

# Literacy, Technology and Health

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## *Overview*

More than 90 million health care consumers are limited in their receipt of quality medical treatment due to their own illiteracy. Research conducted by the Princeton based Center for Health Care Strategies concludes that this segment of the American population operate at a reading level of 5<sup>th</sup> grade or below.

This low literacy level contributes to higher utilization of medical services. Using data from a nationally representative sample of the U.S. adult population age 16 and older, the National Academy on an Aging Society examined the impact of literacy on the use of health care services. The study found that additional health care expenditures due to low health literacy are about \$73 billion in 1998 dollars. This includes an estimated \$30 billion for the population that is functionally illiterate and an additional \$43 billion for the marginally illiterate population.

Employers may be financing as much as 17 percent of additional health care expenditures with Medicare, Medicaid, patients and health care providers shouldering the rest.

Providers and employers are developing various strategies to address this problem. Creating a “shame free environment” where low-literate patients can seek help without feeling stigmatized is one effective strategy.

The American Cancer Society is devoting substantial resources to reach across the literacy divide by developing content for presentation to users in non-threatening and easily understood ways. By tailoring content to reach audiences with diverse learning styles<sup>1</sup> the ACS delivers valuable, potentially life-saving information to this group. WellnessLink, an ACS product emerging from pilot stage, fulfills this goal by presenting information as text (written), narration (spoken), graphic (drawings and illustrations) and videos all based on the assimilate, understand and act model.

### ***Discussion***

The pilot phase of the American Cancer Society WellnessLink program was started as a result of research that showed cancer (health) information / advice published by ACS and others was written at a level beyond the normal reading level of its intended audience.

Review of cancer literature showed that commonly circulated material used to inform the public about cancer-detection methods, life-style risks, and treatment modalities was written at a mean grade level of 11.9. The research suggested that a disparity exists between the reading levels of the public and the estimates of readability of generally distributed cancer literature.<sup>2</sup>

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<sup>1</sup> **Auditory Learners** learn best by hearing or listening. They prefer talking about a situation; express emotions verbally; enjoy listening, but cannot wait to talk; like hearing self and others talk; learn best through verbal instruction; move lips or sub vocalize when reading; remember auditory repetition; and study well with a friend to discuss material.

**Visual Learners** learn best by seeing. They prefer watching demonstrations; have intense concentration and ability to visually imagine information; remember faces but forget names ; write down things and take detailed notes; and learn best while studying alone.

<sup>2</sup> Only material written in English was evaluated.

This disparity became evident during a trial conducted by Wellspan Health (formally York Health System) to inform members of the minority community about cancer detection and prevention measures. During the course of the initiative, participation of the targeted community was rated as low. St. Andrew Development was enlisted to determine why this was the case, identified the literacy disparity and developed, in conjunction with the American Cancer Society and the York Cancer Center, a self-contained cancer information kiosk called the WellnessLink program.

WellnessLink was designed to address the low-literacy levels, which burdens many people. The material in WellnessLink is presented in a non-threatening and easy to use manner. Text, graphics, narration and video content are available throughout. Users learn at their own pace and focus on the topics(s) that most interest them.

During the course of the pilot program, WellnessLink units were placed (and remain) in various locations. Shopping malls, hospital lobbies, workplace settings, public libraries and other locations are examples where WellnessLink delivers understandable cancer information to the literate and non-literate public.

The WellnessLink program consists of 20 cancers presented in English and Spanish and incorporating text, narration, graphic and video. An additional 20 cancers are to be added in 2Q 2002.

*System Use*

WellnessLink uses a technology permitting usage tracking and discrete analysis. Usage trends tend to be consistent over a period. Workplace WellnessLink is an adaptation of the original pilot permitting employers to place kiosks in common employee gathering areas and share with their employees potentially life-saving or life prolonging information.

Topic specific interest - i.e. breast, colon, etc, - is consistent. Genders frequently show interest in opposite gender cancer. Men, for example, show a keen interest in the breast cancer learning module as do women show interest in the prostate cancer learning module. This data is gathered by a brief survey that is optionally completed by users. Average “stick time” (the time an individual spends using a WellnessLink unit) is around 4 minutes.

Table 1 shows usage by topic.

**TABLE 1 – Usage by Topic**

|                    |     |                     |    |
|--------------------|-----|---------------------|----|
| Breast             | 17% | Leukemia - Acute    | 2% |
| Prevention         | 12% | Endometrium         | 2% |
| Living With Cancer | 10% | Leukemia - Chronic  | 2% |
| Liver              | 9%  | Oral                | 2% |
| Colorectal         | 9%  | Stomach             | 1% |
| Cervix             | 7%  | NonHodgkins         | 1% |
| Bladder            | 6%  | Ovary               | 1% |
| Kidney             | 6%  | Pancreas            | 1% |
| Esophagus          | 5%  | Skin                | 1% |
| Prostate           | 4%  | Skin (non-melanoma) | 1% |
| Lung               | 3%  | Thyroid             | 1% |

Workplace Wellness link offers the American Cancer Society an opportunity to “push”<sup>3</sup> contemporaneous information into employee settings including special events, health care bulletins and employee support material. The pushed content can take any form addressing both literate and illiterate audiences.

### ***Summary***

People are drawn to easy to access, understandable information. A significant segment of our society faces literacy challenges and bear a disproportionate burden of health care costs and suffering. This can be partially offset by presenting health related material in a way that can be understood and acted upon. Using kiosks to deliver such information in a non-threatening manner increases the likelihood that this burdened population segment, health care providers, employers and communities in which all reside will benefit.

#### References:

1. Center for Health Care Strategies, Inc. *What is Health Literacy*, Fact Sheet - 2001
2. Baker DW, Parker RM, Williams MV, et al. The Health Care Experience of Patients with Low Literacy. *Archives of Family Medicine*, 1996; 5: 329-334.
3. Kirsch IS, Jungeblut A, Jenkins L, Kolstad A. Adult Literacy in America: A First Look at the Results of the National Adult Literacy Survey. Washington, DC: Department of Education, 1993.
4. Parker RM, Baker DW, Williams MV, Nurss JR. The Test of Functional Health Literacy in Adults: A New Instrument for Measuring Patients' Literacy Skills. *Journal of General Internal Medicine*, 1995; 10: 537-541.
5. Williams MV, Parker RM, Baker DW, et al. Inadequate Functional Health Literacy Among Patients at Two Public Hospitals. *Journal of the American Medical Association*, 1995; 274(21): 1677-1682.
6. St. Andrew Development WellnessLink Usage logs (compilation) Aggregate use in a public and workplace setting.

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<sup>3</sup> WellnessLink uses XML and web technology to communicate bi-directionally with remote kiosks. Information can be retrieved and extracted from units in the field.