Your Librarians:
For personal assistance use the Ask a Health Sciences Librarian form at http://www.lib.msu.edu/health/askhslib/ OR choose from a list of current health sciences library liaisons at http://www.lib.msu.edu/health/stafflist/

Do the MSU Libraries own a particular book or journal? Select Catalog

Need to search for journal articles? Select E-Resources
Databases & Indexes: MEDLINE (PubMed, ISI, Firstsearch), Clinical Key, Web of Science (ISI Citation Databases), Cochrane Library, Global Health and a variety of other related databases. Please note: Most Electronic Resources are limited to MSU faculty, residents, staff & students.

Journals: over 8000 biomedical journals in electronic format

Electronic Textbooks: STAT!Ref, Clinical Key, AccessMedicine, AccessSurgery, the MSU Libraries’ Catalog, and other packages provide electronic access to thousands of clinical and biomedical textbooks

Off campus?
Off campus access through EZ Proxy is authenticated by MSU NetID Username & Password. Resources that have the green IP icon require authentication. Those with the globe icon do not. More information on how to get books and journal articles OFF CAMPUS

Connectivity Problems?
Call Distance Learning Services at 1-800-500-1554 or (517) 355-2345, or reachout@msu.edu 24 hours/day, 7 days/week
Selected Medical Resources
MSU Health Sciences Digital Libraries webpage: http://www.lib.msu.edu/health/

After selecting Medicine from the front page, choose from a variety of resources through the resulting links to Medical E-Books, Databases, Library Resources for Medicine, Point of Care Resources, Evidence Based Medicine (EBM) Guide, etc.

MEDLINE
This is the premier bibliographic database containing citations and author abstracts from over 4300 biomedical journals published in the U.S. and in 70 other countries. It is produced by the National Library of Medicine (NLM) and is the database of first choice for up to date clinical and biomedical research journal articles. Access is available through a variety of interfaces, including PubMed, ISI Medline, Clinical Key, and others. These interfaces are also available under the Medicine Resources webpage.

EMBASE
The European commercially produced counterpart to MEDLINE but includes indexing for an additional 1800 journals. The MSU Libraries' subscription to EMBASE also includes the MEDLINE records but redundant records between the two databases are de-duplicated and only one entry is displayed. Stronger in international and pharmaceutical sources.

Dynamed
A leading evidence based point-of-care resource with content updated daily. It contains clinically-organized summaries for over 3200 topics. Editors monitor more than 500 medical journals, evaluating articles for clinical relevance and scientific validity, and integrating new evidence with existing content and changing overall conclusions as appropriate, to create a synthesis of the best available evidence.

Essential Evidence Plus (formely InfoRetriever with InfoPOEMs)
The only database system of filtered, synopsized, evidence-based information, this integrated search engine allows you to simultaneously search, via keyword, multiple databases: EBM Guidelines, Daily POEMs, Cochrane Abstracts, Selected Practice Guidelines, Decision Support Calculators, Diagnostic Test Calculators, Derm Expert, E/M Coding, ICD-9 Lookup Tool

Cochrane Library
This is THE evidence based medicine resource. A compilation of five databases designed to provide evidence to help health care providers decide on the best treatment for a condition or disease by identifying all controlled trials of interventions for a particular condition and reviewing the results to see which work best. Entries in the Cochrane Database of Systematic Reviews back to 2000, issue 2, are cited in MEDLINE and the fulltext is only available from the Cochrane Library.

Clinical Key
A unique and comprehensive electronic collection, Clinical Key offers one-stop shopping for much medical information. It provides the full-text of over 900 well-known medical textbooks covering most of the specialty areas. It also has the full-text of over 500 medical journals, including many of the Clinics of North America. Also provided are patient education handouts, clinical practice guidelines, medical news updates for the health professional and the layperson, thousands of videos, and millions of journals.
Electronic Medical Books
The following online resources offer a variety of medical books in collections where all of the titles contained in each can be searched at once. Most of these collections are comprised of 50 or more titles. This is a useful feature when you are not sure which specific title will include the information of interest. These include:
AccessMedicine
AccessSurgery
AccessEmergencyMedicine
AccessAnesthesiology
Clinical Key
Lippincott's Clinical Choice
LWW Health Library Basic Sciences Collection
STAT!Ref
Psychiatry Online
Thieme E-Book Collection

The titles included in the above collections plus many others can also be found alphabetically arranged by specialty or subject on the Health Sciences Digital Libraries Medical E-Books page under Medicine. Here there are also tabs for First & Second Year Books and Third & Fourth Year Books.

***Please note that not all texts are available to libraries for purchase in electronic format. The MSU Libraries will add any required or recommended titles if and when they can be purchased in that format.***

To search for medical e-books by keyword, select the Advanced Catalog Search from the Health Sciences Digital Library homepage. Enter appropriate keywords to describe the topic of interest, and choose ELECTRONIC RESOURCE for the Material Type.

EBM Guide
A research guide containing Evidence Based resources available from the MSU Libraries. Resources are categorized by the different levels of research. Also contains links to tutorials and additional information.

Point of Care Resources
A one-stop location for the point of care resources available from the MSU Libraries, including DynaMed and ACP’s PIER. Also includes links to available mobile versions and instructions for installing available mobile apps.

Image and Video Resources
Medical Image resources available at http://libguides.lib.msu.edu/medicalimages

Health Sciences Video resources available at http://libguides.lib.msu.edu/healthsciencesvideos

Access to Electronic Journals
Electronic versions of many journals are available from the MSU Libraries subscriptions. These can be accessed in a number of ways: 1.) by title entered into the Find box on the A – Z Journals webpage; 2.) by a link from a database such as PubMed Medline (look for the green box Full Text) or 3.) by title via the Catalog.

HOW TO OBTAIN MATERIALS DIRECTLY FROM THE MSU LIBRARIES THAT ARE NOT ON THE WEB:

Go to http://www.lib.msu.edu/health/requests

In Grand Rapids? Follow the directions for “Outside East Lansing”. Materials will be sent to the Secchia Resource Center

In East Lansing? Follow the directions for “East Lansing”.
USMLE Prep Resources
Guide to resources available at http://libguides.lib.msu.edu/medicalboardexamprep

Patient Education

A variety of resources are available to help you educate your patients about conditions, treatments and procedures. These include:

- **MedlinePlus**, (http://www.nlm.nih.gov/medlineplus/)
- the Patient Education section of **Clinical Key** (search for Clinical Key link from E-Resources page)
- a similar section in the **TRIP** database (http://www.tripdatabase.com/)
- **Consumer Health Guide from the MSU Library**
  listed as “Consumer Health” under **Resources** menu on the Health Sciences Digital Library

Mobile Resources

The Health Sciences Digital Library **mobile site** can be accessed on mobile devices including cell phones and tablets. A **Guide to Mobile Apps for Medical Students** is also available.

A variety of resources have mobile-friendly versions available, such as:

- **PubMed** (contains abstracts only, no full text)
- **STAT!Ref**
- **Essential Evidence Plus** (You must create a FREE personal profile. Registration for a personal profile is found under the My Accounts tab on the homepage.)
- **Access Medicine** (You MUST first create a profile. Please visit the site on a non-mobile browser, select the “My Access Medicine” tab, and follow the directions for creating a personal profile.)

Standalone mobile apps are available for **DynaMed** and **STAT!Ref**.

Virtual Note Taking

The Virtual Note Taking Guide at http://libguides.lib.msu.edu/enotetaking provides resources and recommendations for using and annotating the electronic course packs.

**Additional helpful links:**

- Most library databases, including PubMed/MEDLINE, require knowledge of Boolean Operators for effective searching. Click **here** to access a Boolean Cheat Sheet (PDF).
- PubMed BASICS **handout**
- PubMed tutorials from the National Library of Medicine
- Related tutorials from the MSU Libraries Health Sciences group
- How to get needed books and journal articles from **OFF CAMPUS**

Another option if you are working at a hospital and have access to their library: Check their journal collection. If it is not in their collection, request a copy of the article through the hospital librarian. Be sure to identify yourself as an MSU affiliate.

CAVEATS:

- **ALWAYS** go through the MSU Libraries webpages to link to an electronic resource.
- From home or off-campus you will be asked for your **MSUNet ID & password**, at least once.
- If there is no Electronic Format link from a database such as PubMed/MEDLINE, always check the **A – Z Journals List** before assuming that it is not available from the MSU Libraries.
- If the platform offers the opportunity to formally **Exit or Logoff**, please do so to free up the resource for someone else.
Off Campus Faculty and Clinical Adjuncts & Residents

Need a journal article?

Look for links to full text within a literature database.

e.g. PubMed has [Full Text]

Check A-Z Title List of Electronic Journals from MSU Libraries E-Resources page for the journal title.

If the article is not available electronically, request a copy through the MSU Libraries' Illiad System. There is no charge for this service.

First time users will need to set up an account at the First Time ILLiad User page.

For Status: select Distance Program (>50 miles)

For Delivery Location: select the option closest to you, either a facility (Grand Rapids Medical Facility) or distance (>50 miles)

The article will come electronically, and you will receive notice via email.

REMEMBER: If you have privileges at a local hospital library it may be more expedient to check there first.

Need a book?

If you need a book from the MSU collection, these too may be requested through the Illiad System. Clinical adjuncts and residents may be better served by going through their local hospital library.
Boolean Operators:
Resources in Health Sciences Libraries’ Collection and on the Web

Boolean logic is named after the mathematician George Boole, who designed a system of logic to produce better search results. The Boolean operators, **AND**, **OR**, and **NOT** help you to construct a search for the computer to perform. In search logic, Boolean operators act on sets -- in bibliographic database searches, the sets are groups of records containing a particular word or concept.

The circle diagrams that help illustrate the relationships between the sets used in Boolean logic were named after another mathematician, John Venn. (The gray shading represents the outcome of the Boolean operation.)

1. **THE BOOLEAN "AND"**

When terms/concepts are combined with the **AND** operator, retrieved records must contain *all* the terms. For example: "Does taking aspirin cause Reye's Syndrome in children?"

To combine these concepts, use the Boolean operator **AND**

Aspirin **AND** Children **AND** Reye’s Syndrome

This will retrieve citations that discuss all three concepts in each article. The more concepts you **AND** together, the fewer records you will retrieve.

2. **THE BOOLEAN "OR"**

The Boolean operator **OR** allows you to broaden a concept and include synonyms. For example *kidney disease* **OR** *renal diseases* will retrieve citations using either (or both) terms.

Kidney Disease **OR** Renal Diseases

This expands your search by retrieving citations in which either or both terms appear. The more concepts or keywords you **OR** together, the more records you will retrieve.
3. THE BOOLEAN "NOT"

The final Boolean operator NOT allows you to exclude concepts not relevant to your search. For example, you could search multi-infarct dementia by using

\[
\text{Dementia } \text{NOT } \text{Alzheimer's}
\]

But be careful using this, because you would eliminate records discussing both types of dementia, as all articles discussing Alzheimer's are eliminated.

4. MIXING BOOLEAN OPERATORS -- "NESTING"

Nesting, or mixing the Boolean operators, is a way to combine several search statements into one comprehensive search statement. Use parentheses ( ) to separate keywords when you are using more than one operator and three or more keywords. The order in which the operations (AND, OR, NOT) are processed can vary between systems. Generally searches within parentheses are performed first and then the operations continue from left to right. For example, diet therapy AND (bulimia OR anorexia)

\[
\text{Diet Therapy} \quad \text{AND} \quad \left[ \text{Bulimia} \quad \text{OR} \quad \text{Anorexia} \right]
\]

This search strategy will retrieve records containing the two concepts \text{Bulimia + Diet Therapy} or the two concepts \text{Anorexia + Diet Therapy} or records that contain all three concepts \text{Bulimia + Diet Therapy + Anorexia}

If you don't put in the parentheses, the search statement is processed strictly from left to right, so that the AND is done first.

\[
\text{Diet Therapy} \quad \text{AND} \quad \text{Bulimia} \quad \text{OR} \quad \text{Anorexia}
\]

This search strategy will retrieve records containing both of the concepts \text{Diet Therapy + Bulimia} or any records with the concept \text{Anorexia}. 
MeSH Database
Articles are indexed using a powerful vocabulary, called Medical Subject Headings (MeSH). The MeSH Database provides the option of identifying appropriate MeSH terms for searches.

The MeSH Database is available from the drop-down search menu and from the PubMed homepage or Advanced search page under “More Resources”. Use the MeSH database to search for a particular term or concept. If multiple items are retrieved, click on the desired term to view and select subheadings and other options. Then click on the Add to Search Builder button on the right side of the screen. When finished adding terms, click Search PubMed to complete the search.

Clinical Queries
PubMed Clinical Queries makes it easier to find articles that report applied clinical research and is accessed from the PubMed homepage or the Advanced Search “More Resources” tab. Enter a search term and click the Search button.

PubMed Clinical Queries

<table>
<thead>
<tr>
<th>Clinical Study Categories</th>
<th>Systematic Reviews</th>
<th>Medical Genetics</th>
</tr>
</thead>
</table>

Clinical Study Categories displays results by clinical study category (etiology, diagnosis, therapy, prognosis and guidelines) and scope (narrow or broad). The categories of the results may be changed by using the drop-down menus.

Systematic Reviews displays systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.

Medical Genetics displays citations related to various topics in medical genetics. After entering search terms, choose one of the topics available or select “All.”

Printing, E-mailing, Downloading Results
After selecting your citations (i.e. from checked boxes or Clipboard), select a format from Display Settings and print directly from the browser.

Alternatively, select from the Send To menu. File offers format and sort options before saving the downloadable file. E-mail offers several options and asks for an email address. Citation Manager provides a file in the MEDLINE format for download to citation management software.

My NCBI
PubMed’s My NCBI feature stores both citations and search strategies and provides automatic e-mail updates of stored searches. Register for My NCBI by creating a User Name and Password. Click Manage Filters to select or create up to fifteen pre-formatted search filters.

Accessing Full-Text
Many PubMed citations have links to the full-text of articles through PubMed Central (a free digital archive of life sciences journal literature), through your library’s electronic and print holdings.

Look for the Full Text OR check the A-Z Journal list on the MSU Libraries E-Resources page @ http://er.lib.msu.edu

The National Network of Libraries of Medicine® (NN/LM), an outreach program of NLM™, provides assistance and training nationwide. To find a local library, please call 800-338-7657 or go to http://nnlm.gov/members

Funded under contract awarded by the DHHS, NIH, National Library of Medicine, and developed and updated by the NN/LM staff. This resource is freely available at: http://nnlm.gov/training/resources/pmtri.pdf. Revised: May 2012

PubMed BASICS
ALWAYS access PubMed through the MSU Libraries E-Resources @ http://er.lib.msu.edu/ OR the MSU Health Sciences Digital Library @ www.lib.msu.edu/health

PubMed Content
- MEDLINE®, NLM’s database of over 19 million citations of articles published in biomedical and related journals which have been fully indexed
- In-process citations that have not yet been analyzed and indexed for MEDLINE
- Publisher supplied citations that will be analyzed to receive full indexing for MEDLINE if they are biomedical in nature

PubMed Features
- Sophisticated search capabilities, including spell checker, advanced search builder, and special tools for searching clinical topics
- Assistance in finding search terms using the MeSH (Medical Subject Heading Database), a guide to MEDLINE’s controlled vocabulary
- Ability to store citation collections and to receive email updates for saved searches using PubMed’s My NCBI
- Links to full-text articles, to information about library holdings, and to other NLM databases
- Links to other NLM search systems, such as ClinicalTrials.gov® , MedlinePlus®, NIH Clinical Alerts and Advisories, and PubMed Central

Assistance and Training
Click on Help above the search box or on PubMed Tutorials under Using PubMed on the homepage.
PubMed Searching

To search PubMed, type a word or phrase into the query box, including subject, author and/or journal. Then click on the Search button or press the Enter key. Combine search terms with connector words: “AND”, “OR” or “NOT” using upper case letters.

PubMed offers alternative searching options; for example, the auto suggest drop down menu appears when entering words and often a Titles with your search terms box is available after a search.

Search details, located in the right hand column, provides information on how PubMed ran a search. PubMed looks first for the word or phrase as a MeSH term, then for journal titles, then authors. PubMed also searches “All Fields” for the word(s). Search details shows how PubMed maps terms to MeSH headings. Changes to the search may be made in the details box; click Search to run the updated search strategy.

Limit searches by using the Filters list in the left navigation bar. Click on a term to activate or deactivate the filter. Use Choose additional filters for the full list of filters including: Text availability, Publication dates, Species (Humans or Animals), Article types, Languages, Subjects, Ages, Sex, and Journal categories. Multiple choices may be made within sections. Make selections then click the Search button.

Filters activated: published in the last 5 years Clear all

The Filters activated message appears above the search results list and limits remain in effect until removed or cleared.

Advanced

The Advanced search link provides two options to refine and focus a search: a search Builder and History. The Advanced search box always defaults to Clear and does not retain previously run searches.

PubMed Advanced Search Builder offers creation of a search using Boolean operators. Using the All Fields selection will run search terms through the Automatic Term Mapping process. A specific field may be selected from the drop-down menu to apply to the term. Show index list is available to display the search field index and the number of citations for each term in the search field. The Index display allows selection of multiple terms to “OR” together.

History tracks search statements and numbers them as links. Clicking on the numbered link provides a menu which offers the option of combining search statements into a new search with the AND, OR or NOT connectors. The search may also be run, deleted, examined in Details, or saved in My NCBI.

More Resources is a tab at the top of the page that offers additional searching quick links to the MeSH and Journals in NCBI databases, the Single Citation Matcher, and links to the pre-constructed searches of Clinical and Topic-Specific Queries.

PubMed Search Results

After clicking on the Search button, PubMed displays a list of results in Summary format. To retrieve more information about the citations, use the Display Settings menu to change the view to the Abstract or MEDLINE formats.

Related Citations

A helpful PubMed feature is the ability to find citations that are similar to those of interest. To retrieve Related Articles, click on the Related Citations link under the PMID of each citation in Summary format or select citations from the boxed list in the Abstract format.

Sensors

PubMed examines search terms for certain elements and provides a shaded area above the search results with links to one or more citations or databases.

- **Citation Sensor:** matches search terms with citation elements (e.g. blood choi 2009)
- **Gene Sensor:** checks for the symbol of a gene found in the Entrez Gene database (e.g. CFTR)
- **Sequence Sensor:** detects accession numbers of nucleotides or proteins (e.g. X62176)
- **Structure Sensor:** detects items (proteins, etc.) in the Structure database (e.g. 1R10)