

7-1-2002

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## Recommended Citation

Shane, Jackie. "Testing Medical Sites for Reliability." *The Cyberskeptic's Guide* 7, 7 (2002): 6-7. [http://digitalrepository.unm.edu/ulls\\_fsp/2](http://digitalrepository.unm.edu/ulls_fsp/2)

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## Testing Medical Sites for Reliability

Published in The Cyberskeptic's Guide, July/August, 7 (7) 2002, pp. 6-7.

By: Jackie Shane, University of New Mexico

Thief: "I said your money or your life!"

Jack Benny: "I'm thinking, I'm thinking."

Despite the high cost of medical care and textbooks, there is enough good, free medical information on the Internet to help you avoid choosing between your money or your life. Practitioners and the lay public alike are using the Internet more than ever for continuing education, insurance administration, or simply out of general curiosity. A Harris study ([http://www.harrisinteractive.com/news/newsletters/healthnews/HI\\_HealthCareNews2002Vol2\\_Is08.pdf](http://www.harrisinteractive.com/news/newsletters/healthnews/HI_HealthCareNews2002Vol2_Is08.pdf))

recently found that that about 75% of adults using the Internet have looked for health information at some point, and that about a third of these "cyberchondriacs" would be willing to pay their doctor or health care provider for advice. No doubt, health care companies stand poised to exploit the idea of selling "information therapy," but in the meantime, there is ample good information available for free, thanks in part to government support.

Though we can expect disparate levels of quality in free medical sites, we don't necessarily have a five-star rating system greeting us as the page loads. The best way to test a site is to look for specific medical problems. In testing each site, I searched variations of the following five terms: Type II diabetes, malabsorption of fat, heart disease, gingivitis, and mammography because of what they represent in the medical literature.

Type II diabetes represents an illness with environmental, genetic, and ethnic factors. The number in the middle of the name, (II) can create problems with inflexible search engines. Malabsorption of fat is a **symptom** rather than a disease. Often a person is faced with a list of symptoms, but has no idea what is causing them. It also afforded the test of examining one area of specialty, in this case gastroenterology. Heart disease is a broad multi-faceted topic, and as the number one killer in the United States (according to the National Vital Statistics Report, 2000), it has broad appeal. Gingivitis is a gum disease. Since it is linked to hormonal fluxes it draws on both medicine and dentistry. Though gingivitis had been linked historically to pregnancy, it had not been associated with birth control pills until recently, so this helped to check sites for currency. Mammography is an example of a medical procedure. I looked at radiological and epidemiological implications to illuminate the benefits as well as the risks involved in this breast examination procedure.

Questions worth asking when evaluating medical information are:

Who are the contributing authors? Are they medical practitioners, or at least people respected in their field? Do doctors disclose affiliations with commercial companies, namely pharmaceuticals? Are articles refereed?

Who is sponsoring the infrastructure supporting the data? Check to see if the prefix in the URL is .gov or .com.

Does the portal lead you ultimately to the full text of an article, or merely to an endless loop of professional organizations?

Is there an even-handed discussion of prevention through healthy lifestyle practices, or is the remedy inevitably drugs or a medical procedure?

Is the interface designed for streamlined searching?

Is the information updated regularly, or when new research is available?

For every site included in this article, perhaps ten more were summarily eliminated because they did not satisfy the above questions. From all the sites I visited, I chose what I consider to be the best dictionary, encyclopedia, handbook, portal, and directory of other health-related web sites. Just as triage is a method for prioritizing patients' needs, the following web sites are offered as a way to sort information by migrating from general, smaller sources to larger more inclusive sources. Consider checking a medical dictionary, encyclopedia, and/or handbook first. After gleaning some background on a topic, search the journal literature through PubMed, and only then should you consider a gateway or portal. Many of the medical portals are so multi-faceted, that you may stray from your primary focus if you use them as a first point-of-contact.

#### Medical Encyclopedia

##### **A.D.A.M.'s Health Illustrated Encyclopedia**

[http://www.nlm.nih.gov/medlineplus/ency/encyclopedia\\_D-Di.htm](http://www.nlm.nih.gov/medlineplus/ency/encyclopedia_D-Di.htm)

Commissioned for MEDLINEPlus, this medical encyclopedia was created by adam.com, a company specializing in scientific writing and illustration. A.D.A.M. is a high-quality illustrated encyclopedia with over 3,800 topics and 40,000 medical illustrations, photographs, 3-D models, and interactive tools. Look up a procedure, such as mammography and you will find several illustrations of the breast anatomy, an explanation of how the x-ray machine works, and how a woman should prepare for her mammogram. Graphically, this work is captivating. The narrative is concise and informative, though conservative at times. Entries are in hypertext format, so it is easy to jump from one reference to the next. The content follows guidelines of professional medical organizations and information is based on such popular reference works, as Harrison's Principles of Internal Medicine.

#### Handbook

##### **Merck Manual of Medical Information**

[http://www.merck.com/pubs/mmanual\\_home/contents.htm](http://www.merck.com/pubs/mmanual_home/contents.htm)

The Merck Manual is a way to mine for a diagnosis by beginning with a set of symptoms. I suggest browsing the table of contents by category first, and typing a search query second. Be as focused in your search as possible. There is an overwhelming abundance of information available, despite Merck filling only one volume in the print version. My search for malabsorption and (lipid or fat) retrieved more charts and reports than I could read in a night, but browsing the table of contents under *digestive disorders*, *malabsorption syndromes* was very manageable.

#### Dictionary

##### **InteliHealth**

[www.intellihealth.com](http://www.intellihealth.com)

A good dictionary can help with your journal literature search by catching spelling errors, identifying medical terminology, and offering background information. Use this site for its link to the Merriam-Webster Medical Dictionary, and its other features will probably hook you. Sponsored by the Aetna insurance company, this site features the Harvard Business School's Consumer Health Reports, which address both diseases and healthy lifestyle maintenance. These full text reports include alternative and complimentary medicine. The *Symptom Scout* is an interactive frame that asks users questions about their symptoms and ultimately offers a

diagnosis. This is only useful for very general ailments, however, and will probably direct you to a doctor for any persistent symptoms.

## Journal Literature

### **PubMed**

**<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>**

Medline, the National Library of Medicine's journal index, covers 4,500 journals published in the United States and 70 other countries. References date back to 1966 and are arranged by MeSH (medical subject headings). PubMed provides free access to Medline, plus citations to some out-of-scope articles, primarily in general science and chemistry. This free version of Medline is actually more inclusive and easier to use than the fee-based version provided by FirstSearch. When searching Medline it is imperative to spell your terms correctly. A safe way to search is by typing in a general term and then clicking on *Index* in order to browse the MeSH. To review the potential risks involved due to radiation and false positives associated with mammograms, I selected the MeSH term "*mammography/adverse effects*" in the *MeSH major headings* field. PubMed provides the citations and abstracts. For a very limited number of journals, there is a free online archive available through *PubMedCentral*. Though journal titles are abbreviated, PubMed includes a title list for journal name abbreviations.

## Portals

### **National Library of Medicine**

**<http://www.nlm.nih.gov/>**

If you were limited to visiting one site, go to NLM. From here you can link to *MEDLINEplus*, journal indices, directories, clinical trials, news, exhibits, research programs and more.

### **MEDLINEplus**

**<http://www.nlm.nih.gov/medlineplus/>**

A good source for disease overviews, medical dictionaries, and illustrations, MEDLINEplus is the National Library of Medicine's consumer-oriented gateway. The array of information may be overwhelming, so start with *Health Topics* and browse by category. For the serious searcher, I suggest going directly to PubMed, but for easy and enjoyable reading, MEDLINEplus is a fast way to read articles rather than merely retrieve citations, and can link you back to the other NLM databases.

## Directory of Web Sites

### **Health Web**

**<http://healthweb.org/>**

The National Library of Medicine in collaboration with academic health science libraries created this site in an effort to interface non-commercial, health-based, Internet accessible web sites. Web sites are evaluated and categorized across a wide variety of topics including AIDS/HIV, Alternative Medicine, Biochemistry, Diabetes, Endocrinology, Family Practice, Mortuary Science (!), Rural Health, Sports Medicine, Veterinary Medicine, and Women's Health. There are several good sites that I omitted, such as *altmedicine.com*, primarily because they can be found from this directory.

The most common type of medical site is a directory. They are the easiest to create since they don't necessarily offer unique information, but rather find a unique way to package pre-existing sites. The strategy of taking one encyclopedia, one dictionary, one journal index, and one directory won't necessarily work for everyone's needs, but it aims to create a well-balanced package of information. If you have time for visiting only one site, the National Library of Medicine's site emerged as the most valuable in terms of quantity, variety, and quality, even when compared to some of the fee-based sites. In general, however, few sites are good at everything, so it really pays to verbalize what ails you, and to find the best advice for your needs. You can always do a Google search, but the above four-part strategy can save you a lot of filtering.

**Biography** Jackie Shane is a science librarian at the University of New Mexico, specializing in biology, electrical and computer engineering, and intellectual property.