

NIHSeniorHealth.gov: empowering older adults with health information

On October 23, 2003, Senator Tom Harkin of Iowa conducted the first official search of NIHSeniorHealth.gov, a pioneering website designed using cognitive aging and vision research. This government-sponsored site features reliable, easy-to-understand health information in formats and topics tailored to adults ages 60 and older. Essentially, the site makes aging-related health information easily accessible to this age group.

“As our population ages, good health will be important on both a policy and personal level,” Harkin told the crowd gathered at the site’s Capitol Hill launch. “For all of us, that starts with the right information on prevention and treatment, which NIH [the National Institutes of Health] is now providing seniors by means of this new and innovative website.”¹



Older adults explore NIHSeniorHealth at the site’s launch on Capitol Hill in October 2003.

Of the 27 institutes and centers that make up the NIH, more than 20 specialize in different areas of health. The agency is “the steward of medical and behavioral research” for the United States, and part of the Department of Health and Human Services. “As the nation’s leading health research institution, the NIH must share what it knows with the public about keeping healthy and dealing with disease,” says Dr. Elias A. Zerhouni, the agency’s director. “This translation of research into everyday use is a critical part of the NIH’s mission.”¹

The NIH has always provided health information in print for general consumers. Once the Web became available, the agency began using it for that same purpose. Providing health information customized for a special audience was a natural next step.

Creating the concept

A key catalyst for the NIHSeniorHealth website was research funded by the National Institute on Aging (NIA), an NIH institute. This research showed that older people could learn to use computers if materials were presented in an age-appropriate fashion.²

The two NIH organizations charged with developing NIHSeniorHealth were NIA and the National Library of Medicine (NLM). To the cutting-edge project, NIA brought knowledge of the motor and cognitive changes that affect most people as they age. NLM brought experience in organizing and delivering health information to health professionals, patients and families through electronic means, such as the PubMed and MedlinePlus websites. This collaboration between the two agencies proved essential to the development of NIHSeniorHealth.

Translating research into Web-based technology

To create a website geared to the needs of older adults, NIA and NLM brought together cognitive aging researchers, website designers, and communications experts at the two institutes. They aimed to design a site that would be easy for older adults to read, understand and navigate.

The site’s conceptual design was based on research showing that many adults experience normal aging-related changes in cognition and vision.² According to NIA’s Stephanie Dailey, educational research specialist, and NLM’s Joyce Backus, head of reference and customer

ICAA Industry Innovators

This groundbreaking website sets the standard for age-friendly websites

This article is the second in a series profiling the winners of the 2004 ICAA Industry Innovators Awards. Presented by the International Council on Active Aging, these awards honor excellence and creativity in the health and wellness field, and recognize organizations that have created cutting-edge active aging programs. In 2004, the awards program expanded its scope to include individuals for the first time.

service, three areas of cognition were considered: working memory (including spatial working memory), perceptual speed, and text comprehension.

Working memory. The ability to store and process information simultaneously wanes with aging.² To compensate for these changes in working memory, the site designers relied on research that shows repetition can make recall easier. Features designed to let information be assimilated repeatedly included a Previous Page button to ease re-reading, quizzes to reinforce information just read, open-captioned videos to supplement text, and transcripts for videos.

Spatial working memory. To accommodate declines in spatial working memory,² the ability to recall where items are located in space, the designers put navigational prompts in the same place on each webpage. This approach meant that visitors to NIHSeniorHealth would not have to adjust to new layouts each time they changed pages.

Text comprehension. Research shows that the ability to understand certain aspects of written text, such as inferences, may decline with age.³ To assist older adults with text comprehension, writers used short paragraphs, active voice, text-relevant illustrations, and easy-to-read, everyday language on the site.

Perceptual speed. The speed at which people process information slows with age.⁴ To aid information processing, designers added self-paced quizzes and shunned automatically scrolling text.

In addition to cognitive changes, individuals also experience vision changes with aging. These differences include reductions in the amount of light that reaches the retina, loss of contrast sensitivity and loss of the ability to detect fine details.⁵ The NIHSeniorHealth website accommodated these changes by using the following:

- A *talking function* that lets users choose to have the text read aloud;
- Large, *sans serif* type, i.e. Arial, Helvetica;
- Buttons that enlarge text and show high contrast;
- Dark type against a light background and lots of white space; and
- Large icons.

During its development, the NIHSeniorHealth site was tested extensively with adults ages 60–88 years.⁶ Testing methods included in-person, online and telephone focus groups, and one-on-one usability testing, among others. These results were used to refine the original site design and make it as age-friendly as possible.

Starting with the early versions of NIHSeniorHealth, subjects consistently found the information easy to see and comprehend. Navigation proved the greatest challenge, however. People always wanted to make sure they could get back to a central starting point, and some found moving around the early versions difficult. This finding led the design team to implement a more linear navigation structure. Today, this design allows users to move from page to page using a Next Page button, instead of scrolling down pages or *clicking deeper* into the site for information. The structure also benefits people whose hands might be stiff due to arthritis: they can leave the mouse on the Next Page button as they click from page to page.



Stephanie Dailey, left, and Joyce Backus, right, accept the ICAA Industry Innovators Award from ICAA CEO Colin Milner.

Usability and focus group testing have been critical to making NIHSeniorHealth work for its intended audience, say Dailey and Backus. The

initial objectives were to create a website based on research and to make it appealing and useful at the same time. Based on positive feedback from usability studies and focus groups, the site has generally achieved these goals. However, there's always room for improvement, according to Dailey and Backus, who point out that users most frequently suggest adding topics.

As of March 2005, NIHSeniorHealth features 14 health topics contributed by various NIH institutes. These topics include arthritis, diabetes, balance problems, Alzheimer's disease, and exercise for older adults. In fact, exercise is one of the site's most popular sections.

Exercise: a hot topic

For many health and wellness organizations, the major challenges to promoting active aging include time, money, staff, appropriate materials, and information. NIHSeniorHealth provides authoritative, age-appropriate information about the health benefits of exercise and physical activity for older adults.

Visitors to the site's exercise pages can find tips on four areas of exercise: strength, flexibility, balance and endurance. Ways to chart progress and stay motivated are included. In addition, short clips from NIA's exercise video for older adults offer helpful tips on safety and proper form, while animated sequences show how to perform exercises. Finally, video clips describing the personal exercise programs of directors from various NIH institutes aim to motivate older adults to start, restart or continue physical activity.

NIHSeniorHealth recently added Tell Us an Exercise Story, a feature consisting of photographs and brief profiles submitted by older adults who exercise regularly. This new feature is designed to inspire people to begin exercising. Currently, Tell Us an Exercise Story includes older men and women

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from various states engaging in different types of exercise. The partners plan to expand this feature to include profiles from people in all 50 states, according to Dailey and Backus.



A poster promotes the NIHSeniorHealth website.

As they add more topics and features to NIHSeniorHealth, NIA and NLM will keep testing the website with older adults to make sure it meets the needs of this target group. Today, the partners remain deeply involved in maintaining and further developing the site. NIA continues to work with content providers to ensure their content is ideally suited for the older population. And NLM is responsible for creating and maintaining the website, following key Web and information standards and applying them to the needs of this group. The two organizations also work together with other NIH institutes on website usability and outreach.

Ongoing challenges include continuing to provide relevant health information in an age-friendly format and adding new topics. NIA and NLM anticipate rolling out five new topics about eye health in summer 2005, with other topics expected to follow. “In the future, we want to be sure to keep up with any trends on the Web and technology that will help us to better serve this audience,” emphasize Dailey and Backus.

Information for a booming audience

“The use of the Internet for health information is increasing dramatically,”

states NLM Director Dr. Donald A.B. Lindberg. “But the small type, low contrast, and difficulty in navigating around many sites have been obstacles for seniors. NIHSeniorHealth.gov corrects many of those problems,” he says, “as well as providing health information that is the best that NIH can offer.”¹

With its trailblazing age-friendly format and aging-related content, NIHSeniorHealth helps older adults learn about the health issues that most commonly affect them. Currently, the site delivers almost 500,000 page views to nearly 40,000 users a month. NIA and NLM would like to see those numbers double in the next year, according to Dailey and Backus. They also hope to have twice as many topics available by spring 2006, they say, but that growth depends on the resources other NIH institutes and centers have to contribute.

When NIA and NLM started developing NIHSeniorHealth, they faced the challenge of how to translate aging and cognitive research into practical Web-based approaches. An additional test was to create a site expected to serve as a model for other age-friendly sites. After meeting these daunting challenges, the partners now face an even greater task—one they hope to achieve within the next decade. “We would like NIHSeniorHealth to be a household name,” say Dailey and Backus, “the website older Americans turn to for their health information.”²

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Five key steps to creating an age-friendly website

1. The content has to be good, or there’s no reason to start. Good senior design without content is wasted and useless.
2. Testing, retesting, and more retesting.
3. Make it as simple as possible for users and for content managers.
4. Listen to users.
5. Watch it grow and make improvements.