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Report from Educause 2012

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EDUCAUSE (<http://www.educause.edu>) is a well-known nonprofit organization that focuses on the intersection between higher education and information technology. EDUCAUSE sponsors a two and a half day national conference every year; in addition to that there are also many regional EDUCAUSE conferences across the country. Thanks to the NN/LM MCR, I was able to attend this year's national conference in Denver, Colorado in early November. This year the conference had 4,672 registered participants. Attendees

came from all over the United States and there were 49 other countries represented.

A couple of themes were heavily represented at the conference. One was that of the increasing importance of cloud computing, and another was the recent rise and incredible success of free, online, but not-for credit “MOOCs” or massively open online courses (as offered by large institutions like Stanford and MIT).

The first keynote this year was given by Clay Shirky. Shirky is currently an adjunct professor in New York University’s Interactive Telecommunications Program, and has been writing and speaking about the usefulness and revolutionizing force of online collaboration, social and distributed networks, and open-source software for many years now. Shirky’s talk touched on many topics but focused on openness and “crowdsourcing” – the practice of inviting an unlimited number of minds to the table to solve a problem. One example was a 2009 DARPA ([Defense Advanced Research Projects Agency](#)) experiment. Ten red balloon markers were placed in unannounced locations across the United States, and a large financial incentive was offered for the person or persons to first find all ten. DARPA expected the contest to run days and weeks; but a winning entry to the competition was submitted by an MIT team in under nine hours.

In addition I attended very interesting sessions on several recent trends in higher ed and medical education. The first, “flipping the classroom” is the recent practice some schools and faculty are adopting in putting lectures online in video format. The idea is that students watch the videos of the lecture prior to attending the class. Class time is then repurposed to focused discussion and Q & A, as well as labs and workshops. Early data suggests that this new method really works to increase engagement with today’s students, as well as increasing the ways and the means in which the students work actively together to learn in groups.

A second trend I learned about at EDUCAUSE was the movement in at least three medical schools to replace paper readings from the curriculum with iPads and online content. A hugely popular activity among the students is the annotation of PDFs and lecture powerpoints with software tools that are available for the iPad. Like flipping the classroom, iPads in the medical curriculum have proven to increase student engagement. Hugely popular with the students, these programs can often be run for the same amount of money or less than the previous model which centered on producing paper packets and handouts for students.

Many of the presentations were recorded, and a significant number are now freely available and accessible via the EDUCAUSE web site. These include Clay Shirky’s talk, which I can’t recommend highly enough! Recordings include the presentations as well as speaker video, and can be browsed and viewed at: <http://www.educause.edu/annual-conference/agenda-and-program/public-webcasts>.

My sincerest thanks to the NN/LM MidContinental Region for giving me the opportunity to attend EDUCAUSE 2012!



Upcoming Changes to NIH Public Access Policy

- Reporting Requirements and Related NIH Efforts to Enhance Compliance



The National Institutes of Health (NIH) [Public Access Policy](#) enables free public access to published results of NIH funded research through the PubMed Central digital archive. This archive began operating in 2000 with content from just two journals. It now contains over 1200 journals; boasts over 2.6 million articles; and, is fully linked to searches generated in PubMed.

If your institution receives NIH funding, it’s important that all parties in the research process – including librarians – understand how to comply with this policy.

The NIH [policy](#) will see changes in the spring of 2013. Since 2008, the NIH has focused much of their

attention on outreach to the grantee community. This strategy, along with the research community's shared commitment to making public the results of NIH-supported research, has resulted in a high level of compliance with the policy. However, public access is a statutory requirement and improvement in compliance is needed.

The NIH will begin to hold processing of non-competing continuation grant awards if publications arising from that award are not in compliance with the NIH public access policy. Once publications are in compliance, awards will go forward. This change will take effect in tandem with NIH requiring the use of the Research Performance Progress Report (RPPRs) for all Streamlined Non-competing Award Process (SNAP) and Fellowship awards in the spring of 2013 (see NIH guide notice [NOT-OD-12-142](#)).

For those who need a larger spoon to ingest the alphabet soup of acronyms:

- The RPPRs is an annual document describing the research accomplishments and compliance with the funding award.
- The SNAP was initiated back in 1995 to make the grant submission process easier by eliminating the number of required documents.
- Fellowship awards offered by the NIH are competitive programs that help to ensure a diverse pool of highly qualified scientists receive support to conduct research-

For more information, please visit <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-12-160.html>.

- Dana Abbey, Colorado/Health Information Literacy Coordinator



Whooo Says



Dear Whooo,

I've been reading your column for the last few years, and it has sparked some thoughts about how I and other librarians perform our work. I am a solo librarian in a hospital with little opportunity to get together with librarian colleagues, so I'd like to ask you my question.

I'm becoming concerned that I may not be providing the highest quality service to my users. I have taken several searching classes and feel pretty confident, but I'm never quite positive of the completeness and accuracy of my search results. This has made me start to evaluate the other services and materials I provide, and I wonder how this is impacting patient care in my hospital. Do you have any ideas for me?

Thanks for your help,

Wondering

Dear Wondering,

I'm so pleased that you read this column and you are expanding your thinking about how you practice. The concept you're describing is called reliability. Reliability has been defined as "the capability of a process, procedure or health service to perform its intended function in the required time under existing conditions."¹ This science has only recently been applied to healthcare; it developed out of high-risk industries such as aviation and nuclear engineering, which have great need for highly reliable operations to protect the public.

As health sciences librarians we work in an industry that is very concerned with quality of patient care. Delivering high quality of care includes worrying about developing reliable processes to eliminate problems or errors in the workflow. In a project conducted by leaders at IHI (Institute for Healthcare Improvement) and Cedars-Sinai, those leaders found that "good people, working hard, repeatedly don't register the problems that surface in their daily work as defects related to patient care."² More often, they are considered normal occurrences, and few if any staff members asked questions leading to solving or eliminating the problems.

As librarians, we should ask what our contribution to high quality care is, and what can we do to raise our level of performance? Basically what we need to do is make sure that discipline is incorporated in our performance. The following tactics will help us look at our systems and make necessary adjustments to improve the quality of what we do so that we can minimize the errors we inadvertently commit.

1. Standardize your approach; create a well-defined process for each activity you perform.
2. Build decision aids and reminders into your systems. Use checklists, flow sheets, and any other tools that will remind you to use your determined standardized approach.
3. Examine your existing habits and patterns to make sure they are effective and efficient. If possible, take advantage of those pre-existing habits and patterns. Using already established patterns and behaviors will be more effective and reduce the need for re-training.
4. Make the desired action the default rather than the exception.
5. Create redundancy. If you use redundancy strategically, you have created a filter that will decrease errors.
6. Bundle related tasks.
7. Encourage teamwork, feedback and training.

After we take a look at our systems and redesign our procedures, we need to identify mistakes as they occur. We are all human, and will make errors because of many things including fatigue, competing responsibilities, distractions, or poor task design. Identifying the error promptly, locating the cause, and making corrections without blame are crucial to creating a well-functioning system.

I hope this helps, Wondering. I think reliability is critical to the information and evidence processes we use to serve our healthcare colleagues. I hope you will consider using these steps to evaluate and restructure your practice. Please let me know what difficulties you encounter and what differences your changes bring.

Sincerely,

Whoooo

¹Resar R. Reliability. Presented at the Institute for Health Care Improvement's Beyond Impact Conference Call; May 19, 2004.

²Luther K, Resar RK. Tapping front-line knowledge. *Healthcare Executive*. 2013 Jan/Feb;28(1):84-87.



History of Medicine Collections at the University of Colorado

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The James J. Waring, M.D., History of Medicine and Health Sciences Collections of the Health Sciences Library at the University of Colorado Anschutz Medical Campus contain approximately 1700 volumes divided into two collections, a circulating collection and the Rare Materials Collection, which does not circulate. Both contain titles in medicine, nursing, pharmacy, dentistry, and biology, reflecting the history of the health sciences and the University of Colorado Denver Anschutz Medical Campus.

The Waring Collection consists of approximately 7,000 modern works on all aspects of the history of medicine and related fields, plus works on medical topics published between 1876 and 1913 that do not require the special handling of rare materials. The Waring Collection resides in the Special Collections Room, along with the Indigenous Medicine and the Medical Humanities Collections. In addition to the usual library seating, the room has comfortable chairs, natural light, and a view of the Rocky Mountains.

The Rare Materials Collection consists of nearly 10,000 volumes, plus photographs, over 150 artifacts dating



A Civil War era surgical kit from our artifacts collection

from the mid-19th century to the mid-20th century, and a few archival materials. These items, because of age, value, or rarity requiring special handling and security, are housed in a secure temperature- and humidity-controlled area adjacent to the Special Collections Room, and are available for use by appointment.

Most of the collection is printed material. Just under half are journals, which were transferred from the stacks when the library moved to the new building in 2007. The rest are 15th- through 20th-century books, mostly 19th-century. Subject strengths include tuberculosis, respiratory medicine, cardiology, and homeopathy. The collection has grown primarily by gift, especially from doctors James Waring, Gerald Webb, Charles Denison, and Florence Sabin.



Datura stramonium – Plate from Bigelow's *American Medical Botany* (1817-20)



Asclepias tuberosa – Plate from Bigelow's *American Medical Botany* (1817-20)

The oldest item in the collection is part of a Latin translation of Avicenna (1483). The collection also has the 1st (1543) and 2nd (1555) editions of Andreas Vesalius' *De Humani Corporis Fabrica*, as well as Govard Bidloo's *Anatomia Humani Corporis* (1685). Jacob Bigelow's *American Medical Botany* (1817-20) is another beautiful book, which is also important both for its subject and as an early example of printed color illustration. Other treasures include Robert Hooke's *Micrographia*, (1665) and William Withering's *An Account of the Foxglove* (1785), and first editions of Beaumont's *Experiments and Observations on the Gastric Juice* (1833), Nightingale's *Notes on Nursing* (1859), and Darwin's *On the Origin of Species* (1859).



The frontispiece from Fox's *Natural History and Diseases of the Human Teeth* (1833)



A picture of cork cells from Hooke's *Micrographia* (1665)

The library is open to the general public, as well as the university community. About half the users of rare materials are from off-campus, and items in the circulating collection can be borrowed through interlibrary loan and the Colorado/Wyoming union catalog, Prospector. If they are in good enough condition, rare materials can be photocopied or scanned for ILL, with a limit of 15 pages from any single item. All items in the circulating collection can be located through the library's catalog, as can over half of the rare collection, and more items are cataloged as time permits. Artifacts are listed on the library's web site (<http://hslibrary.ucdenver.edu/>), with pictures in the library's new digital repository, and the photograph collection is being added to the repository in a digitization project.



Internet Access via iPads for Community Based Organization Outreach

Three community based organizations are currently partnering with the National Network of Libraries of Medicine, MidContinental Region (NN/LM MCR) to support access to relevant health information resources for their users. The NN/LM MCR provided each of these organizations with an Apple iPad with a cellular data plan. This allows the organizations to have Internet access where they normally would not during their outreach activities. Additionally, participants have received training on health information resources from the National Library of Medicine and on the use of the iPad.

Participating Organizations:

Servicios de La Raza – Colorado	http://serviciosdelaraza.org/ Provides basic services for at risk members of their community with services ranging from academic support for youth through counseling for individuals living with HIV/AIDS.
Healthy Baby Program – Missouri	http://www.gocolumbiamo.com/Health/HumanServices/Programs/Social_Service/socserv.php A program of the Columbia/Boone County Department of Public Health and Human Services. Provides in home visits to new mothers.
HealthStreet – Missouri	http://icts.wustl.edu/cores/community.aspx A collaboration between the Center for

	<p>Community-Based Research at the Washington University Institute of Clinical and Translational Sciences and the Epidemiology and Prevention Research Group.</p> <p>Provides residents with opportunities to learn about medical research, register in research studies, obtain free testing for sexually transmitted diseases, and learn about and apply for jobs.</p>	
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Servicios de La Raza has used the iPad at community fairs to demonstrate HIV/AIDS social media sites and STD prevention/educational resources, including the services found on their web site. They were also able to show clients where the nearest HIV testing sites were located. The Healthy Baby program has been successful during home visits by providing education on immunization for at risk pregnant and parenting women. HealthStreet community health workers have been able to use the iPads to help neighborhood residents learn more about their personal health concerns.

Each organization reported that they like having access to the Internet and that the iPad is easy to use once they learned to use some of the more common applications. We are very encouraged by these initial reports and look forward to hearing more about how these community based organizations use mobile technology and access to the Internet to improve their services. We will report again in the Plains to Peaks Post when the project comes to an end in April 2013. If you come across one of these organizations at an outreach event, please be sure to introduce yourself and learn more about what they do.

- John Bramble – Utah/Technology Coordinator



Are You EHR Ready?

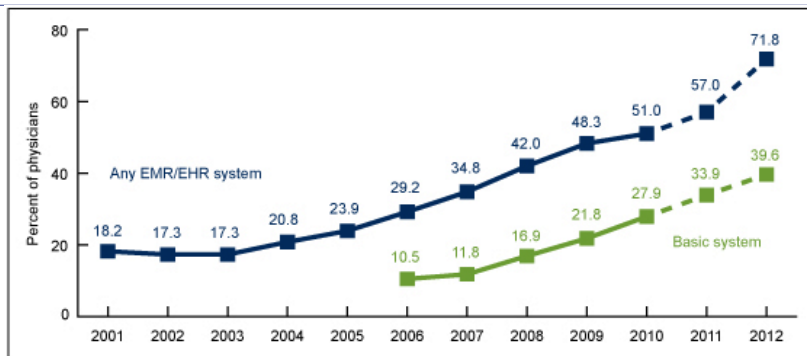
Resources for Electronic Health Records

The use of Electronic Health Record (EHR) systems in the United States has been growing dramatically in the last few years, primarily due to the Health Information Technology for Economic and Clinical Health (HITECH) Act and the Centers for Medicare & Medicaid Services (CMS) incentive programs.

Under the HITECH Act, eligible health care professionals and hospitals can qualify for CMS incentive payments when they adopt certified EHR technology and use it in a meaningful way. What is considered “meaningful use” is evolving in three stages:

- **Stage 1 (which began in 2011 and remains the starting point for all providers):** “meaningful use” consists of transferring data to EHRs and being able to share information, including electronic copies and visit summaries for patients.
- **Stage 2 (to be implemented in 2014):** “meaningful use” includes new standards such as online access for patients to their health information, and electronic health information exchange between providers.
- **Stage 3 (expected to be implemented in 2016):** “meaningful use” includes demonstrating that the quality of health care has been improved.

A new study, reporting on recent data from the National Electronic Health Records Survey (affiliated with the National Ambulatory Medical Care Survey) illustrates the high rate of growth in EHR usage. According to the National Center for Health Statistics (NCHS) Data Brief, 72% of office-based physicians used EHR systems, up from 48% in 2009. 39.6% of office-based physicians reported having a system that met the criteria for a basic system, up from 22% in 2009.¹



A basic EHR allows for the collection of patient demographic data, problem lists, physician clinical notes, medication and allergy lists, computerized prescription orders, and the ability to view lab results and radiography images. Only basic EHR systems have the potential to be certified by the Office of the National Coordinator (ONC), a requirement if providers wish to apply for CMS meaningful use incentives.

Regarding meaningful use, the study showed that 66% of physicians intended to participate in the CMS incentive program. Of that group, 27% had computerized systems with capabilities to support 13 of the Stage 1 Core Set objectives for meaningful use.

Another study, a 2012 reader poll by EHRIntelligence.com, also found EHR use high among inpatient care organizations.² More than 86% of hospital respondents indicated they were using an EHR system. And those not currently using a system have planned to implement one shortly, with a majority (66.6%) indicating that their hospital would be up and running within the next year. Of all the hospitals surveyed, 72.4% specified that their EHR systems were certified for meaningful use.

CMS recently released the final rule for meaningful use **Stage 2** which intends to increase health information exchange between providers and promote patient engagement by giving patients secure online access to their health information. Stage 2 also replaces the previous Stage 1 objectives to provide electronic copies of health information or discharge instructions to objectives that allow patients to access their health information online. Patients often require assistance in interpreting lab results or finding additional information about a diagnosis. This provides a unique opportunity for the medical librarian to become actively involved in the implementation of evidence based medicine into the EHR and to promote MedlinePlus Connect to link patient portals and electronic health record systems to MedlinePlus.

Medical librarians have the skills and knowledge to address issues impacting meaningful use and can be valuable partners as institutions continue to strive to meet the next stage's requirements. We have expertise in the support of clinical decisions procedures, evidence based practices, and standardizations, including data exchange and authority controlled vocabulary, all necessary elements for the interoperability of the EHR.

Funded by the ONC, the HealthIT Workforce Development Program was created to train a new workforce of skilled health IT professionals who will be able to help providers implement electronic health records and achieve meaningful use. One of the components of the program provided grants to community colleges to rapidly create health IT academic programs or expand existing health IT training programs that can be completed in six months or less. One of our regional goals is to support the appropriate personnel at community college HIT institutions to integrate evidence based medicine and consumer health information into their program offerings by promoting MedlinePlus and MedlinePlus Connect.

As EHRs are becoming an integral part of providing quality health care, it is essential for medical librarians to be knowledgeable about various aspects of the EHR and be able to provide resources and information to both medical professionals and health consumers. Further information on the [HITECH Act and EHRs](#) may be found on our MCR web site.

Free Online Resources for Electronic Health Records

Office of the National Coordinator for Health Information
Technology (ONC)

<http://www.healthit.gov/>

The ONC site is designed as a “resource for the entire health system to support the adoption of health information technology and the promotion of nationwide health information exchange to improve health care.” It covers all aspects of HIT and EHRs and includes funding opportunities for community colleges and career training programs, descriptions of current HITECH adoption programs in action, HIE awards and programs by state, and current news about policies, regulations and meaningful use.

HealthIt.gov provides in-depth information on EHRs with separate sections for medical professionals, patients, and policy makers. The site is easy to navigate to find the desired information and is presented in an understandable and interesting manner. The section for Patients & Families is an excellent consumer resource, providing a basic introduction to both Health IT and EHRs.

The Official Web Site for the Medicare and Medicaid Electronic Health Records (EHR) Incentive Programs

<https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html>

This site focuses on medical professionals and provides an introduction to the Medicare and Medicaid incentive payment programs, guides for registration and the certification of meaningful use for eligible professionals, hospitals, and critical access hospitals; plus links to the appropriate application sites, Stage 1 and 2 meaningful use specification sheets, clinical quality measures, and many additional resources for clinicians and hospitals participating in the incentive program.

MedlinePlus Connect

<http://www.nlm.nih.gov/medlineplus/connect/overview.html>

MedlinePlus Connect: Technical Information

<http://www.nlm.nih.gov/medlineplus/connect/technical.html>

HealthIT Buzz – The Latest on Health Information Technology from the ONC

<http://www.healthit.gov/buzz-blog/>

Information Week Healthcare

<http://www.informationweek.com/healthcare>

A newsletter designed for IT professionals, the healthcare section focuses on the business aspects of health IT, including electronic medical records, clinical information systems, computerized physician order entry, security, privacy issues, and other industry concerns.

AHIMA

<http://www.ahima.org/>

The American Health Information Management Association (AHIMA) is the association of health information management (HIM) professionals. This site provides information on certification for Health Informatics and Information Management professionals and lists accredited degree programs. The resources section provides quality information on all aspects of health information management.

HIMSS

<http://www.himss.org/>

Healthcare Information and Management Systems Society focuses on providing global leadership for the optimal use of information technology (IT) and management systems for the betterment of healthcare. They produce several e-newsletters including [Healthcare IT](#)

[News](#) and [Government Health IT News](#), and provide information on all major topics related to health IT.

NLM Tools for EHR Certification and Meaningful Use

http://www.nlm.nih.gov/healthit/meaningful_use.html

The National Library of Medicine provides free access to vocabulary standards, applications, and related tools that can be used to meet US EHR certification criteria and to achieve meaningful use of EHRs. The following are resources either created by or supported by NLM that can be used for providing patient-specific education materials, e-prescribing, and creating, exchanging, and interpreting standardized lists of problems, medications, and test results.

Value Set Authority Center (VSAC)

VSAC will be the official repository for Value Sets that support 2014 Meaningful Use Clinical Quality Measures (CQMs). The VSAC will provide Certified EHR implementers the ability to search for and retrieve these value sets both through a graphical user interface as well as the application programming interface that can be implemented into an automated system. The VSAC provides downloadable access to all official versions of vocabulary value sets contained in clinical quality measures that support Meaningful Use Stage 2

RxNorm

RxNorm is designated as the vocabulary for medications. RxNorm, a standardized nomenclature for clinical drugs and drug delivery devices, is produced by the National Library of Medicine (NLM). RxNorm provides standard names for clinical drugs and links its names to many of the drug vocabularies commonly used in pharmacy management and drug interaction software, including those of First Databank, Micromedex, MediSpan, Gold Standard, and Multum. By providing links between these vocabularies, RxNorm can process messages between systems not using the same software and vocabulary.

SNOMED CT® – Systematized Nomenclature of Medicine – Clinical Terminology ®

SNOMED CT is designated as the vocabulary for medical conditions and symptoms. SNOMED CT is a comprehensive clinical terminology that is freely available to US users through NLM.

LOINC® – Logical Observation Identifiers Names and Codes

LOINC is designated as the vocabulary for reporting lab test results. LOINC provides a universal set of codes in the domain of laboratory and other clinical observations. LOINC can simplify integrating lab test results into an EHR system.

¹Hsiao CJ, Hing E. Use and characteristics of electronic health record systems among office-based physician practices: United States, 2001–2012. *NCHS Data Brief, no 111*. Hyattsville, MD: National Center for Health Statistics. 2012. Available from: <http://www.cdc.gov/nchs/data/databriefs/db111.htm>.

²Murphy, K. *Inpatient EHR Use Among Hospitals, Providers*. (2012) Retrieved December 3, 2012 from <http://ehrintelligence.com/2012/11/06/inpatient-ehr-use-among-hospitals-providers/>.



New PubMed Tricks

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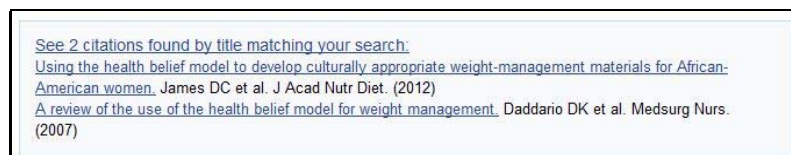


[PubMed](#) has added some great features in the past year. PubMed's three column layout now provides space for filters and useful sidebars, along with your results.

Probably the most helpful of the changes is the substitution of Filters in the left hand sidebar replacing the old Limits page. Point and click access allows users to quickly select from a wide variety of filters to focus your search results. PubMed users can select from ten different categories, each offering multiple choices.

A great new feature highlights titles that include your search terms. For example, the search **health belief model and weight management** retrieves 45 results but a helpful highlight box at the top draws your attention to 2 citations that title match

your terms:



Another search might present this information as a sidebar on the right hand side of the screen.



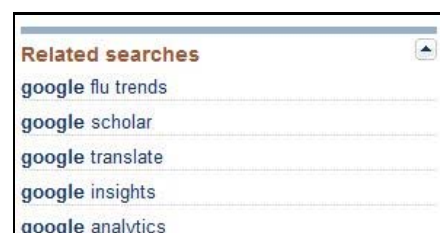
A highlight feature provides a link to gene names. Search a keyword, like **ipad**, and PubMed directs you to seven articles, information in the [Gene Database](#), and several variations for this gene name:



Search a single topic, such as **google**, and a chart of results by year will display in the right hand sidebar to provide visual illustration of research activity on the topic. Click on one of the bars in the chart to view all the results from that year. In the illustration I've clicked on the bar for 2001, the first time **google** was mentioned in a PubMed record.

Another helpful sidebar scans prior searches in PubMed and presents the most frequent topics searched that are similar to your topic in a "Related searches" sidebar.

Several new features draw your attention to content in PMC (PubMed Central). PMC is PubMed's companion open access repository for full text content. PubMed sidebars link to images in

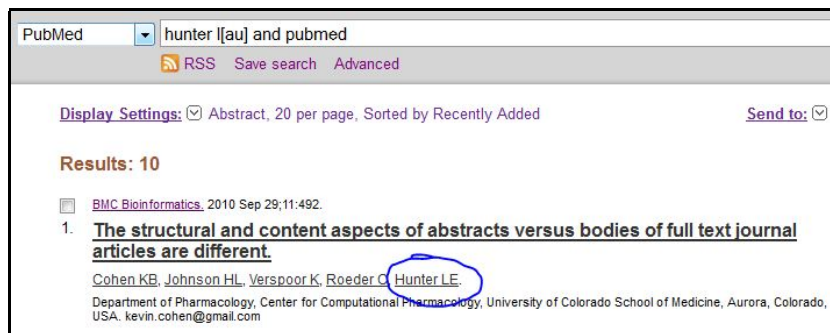


articles on your topic, or to the subset of results that are available in PMC. Although many academic libraries have subscribed access to a wide variety of journals, many PubMed users do not have this access, and find access to the growing amount of free PMC content valuable. The search for **google** retrieves over 500 images and over 600 free full text articles.

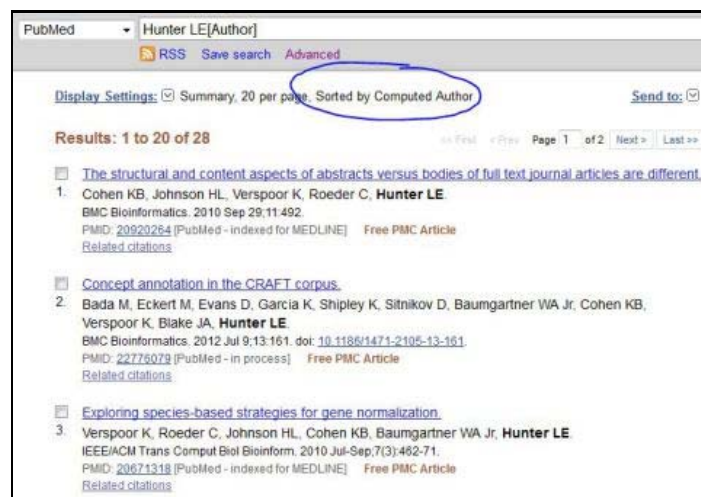


Searching for authors with common last name-initial combinations can be frustrating. But PubMed now offers a “Computed Author” feature to help better locate articles that belong to the same author. For example, searching for Anschutz Medical Campus author, Larry Hunter, can be challenging because the PubMed search for Hunter’s articles, (**hunter I[au]**), retrieves dozens of articles by several different authors. Limiting to a specific topic (**hunter I[au] and pubmed**) helps zero in on specific articles, but leaves out lots of his other work.

Now searchers can find one of Hunter’s articles, click the hyperlinked title to view the abstract, then click on “Hunter LE” or “Hunter L” in the author list. PubMed will run an algorithm to retrieve Hunter’s articles. The algorithm finds his articles based on the typical topics researched, common collaborators, and journals.



Clicking on the author’s hyperlinked name launches the algorithm, resulting in a better focused list of results. Each article has its own set of results based on the characteristics of the “parent” article.



While these features might not be useful every time you search, they are useful during different search tasks. Their efficiency may save you time and effort when searching.

The content in this article is based on an NN/LM MCR presentation “Spotlight! on NLM Resources – What’s New in PubMed?” presented by Rachel Vukas. Recording available at: <http://ow.ly/e7sKi>

Originally published on the University of Colorado Health Sciences Library Blog
<http://hslnews.wordpress.com/2012/11/13/new-pubmed-tricks/>



NIH launches LiverTox:

- a free database of drugs linked to liver injury

Prescription medications are one of many culprits leading to liver injury. In data retrieved from a national registry, researchers found that herbal and dietary supplements were implicated in 18% of liver injury cases caused, or suspected of being caused, by drugs or supplements from 2003 to 2011.

[LiverTox](#) provides up-to-date, accurate, and easily accessed information on the diagnosis, cause, frequency, patterns, and management of liver injury attributable to prescription and nonprescription medications, herbals, and dietary supplements.

The screenshot shows the LiverTox website interface. At the top, there is a header with the NLM logo and the text "LiverTox Clinical and Research Information on Drug-Induced Liver Injury". Below the header is a navigation menu with options like Home, NIDDK, NLM, SIS Home, About Us, Contact Us, and a search bar. The main content area is titled "DRUG RECORD" and "ACETAMINOPHEN". It includes a list of links for Overview, Case Report, Product Information, Chemical Formula and Structure, and Other Reference Links. Below this is a section titled "OVERVIEW Acetaminophen" with an "Introduction" paragraph: "Acetaminophen is a widely used nonprescription analgesic and antipyretic medication for mild-to-moderate pain and fever. Harmless at low doses, acetaminophen has direct hepatotoxic potential when taken as an overdose and can cause acute liver injury and death from acute liver failure. Even in therapeutic doses, acetaminophen can cause transient serum aminotransferase elevations."

Sample results page for LiverTox

[LiverTox](#) also includes a case registry that will enable scientific analysis and better characterization of the clinical patterns of liver injury. The LiverTox web site provides a comprehensive resource for physicians and their patients, and for clinical academicians and researchers who specialize in drug induced hepatotoxicity.

This database is a collaboration between the National Library of Medicine and the National Institute of Diabetes and Digestive and Kidney Diseases.

- Dana Abbey, Colorado/Health Information Literacy Coordinator

