Accessing and Evaluating the Internet for Patient and Family Education

Carolyn Crane Cutilli

In the last decade, the Internet has become a vast resource for healthcare information. Multiple Web sites, produced by the federal government, healthcare institutions, and individual healthcare providers, give Americans a wealth of useful information sources. Nurses recognize that more Americans than ever before are using the Internet and that nurses are in an excellent position to help patients learn how to search for healthcare topics and evaluate the information found. This article will focus on seeking information, judging the quality of the information, and listing specific Web sites.

Surfing the Internet is an everyday activity for many Americans. According to Nielsen/Net Rating, approximately 68.6% or two-thirds of people in the United States use the Internet (www.internetworldstats.com/america.htm). In many households, it is common to hear someone say “Do you know . . . ?” and the reply is “Go look it up on the Internet.” Many Americans are getting their healthcare information in the same manner. Once a diagnosis is known, the individual begins to “surf the net” to see what information is out there. Healthcare providers, like nurses, do the same thing. A patient arrives at a unit with an uncommon diagnosis and immediately the staff logs onto the computer to search for information.

Although many patients have acquired the skills necessary to operate the computer and enter the Internet, they do not necessarily have the skills to know how to find specific healthcare information or evaluate it. The intent of this article is to provide information for nurses to use when working with patients who desire to seek healthcare information on the Internet. This information will aid the nurse and the patient in understanding how the Internet and World Wide Web interface, searching for keywords, and examining healthcare education for quality.

Terminology

To maximize the ability to utilize the Internet for patient and family education, a review of the terminologies associated with its use is needed. From the technical aspect, the World Wide Web is a “network of information servers around the world that are connected to the Internet” (Bastable, 2003, pp. 433–434). These servers support a special type of document called a Web page, which is written using HTML (Hypertext Markup Language). Moving around from Web page to Web page is done by a Web browser; two of the most common are Microsoft Internet Explorer and Netscape Navigator. To refine the search for specific information on the World Wide Web, the user chooses a computer program such as a search directory or search engine (Google) to accomplish this task.

Most users think that the World Wide Web and the Internet refer to the same concept; however, the two are related but not the same entity. The Internet is “a huge global network of computers established to allow the transfer of information from one computer to another. Unlike the World Wide Web, which was created to display information, the Internet was created to exchange information” (Bastable, 2003, p. 434). The World Wide Web is housed in a small section of the Internet and would not exist if not for the Internet. The Internet flourished for many years before the World Wide Web was developed (Bastable, 2003). However, the development of World Wide Web and Web pages has opened the door for healthcare information at the fingertips of healthcare consumers.

Searching for and Evaluating Information

When working with patients to obtain information from the World Wide Web or Internet, the patient must be taught on how to use the Web/Internet and how to evaluate information from the Web/Internet. In Table 1, Bastable (2003) provides steps for the search and evaluation process that focus on identifying the search words for search engines and many points to consider when using a particular Web site.

In the current information age, healthcare consumers are bombarded daily with quick “information bites” through multiple media sources such as radio, TV, and computer. In this type of environment, the consumer rarely obtains all the information necessary to judge the accuracy of the content presented. When the consumer seeks healthcare education, he or she needs to understand

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that seeking accurate and useful information will require reading material from several Internet sources. Quick "information bites" will not be sufficient to understand health issues.

Health on the Net Foundation is a nongovernmental organization that focuses on evaluating health Web sites for quality and promoting ethics in web-based health information. This organization judges Web sites based on eight criteria: authority, complementarity, confidentiality, attribution, justifiability, transparency of authorship, transparency of sponsorship, and honesty in advertising and editorial policy (http://www.hon.ch/HONcode/Conduct.html). Table 2 provides a brief discussion of each of these areas that can be used by the registered nurse to help evaluate a specific site.

Bastable (2003) provides precise and concrete ways to evaluate healthcare information in simple outline form. This outline lists the criteria to determine the point of view and quality of the information on a Web site. Most nurses are aware of this information; however, they need to assure that their patients/clients use these criteria when surfing the Internet for information. The criteria include the following: accuracy, design, authors/sponsors, currency, and authority. Table 3 describes questions under each criterion that patients should use for evaluating health-related Web sites (Bastable, 2003).

### Web Sites

Finding Web sites that provide valuable patient education can take time and effort. The Hospital of the University of Pennsylvania in Philadelphia, PA has developed a list of Web sites for the hospital staff to use when seeking patient and family education resources. This list was developed by the nursing staff in the hospital’s Patient and Family Education Center and is posted on the hospital’s intranet site under the nursing Web page. The list contains sites for general information, specific health concerns, and translation resources. This list is reevaluated on a semi-annual basis and was reviewed and revised in January 2006. The sites are categorized to help the nurse locate appropriate information in an efficient manner. Additional Web sites have been added under the “Bone, Joint, and Muscle” section by the author.

#### General

- University of Pennsylvania Health System: www.pennhealth.com
- National Institutes of Health: www.nih.gov
- WebMD: www.WebMD.com
- U.S. Dept. of Health and Human Services: www.healthfinder.gov

#### Aging

- Alzheimer’s Association: www.alz.org
- AARP: www.aarp.org
- Senior Health: www.nihseniorhealth.gov

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**TABLE 1. Search for Appropriate and Useful Health Information**

<table>
<thead>
<tr>
<th>1. Reducing a problem or topic to a searchable command that can be used with a search engine or search directory. If clients do not know how to narrow their topics or problems to a few words, they will be unable to find the information they desire or may be unable to broaden a search to find comprehensive coverage. Once the search command is identified, using a search engine or search directory is easy, especially if the help function available at most sites is used to solve problems.</th>
</tr>
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<tr>
<td>2. Categorize Web pages according to their purpose. A client should be taught to look for the person or organization responsible for the Web site and then place the Web site into a category reflective of its purpose. For example, the purpose of a site created by a drug manufacturer as marketing, sales, or promotion. Other categories could include, but are not limited to, advocacy, promotion, informational/news, personal, or instructional/tutorial.</td>
</tr>
<tr>
<td>3. Identifying sources of potential bias that may influence the content or the manner in which the content is presented. For example, an advocacy Web site is likely to present information that favors one side of a debate. A marketing or sales site will have a tendency to include information that is supportive of a particular product or service.</td>
</tr>
<tr>
<td>4. Making a judgment as to the likelihood that the information found on the Web page is accurate and reliable. Clients can be taught to look for the credentials of authors of reports or articles found on the Web, to see whether supportive data are provided, and to look at more than one site to see if they can find similar claims or suggestions. Some of the more reliable health-related Web sites have links to other sites such that the original site is not the sole source of information on a particular topic.</td>
</tr>
<tr>
<td>5. Making a decision as to the completeness or comprehensiveness of the information presented. Because clients may not have the background knowledge needed to quickly recognize when information is missing, they should be encouraged to look at more than one site when researching an area of interest. If you know that clients are using the Web to investigate a particular topic, you can help them to identify a list of things they should look for in articles or Web pages addressing the topic.</td>
</tr>
<tr>
<td>6. Determining the currency of the information on a Web page. Consumers need to know the importance of looking for a creation or modification date or other signs that the information on a Web site is up-to-date.</td>
</tr>
<tr>
<td>7. Identifying resources to answer questions or verify assumptions made about the content of a Web page when necessary. Healthcare consumers should be encouraged to check out information with their healthcare provider or other healthcare professional (Bastable, 2003, pp. 436-437).</td>
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### TABLE 2. Principles of HON Code of Conduct (HONCode) for Medical and Health Web Sites

<table>
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<tr>
<th>Authority</th>
<th>Justifiability</th>
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<tr>
<td>Any medical or health advice provided and hosted on this site will only be given by medically trained and qualified professionals unless a clear statement is made that a piece of advice offered is from a nonmedically qualified individual or organization.</td>
<td>Any claims relating to the benefits/performance of a specific treatment, commercial product or service will be supported by appropriate, balanced evidence in the manner outlined above in Principle 4.</td>
</tr>
<tr>
<td><strong>Complementarity</strong></td>
<td><strong>Transparency of authorship</strong></td>
</tr>
<tr>
<td>The information provided on this site is designed to support, not replace, the relationship that exists between a patient/site visitor and his/her existing physician.</td>
<td>The designers of the Web site will seek to provide information in the clearest possible manner and provide contact addresses for visitors that seek further information or support. The Webmaster will display his/her email address clearly throughout the Web site.</td>
</tr>
<tr>
<td><strong>Confidentiality</strong></td>
<td><strong>Transparency of sponsorship</strong></td>
</tr>
<tr>
<td>Confidentiality of data relating to individual patients and visitors to a medical/health Web site, including their identity, is respected by this Web site. The Web site owners undertake to honor or exceed the legal requirements of medical/health information privacy that apply in the country and state where the Web sites and mirror sites are located.</td>
<td>Support for this Web site will be clearly identified, including the identities of commercial and noncommercial organizations that have contributed funding, services or material for the site.</td>
</tr>
<tr>
<td><strong>Attribution</strong></td>
<td><strong>Honesty in advertising and editorial policy</strong></td>
</tr>
<tr>
<td>Where appropriate, information contained on this site will be supported by clear references to source data and, where possible, have specific HTML links to that data. The date when a clinical page was last modified will be clearly displayed (e.g., at the bottom of the page).</td>
<td>If advertising is a source of funding it will be clearly stated. A brief description of the advertising policy adopted by the Web site owners will be displayed on the site. Advertising and other promotional material will be presented to viewers in a manner and context that facilitates differentiation between it and the original material created by the institution operating the site. (Retrieved July 6, 2006 <a href="http://www.hon.ch/HONcode/Conduct.html">http://www.hon.ch/HONcode/Conduct.html</a>.)</td>
</tr>
</tbody>
</table>

### Alcohol and Drug Abuse
- National Clearing House For Alcohol and Drug Information: [www.health.org](http://www.health.org)
- National Mental Health Association: [www.nmha.org](http://www.nmha.org)

### Bones, Joints, and Muscles
- Arthritis Foundation: [www.arthritis.org](http://www.arthritis.org)
- SouthEastern Pa. Arthritis: [www.jointeffort.info](http://www.jointeffort.info)
- National Osteoporosis Foundation: [www.nof.org](http://www.nof.org)

### Brain and Nervous System
- American Brain Tumor Association: [www.abta.org](http://www.abta.org)
- Brain Aneurysm Foundation: [www.bafound.org](http://www.bafound.org)
- Brain Injury Associations, National Help Line: [www.biausa.org](http://www.biausa.org)
- Brain Injury Recovery Network: [www.tbirecovery.org](http://www.tbirecovery.org)
- Brain Trauma Foundation: [www.braintrauma.org](http://www.braintrauma.org)
- Neurotrauma Registry: [www.neure.com](http://www.neure.com)
- Epilepsy Foundation: [www.epilepsyfoundation.org](http://www.epilepsyfoundation.org)
- Epilepsy Project: [www.epilepsy.com](http://www.epilepsy.com)
- Life with Traumatic Brain Injury: [www.tbilife.com](http://www.tbilife.com)
- National Brain Tumor Foundation: [www.braintumor.org](http://www.braintumor.org)
- National Stroke Association: [www.stroke.org](http://www.stroke.org)
- National Resource Center for Traumatic Brain Injury: [www.neuro.pmr.vcu.edu](http://www.neuro.pmr.vcu.edu)
- Parkinson’s Disease Foundation: [www.pdf.org](http://www.pdf.org)
- Penn Epilepsy Center: [www.pennhealth.com/neuro/service/epilepsy/eppec.html](http://www.pennhealth.com/neuro/service/epilepsy/eppec.html)
- Think First National Foundation: [www.thinkfirst.org](http://www.thinkfirst.org)
- Traumatic Brain Injury Support Group: [www.bit.listserv.tbi-support](http://www.bit.listserv.tbi-support)
- UCan Health: [www.ucanhealth.com](http://www.ucanhealth.com)

### Cancer
- Oncolink: [www.oncolink.upenn.edu](http://www.oncolink.upenn.edu)
- American Cancer Society: [www.cancer.org](http://www.cancer.org)
- National Cancer Institute: [www.nci.nih.gov](http://www.nci.nih.gov)
TABLE 3. Criteria to Evaluate Health-Related Web Sites

| **Accuracy** |  
| --- | ---  
| Are supportive data provided? |  
| Are the supportive data current and from reputable sources? |  
| Can you find the same information on other Web sites? |  
| Is the information provided comprehensive? |  
| Is more than one point of view presented? |  

| **Design** |  
| --- | ---  
| Is the Web site easy to navigate? |  
| Is the site “Bobby Approved”? |  
| Is there evidence that care was taken in creating the site? Do the links work? Are there typos? |  
| Is the information presented in a manner that is appropriate for the intended audience? |  
| Do the graphics serve a purpose other than decorations? |  

| **Authors/Sponsors** |  
| --- | ---  
| Are the sponsors/authors of the site clearly identified? |  
| Do the authors provide their credentials? |  
| Do the authors/sponsors provide a way to contact them or give feedback? |  
| Do the authors/sponsors clearly identify the purpose of the site? |  
| Is there a reason for the sponsors/authors to be biased about the topic? |  

| **Currency** |  
| --- | ---  
| Is there a recent creation or modification date identified? |  
| Is there evidence of currency (e.g., updated bibliographic reference to current events)? |  

| **Authority** |  
| --- | ---  
| Are the sponsors/authors credible (e.g., is it a government, educational institution, health-care site versus a personal Web site)? |  
| Are the author's credentials appropriate to the purpose of the site? |  

Source: Bastable (2003, p. 441)

### Cardiovascular
- American Heart Association: [www.americanheart.org](http://www.americanheart.org)

### Complementary Medicine
- Alternative Medicine Homepage: [www.pitt.edu/~cbw/database.html](http://www.pitt.edu/~cbw/database.html)
- National Center for Complementary and Alternative Health: [www.nccam.nih.gov](http://www.nccam.nih.gov)

### Diagnostic Procedures
- Lab Tests Online: [www.labtestsonline.org](http://www.labtestsonline.org)

### Diabetes
- American Diabetes Association: [www.diabetes.org](http://www.diabetes.org)

### Digestive System
- American Liver Foundation: [www.liverfoundation.org](http://www.liverfoundation.org)
- Crohn's and Colitis Foundation: [www.ccfa.org](http://www.ccfa.org)
- Philadelphia Ostomy Association: [www.philaost.org](http://www.philaost.org)

### Ear, Nose, and Throat
- National Institute on Deafness and Other Communication Disorders: [www.nidcd.nih.gov](http://www.nidcd.nih.gov)
- National Sleep Foundation: [www.sleepfoundation.org](http://www.sleepfoundation.org)

### Headaches
- National Headache Foundation: [www.headaches.org](http://www.headaches.org)
- American Headache Society: [www.ahsnet.org](http://www.ahsnet.org)

### HIV/AIDS
- National Center for HIV, STD and TB Prevention: [www.cdc.gov/hiv/dhap.htm](http://www.cdc.gov/hiv/dhap.htm)

### Hypertension
- American Heart Association: [www.americanheart.org](http://www.americanheart.org)

### Infectious Disease
- National Center for Infectious Diseases: [www.cdc.gov/ncidod](http://www.cdc.gov/ncidod)
- CDC-Emerging Infectious Disease Journal: [www.cdc.gov/ncidod/eid](http://www.cdc.gov/ncidod/eid)
- Centers for Disease Control and Prevention: [www.cdc.gov](http://www.cdc.gov)
- Infectious Disease Society of America: [www.idsociety.org](http://www.idsociety.org)
- National Institute of Allergy and Infectious Diseases: [www.niaid.nih.gov](http://www.niaid.nih.gov)

### International Languages
- University of Washington Harborview Medical Center: [www.ethnomed.org](http://www.ethnomed.org)

### Mental Health
- National Institute of Mental Health: [www.nimh.nih.gov](http://www.nimh.nih.gov)
- National Mental Health Association: [www.nmha.org](http://www.nmha.org)
Nutrition
Food and Nutrition Information Center: www.nal.usda.gov/fnic

Pain
American Pain Foundation: www.painfoundation.org
American Chronic Pain Association: www.theacpa.org

Pulmonary/Lung
American Lung Association: www.lungusa.org
National Heart Lung & Blood Institute: www.nhlbi.nih.gov

Rare Diseases
Rare Diseases: http://rarediseases.info.nih.gov
National Organization of Rare Diseases: www.rarediseases.org

Skin
National Institute of Arthritis, Musculoskeletal and Skin Diseases: www.niams.nih.gov
American Academy of Dermatology: www.aad.org

Surgery
Your Surgery: www.yoursurgery.com
MedlinePlus: www.nlm.nih.gov/medlineplus

Transplant
American Society of Transplantation: www.a-s-t.org
United Network for Organ Sharing: www.transplantliving.org

Urinary
National Institute of Diabetes, Digestive and Kidney Diseases:
Health Information www.niddk.nih.gov/health/kidney/kidney.htm
National Kidney Foundation: www.kidney.org

Weight Control
American Dietetic Association: www.eatright.org
Weight Control Information Network: www.niddk.nih.gov/health/nutrit/win.htm

Women’s Health
National Women’s Health Information Center: www.4women.gov

Multilingual Health Information
Australian Transcultural Mental Health Network: www.mmha.org.au/translatedinformation

Cancer Index: www.cancerindex.org/clinks13.htm
CHID—Combined Health Information Database: http://chid.nih.gov/detail/detail.html
Cultural Medicine: www.geocities.com/SoHo/Study/8276/culturalMed.html
Diabetes Australia Multilingual Internet Resource: www.multilingualdiabetes.org
Diversity Rx: www.diversityrx.org
EthnoMed: http://ethnomed.org
Health Education Brochures in Multiple Languages—University of Utah: http://medstat.med.utah.edu/library/refdesk/24lang.html
Immunization Action Coalition—Print Materials in other languages: www.imunize.org/catg/noneng.htm
MEDLINEplus (Search on “foreign language”): http://medlineplus.gov
Multilingual Health Education Net: www.multilingua-health-education.net
New Mexico Refugee Health Program: www.healthlinknm.org/refugee/resources/foreign/index.html
PubMed Tutorials in French, German, Italian and Spanish: http://nnlm.gov/nnml/online/lang

Specific Languages

Chinese
China Health and Medicine: www.imicams.ac.cn
HICUP—Health Information in Chinese Uniting Patients, Physicians and the Public: http://library.med.nyu.edu/patient/hicup

French
ESSAIM Health Encyclopedia: http://www.essaim.ca

German
Welt der Gesundheit: www.gesundheit.com
Patienten—Informationsdienst: www.patienten-information.de
Meine Gesundheit: www.meine-gesundheit.de
Deutsches Medizin Forum: www.medizin-forum.de
Medicine-Worldwide: www.medicine-worldwide.de

Hmong
Hmong Health Web site: www.hmonghealth.org
Hmong Homepage: www.hmongnet.org

Russian
MedInfoRus—Patient Education: http://medinforus.homestead.com/Pinformation.html

Spanish
Agency for Healthcare Research and Quality en Espanol: www.ahcpr.gov/consumer/espanol.htm
Glossaries by Language: www.rahul.net/lai/glossaries.html

**Conclusion**

With almost two-thirds of the United States population accessing the Internet, it is essential for nurses to be computer savvy to assist patients in finding accurate and useful health information. This article provides guidelines and criteria for seeking and evaluating Internet healthcare information. The information age has brought valuable healthcare education to the fingertips of patients and nurses through the Internet. Now is the time to take advantage of this wonderful resource.

**ACKNOWLEDGMENTS**

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**REFERENCES**


