

Getting to Know PubMed: an Overview

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PubMed is a public service made available by the National Library of Medicine (NLM). 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 HIM.

What Is PubMed?

PubMed (www.pubmed.gov) is the premier database for health-related research. The PubMed database not only includes access to NLM's primary citation database, MEDLINE, but it also includes citations to select articles and journals not included in MEDLINE and links to full-text articles at participating publishers' Web sites. For a more thorough overview of PubMed, go to www.nlm.nih.gov/pubs/factsheets/pubmed.html.

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 about these areas. Judicious use of PubMed to identify and access this information can support HIM professionals seeking to become experts in any of these chosen areas.

How PubMed Relates to AHIMA's BoK

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 another source to access the full text.

AHIMA's FORE Library: HIM Body of Knowledge (BoK) is a full-text database. The core content of the BoK is produced and owned by AHIMA and includes content dealing with 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 be appropriate for PubMed, as well as links to organizations such as the Healthcare Information and Management Systems Society, the Centers for Medicare and Medicaid Services, and Health Level Seven.

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

How to Search PubMed

Searching the contents of PubMed can be easy or complex. Simple search terms, including a journal name or author (if known), can be entered at the main Web site. Unless the term is very narrow, this will usually return numerous results. 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.
- Boolean operators, the words "AND," "OR," and "NOT," can be used to narrow your search. The letters must be uppercase and are processed from left to right.

- Once a particularly relevant article is found, clicking on “Related Articles” (located to the right of the citation) provides a list of other similar articles.

The following options, found in the gray area under 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.
- The “Preview/Index” module can be used to gauge the number of results for a particular search. In the “Preview” screen the search can be modified to increase or decrease the number of results as desired. There is also functionality to assist in using Boolean operators on this screen.
- “History” shows the user a list of their searches in the past eight hours, which is useful when conducting multiple searches.
- The “Clipboard” functionality is extremely valuable, as it enables the user to copy up to 500 citations to a list which can then be manipulated in a number of ways, including ordering the documents, as well as sorting, e-mailing, or printing the citations.
- The “Details” function can assist in ensuring the search strategy is correct.

Alternative Interfaces

If you find PubMed difficult to navigate, there are alternative interfaces available on the Internet. Students may want to point their browsers to www.hubmed.org. Citations on this site can be exported in a format compatible with citation manager software often used in writing papers (e.g., EndNote, ProCite). HIM professionals who want help organizing and focusing their search can go to <http://clustermed.info>. This site 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 you can also register for a free trial version.

PubMed Services Commonly Used by HIM Professionals

These services are located on the left side of the main PubMed screen under the heading “PubMed Services.” The Lonesome Doc feature is found by clicking “Order Documents” under “Related Resources.”

Service and URL	Purpose	Pros and Cons of Use
Journals Database www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=journals	Determine 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 www.ncbi.nlm.nih.gov/entrez/query/static/citmatch.html	Search for single citations or batches	+ Allows searching for a single citation using full or partial publication information + Helpful when the user has only part of a relevant citation and wants to verify the full citation
LinkOut www.ncbi.nlm.nih.gov/entrez/linkout	Link to additional online resources such as full-text publications and databases Allow publishers and libraries to provide their journal content or establish LinkOut services for their users	+ Provides list of free full-text journals under the left-hand heading “Lists”
My NCBI (formerly Cubby) www.ncbi.nlm.nih.gov/entrez/login.fcgi	Provide a free storage service through PubMed registration	+ Allows saved searches + Offers e-mail updates + Filters can group retrievals by topics

Loansome Doc www.nlm.nih.gov/loansomedoc/loansome_home.html	Automate the ordering of full-text articles	+ Makes it very easy to get full-text articles – Must be affiliated with a registered health science library
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NLM Gateway

The NLM Gateway, available at <http://gateway.nlm.nih.gov/gw/Cmd>, 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 clipboard or 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. There are publishing companies that have chosen to make their content publicly available via PubMed. Users can usually identify these citations by looking at the small icon to the left of the citation. A multi-paged icon with green or gold across the top generally indicates that the full-text version of the citation is publicly available. As of this writing, there were 571 free full-text journals listed at www.ncbi.nlm.nih.gov/entrez/journals/free_prov/free_full_prov.html. To perform a search for only free full-text journals, select PubMed Central (PMC) from the black bar menu on PubMed’s main search page.

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. Go to http://docline.gov/loansome/countries_served/search_template.cfm for a list of participating health science libraries. You may register for Loansome Doc at www.nlm.nih.gov/loansomedoc/loansome_home.html.

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](#)” for a brief overview of Loansome Doc and other PubMed services.

Users are encouraged to take advantage of the excellent tutorial at www.nlm.nih.gov/bsd/pubmed_tutorial/m1001.html to fully understand each feature and service.

PubMed Services Less Likely to be Used by HIM

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 by going to www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=mesh, where information and tutorials are available. 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 their day-to-day practice.

An HIM practitioner serves as practice administrator for a primary care physician group. One service the group frequently provides is treatment for depression, since many patients prefer to receive basic mental health services from their offices rather than a specialist.

At a medical staff meeting, a discussion occurs about the appropriateness of providing these services in the office versus making referrals to the community mental health clinic. Physicians are concerned about reimbursement, documentation, and coding for this patient group. They ask the practice administrator to gather additional information about reimbursement for depression in primary care. The first place the administrator looks is PubMed. These are the steps she takes to locate information that helps the physicians better document and code for evaluation and treatment of depression.

- The practice administrator goes to the main PubMed Web site, www.pubmed.gov. However, the practice does not have a relationship with a health science library, so the administrator selects PMC from the black bar on the main page, taking her to the PubMed Central screen pictured here. (Note: this site page can be bookmarked for convenience.)



- She leaves the “Free full-text only” and “SmartSearch” boxes checked. To begin her search she enters “depression AND reimbursement,” since she is not interested in treatment or diagnosis. Her results look like the screen shown here.



- The very first citation returned appeared to be highly relevant, so the practice administrator selects PubLink at the bottom of the citation. It takes her to this screen, from which the full text can be accessed.

The screenshot shows the PubMed Central interface. On the left is a navigation menu with links to PubMed Central, Abstract, Contents, Archive, Publisher's Site, and Full Text, free. The main content area displays the article title, authors (Richard J. Goldberg, M.D., M.S. and Thomas E. Oxman, M.D.), and their affiliations. It also includes the copyright notice (© 2004, Physicians Postgraduate Press, Inc.), the journal name (THE PRIMARY CARE COMPANION TO THE JOURNAL OF CLINICAL PSYCHIATRY), and the issue information (Prim Care Companion J Clin Psychiatry. 2004; 6(1): 21-26). The abstract is visible, starting with 'Depression is a common problem encountered in primary care practice. There are many barriers that the primary care clinician faces in managing patients with depression. Financial reimbursement is one infrequently addressed barrier that influences how care is provided. This article addresses the coding, documentation, and reimbursement issues that pertain to the treatment of depression in the primary care setting. Coding options are reviewed with specific documentation guidelines. Reimbursement and fee schedule issues are also addressed, including clarification of certain limitations on payment by some payers.' A 'FREE Full Text' button is present at the bottom of the abstract section, indicating that the full text is available at the Publisher's site.

Conclusion

There is an ever-increasing need to stay abreast of relevant information and knowledge in HIM. Both PubMed and AHIMA's BoK are excellent resources for HIM professionals seeking information and knowledge in their chosen area.

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