
Where Am I to Go? Use of the Internet for Consumer Health Information by Two Vulnerable Communities

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ABSTRACT

The elderly and African Americans are groups sometimes described as vulnerable or at risk for health complications, and both are communities for whom consumer health information is believed to be important. A review of recent research literature on the information behaviors of these two special populations is provided, and information is presented from the research literature about the use of the Internet by the elderly and by African Americans. Both groups seem to prefer information from their health care providers and/or from established sources, but both groups do seek consumer health information and are increasingly using the Internet for information searches. The characteristics of desirable Web-based consumer health information for these groups are presented, as well as tools or tips that are available for evaluating Web-based consumer health information for these special populations. Finally, specific consumer health Web sites that provide quality information and that are especially useful for the elderly and for African Americans are identified.

In order to understand the use of Internet-based consumer health information by vulnerable groups, it is helpful to look at current research and data on specific information behaviors and Internet use by two special communities—the elderly and African Americans. These groups are often described as vulnerable and as having distinct consumer health information needs. The formats for, and methods of, disseminating consumer health information via the Internet to these two communities are especially important.

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In reviewing the problem, three issues stand out:

- What do we know about the information behaviors of the two special populations, and what is known about their use of the Internet?
- What are the characteristics of desirable Web-based consumer health information for these groups, and what tools or tips are available for evaluating Web-based information for them?
- Can specific Web sites be identified as useful for these groups?

CONTEXT

A recent study done by the Bill and Melinda Gates Foundation pointed out that 95 percent of public libraries in the United States offer free access to computers and the Internet, often providing the only Internet access for residents of the nation's poorest areas. The report went on to posit that "public library computers are reaching the disadvantaged groups consistently identified as lacking technology access and skills" (Bill & Melinda Gates Foundation, 2004, p. 6). Another report on the impact of computers in public libraries states that 31 percent of library computer users wanted to "learn more about [a] medical problem" (Bill & Melinda Gates Foundation, 2004, p. 24). As another research team found, significant percentages of the public are already using the Internet to get health information, and surveys show that the Internet is already a useful vehicle for reaching large numbers of lower-income, less-educated, and minority Americans (Brodie, Flournoy, Altman, Blendon, Benson, & Rosenbaum, 2000; Rainie & Packel, 2001).

Researchers at the Pew Internet and American Life project have pointed out that more Americans look for health information online than see a doctor on a typical day. Search engines are their most common entry point rather than specialized sites such as health portals, despite the growth of the latter. Internet-connected Americans also report that email is used for advice and support, especially for the chronically ill and their caregivers (Fox & Fallows, 2003).

If, as these studies show, health information delivered via the Internet to Americans at home, at work, and in public libraries is commonplace, then it is time to see if similar patterns or activities can be identified in specialized subgroups of Americans. Two groups often identified as being "vulnerable" or "at risk" are the elderly and African Americans. While there is a great deal of consumer health information on the World Wide Web, its presentation is not necessarily useful to a minority community or a community of senior citizens. Family caregivers for these groups may be able to find and use currently available Web-based consumer health information that is culturally sensitive and formatted for an adult audience, but members of the target communities themselves are not well served by much of the Internet-accessible consumer health information.

What is needed is information targeted to minority and elder communities whose members search the Web themselves from home or access the Web through public libraries and other community sites. Web-based information has distinct advantages over more traditional print resources and media: it can be updated instantly and disseminated widely; once a Web page is written and mounted on a server, it is widely accessible without regard to the time or place of the searcher; it also can be printed out easily to serve as an “instant handout” that can be taken home, read and re-read, and posted on a refrigerator door, cupboard, or bulletin board. The same information can be presented in different formats as well to accommodate the needs of those who may have a variety of handicaps and disabilities.

THE ELDERLY

Government data assert that by 2010 the average life expectancy will be up to 86 years of age for a woman and 76 for a man; the first baby boomers will turn 65 in 2010, and “the 55 years and older segment is the fastest growing Internet demographic group” (Bill & Melinda Gates Foundation, 2004, p. 10).

It does seem clear that a distinction needs to be made among groups of elders, particularly because the information behaviors of the young-old and the old-old may differ. The Medical Subject Headings—the *MeSH*, from the National Library of Medicine (NLM)—distinguish between the *Aged*, defined as those who are 65 through 79 years of age, and those who are *Aged, 80 and over*. In 2002 the terms *Middle Aged* and *Adult Children* were added to MeSH to further define the populations between 45 and 65 years of age; MeSH defines an adult as a person from 18 to 44 years of age (NLM, n.d.).

Anecdotal reports from the *WordSpy* document the appearance of new words to describe these shifting generations. McFedries carefully provides citations to the first appearance of terms such as “supercentenarian,” “grand boomer,” “grey nomad,” “elder orphan,” “club sandwich generation,” and “geezer glut” (McFedries & Logophilia Limited, n. d.).

What Do We Know about the Information Behaviors of the Elderly?

Poor health literacy is common, especially among elderly patients. One researcher claims that the “lack of adequate literacy is twice as common for older Americans and inner-city minorities” (Williams, Davis, Parker, & Weiss, 2002, p. 384). Wagner and Wagner published research in 2003 that found that older adults were no less likely (and were sometimes more likely) than other age groups to use health information. In addition, there are many small studies of information seeking and information behavior in the elderly who have specific medical problems; most conclude that information is sought and that a variety of sources are used. Preferred sources range from health care providers and family members to the mass media and the Internet.

What Do We Know about the Elderly and Their Use of the Internet?

A recent Robert Wood Johnson Foundation report indicates that the elderly are “better-informed through health information on the Internet, interactive TV, and other communications media” (Robert Wood Johnson Foundation, 2002). American Association of Retired Persons (AARP) data from 2004 show that 47.1 percent of the population fifty years of age and over have Internet access at home, compared with less than 15 percent in 1998 (AARP, 2004). Dr. Vivian Pinn, speaking while at the National Institutes of Health in 1998, said that “Assisting senior citizens in utilizing the wealth of health resources available on the Internet can have important ramifications in enabling them to better understand their health concerns and their health care options” (NLM, 1998).

Williams and his colleagues also wrote that “the Internet is a potentially attractive method for patients to get specific health information [but] current formats are not suitable for audiences with low literacy skills,” and “interactive computer-based multimedia represents an approach that appears successful in educating patients with inadequate health literacy” (Williams et al., 2002, p. 384). The director of a National Library of Medicine-funded project on Internet use among senior citizens concluded that “more elders are using the Internet all the time. Looking for health information is one of the most common activities on the Internet” (Devlin, 2003). Wagner and Wagner also found that the use of computers by the elderly was not significantly different from other age groups. They felt that this was convincing evidence to counter the stereotype that older adults are resistant to trying new technologies (Wagner & Wagner, 2003).

In a study of elders in a midland city in the United Kingdom, the investigators found that a small percentage of the elderly were avid Web surfers; a larger number were Web users primarily for email but did not do much surfing. While many of their respondents did not yet use the Web, these individuals did believe that “the most popular form of sites which non-users anticipated to be of interest concerned health and medicine” (Millward, 2003). For many elderly persons, their family caregivers served as surrogate Web users.

Morrell and colleagues conducted a survey to document World Wide Web use patterns in middle-aged (ages 40–59), young-old (ages 60–74), and old-old adults (ages 75–92) by asking questions of several hundred adults in southeastern Michigan. They found that “older adults have considerable interest in computers and can readily learn how to use them” (Morrell, Mayhorn, & Bennett, 2000, p. 175). Their results suggested that there are distinct age and demographic differences in individuals who use the Web, with middle-aged and older Web users being similar in their use patterns. These investigators also found that the two primary predictors for not using the Web were the lack of access to a computer and a lack of knowledge about the Web. The primary content areas identified by those who were learning

how to use the Web were learning how to use electronic mail, accessing health information, and finding information about traveling for pleasure. Sixty percent of their old-old respondents, 57 percent of their young-old respondents, and 75 percent of their middle-aged respondents specifically wanted to “learn how to access health-related information” (Morrell et al., 2000, p. 178). Eighty percent of the respondents (both middle-aged and old) reported that they had taught themselves to use the Web, with older respondents more likely to have read books about how to use the Web and middle-aged respondents more likely to have learned their Web skills from another individual. All three groups, however, indicated that they would like a set of simple instructions on how to use different features on the Web (Morrell et al., 2000).

In an NLM-funded two-stage pilot study in 1998, 100 senior citizens received instruction on how to conduct health information searches on the Internet. The average age of the senior trainees was 69, and most had some college-level education. In a ninety-day follow-up, 66 percent of the trainees continued to use the Internet, with 47 percent of them using it to search for health information. Two-thirds of those who searched for health information on the Internet talked about it with their physicians, with more than half reporting they were more satisfied with their treatment as a result of their searches and subsequent discussion with their physicians. The investigators concluded that “senior citizens have the ability to acquire computer and Internet skills to search for healthcare information on the Internet . . . [and] they will use this information to assume an active role in their healthcare” (Leaffer & Gonda, 2000). A small case study report in 2001 on computer and Internet use by physically frail elders found that study participants primarily used e-mail, accessed health-related Internet sites, and played computer games (Malcolm, Mann, Tomita, Fraas, Stanton, & Gitlin, 2001).

A large survey on the prevalence of Internet and email use for health information appeared in the *Journal of the American Medical Association* in 2003; the investigators over-sampled their population aged 50 and up. Those who were 75 years of age or older were less likely to report use of the Internet for health information, but there was a “strong relationship between a higher education level and higher rates of Internet use for health” (Baker, Wagner, Singer, & Bundorf, 2003). About half of those who indicated that they had a chronic health problem—heart problems, cancer, diabetes, hypertension, or depression (diagnoses likely to be present in older populations)—indicated that use of the Internet improved their understanding of their chronic condition and their understanding of treatments for their condition (Baker et al., 2003).

These older Americans are primarily accessing the Internet from their homes. Recent Pew study data suggested that older Americans are the least likely to go online from places other than from their homes; only 10

percent of Internet users 65 and older have ever gone online from places other than their homes (Harwood & Rainie, 2004). The old-old generation "may be more resistant to non-traditional modes of receiving health information and care [and they may be] less educated or less interested in computer usage. It is also possible that diseases and functional impairments in the elderly may limit their ability to access and view Web-based health information" (Smith-Barbaro, Licciardone, Clarke, & Coleridge, 2001).

What Are the Issues That Should Inform the Creation and Use of Web-Based Consumer Health Information for the Elderly?

Devlin and a team of colleagues from the Pacific Northwest Regional Medical Library suggested some specific tips for creating an easy to use Web site with quality health information for elders; their results can be viewed at the *Prepared Caregiver* Web site (Oregon Health & Science University, 2003).

- Avoid health care jargon
- Make the reading level no higher than eighth grade
- Create pages that load quickly even with a slow connection
- Make pages that are accessible for both PCs and Macs
- Create the feeling of a "trusted, knowledgeable friend" (Devlin, 2003)

The section on the *Prepared Caregiver* Web site entitled "How to Find Information in this Website" is particularly strong in its simple and well-designed explanation of Web site navigation for older people (Oregon Health & Science University, 2003). In addition, a hospital librarian and a consultant from New Mexico recently suggested that those who are designing a Web site for seniors should

- Work in the center of a page to avoid loss by those whose visual acuity is diminished
- Date stamp pages to increase confidence in the currency of the information
- Provide a glossary
- Avoid background patterns and floating text
- Consider the needs of those who may be color blind (Davis & Lafrado, 2003)

A group of family medicine specialists who were concerned with Web materials for those of limited health literacy suggest that Web designers

- Use living room language instead of medical terminology
- Use pictures to enhance understanding and recall
- Limit information to small doses, with frequent repetition of core concepts (Williams et al., 2002)

What Tools Are Available for Web Designers and Information Specialists Who Work with Web Sites for the Elderly?

A tool such as the checklist entitled *Making Your Web Site Senior Friendly*, jointly produced by NLM and the National Institute on Aging (NIA), is a “must-get” resource (National Library of Medicine & National Institute on Aging, 2002). It is available as an HTML file, as a PDF, or as a printed brochure. Its sections on writing and designing readable text for seniors, incorporating media, and increasing the ease of navigation on a site are particularly helpful. A Web-accessible booklet from the National Institute on Aging entitled *Working with Your Older Patient: A Clinician’s Handbook* also provides excellent coverage of the cultural and social issues of providing services to elders (National Institute on Aging, n.d. b).

The Microsoft Corporation has an elaborate Web site on accessibility issues in Web design with a section that particularly speaks to the needs of older users. From useful tips for baby boomers to accessibility techniques for specific Microsoft Office products, the site offers both examples and practical advice on ways to enable older persons to use the Web. There are step-by-step tutorials and guides for use of Web sites by people with vision, hearing, and mobility impairments—all issues that impact the lives of senior citizens (Microsoft Corporation, 2004).

A fourth useful tool is BOBBY™, a “comprehensive web accessibility software tool” designed to assess Web sites for their “friendliness” to those with many different kinds of disabilities. Because the elderly often experience disabilities as a part of the aging process, using tools like BOBBY™ to check a Web site’s accessibility makes it a good choice for those who are creating and disseminating Web-based consumer health information to seniors (Watchfire™, n.d.).

When considering issues of reading level and literacy, tools for measuring literacy are widely available. Jones’s chapter in the National Network of Libraries of Medicine’s online textbook on providing consumer health information services summarizes the literature on reading levels, with links to useful tools (Jones, 2003). Another excellent guide to preparing patient education materials comes from the University of Utah Health Sciences Center; its section on readability testing provides clear directions on how to measure literacy with different schemes (University of Utah, n.d.).

In 2003 the Department of Health and Human Services announced the availability of their research-based guide to Web site design and usability. Produced in partnership with the National Cancer Institute, the *Research-Based Web Design & Usability Guidelines* is a resource for information technology teams who should be making design decisions based on user research rather than on personal opinions when creating Web sites (U. S. Department of Health and Human Services, n.d.).

What Are Some Good Examples of Well-Designed and Culturally Sensitive Consumer Health Web Sites for the Elderly?

The creators of the *NIH SeniorHealth.gov* Web site followed the advice of their colleagues at the NIA and the NLM and produced a high-quality Web site that has good information in a variety of senior-friendly formats. At present, it is a "talking Web site" with ten sections on health conditions that are highly prevalent in an older population. Its developers describe it as having "large print, short, easy-to-read segments of information and simple navigation, [with] a 'talking' function [that] reads the text aloud and special buttons to enlarge the text or turn on high contrast [to] make text more readable" (National Institutes on Aging & National Library of Medicine, 2003).

The many NIA *Age Pages* from the NIA (n.d. a) are the Web versions of a longstanding print series on consumer health topics. Their most distinguishing feature is the use of large type and simple language and a consistent format across all the pages in the series. The page on "Online Health Information: Can You Trust It?" (NIA, 2003) is particularly well done. In addition, the NIA has made its excellent guide for elders entitled *Talking with Your Doctor: A Guide for Older People* available as a Web document (NIA, n.d. c). The NIA's decision to distribute their well-received print documents in this fashion combines the best of two worlds—an excellent print brochure with the publication-on-demand feature of the Web.

The Web site for Health Compass, from the American Federation for Aging Research, has a "a self-study program designed to help you make well informed health and lifestyle choices, by learning ways to find and evaluate information and research findings on health and aging." It is a thoughtfully prepared short course on how to find health information on the Web and how to evaluate it from the perspective of an older person. It is not written in simple language, however, and it requires some time to work through the various units; but the content gained from taking the course is excellent (American Federation for Aging Research, n.d.).

By contrast, the AARP Health and Wellness Web site is busy, difficult to navigate, and focused on many issues other than medical diagnoses and treatments. It appears to be targeting early baby boomers and other younger groups of Web users. Buried within its site, however, is a good page with advice for elders on how to evaluate Web-based consumer health information (AARP, n.d.).

The *MedlinePlus Interactive Tutorials* from the National Library of Medicine are also useful for those who may need voice and images, as well as simple texts, in order to understand health topics (NLM, 2004b). Sites for low-literacy populations may be particularly useful for those elderly with low levels of functional health literacy as well. The very simple presentation of ordinary health problems in Web sites such as the University of California–San Francisco's Student Homeless Clinic *Low-Literacy Patient Education*

Handouts (n.d.) and the Food and Drug Administration's *Easy-to-read Publications from the FDA* (n.d.), as well as the near-pictorial materials from the National Center for Farmworker Health's *Patient Education Materials* (n.d.) and the mental health materials from the Texas Medication Algorithm Project (2003) may be helpful for elderly clients who need health information in a very easy-to-read format.

In addition to these general sites, there are the Medical Library Association's *MLA News* lists of high-quality Web sites, which cover some special concerns among the elderly; recent examples include lists for depression, rehabilitation medicine, communication disorders, and cardiovascular surgery (Detlefsen, 2003; Frey, 2003; Nail-Chiwetalu, 2002; Baran, 2004). The hot-linked pages are only available to MLA members, however; nonmembers must find a print copy of the article and input the URLs manually.

AFRICAN AMERICANS

According to the Centers for Disease Control and Prevention, people who identify themselves as African American make up approximately 12 percent of the American population. Some African Americans have been in the United States for many generations, while others are more recent immigrants from Africa or the Caribbean. Data from 1999 indicate that the average American could expect to live almost seventy-seven years but that the average African American could only expect to live about seven-one years. Factors contributing to this poor health outcome include cultural barriers and lack of access to health care (Centers for Disease Control and Prevention, 2004).

What Do We Know about the Information Behavior of African Americans?

A researcher at the University of Pittsburgh School of Information Sciences used a structured interview to survey forty-five African American women, age 65 and over, who were residents in a senior citizen apartment, attended an adult activities program in a historically black neighborhood, or were patients at a clinic serving a different historically black neighborhood in the city. She wanted to ascertain from what sources they obtained health information, what factors influenced their health information seeking behaviors, what role the mass media played in the provision of health information, and whether the public library had a role in their health information seeking. She found that their preferred sources for health information were, in ranked order from most preferred to least, a personal physician, print and nonprint media, family members, and close friends. Those surveyed also identified their top five popular magazine sources for health information (again in ranked order) as *Modern Maturity*, *Readers' Digest*, *Ladies Home Journal*, *Ebony*, and *Prevention*. The study concluded that health information is important to older African American women and that physicians are viewed as the most preferred and believable source of health

information; television and popular magazines were mentioned most often as useful sources of health information (Gollop, 1997, p. 145).

In a study that corroborated these findings, a group of multi-ethnic, low-income patients in the Bronx in 2001 “saw doctors as an important source of medication and advice” (Karasz, Sacajiu, & Garcia, 2003, p. 576). Researchers from the University of North Texas School of Library and Information Sciences surveyed, via a structured interview, 300 low-income African American heads of household at the Parks at Wynnwood, Dallas, Texas, in the spring of 1996 and found that the rank order of preferred sources for health information were a family physician, a family member, friends, a school/public health nurse, a minister/counselor, a community services worker, and a neighbor. These African American respondents seemed to want an established source of health care information *outside* their immediate physical environment (Spink & Cole, 2001). Another group of researchers, writing in 1999, found that black groups were more likely to get their health information from a doctor or other health professional (O’Malley, Kerner, & Johnson, 1999). National and local public health agencies, medical doctors, dentists, and religious organizations were more commonly reported by blacks to be their preferred sources for AIDS information, according to another study published in 1999 (Cunningham, Davidson, Nakazono, & Andersen, 1999).

In contrast, Grisso found that African American women reported that their family was the primary source of information for menopause information (Grisso, Freeman, Maurin, Garcia-Espana, & Berlin, 1999). Focus groups with black low-income primary care patients in Florida indicated that these patients felt more comfortable in primary care offices with “culturally sensitive” reading materials, including those that addressed health problems specific to them (Tucker, Herman, Pedersen, Higley, Montrichard, & Ivery, 2003).

What Do We Know about African Americans and Their Use of the Internet?

Investigators from the Charles R. Drew University of Medicine and Science and the University of California at Los Angeles School of Medicine randomly administered a twenty-seven-question survey regarding awareness and access to specific informatics technologies to adult patients in an outpatient general medicine clinic in Los Angeles in 1997–98. Of 152 respondents, 119 were African American; 85 percent had heard of the Internet, 73 percent had heard of email, 64 percent had heard of the World Wide Web, and 30 had a computer and access to the Internet. The Los Angeles investigators concluded that a low level of access to electronic technology within an urban population was coupled with a willingness and interest to communicate with physicians via email or to gain additional health-related information via the Internet (Robinson, Flowers, Alperson, & Norris, 1999).

Brodie and colleagues' analysis of recent data on adults' and children's computer use and experiences showed that the Internet is already a useful vehicle for reaching large numbers of lower-income, less-educated, and minority Americans. However, a substantial digital divide continues to characterize computer and Internet use, with lower-income blacks especially affected (Brodie et al., 2000). Little empirical research exists on the topic of Internet health information use among those of racial/ethnic populations and low literacy groups (Fogel, 2003; Birru et al., 2004). Data from the U.S. Department of Commerce indicate, however, that nearly 20 percent of public library Internet users are African American, the highest rate for any ethnic minority (Bill & Melinda Gates Foundation, 2004). Nonusers of the Internet who believe that they will go online eventually are also more likely to be black; in a recent Pew Internet and American Life study, only 39 percent of offline black Americans say they will never go online, compared to 62 percent of whites who do not now use the Internet and say they never will (Lenhart, 2003).

Nielsen/NetRatings data from 2000 describe those who spend the most time online as a cluster with these characteristics: centered in the South; blue-collar labor; young families; predominantly black; singles; owner of a single unit of housing or a mobile home, with a median income of \$20,500. In contrast, those who spent the least time online were affluent, white-collar, college-educated, predominantly white, professionally employed married couples who owned a home, with a median income of \$89,000 (Nielsen/NetRatings, 2000). A joint public library/hospital library demonstration project in Buffalo, New York, in 2002 provided an opportunity for minority senior citizens and their caregivers to learn how to search the Internet for quality health information. Participants specifically expressed their gratitude for an Internet training program geared toward minority seniors (Schwartz, Mosher, Wilson, Lipkus, & Collins, 2002).

What Are the Language and Cultural Issues That Should Inform the Creation and Use of Web-Based Consumer Health Information for African Americans?

An excellent summary of cultural issues that should be considered when caring for African American patients appears in the *Culture Clues* page on "Communicating with Your African American Patient," from the University of Washington Medical Center (University of Washington Medical Center, n.d.). A similar tool is available from the Rhode Island Department of Health Office of Minority Health, entitled *African American/Black Culture & Health* (Rhode Island Department of Health, 2003). These patient education designers assert that the cultural competency concepts to remember for work with an African American community include

- Their possible mistrust of majority providers
- Their reliance on religion, spirituality, and prayer
- The importance of humor

- The importance of respectful behavior
- The use of gatekeepers and the importance of community opinion leaders
- A strong interest in the use of folk or home remedies and self-treatments

In order to meet these needs, consumer health Web pages for African American groups ought to be minority sensitive, that is, presented in such a way that they speak to the concerns of the community. The content of the Web pages should also be tailored to address the needs of users with lower literacy rates, less health literacy, and limited computer experience. Access points should utilize the actual language of many of these community users, such as “sugar” for diabetes, “pressure” for hypertension, or “the blues” for depression.

What Tools Are Available for Web Designers and Information Specialists Who Work with Web Sites for African Americans?

No single tool for assessing a Web site’s best fit with African American cultural issues exists. However, a model that can be adapted is available in the excellent work of Cubbins entitled *Techniques for Evaluating American Indian Web Sites* (2000). By using the categories identified by Cubbins and substituting the words “African American” for “Native American” where appropriate, what emerges is a series of good general principles for evaluating content from a culture-specific point of view.

What Are Some Good Examples of Well-Designed and Culturally Sensitive Consumer Health Web Sites for African Americans?

At the outset, the MedlinePlus page on African American health covers many of the mainstream resources and provides links to federal agency activities and national organization Web sites for African American health problems (NLM, 2004a). There is a good series of Health Information Fact Sheets and a Black Physician Locator Service available from the Black Women’s Health Imperative (2004), an African American health education, research, advocacy, and leadership development organization. In a similar vein, the National Women’s Health Information Center Web site at 4women.gov has twenty specific pages on health problems among African American women as well as a generic page on African American women’s most pressing health issues. (National Women’s Health Information Center, n.d. a, n.d. b).

The best examples of minority-sensitive Web pages for consumer health topics of interest to African Americans, however, are those targeted to specific health conditions that are highly prevalent in this community. Two excellent sites on diabetes for African Americans are available from the National Institute on Diabetes and Digestive and Kidney Diseases (NIDDK) and from the American Diabetes Association (ADA). The NIDDK site is

entitled *Diabetes in African Americans* (National Institute on Diabetes and Digestive and Kidney Diseases, n.d.) and the ADA site is entitled *African Americans and Diabetes* (American Diabetes Association, n.d.); both show that attention was paid both to cultural issues and health issues in the black community.

African American men and women with concerns about obesity and weight control are well served by several Web-accessible publications from the NIDDK's *Weight Information Network*; these are examples of using the Internet to distribute printed brochures that have culturally appropriate pictures, language, and eating tips written for black women of different ages. In particular, the brochures entitled *Celebrate the Beauty of Youth* (NIDDK, 2001a), *Energize Yourself and Your Family* (NIDDK, 2001b), and *Fit and Fabulous as You Mature* (NIDDK, 2001c) are excellent examples. Similarly, the sickle cell anemia page from the National Heart, Lung, and Blood Institute (NHLBI) is a good example of a targeted Web site for a disease that is seen primarily in the African American community (National Heart, Lung, and Blood Institute, n.d.).

Of particular note are several downloadable books, in an easy to read and culturally sensitive format, from the National Heart, Lung, and Blood Institute; they illustrate well the use of the Internet as a publishing tool and not just a means for Web surfing. There is a package of seven easy to read booklets on *Improving Cardiovascular Health in African Americans* (National Heart, Lung, and Blood Institute, 1997b) and a well-done twenty-eight-page NHLBI cookbook entitled *Heart-Healthy Home Cooking African American Style* (National Heart, Lung, and Blood Institute, 1997a).

A ninety-eight-page *Activity Book for African American Families: Helping Children Cope with Crisis* was prepared by the National Institute of Child Health and Human Development and the National Black Child Development Institute, in conjunction with organizations such as the 100 Black Men of America, Alpha Kappa Alpha Sorority, the Congress of National Black Churches, Delta Sigma Theta Sorority, Jack and Jill of America, the National Association of Black Social Workers, the National Coalition of 100 Black Women, and the National Medical Association, to provide information and help for black families in the aftermath of the September 11 tragedy (National Institute of Child Health and Human Development & the National Black Child Development Institute, n.d.).

Finally, in an effort to format Internet information in a manner that will encourage African Americans to access the materials, several sites have added voice and video featuring famous black Americans and community opinion leaders. The National Cancer Institute's *5 A Day* Web site has audio messages in their campaign entitled *Men Shoot for 9* featuring NBA star Clyde "the Glide" Drexler talking to the black community about the importance of getting at least nine servings of fruit and vegetables a day (National Cancer Institute, n.d.).

SUMMARY

After reviewing current research and data on specific information behaviors and Internet use by two special communities—the elderly and African Americans—it seems clear that those who design consumer health information products that will be accessed via the Internet should pay attention to cultural and health issues in the vulnerable populations. Special care should be taken to ensure that these Web sites are easy to read, at a reading level of eighth grade or below, with a simple page layout, thoughtful use of colors for emphasis, and large fonts. Pictures and audio may be used to enhance accessibility as well.

Reviewing exemplary sites and adding links for sites such as these to Internet resource guides in libraries and consumer health information centers that serve the elderly and African American clients will also add to the ability to use culturally sensitive and age-sensitive Web products with these two populations. It is also possible that sites built for one special population may serve as a crossover resource for another. Information prepared for one population may be useful for another; English as a second language sites may be helpful for low-literacy populations; minority health sites may be useful for senior citizens; children's and teen sites may work for persons with limited health literacy.

Recognition that the Web is a tool for publishing and distribution, that the Web is the means and not the end, is also important. Internet "surfing" may be difficult for these populations, but using Web-available materials may be quite effective for them. The creation of quality consumer health information Web sites with distributable information for printing and posting, or for caregivers to distribute, is one of the most powerful uses of the Internet for these vulnerable populations.

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As is my custom whenever I present any work on information behavior in medicine, I dedicate this work to the memory of Dr. Diana Forsythe. Her contributions to our understanding of information behavior in the health sciences are immeasurable (see <http://www.ucsf.edu/dahsm/pages/forsythe.html>).

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