](#)
 - [Patient Education](#)
- **Communicate**
 - [Pediatric Commons](#) f t n
- **About Us**
 - [Contact Us](#)

Search

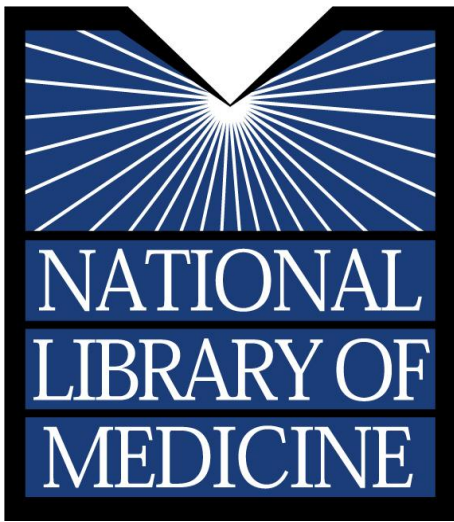
SearchingMed.com™
[SearchingMed.com](#) - Medical peer-reviewed information

SearchingPediatrics.com™
[SearchingPediatrics.com](#) - Pediatric peer-reviewed information

Internet | Protected Mode: Off 100%

10:17 AM
1/15/2012

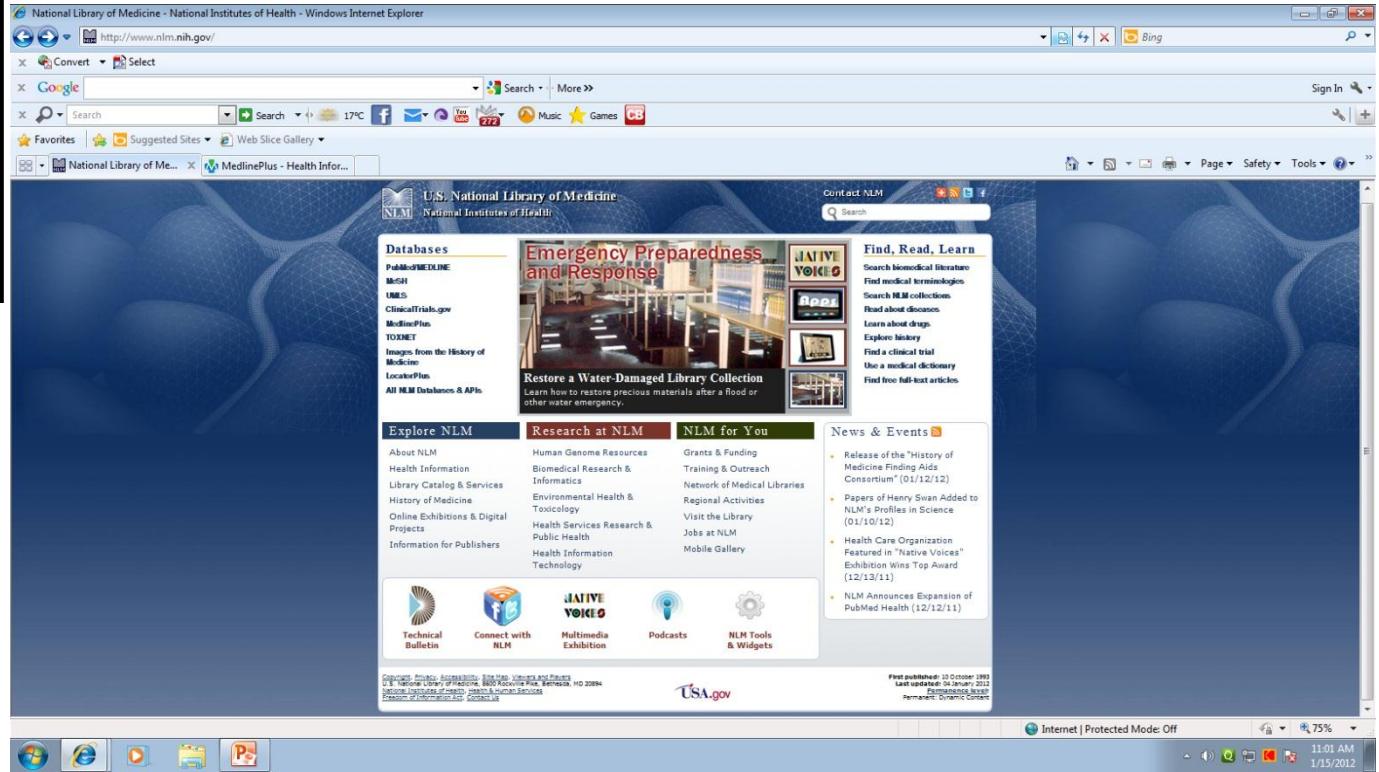
A digital library of authoritative medical information for the medical student and all students of medicine



National Library of Medicine

www.nlm.nih.gov

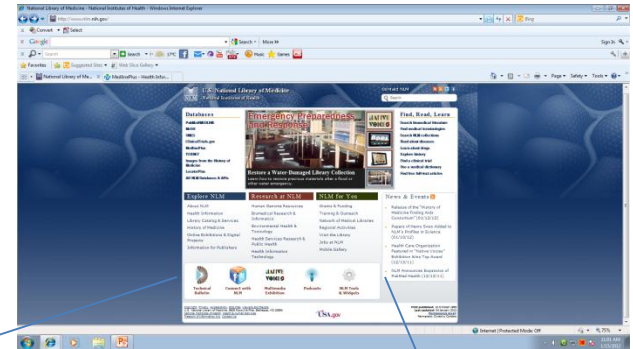
The best
electronic
medical library
in the world



It gives you access to the most important research and links to thousands of sites, sending you around the globe for the best information in a matter of seconds.

www.nlm.gov

Most Important Features are at the Bottom



Projects

Information for Publishers

Health Services Research & Public Health
Health Information Technology

Jobs at NLM
Mobile Gallery



Technical Bulletin



Connect with NLM



Multimedia Exhibition



Podcasts



NLM Tools & Widgets

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U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894
[National Institutes of Health](#), [Health & Human Services](#)
[Freedom of Information Act](#), [Contact Us](#)



World Health Organization: www.who.int

The image shows a screenshot of the World Health Organization (WHO) website as viewed in a Windows Internet Explorer browser. The browser's address bar shows the URL <http://www.who.int/en/>. The page features the WHO logo and navigation menu with options like Health topics, Data and statistics, Media centre, Publications, Countries, Programmes and projects, and About WHO. A search bar is present with a search button and a link to advanced search. The main content area highlights a news item titled "India records one year without polio" with a sub-headline "12 January 2012 -- India was once recognized as the world's epicentre of polio. But it has now been a year since India recorded its last case in a 2-year-old girl. India's success provides a global opportunity to push for the end of polio. It is also proof that polio can be eradicated in even the most challenging environments." Below the text is a link to "Read the press release on polio-free India". On the right side, there are several quick links: "Disease outbreak news", "Emergencies and disasters", "Director-General", and "Governance". The browser's taskbar at the bottom shows the system tray with the date and time as 4:49 PM on 1/15/2012.

WHO | World Health Organization - Windows Internet Explorer

http://www.who.int/en/

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WHO | World Health Organization

عربي | 中文 | English | Français | Русский | Español

World Health Organization

Home Health topics Data and statistics Media centre Publications Countries Programmes and projects About WHO

Publications

Search Advanced search

India records one year without polio



12 January 2012 -- India was once recognized as the world's epicentre of polio. But it has now been a year since India recorded its last case in a 2-year-old girl. India's success provides a global opportunity to push for the end of polio. It is also proof that polio can be eradicated in even the most challenging environments.

[Read the press release on polio-free India](#)

-  **Disease outbreak news**
Information about disease outbreaks
-  **Emergencies and disasters**
Health action in crises
-  **Director-General**
Director-General and senior management
-  **Governance**
Constitution, Executive Board and World

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4:49 PM 1/15/2012

Hindi Version

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Census of India

Office of the Registrar General & Census Commissioner, India



Search Website Go Quick Links ABOUT US

Today is 08 December 2007

Welcome Guest!

What's New

- ▶ Uttar Pradesh Administrative Atlas (Book)
- ▶ Maharastra Administrative Atlas (Book)
- ▶ Andhra Pradesh Administrative Atlas (Book)

[more ...](#)

Population Finder

- Village
- Town / Urban Agglomeration

Enter the name of the Village/ Town/ Urban Agglomeration(UA)

Search

(or)

Select the state

Andaman & Nicobar Islan

Go

Census Data Summary

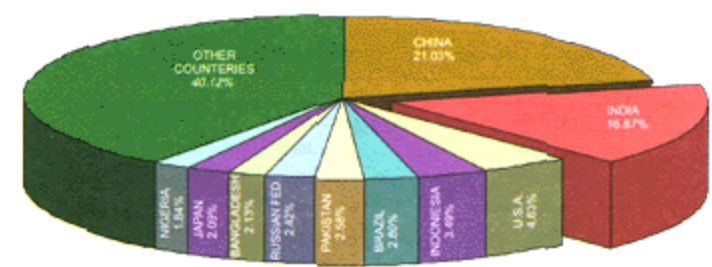
- [Census Data Online](#)
- [Maps.](#)
- [Data Products](#)
- [About Us](#)

Census Data Summary

This section covers the macro view of census statistics of India (2001) and the following are the key areas covered:

- ▶ [1. National summary data](#)
- ▶ [2. India at a glance](#)
- ▶ [3. States at a glance](#)
- ▶ [4. District profile](#)
- ▶ [5. Census data finder](#)
- ▶ [6. Projected population](#)
- ▶ [7. Meta data](#)

INDIA IN WORLD POPULATION



Source:

1. Population figures for India is as per Census 2001(Provisional)
2. Population figures for U.S.A. and Japan are as per census 2000
3. Other figures are based on World Population prospects, 1998 Revisions (vol. II), United Nations.

You can visit [Census Data Online](#) Section for more information available free in this website. You can also visit our [online shop](#) or visit any of our [offices](#) nearest to your location to buy our data.

Evaluating Your Web Search Results

Each page should be examined and the following questions answered:

1. **Who?** Who is the authoring agency or individual?
2. **What?** What is the author's credentials?
3. **Where?** Where is the author's affiliation?
4. **When?** When was the page last updated
5. **Why?** Why is the page in existence? What is the author's purpose?
6. **How?** How does the page appear?

Remember !!!

- **The Web just does not have it all.** Even the best search engine will only search what is available. Remember that the **Web is only the first tool** in your arsenal of available resources.
- **Each search engine is different.** Determine if you are using a Web directory or a search engine. See if there is an "advanced search" feature. **Read the help before you proceed.**



Scholarly Information

- References

Bibliographic Databases

- PubMed
- IndMED

Search Engine

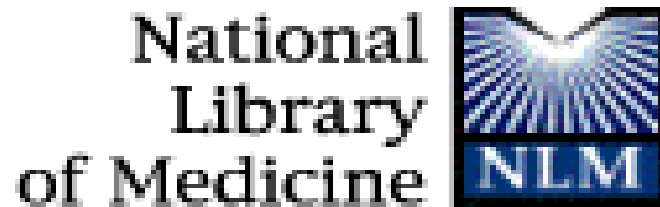
- Scholar Google



Bibliographic Databases

- **Cover Peer Reviewed Literature.** Journals are selected after quality checks.
- References along with abstracts are available sometimes links to free full text of articles.
- Require familiarization on searching.
- Knowledge of **Boolean Operators**; Medical Subject Headings (**MeSH**) and **Qualifiers** are required for advanced searching.





<http://pubmed.gov>

Includes MEDLINE® (Medical Literature Analysis and Retrieval System Online) is the U.S. National Library of Medicine's® (NLM) premier bibliographic database that contains over 16 million references to journal articles in life sciences with a concentration on biomedicine. A distinctive feature of MEDLINE is that the records are indexed with NLM's Medical Subject Headings (MeSH®).

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed

[Limits](#) [Advanced](#) [Help](#)



PubMed

PubMed comprises more than 21 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

- ### Using PubMed
- [PubMed Quick Start Guide](#)
 - [Full Text Articles](#)
 - [PubMed FAQs](#)
 - [PubMed Tutorials](#)
 - [New and Noteworthy](#)

- ### PubMed Tools
- [PubMed Mobile](#)
 - [Single Citation Matcher](#)
 - [Batch Citation Matcher](#)
 - [Clinical Queries](#)
 - [Topic-Specific Queries](#)

- ### More Resources
- [MeSH Database](#)
 - [Journals in NCBI Databases](#)
 - [Clinical Trials](#)
 - [E-Utilities](#)
 - [LinkOut](#)

<http://www.ncbi.nlm.nih.gov/>

Entrez cross-database search - Windows Internet Explorer

http://www.ncbi.nlm.nih.gov/gquery/gquery.fcgi?tool=toolbar

omim

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Entrez cross-database search

Page Safety Tools












 **NCBI**

 *Entrez, The Life Sciences Search Engine*

HOME SEARCH SITE MAP PubMed All Databases Human Genome GenBank Map Viewer BLAST

Search across databases Help

Welcome to the Entrez cross-database search page

 PubMed: biomedical literature citations and abstracts <input type="button" value="info"/>	 Books: online books <input type="button" value="info"/>
 PubMed Central: free, full text journal articles <input type="button" value="info"/>	 OMIM: online Mendelian Inheritance in Man <input type="button" value="info"/>
 Site Search: NCBI web and FTP sites <input type="button" value="info"/>	
 Nucleotide: Core subset of nucleotide sequence records <input type="button" value="info"/>	 dbGaP: genotype and phenotype <input type="button" value="info"/>
 EST: Expressed Sequence Tag records <input type="button" value="info"/>	 UniGene: gene-oriented clusters of transcript sequences <input type="button" value="info"/>
 GSS: Genome Survey Sequence records <input type="button" value="info"/>	 CDD: conserved protein domain database <input type="button" value="info"/>

Done

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150%

8:36 PM 1/15/2012

<http://www.ncbi.nlm.nih.gov/omim>

OMIM Home - Windows Internet Explorer

http://www.ncbi.nlm.nih.gov/omim

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OMIM Home

NCBI OMIM Online Mendelian Inheritance in Man Johns Hopkins University

My NCBI [Sign In] [Register]

All Databases PubMed Nucleotide Protein Genome Structure PMC OMIM

Search OMIM for Go Clear

Entrez Limits Preview/Index History Clipboard Details

- Enter one or more search terms.
- Use **Limits** to restrict your search by search field, chromosome, and other criteria.
- Use **Index** to browse terms found in OMIM records.
- Use **History** to retrieve records from previous searches, or to combine searches.

NCBI is implementing changes to help you find current content in OMIM based on resources at NCBI, and then directing you to omim.org. Please be aware that you will leave NCBI to view OMIM records. Access to full records from NCBI (e.g. web, ftp, eutils) will no longer be supported.

OMIM® - Online Mendelian Inheritance in Man®

Welcome to OMIM®, Online Mendelian Inheritance in Man®. OMIM is a comprehensive, authoritative, and timely compendium of human genes and genetic phenotypes. The full-text, referenced overviews in OMIM contain information on all known mendelian disorders and over 12,000 genes. OMIM focuses on the relationship between phenotype and genotype. It is updated daily, and the entries contain copious links to other genetics resources.

This database was initiated in the early 1960s by Dr. Victor A. McKusick as a catalog of mendelian traits and disorders, entitled Mendelian Inheritance in Man (MIM). Twelve book editions of MIM were published between 1966 and 1998. The online version, OMIM, was created in 1985 by a collaboration between the National Library of Medicine and the William H. Welch Medical Library at Johns Hopkins. It was made generally available on the internet starting in 1987. In 1995, OMIM was developed for

http://www.ncbi.nlm.nih.gov/ Internet | Protected Mode: Off 125%

8:33 PM 1/15/2012

What about Indian Research?



All International Research !!!

Coverage of Indian Journals

- Only 25 – 32 Indian Medical Journals are covered in PubMed.
- This means world Indian research does not get exposed adequately.
- No credit for good work being done in the areas dealing with local medical problem.
- **IndMED Database**: Bibliographic Database – indexes 77 Indian Biomedical Journals

www.indmed.nic.in

Welcome to IndMED - IndMED - Windows Internet Explorer

http://www.indmed.nic.in/indmed.html

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Welcome to IndMED - IndMED

Home About

IndMED

Indexing of Indian Medical Journals.

MedIND

Free Fulltext Articles of select Indian Medical Journals.

Welcome to IndMED

IndMED - database covering prominent peer reviewed Indian biomedical journals. Database designed to provide medical professionals/researchers/students and the medical library professional quick and easy access to Indian literature.

TERMS OF USE: For research purpose use only. Repackaging and copying this information in any form is strictly prohibited. The content of IndMED database is compiled from research articles published in the Indian biomedical journals. IndMED and its producers are not responsible for the information appearing / provided in these journals. You are requested to directly contact authors/publishers for any clarifications or comments/feedback.

Simple Search

Restrict to medIND (Articles available in Full Text).

Clear form Begin search And Show 20 References .

Advanced Search

Search for

AND AND

in

Any Where Any Where Any Where

Internet | Protected Mode: Off 100%

8:44 PM 1/15/2012

www.scirus.com

breastfeeding results on scirus.com, for scientific information - Windows Internet Explorer

http://www.scirus.com/srsapp/search?q=breastfeeding&xt=all&sort=0&g=s

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Google Search More >>

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SCIRUS

for scientific information only

breastfeeding

Search

Advanced search | Preferences

1-10 of 438,484 hits for **breastfeeding**

Email, Save or Export checked results

Sort by: Relevance Date

Filter search results by

Content sources

Journal sources (36,730)

- ScienceDirect (16,539)
- MEDLINE / PubMed (10,505)
- Pubmed Central (2,736)

more >

Preferred web (8,902)

- NDLTD (3,012)
- Digital Archives (2,629)
- MD Consult (1,343)

more >

Other web (392,852)

File types

- HTML (383,344)
- PDF (66,926)
- Word (2,973)

more >

Refine your search

- breastfeeding women
- lactation
- breast milk
- twitter
- african american women
- ministry of health
- sample copy
- breast feeding
- formula feeding
- focus group study

- 1. Breastfeeding** [15K]
May 2011
...Email Alerts RSS Print page Home Benefits of **breastfeeding** Getting ready How to breastfeed Stages of **breastfeeding** Question and answer index Where to get help Providing support for **breastfeeding** mothers **Breastfeeding** in public **Breastfeeding**...
[http://www.moh.govt.nz/breastfeeding]
[similar results](#)
- 2. Breastfeeding | DNPAO | CDC** [27K]
Sep 2011
...this page: About CDC.gov -- **Breastfeeding** Feature #1 - CDC Vital Signs...Report Card Feature #3 - **Breastfeeding** Interventions CDC's Division...is committed to increasing **breastfeeding** rates throughout the United...
[http://www.cdc.gov/breastfeeding/]
[similar results](#)
- 3. WHO | Breastfeeding** [19K]
Dec 2010
...int site Submit Advanced search Health topics **Breastfeeding** **Breastfeeding** is the normal way of providing young...within the first hour after birth. Exclusive **breastfeeding** is recommended up to 6 months of age, with continued...
[http://www.who.int/topics/breastfeeding/en]
[similar results](#)
- 4. Breastfeeding** [46K]
Sep 2010
...push to push? Your family **Breastfeeding** or milk powder? Bringing up...Pregnancy and family / Your family **Breastfeeding** Reviewed by Dr Stuart Crisp...paediatrician How to get started **Breastfeeding** is a personal decision for...
[http://www.netdoctor.co.uk/health_advice/facts/breastf...]
[similar results](#)
- 5. What is Breastfeeding?** [42K]
May 2010
...Tracker Exercise Tracker , and Food Diary **Breastfeeding** Information, Symptoms, Treatments...Graphics Previous | Next Definition **Breastfeeding** is giving human breast milk to infants...their nutritional needs. See also: **Breastfeeding** tips Overcoming **breastfeeding** problems...
[http://www.medhelp.org/medical-information/show/3316/B...]
[similar results](#)
- 6. What is Breastfeeding?** [96K]
Sep 2011
Breastfeeding Information, Symptoms, Treatments...Graphics Previous | Next Definition **Breastfeeding** is giving human breast milk to infants...their nutritional needs. See also: **Breastfeeding** tips Overcoming **breastfeeding** problems

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The diagram illustrates the physiological process of lactation. It shows the flow of milk from the mammary gland through the nipple and areola. Key components labeled include: milk, milk fat, milk protein, milk sugar, and milk electrolytes. The diagram also depicts the hormonal regulation of milk production, involving prolactin (Prl) and oxytocin (Oxy) from the hypothalamus and anterior pituitary gland. The process is shown in two states: 'BEFORE' and 'AFTER' a stimulus. The 'BEFORE' state shows the milk ducts contracted and milk not being released. The 'AFTER' state shows the milk ducts relaxed and milk being released through the nipple. The diagram also shows the role of the mammary gland in producing milk and the role of the hypothalamus and anterior pituitary gland in regulating the process.

So, for Scholarly Information

- **We start with Bibliographic Databases having references to journals and other scholarly literature**
- **PubMed, Scirus – International**
- **IndMED – Indian**
- **Scholar Google special in some aspects but scope not clearly defined**

Scholarly Information

Full text Journal Articles

- Most expensive library resource
- No Library can afford all the journals / Not even the core Journals of a subject
- Things can improve with “Open Access” to scholarly literature



Some Free Resources for Full Text Articles

- From Open Access Publishers
- Indian Journals online
- From Institutional / Subject Repositories





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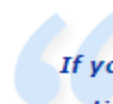
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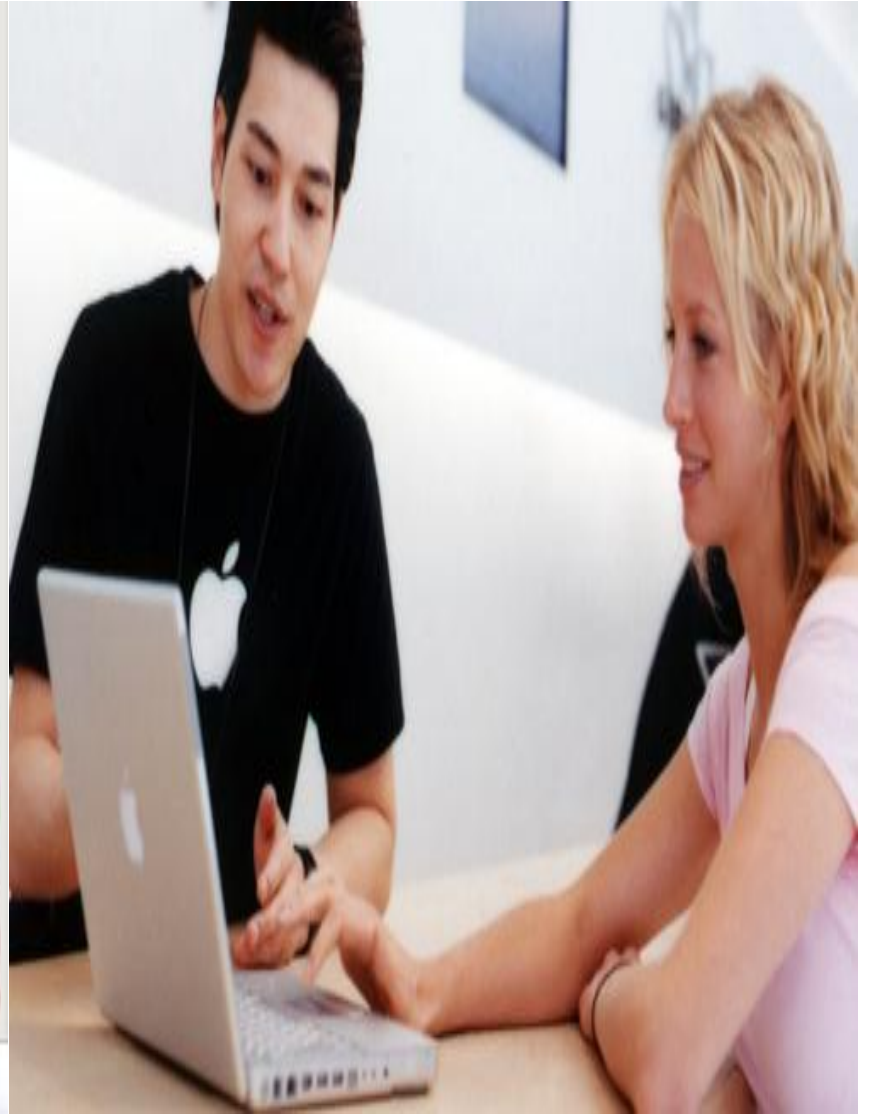
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