Getting to Know PubMed: an Overview (2010 update)

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Editor's note: This update replaces the March 2005 practice brief "Getting to Know PubMed: An Overview."

PubMed is a free resource of the National Library of Medicine's National Center for Biotechnology Information (NCBI). Its resources and related services are used by healthcare providers and consumers the world over. This practice brief will define PubMed, describe who might want to use it and why, provide relevant Web links for further information, and give an example of how PubMed can be used in Health Information Management (HIM).

What Is PubMed?

PubMed is the premier database for health-related research. The PubMed database not only provides access to NLM's primary citation database, MEDLINE, but also includes citations to select articles and journals not included in MEDLINE and links to full-text articles in PubMed Central or on participating publishers' Web sites. For a more thorough overview of PubMed, read the Fact Sheet on the NLM web site.

Why HIM Needs PubMed

The HIM profession is evolving, and HIM professionals are playing larger roles in areas such as data management, electronic health record implementation, patient safety, clinical vocabularies, software development, and research. With these duties comes the need for timely information and greater knowledge. PubMed can support HIM professionals seeking to become experts in these areas of responsibility.

How PubMed Relates to the AHIMA Body of Knowledge

PubMed is a bibliographic database of citations and abstracts covering the entire field of medicine. PubMed's core content is clinical, although it does include articles on the healthcare industry. PubMed's database doesn't include full-text articles. Instead, PubMed provides users with links to other sources to access the full text.

The AHIMA Body of Knowledge (BoK) is a full-text database. The core content of the BoK is produced and owned by AHIMA and covers the entire spectrum of HIM issues, including legislative and regulatory matters. One way to think of the BoK is as an HIM knowledge management system. For example, the BoK includes relevant issues of the _Federal Register_, which would not always be appropriate for PubMed, as well as links to organizations and government web sites such as the Healthcare Information and Management Systems Society (HIMSS), Health Level Seven (HL7), and the Centers for Medicare and Medicaid Services (CMS).

PubMed's classification scheme is based on NLM's controlled vocabulary, Medical Subject Headings (MeSH), whereas the indexing scheme, or taxonomy, for the BoK is locally developed and organized around HIM issues. HIM professionals should consider using PubMed in conjunction with the BoK.

How to Search PubMed

Searching PubMed can be easy or complex, depending on your needs. First, identify your key concepts and enter those words in the search box. Topics, journal names, and authors can be searched alone or combined. As you type your search, automatic suggestions will appear, based on popular user queries. You can click **Turn off** to temporarily disable the auto suggest feature or permanently disable it in your My NCBI account. Unless your search topic is very narrow, a simple search will usually return numerous results. Users with more advanced needs will want to learn how to use some of the more sophisticated tools

available to PubMed searchers. Refer to the [PubMed Quick Start Guide](#) on the home page for additional details. The following tips make searching more precise:

- An asterisk (*) can be used to find all terms with a certain string of letters. For example, **vocabular*** would find both the singular and plural forms of the word vocabulary.
- Boolean operators, the words "AND," "OR," and "NOT," can be used to narrow your search. The operators are processed from left to right.
- Putting phrases between quotation marks ("…") will search the phrase rather than individual words.
- Once a particularly relevant article is found, clicking on "Related citations" (located under each citation) provides a list of similar articles.

The following options, found in the gray area above the main search box, also help when searching:

- "Limits" can be used to narrow your search in a variety of ways: specific fields in the record, age group, gender, type of study, publication date, publication language, types of articles, and database subsets.
- "Advanced Search" provides additional features to use in your search, e.g. a "Preview" button that you can click to gauge the number of results for a particular search. The Search Builder can assist in using Boolean operators. "Search History" shows the user a list of his or her searches in the past eight hours, which may be useful when conducting multiple searches.

On a search results page, you can choose how you want your results to display, including format, items per page, and sort order. You can also narrow the results of your search by using the available filters or ones you have created yourself in your NCBI account.You can send all or selected results to a file, e-mail them, or create an RSS feed or email alert to be notified when new items fitting your search criteria are added. You can also select results and send them to a clipboard, where you can store up to 500 citations which can then be manipulated in a number of ways, including sorting, e-mailing, printing, or ordering the documents.

Alternative Interfaces

If you find PubMed difficult to navigate, there are alternative interfaces available on the Internet. PubMed results are included in [Google Scholar](#) searches, so users comfortable with the Google interface may find Google Scholar more intuitive than PubMed. Students may want to point their browsers to [Hubmed](#). Citations on this site can be directly exported to citation manager software often used in writing papers (e.g., EndNote, ProCite, RefWorks, Zotero). HIM professionals who want help in organizing and focusing their searches can utilize Vivisimo searching capabilities. Vivisimo has a software solution called ClusterMed that claims to make it easier to access and find relevant information on PubMed by grouping results in a variety of ways. A free version with limited results is available for testing, and a [demonstration](#) is available on the Vivisimo web site. [Pubget](#) is another PubMed search interface particularly useful for individuals for whom quick access to full text is important. Pubget has a number of tools available, including the ability to link to your library's journal subscriptions to access articles not available for free to the general public, and the [Paperplane](#) bookmarklet, which you can add to your browser to retrieve PDF versions of articles found in your PubMed searches.

PubMed Services Commonly Used by HIM Professionals

These services are located under the heading "PubMed Tools" and "More Resources" of the main PubMed screen. The Loansome Doc feature can be found by clicking "Journals Database" and then "Order Documents" under "Related Resources."

Service and URL	Purpose	Pros and Cons of Use
[Journals Database](#)	Determines if journal is indexed in PubMed	+ Helps ensure PubMed is the correct index to use (i.e., that the journal is present)
[Single Citation Matcher](#) and [Batch Citation Matcher](#)	Searches for a single citation or batches of citations	+ Allows searching for a single citation by using full or partial publication information + Helpful when the user has only part of a

		relevant citation and wants to verify the full citation
Topic-Specific Queries	Provides a list of PubMed queries already performed, such as a query on electronic health records	+Searches for these topics has already been performed +Includes useful links to other sources of information on a particular topic
LinkOut	Links to additional online resources such as full-text publications and databases Allows publishers and libraries to provide their journal content or establish LinkOut services for their users	+ Provides list of free full-text journals under the heading "Journal Lists"
My NCBI	Provides a free storage service through PubMed registration	+Allows saved searches + Offers e-mail updates + Can use filters to group retrievals by topics
Loansome Doc	Automates the ordering of full-text articles	+ Makes it easy to get full-text articles – Must be affiliated with a registered health science library

NLM Gateway

The NLM Gateway is helpful when searching for more than journal citations. It searches across multiple databases to find resources such as books, audiovisuals, computer files, and other materials. The NLM Gateway "locker" stores search results for printing, downloading, and ordering. Lockers can be created at the NLM Gateway for no charge.

What to Do with Search Results

The search is completed and the results have been saved to the PubMed clipboard, MyNCBI, or the NLM Gateway locker. Now what? First, keep in mind that PubMed is basically an enormous index for health-related information-it does not have full-text access to all of the resources it indexes, although an increasing number of publishers have chosen to make their content publicly available via PubMed or PubMed Central. Click on the "Free Full Text" link under "Filter Your Results" to limit your list to content freely available.

Other users may want to order their journal articles from a library via the Loansome Doc feature in PubMed. Local library fees for this service vary. Registration for Loansome Doc is free; however, you must be affiliated with a participating health science library. Many academic medical centers and healthcare training sites are affiliated. The service sends the citation list to the user's specified library. You can read more information on how to find a library or register for Loansome Doc on the NLM web site. Yet another way to access articles is to download the search results and take them to a local hospital, school, or public library. Downloading can take the form of printing, sending via e-mail, or saving as a text file. See "PubMed Services Commonly Used by HIM Professionals," above, for a brief overview of Loansome Doc and other PubMed services.

Users are encouraged to take advantage of the excellent PubMed tutorial to fully understand the many features and services PubMed has to offer.

PubMed Services Less Likely to Be Used by HIM Professionals

HIM professionals are less likely to use the MeSH database or Clinical Queries database, though it is good to know about them. The MeSH database is NLM's controlled vocabulary for indexing journal articles and can be extremely useful for an advanced searcher because it can help narrow a search or point the researcher in the right direction. More can be learned about searching PubMed with MeSH, using the information and tutorials on the site. The Clinical Queries service consists of search filters directed to clinicians. It is meant to assist them in identifying articles relevant to their needs for diagnosis, therapy, etiology, or prognosis.
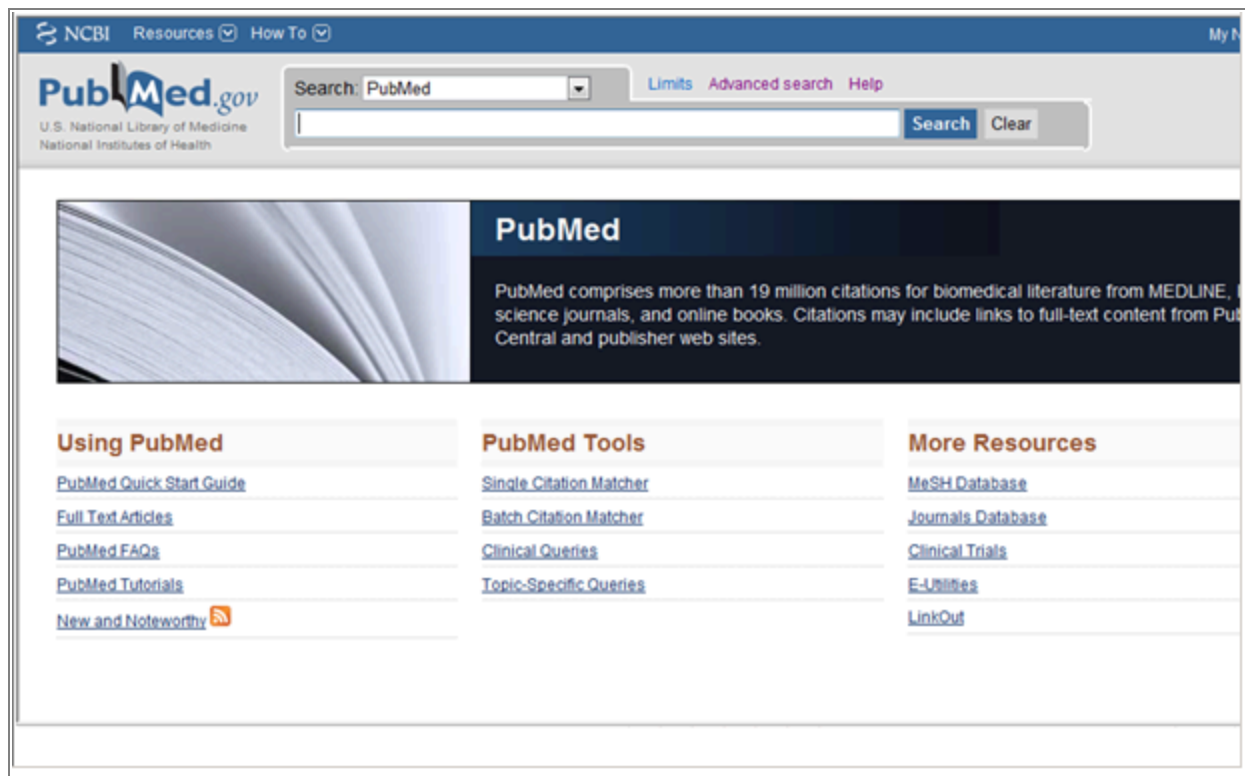
Scenario

The following scenario is an example of how HIM professionals may use PubMed in day-to-day practice.

An HIM professional serves as practice administrator for a primary care physician group. This group provides services primarily to a low-income population. Many of these patients have chronic diseases.

At a medical staff meeting, a discussion occurs about personal health records (PHRs). The group would like to explore the feasibility of low-income patients maintaining PHRs for their chronic diseases. They ask the practice administrator to gather additional information about PHRs. The administrator turns to PubMed and takes these steps to locate information on PHRs for a low-income population.

- The practice administrator goes to the PubMed Web site, which takes her to the PubMed screen pictured here. (Note: this page can be bookmarked for convenience.)

- To begin her search, she enters **low income AND "personal health records"**. Since she is interested in looking at articles she can access for free, on the right side of the results page she clicks on "Free full text" under "Filter your results" as shown here.

- After bringing up the filtered search results, the practice administrator clicks on "Free text" at the end of the first citation, and is taken to this screen where she can read or print the article.

Conclusion

There is an ever-increasing need to stay abreast of relevant information and knowledge in HIM. PubMed and the AHIMA Body of Knowledge are excellent resources for HIM professionals seeking information and knowledge to support and advance their careers.

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