Bruce Yarwood, president and CEO of the American Health Care Association, said nursing home administrators support greater disclosure, adding, "Every time you go under a microscope like that, especially in our profession, you want to get out from under that microscope. There will be a heck of a lot of effort not to stay there."

However, administrators are concerned that because of the time it takes for inspection results to be disclosed, nursing homes that have made marked improvements still would be listed on CMS' Web site.

Louisiana Drug Utilization Review (LADUR) Education

Web-based Drug Information
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Drug Information Services

The Louisiana Drug Information Center (DIC), which became operational in 1995, is located on the first floor of the College of Pharmacy (COP) Bienville Building of the University of Louisiana at Monroe (ULM). The operation objectives of the DIC are centered around the three core components of the University mission of service, teaching and scholarship, with a primary focus on service. These objectives are as follows:

- To provide current, comprehensive, objective and need-specific information to the healthcare professional community of the State of Louisiana for clinical decision making and for the delivery of quality patient care.
- To serve as an information resource center for faculty, students, and healthcare professionals.
- To teach pharmacy students, pharmacists, and other healthcare providers the skills of efficient literature retrieval, critical evaluation of the information, and accurate communication of a response.
- To conduct research for the advancement of drug information and pharmacy practice.

Service

The service component makes up the largest portion of the DIC operation and includes providing assistance with areas such as literature retrieval, evidence-based advice and off-label use of medications. We respond to drug information requests from healthcare professionals regarding the following areas:

Adverse Drug Events
Availability of Products
Complimentary and Alternative Medicine
Clinical Kinetics
Drug Dosage and Scheduling
Drug Identification
Drug Interactions
Drug Regulations/Laws
Drug Use Evaluation Support
Institutional Review Board Support
Investigational/Foreign Drugs
IV Compatibility Laboratory Related Inquiries
Pharmacoeconomics
Pharmacy and Therapeutics Committee Support
Pregnancy and Lactation
Product Compounding
Therapeutic Drug Monitoring
Therapeutic Uses/Drugs of Choice
Toxicology Questions
Travel/Health Information

Teaching

The Clinical Coordinator for Drug Information Services is responsible for teaching and coordinating the Drug Information Retrieval and Evaluation course which is required in the 1st year of the ULM pharmacy curriculum. During their 4th year, Pharm. D. candidates have the opportunity to gain experience in serving as drug information specialists during the experiential rotation offered at the DIC. Continuing education opportunities presented by the DIC clinical coordinator are offered in programs such as the ULM COP Preceptor Training Conference which is held in various areas of the State. Additionally, the DIC contributes authorship for drug utilization review education articles in the Louisiana Medicaid Provider Update and assists with the creation of disease management brochures for Medicaid recipients and providers.

Currently, the DIC has a new phone number and a healthcare provider-focused service for the State of Louisiana. As of September 2007, the DIC provides information services exclusively to healthcare professionals. Additionally, this service is available to Medicaid providers through support from the Louisiana Medicaid Pharmacy Benefits Management Program.

The new phone number for Healthcare Professionals Drug Information Service is 318-342-5501.

History and Impact of the Internet

In 1962 J.C.R. Licklider of MIT proposed a global network of computers that would apply visionary thinking of the time to identify the potential value in allowing computers to share information on research and development in scientific and military fields. Over the following two decades, the progressive developments and advances in the core structure of the Internet followed by the application of graphical type browsers created by Netscape and Internet Explorer by Microsoft led to the advent of widespread commercial applications of the Internet by the early 1990's. Upon initial funding by the U.S. Government there was only limited use by computer experts, engineers, scientists, and librarians. The Internet has since progressed into a global network that serves as a ubiquitous and useful information management tool that is particularly valuable to healthcare professionals.

During the last 15 years the Internet has expanded from a relatively small network that allowed exchange of information among academic, government and military officials to a global infrastructure that has radically altered the way in which people exchange information. It allows quick access to health information in unprecedented volume, as currently over 100,000 health system websites are available. Healthcare information management has been changed dramatically by the Internet's ability to rapidly disseminate vast amounts of information and instantaneously facilitate the exchange of ideas relative to health management.

Internet Searching

As vast as the Internet has become, locating relevant information efficiently is often like trying to find a needle in a haystack. Just a simple "Google®" search for the word 'hypertension' may yield almost 20 million results. Each of the many search engines that are available utilizes different methods of indexing and means of conducting searches. It is important to know the unique indexing methods each search engine uses in order to effectively conduct a search. Here are some general searching tips to help narrow the results yielded using internet search engines:

- Enter as many precise search terms or phrases (if allowed) as possible in order to limit the search.
- Enter singular terms.
- Enter multiple spellings when appropriate.
- Use appropriate Boolean Terms:
    - 'And' -gives you sites with both search words
    - 'Or' -gives you sites that have either one of the search words or both
    - 'Not' -gives you sites that have one search word, but not the other.
- Use quotation marks around phrases to form search "strings", which will find all words in the "string" in the order typed.
- Type your key search terms in lower case letters.
- Use synonyms to broaden your search.
- Truncated words followed by an asterisk '*' often will broaden your search to include the truncated word (such as child*) as well as other words with the same root, but with different endings.
- To quickly locate material within a given webpage, use the keyboard shortcut Ctrl + F, and type in the search term.

Finding Journal Articles

Though conducting a search may yield a large number of results as with the example above, it is important to remember that these search engines are not all inclusive. One study found that there was no one single search engine that indexed more than a third of the all internet pages. Furthermore, searching a very broad topic using general internet search engines may yield an overwhelming number of returns in spite of using tips to narrow the search. Using a search engine or database that has indexed professional medical or pharmaceutical literature can be a more efficient way to find relevant information.

Pubmed® at http://www.ncbi.nlm.nih.gov/sites/entrez/ is a free online version of MEDLINE® from the National Library of Medicine (NLM) that indexes journal articles using Medical Subject Heading (MeSH) terms. Generally, using a text word such as 'hypertension' to search on the Internet will bring up every page indexed by the search engine regardless of whether the page is relevant to the subject 'hypertension'. However, by using the MeSH term database in Pubmed® the researcher can quickly find articles that are relevant to the searched topic rather than having to sift through a vast number of results that may only mention a text word. Using Pubmed® can provide an efficient means to locate relevant information within published primary literature.

Google Scholar® at http://scholar.google.com can also be useful to narrow a search. Though it is not specific to healthcare literature, it appears to include all of the material indexed in Pubmed® without the option to search via MeSH terms.

Once relevant journal articles are located, often only the abstract is available for viewing if the researcher does not have a subscription.   Access to a full-text version of the article may be found at http://www.freemedicaljournals.com/.

Do You Believe Everything You Read?

Finding information on the Internet is only part of the challenge of research. The researcher must ensure that the information located is useful and reliable. Almost anyone can put any content on the Internet, regardless of how incomplete, misleading or inaccurate the information may be. Many sites are recognized to provide high-quality information, but concerns should arise when the researcher does not know the source of the information or the website. Here a few safeguards and methods which are available to help evaluate the overall quality of an internet resource:

- **Health on the Net (HON) Foundation** http://www.hon.ch/
  HON is a non-governmental Swiss organization whose mission is to guide medical users and medical practitioners, via the HONcode, to useful and reliable online medical and health information. The HONcode consists of eight principles that support the quality of the information for a particular site, if they are met. Sites that have obtained approval by HON will display the HONcode logo as evidence of quality.
- **American Medical Association Guidelines for Medical and Health Information On the Internet** at http://www.ama-assn.org/ama/pub/category/1905.html
- **World Health Organization (WHO)/Health Information Quality Initiatives: A review of the WHO Health supported Health Information Quality Initiatives** can be found at the Journal for Medical Internet Research at http://www.jmir.org/2001/4/e28.
- **Alexa®** is software that provides information on how other individuals evaluate a web resource; it can be found at http://www.alexa.com/site/download/.

Guidelines to Internet Site Evaluation

Evaluation of the quality and applicability of internet site content follows many of the general principles for the evaluation of healthcare literature. The essential applicable process still assesses the inherent quality of the information provided, the interpretation of that information in light of professional standards, and ultimately its applicability to specific patient needs.

Questions to Ask for Evaluating Site Quality:

Who is the author or institution?

- If the author is an individual, does the resource give biographical information? Look for educational and other credentials, institutional affiliations, job position, street address and other contact information.
- If the author is an institution, is there information provided about it? Go to the home page for the site that hosts the information and learn about the institution by extracting the first part of the URL-the part starting with http:// up to the first slash (/).
- Have you seen the author's or institution's name cited in other sources/bibliographies?
- The three-letter extension at the end of the URL for a site can provide a basis to evaluate the authority and objectivity of a source.

Extension	Description
.com	Commercial (often used for product promotion and sales); generally, regardless of their quality, they exist primarily to advertise and sell products and/or services.
.edu	Generally educational sources that range from respected research institutions to casual student sites.
.gov	Government (generally objective and dependable)
.net	Network (may provide services to commercial or individual customers)
.org	Organization (non-profit institutions, but may have biased agendas)

How current is the information?

- Is there a date on the webpage that indicates when the page was published?
- Is it clear when the page was last updated?
- Is some of the information provided obviously out-of-date?
- Does the page creator mention how frequently the information is updated?

Who owns the site?

- Site ownership including affiliations, significant investors, and significant alliances should be either clearly provided on the home page or readily and clearly accessible via a link.
- Copyright ownership of specific content should be clearly indicated on the home page.

What about viewer access, fees and privacy?

- Is there information readily available about restrictions on content access, required registration, and password protection (if applicable)?
- Is information regarding privacy readily accessible and complete?
- Information defining any payment requirements, if applicable, should be clearly stated.

Is there advertising on the site?

- Is advertising included in the site and, if so, has it had a detectable impact on the site content?

Who is the intended audience?

- Is the webpage intended for the general public, healthcare practitioners, scholars, or special interest groups? Is the intent clearly stated?
- Does the webpage meet the specific needs of its intended audience?

What is the purpose of the information provided?

- Is it to inform, explain, persuade, market a product or service, or advocate a cause?
- Is that purpose clearly defined and stated?
- Does the resource adequately fulfill the stated or implied purpose?

Is the source and content credible?

- Is the source of specific content clearly stated?
- Are the affiliations and relevant financial disclosures for authors and content producers clearly noted?
- Is reference material used to build content cited appropriately for the intended audience? Is there a description of the editorial process, and is a method of content review defined? Is there a list of staff and others (e.g. editorial board) responsible for content quality posted on the site?

Is contact information available?

- Information that provides ready contact with site principles should be readily accessible on the site's home page. Multiple contact specifics, including telephone, e-mail address, and physical address, should be identified.

Is the site content accurate and objective?

- Are there cultural, ideological, institutional, or religious biases evident in the content?
- Is the content intended to be a brief overview of the topic or an in-depth analysis?
- If the information is in the form of an opinion, is that clearly stated?
- If there is information copied from other sources, is this properly acknowledged and documented?

Does the site offer viewing guides?

- The home page should provide information, in a readily accessible location, about the platform(s) and browser(s) that permit optimal viewing.

What is the quality of navigation within the site?

- A site should not prevent a viewer from returning directly to a previous site.
- A site should not redirect the viewer to a site the viewer did not intend to visit.
- Does the site provide navigation aids such as site map or other organizational guides, a help function or frequently-asked-questions page?

Online Resources

The following online resources are among a large collection that can be found at the University of Louisiana at Monroe, College of Pharmacy resources webpage at http://rxweb.ulm.edu/pharmacy/internet.html.

Consumer Health Resources

- MedlinePlus at http://medlineplus.gov/ from the NLM and the National Institutes of Health (NIH) helps provide answers to health questions.
- The U.S. Food and Drug Administration at http://www.fda.gov provides access to latest news in drug approvals, recalls and product alerts with Medwatch and the Orange Book.
- http://www.healthfinder.gov/ is a consumer-oriented site for general health news by the Department of Health and Human Services.
- http://www.4women.gov/ is the Federal Government Source for Women's Health Information.
- The Center for Disease Control and Prevention at http://www.cdc.gov/ provides the latest information on traveler's health, emergency preparedness and vaccines.
- The NLM Directory of Health Organizations at http://dirline.nlm.nih.gov/ is a complete list of health organization resources and specialized information services.
- NIH's National Center for Complementary and Alternative Medicine at http://nccam.nih.gov/ has a mission to explore and disseminate authoritative information to the public and professionals.
- NLM's Gateway to Knowledge Resources at http://gateway.nlm.nih.gov/gw/Cmd includes a concise guide for bibliographic and consumer health resources supported by the NLM.

Healthcare Professional Resources

- MerckMedicus at http://www.merckmedicus.com/pp/us/hcp/hcp_home.jsp provides free resources to healthcare professionals such as full-text online version of textbooks including:
    - Cecil's Textbook of Medicine
    - Harrison's Practice - Answers on Demand
    - The Merck Manuals
    - The Physician's Desk Reference
- Johns Hopkins Antibiotic Guide at http://www.hopkins-abxguide.org/ offers point-of-care information technology to support clinical decisions.
- Toxnet is the NLM's Toxicology Data Network at http://toxnet.nlm.nih.gov/.
- Formerly know as DrugInfoZone, the National Electronic Library of Medicine (NeLM) at http://www.nelm.nhs.uk/home/default.aspx offers medical news and several free online references.

Evidence-Based Medicine Resources

- The Cochrane Collaboration at www.cochrane.org is a subscription-based resource that includes access to a library of systematic reviews of clinical trials for evidence-based therapy decisions.
- ACP Journal Club at www.acpjc.org summarizes and abstracts recently published studies and reviews as a solution to keep pace with important advances in medicine.
- Turning Research Into Practice (TRIP) database at http://www.tripdatabase.com offers a means to search many evidence-based resources simultaneously to find quick answers to clinical questions.
- Search for upcoming clinical trials by geographical location and specific conditions at http://clinicaltrials.gov.
- The National Guidelines Clearinghouse at www.guidelines.gov is a public resource for clinical practice guidelines.

DI News Resources

- Pharmacy OneSource at http://www.pharmacyonesource.com/ is a source for daily and weekly pharmacy and FDA reviews.
- Medical News Today at http://www.medicalnewstoday.com/ offers up-to-the minute health news that is organized in sections based on disease state or condition.

Drug Identification

Internet resources for pill identification can be found by searching the terms "drug identifier", such as commercial sites including Drugs.com and Rxlist.com. Other useful drug identification databases include:
- http://www.muschealth.com/DI/DrugIdentifier/
- http://www.ecstasydata.org/

Drugs Abuse and Addiction

Locating specialized information for psychoactive agents is often challenging when using standard tertiary resources. These resources offer information on drugs of abuse from unique perspectives.
- NIH's National Institute on Drug Abuse at http://www.nida.nih.gov/
- The Vaults of Erowid at http://www.erowid.org/

Staying Informed

Email Notifications

Many online resources provide automatic email notifications to keep up to date with the latest medical news, product recalls and publications.

- National Electronic Library of Medicine (NeLM)
  http://www.nelm.nhs.uk/home/default.aspx
- FDA Medwatch
  http://www.fda.gov/medwatch/index.html
- Pharmacy OneSource
  http://www.pharmacyonesource.com/community/
- Journal Watch
  www.jwatch.org

RSS Feeds

Several websites now offer the option of subscribing to their Really Simple Syndication (RSS) Feeds to keep current with their web content. RSS feeds are updated automatically and provide an efficient way to review the most current information without having to read the entire contents of regularly accessed webpages. Here are a few sites that offer RSS subscriptions.

- FDA http://www.fda.gov/oc/rss/
- CDC http://www2a.cdc.gov/podcasts/rss.asp
- NeLM http://www.nelm.nhs.uk/help/rsshelp.htm
- Medical News Today http://www.medicalnewstoday.com/index.php?page=newsfeed

PDA Resources -free resources available

- Epocrates
  http://www.epocrates.com/products/
- Johns Hopkins POC-IT Antibiotic Guide
  http://hopkins-abxguide.org/download_center/download_center.cfm
- Shots 2007
  http://www.immunizationed.org/
- Mobile MerckMedicus
  http://www.merckmedicus.com/pp/us/hcp/hcp_mobile_medicus.jsp
- National Guideline Clearinghouse
  http://www.guideline.gov/resources/pda.aspx
- National Heart, Lung and Blood Institute
  http://www.nhlbi.nih.gov/health/prof/other/index.htm#pda
- STAT Hypertension JNC 7
  http://www.statcoder.com/hypertension.htm
- Medical Spanish
  http://www.healthypalmpilot.com/cgi-bin/review.cgi?ID=432
- MEDLINE Database (MD) on Tap (wireless)
  http://mdot.nlm.nih.gov/proj/mdot/mdot.php
- PubMed for Handhelds (wireless)
  http://pubmedhh.nlm.nih.gov/nlm/
- TOXNET - Toxicology Data Network (wireless)
  http://toxnet.nlm.nih.gov/pda/
- ACP Bioterrorism Resource
  http://www.acponline.org/pda/bioterrorism.htm

To view a complete list of useful online resources access the ULM College of Pharmacy resources webpage at http://rxweb.ulm.edu/pharmacy/internet.html.

Please remember to take advantage of the Healthcare Professional Drug Information Service at the ULM College of Pharmacy DIC by calling 318-342-5501.