

# Health Literacy and Communication for the Prevention and Mitigation of Disasters

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## Overview

The premise of this paper is that literacy must be considered a critical component of communication efforts related to the prevention and mitigation of disasters and in all plans related to community and national preparedness. The discussion offers an overview of published literature related to literacy and risk communication and a discussion of implications for the prevention and mitigation of disasters in light of known literacy skills amongst U.S. adults.

Health literacy is on the national agenda as researchers continue to explore the links between literacy skills and health outcomes as well as monitor and measure the match between professionals' expectations and adults' proficiencies. The second part of the paper offers background details about measures of adult literacy skills and the findings that shocked the nation.

*Health literacy is the currency of success for improving emergency preparedness, eliminating health disparities, and preventing disease.*

Surgeon General Carmona, 2004.

The public health mission focuses on the duty to protect and promote the well-being and health of the public and includes a responsibility to inform the population of threats to health and safety (Gostin, 2000). Public health messages and materials are designed to enable individuals and communities to be aware of and respond to important issues and emerging events by maintaining vigilance, planning, and undertaking clearly delineated activities. Thus, health communication is based on the premise that the public needs to be aware, assured, informed, and provided with tools for action. Faulty or limited communication curtails knowledge and awareness and also hampers civic engagement and action. When *words get in the way*, adults may get lost, lack an understanding of their rights, experience untoward health consequences, and endanger their lives.

## Literacy

The term *literacy* is often used as a metaphor for an understanding of content or technology as in *computer literacy*. However, national and international adult literacy surveys and assessments offer measures of actual literacy skills with a focus on adults'

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ability to use print materials in prose and document format, no matter what the topic, in order to accomplish everyday tasks. Literacy skills include but are not limited to reading skills. Educators generally agree that literacy includes an array of related skills that include reading, writing, basic math, oral presentation and aural comprehension. The first large-scale survey of adult literacy skills took place in the United States in 1992. Subsequently, 22 industrialized nations participated in similar surveys of adult literacy, based on the same understanding of literacy and the same approach to assessment of proficiencies. The International Adult Literacy Surveys (IALS) continue and findings inform discussions and policy decisions for education in Canada, the United Kingdom, Ireland, Australia, and the European Union.

In the United States, the published findings from the 1992 National Adult Literacy Survey and the 2003 National Assessment of Adult Literacy generated headlines of shock and dismay. Indeed, findings indicate that about half of U.S. adults do not have the reading, writing, and math skills commonly assumed. About half of U.S. adults have limited literacy skills and are not able to use, with accuracy and consistency, available print materials for everyday activities such as those related to health and safety, finance, or civic engagement.

A baseline for health literacy skills of U.S. adults was established in 2004 through an analysis of health-related items drawn from the large-scale surveys of adult literacy skills, all of which adopted the functional definition of literacy as noted above. Findings reported in *Literacy and Health in America* indicate that large percentages of vulnerable or at-risk groups in this country do not have adequate skills to meet many of the health-related demands they are likely to encounter (Rudd, Kirsch, Yamamoto, 2004).

The background brief accompanying this overview provides details of the measures of literacy skills, the findings from the 1992 and 2003 adult literacy data, as well as findings from the 2004 analysis of health literacy skills of U.S. adults.

## **Health Literacy**

The field of inquiry known as *health literacy* focuses on critical communication issues in the health fields as well as on explorations of links between literacy skills and health outcomes. Most of the studies in this relatively new field have focused on examinations of print health materials and the match between the reading grade level of materials and the reading skills of the intended audience. Starting in the mid 1990s, after the publication of the NALS, a small subset of studies began to focus on the reading skills of patients and differences in knowledge and outcomes between those with strong and those with limited readings skills. The Agency for Healthcare Research and Quality 2004 evidence report, *Literacy and Health Outcomes*, reviewed the health literacy outcome studies and concludes that low literacy, as measured by poor reading skills, is associated with a range of adverse health outcomes (Berkman et al., 2004).

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Of the approximately 1,000 articles that have been published in public health and medical journals, most (about 600) focus on the match between health materials and reading skills of the intended audiences. The materials under study have included informed consent materials, patient education booklets, insurance packages, medical directives, public health messages and reports -- addressing a wide array of health issues and representing a broad scope of health disciplines. In general, findings highlight unnecessary use of scientific terms, unexplained or poorly explained scientific and mathematical concepts, professional jargon, complex sentences, poorly organized text, faulty assumptions about background information, and other measured text characteristics that hamper communication efforts. Published findings indicate a troublesome and consistent mismatch between the reading grade level of health materials and the average reading skills of U.S. adults.

The Institute of Medicine (IOM) Committee on Health Literacy considered the literacy skills of U.S. adults as well as the demands (including reading grade level assessments of print materials) and underlying assumptions of health systems. The IOM report, *Health Literacy: A Prescription to End Confusion*, suggests that health literacy be considered an interaction between social demands and skills of individuals. The conclusion reached by the committee is that more than 90 million U.S. adults may lack the needed literacy skills to effectively use the U.S. health system (IOM, 2004).

## **Literacy and Disaster-Related Communication**

Few studies to date have incorporated literacy related issues in assessments of risk communication. However, several studies do address issues of the accessibility and readability of text messages. For example, Tinker, Zook, and Chapel (2001), while not addressing literacy directly, note the tendency of federal and state agencies to use technical terms and agency-based jargon to both analyze risk situations and recommend public health actions. The authors suggest that lay language be used and that technical and bureaucratic jargon be avoided. Harvey and Fleming (2005) report on an examination of print materials from environmental health departments in England. They report a mismatch between the reading level of the materials and the reading skills of the audience. Similarly, Locke (2006) reports on findings from health-related presentations at an international plain language conference. Presenters note that, in general and across all health sectors, unnecessarily complicated texts erect barriers to the public's access to critical information.

Rudd, Kaphingst, Colton, Gregoire, and Hyde (2004) present a case study of re-writing a water resource authority report to be mailed to all residents within a state. A health literacy studies team followed an articulated process for assessing the original materials, re-writing the text and graphs, and preparing a report to the development team to guide them in future reports. The case study offers a schema for addressing literacy related concerns in materials using mandated federal language and focusing on scientific test results. The study found that it is possible to decrease the text reading grade level and improve access to information – though the improvements generally require a longer lead

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time for adequate development, piloting, and re-writing as well as a longer text and, therefore, increased printing costs.

Rudd, Comings, and Hyde (2003) examined the two public health-related mailings sent out to all addresses in the country -- the 1988 mailing from the Surgeon General addressing HIV/AIDS and the 2001 mailing from the Postmaster General addressing anthrax. They found that the HIV/AIDS brochure, written at a 7.6 reading grade level, used an easy-to-read font, adequate white space, and followed general communication principles for organization, highlighting critical information and key issues. The anthrax postcard, while well formatted, was written on a reading grade level of 10. However, there was scant time for development of the postcard compared to a much longer lead-time for the brochure. The authors note that when rigor is abandoned in the name of expediency, effectiveness may suffer.

Two other recent publications provide an expanded literacy framework for understanding risk communication. Acknowledging but moving beyond readability issues, Keselman, Slaughter and Patel (2005) include attention to literacy as well as broader cognitive issues in their recommendations for further explorations of crisis communication. They report that in the confusion of a crisis situation, individuals have difficulty focusing on the technical aspect of information presented in the news. This finding leads to their recommendation that direction about action to be taken should be repeated in short, simple sentences. Furthermore, they note that while readers often misunderstand health messages because of text-based issues, communicators must also consider broader cognitive issues. They suggest that readers often come to a text with assumptions and beliefs that differ from those who are writing the text. Thus, they conclude that the problems the public has with disaster messages may be due to the discrepancy between the message and individuals' experience and accumulated knowledge. The authors offer a framework that integrates research on comprehension and the effects of stress on cognition with existing public health communication perspectives to enrich further research efforts and inform message development and design.

Zarcadoolas, Pleasant, and Greer (2005) suggest that the concept of literacy be expanded to address fundamental literacy, science literacy, civic literacy, and cultural literacy. This expanded model may be useful for discussions of 'disaster literacy' and an analysis of health communication for disaster-related events. This schema proposes that difficult language, complex sentences, and assumed knowledge are significant in considerations of basic literacy. Science literacy (an understanding of the scientific process), civic literacy (an understanding of and identification with public health goals) and cultural literacy (an awareness of differing interpretations and reactions) must also be addressed.

Quantitative skills, considered an important component of literacy, are also considered in the development and design of risk and disaster communication. Researchers in medicine and genetics have been addressing issues related to quantitative skills and conceptual understanding of risk and probability (such as, Timmermans, 1995; Bottorff, Ratner, Johnson, Lavato, & Joab, 1998; Schwartz, Woloshin, & Welch, 1999; Glass, 1999; Glasspool, Fox, Coulson & Emery, 2001; Sachs, Taube, & Tishelman, 2001). For

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example, Fong, Rempel, and Hall (1999) propose that risk communicators face an ethical and pragmatic dilemma as they strive to convey limits on scientific knowledge and, at the same time, provide risk information that enables recipients to make confident risk-relevant decisions.

## **Implications for Disaster Prevention and Mitigation**

Risk communication is emerging as an increasingly important and distinct aspect of health communication practice. Unlike general health communication designed to promote health, risk communication addresses either a clear and current danger or potential threat. Effective risk communication is crucial to provide the public with the knowledge, information, and skills they may need to ameliorate or diminish the likely effects of a crisis or disaster and is an essential component of risk management (Fischhoff, Lichtenstein, Slovic, Derby, & Keeney, 1984; Covello & Allen, 1988; Childress, 2003; Frewer, 2004).

While all communication efforts are based on a concern for the public's health, some are simultaneously focused on reassurance, social control, or national security. In all cases, attention to issues of clarity, accuracy, and truthfulness, even in the face of uncertainty, is most likely to garner trust and health benefits (Childress, 2003; Eckenwiler, 2003). As Fischhoff noted in his 2005 editorial:

*In an emergency, our future may hang on a few words, provided by someone in authority, as we face a fateful decision (2005).*

Risk communications are inevitably based on concepts of risk and probability. Quantitative abilities and, increasingly, numeracy are considered part of the array of literacy skills. The complex concepts of risk and probability are not well understood by the media or the lay public. Scientists and health practitioners must find mechanisms for helping the lay public understand the scientific process and issues of uncertainty so that people are better prepared to use information provided and make decisions in face of uncertainty. This issue links literacy skills and risk challenges and needs to be addressed in disaster communication.

During times of crisis events, such as disasters, effective risk communication is an especially daunting task because people have difficulty processing information and hearing, understanding, and remembering what they have been told (Covello, 1998; Wray, Kreuter, Jacobsen, Clements, & Evans, 2004). Communication theorists support the careful crafting of messages, the choice of suitable and credible spokespersons, determination of the most fitting time for message delivery, and the appropriate selection of communication channels. Thus, communication must be based on a thorough situational analysis, consideration of the emotional and political climate, provision of information to meet the needs of the intended audiences, and respect for people's capacities (Rogers & Kincaid, 1981; Backer, Rogers, & Sopory, 1992; Glass & Schoch-

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Spana, 2002; Eckenwiler, 2003; Leiss, 2004; Wray et al., 2004; Keselman et al., 2005; Zarcadoolas et al., 2005).

Educators suggest that the tasks people need to perform be carefully considered so that materials serve as tools for the accomplishment of tasks. (Purcell-Gates, 1995; Kirsch, 2001). To the extent that risk communication messages contain directions for action steps, they must be structured to offer direct support for the conceptualized activities. Materials based on a clear understanding of the purpose the materials and messages serve and designed from the perspective of the intended audience will lessen the burden on the audience / user.

Formative research is a long established component of public health program planning. Best practice conventions demand rigorous, up-front analysis, formative research, and piloting with members of the intended audience. Increasingly, best practice conventions include attention to the literacy skills of the intended audience and to key elements of the message, including vocabulary, sentence construction, format, organization of ideas, and other text and oral language factors – all of which may increase or limit access to information (Rudd et al., 2003). Fischhoff decries the absence of formative research in his post Katrina editorial, *We Need the Right Words to Weather the Storm:*

*No one would put a drug on the market without testing it. Yet we rely on labels that leave users guessing at the extent of the risks and benefits. We issue emergency instructions without running them by anyone. (2005)*

Recognizing this danger, a group of scholars coordinated by Len and Ceci Doak volunteered to work closely with the Centers for Disease Control and Prevention (CDC) immediately after the devastating hurricanes in the fall of 2005. Promising a two to twenty-four hour turnaround time, health literacy specialists from academic and practice centers received print materials in current use from the CDC and re-wrote and formatted the materials so that they would be more appropriate for distribution in shelters and other gathering places. The original materials were generally written at reading grade levels above high school. They addressed safety concerns (such as safety precautions for children and elders), medical issues (such as hypertension and diabetes), and anticipated home-related problems (such as how to re-enter a home, what to do about mold and mildew, and turning on electricity). The following chart offers a side-by-side illustration of the opening section of the handout ‘How to Re-enter a Home’.

| <b>Original Instructional Handout</b>   | <b>Modified Instructional Handout</b>  |
|---|--|
| <p><i>Opening:</i><br/>           When returning to a home that’s been flooded after natural disasters such as hurricanes, tornadoes, and floods, be aware that your house may be contaminated with mold or sewage, which can cause health risks for your family.</p> | <p><i>Opening:</i><br/>           Please Stay Safe. You may want to go back to your home to see what has happened. You may want to take some things from your house or you may want to begin a clean up. Be sure to take care of your health as you do this. Here are some</p> |

|  |  |
|--|--|
|  | common questions and some ways to stay safe. |
|--|--|

Disaster communication needs to be grounded on an awareness of existing adult literacy skills and on an understanding of the tasks adults need to perform in face of disasters in general and in response to a specific disaster. Those responsible for crafting critical messages should be familiar with plain language initiatives and able to recognize and translate bureaucratic and scientific jargon into everyday speech. In addition, formative research process must be included as part of the routine protocol for message and materials development.

## PART II

### BACKGROUND BRIEF: LITERACY AND HEALTH LITERACY

This background brief summarizes findings related to measured literacy skills with a focus on adults' ability to use print materials in prose and document format, no matter what the topic, in order to accomplish everyday tasks.

The National Literacy Act of 1991 proposed that functional literacy is:

The ability to read, write, and speak and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and develop one's knowledge and potential.

In the early 1990s, this definition of functional literacy was accepted by the U.S. and other industrialized nations as the foundation for examinations of adult literacy skills. Throughout the 1990s, three of five agreed upon literacy components were measured: reading, writing, and mathematical calculations, in 22 industrialized nations (Kirsch, 2001). Oral language skills had been assessed as part of an earlier and smaller survey but were not assessed in the 1990s, in part because of time constraints, machinery, and because of a perceived burden on survey participants who were all interviewed in home settings. The 2003 literacy assessment survey does contain an oral language component captured on computer. Initial analyses of the 2003 data were provided in December 2005 and analyses of oral skills are forthcoming.

The national and international examinations of adults' literacy skills focused on adults' ability to use print materials to accomplish everyday tasks. The survey developers drew materials from six domains of adult activities in order to represent literacy activities of everyday life. These included text materials related to: home and family, health and safety, community and citizenship, consumer economics, work, leisure and recreation. Participants were asked to undertake tasks associated with the materials. For example, a participant might be given a label from an over-the-counter pediatric medicine and be asked to use the materials to determine how much medicine to give a child of a specified age and weight.

The 1993 NALS report and the 2005 NAAL report provide literacy proficiency scores for three types of print materials:



- Prose Literacy: measures of proficiency focused on tasks involving continuous texts with full sentences in paragraph format.
- Document Literacy: measures of proficiency focused on tasks involving texts formatted as lists, charts, and graphs.
- Quantitative Literacy: measures of proficiency focused on tasks involving text with numbers requiring the application of basic mathematical processes (addition, subtraction, multiplication, division).

All of the existing large-scale surveys of adult literacy skills are based on materials consisting of prose, documents, as well as both continuous and non-continuous texts requiring one or more arithmetic operations. The tasks associated with the materials include finding information and identifying or constructing responses from the available information.

Both materials and tasks for these surveys were calibrated for level of difficulty and complexity. The assessments considered both the difficulty of the text and the complexity of the task. A simple text is generally short and with no distracting information. A simple task involves locating a word or sentence or performing a clearly defined mathematical process (such as *add three items*). More complex tasks involve locating several pieces of information, comparing or contrasting information provided, interpreting meaning, or responding to an inquiry by finding and using information in a text. Proficiency was assessed based on 80% accuracy and consistency and scored on a 0 to 500 scale (Kirsch, 2001).

Findings were reported in 1993 by score level and in quintile groupings, averaged for various population groups, and analyzed through a wide range of critical variables such as educational background, age, nativity, and economic status. In addition to assessing participants' literacy skills, the NALS gathered extensive background information on demographic and socioeconomic characteristics and on literacy practices (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993).

The scores in 1993 indicate that 22% of U.S. adults fall into the lowest skill category. NALS level 1 represents scores of 0 to 225 and signifies very limited abilities to use text. However, more than half of adults at this level can generally perform simple and routine tasks using brief and uncomplicated texts and documents. For example, adults at NALS Level 1 can generally locate a piece of information in a news story or on a simple form such as a social security card. An additional 27% of U.S. adults score in NALS Level 2 with scores ranging from 226 to 275. These adults can, with accuracy and consistency, locate information in somewhat more complex text and make low-level inferences using print materials. The 49% of adults who score on these two lowest levels can locate information but are generally not able, with accuracy and consistency, to find and integrate two related pieces of information, to use relatively long or dense materials, or to determine appropriate arithmetic operations based on information provided. Scores below 275 indicate a limited ability to use print materials with accuracy and consistency (with a response probability calculated at 80%). Educators and economists note that the

challenges of industrialized societies require high-level literacy skills (in the range of 275 and above).

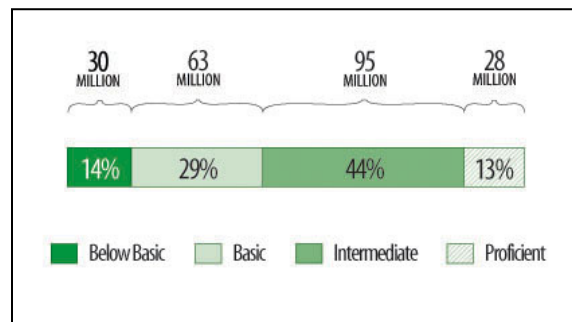
Working adults have stronger literacy skills than do those who are not employed or have retired. As would be expected, literacy skills are stronger amongst native-born adults than they are for those who have immigrated to the United States from non-English speaking countries. Those with higher incomes are more likely to have stronger skills than are those without resources or who are living in poverty. European-Americans (whites) have stronger literacy proficiencies than do minority population groups such as Hispanics and African-Americans. Average scores for each of the three types of literacy are as follows:

***Average Scores [Score Range 0-500]***

- Mean Prose Score: 273
- Mean Document Score: 267
- Mean Quantitative Score: 274

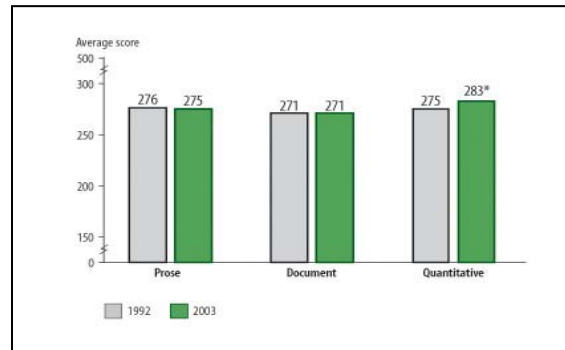
The 2005 analysis of the 2003 National Assessment of Adult Literacy modified the reporting of performance levels to more closely reflect educational categories of need (below basic, basic, intermediate, and proficient) and used a response probability of 67.5%, deemed more appropriate for a low risk assessment. Overall, literacy is the lowest for adults who did not complete high school (National Center for Education Statistics, 2005). The following graph illustrates the range of scores.

***Findings from the 2003 National Assessment of Adult Literacy***



The next graph offers a comparison of findings from the 1992 and the 2003 data. The 1992 data was modified to reflect the new categories and a reconfigured response probability (from 80% to 67.5%). Findings indicate little change over time. Although the educational attainment of U.S. adults increased between 1992 and 2003, prose literacy decreased for all levels of educational attainment. As was true in 1992, literacy was lowest for adults who did not complete high school (National Center for Education Statistics, 2005).

*Average Scores of U.S. Adults  
For Prose, Document, and Quantitative Literacy  
Comparison of Findings from the 1992 NALS and the 2003 NAAL*



Overall, findings from the national surveys indicate that a vast majority of U.S. adults can read and do report reading. However, the average literacy scores for adults in the U.S. indicate limited ability to use print materials found in everyday life to accomplish what are considered everyday tasks.

### **Health Literacy Skills of U.S. Adults**

The designers of the 2003 National Assessment of Adult Literacy worked closely with the U.S. Department of Health and Human Services to include additional health-related items on the 2003 adult literacy survey instrument so that a separate report could focus on health literacy skills of U.S. adults. A report of findings is anticipated in spring of 2006.

A baseline for health literacy skills of U.S. adults was established in 2004 by researchers at the Harvard School of Public Health and the Educational Testing Services. *Literacy and Health in America* (Rudd, Kirsch, & Yamamoto, 2004) reports on an analysis of health-related items drawn from the large-scale surveys of adult literacy skills, all of which adopted the functional definition of literacy as noted above. A new scale, the Health Activities Literacy Scale (HALS) was constructed through an examination of all items from all large-scale surveys conducted before 2003 to identify and code health related materials and tasks. These surveys include the assessment of the nation's young population (Kirsch & Jungeblut, 1986), the assessment of unemployed and economically disadvantaged adults (Kirsch, Jungeblut, & Campbell, 1992), the National Adult Literacy Survey (Kirsch et al., 1993), and the International Adult Literacy Surveys (Organization for Economic Co-Operation and Development, 1995, 2000).

The HALS, consisting of 191 items, represents a range of health activities for health promotion, health protection, disease prevention, care and maintenance, and systems navigation. Scores were linked to the NALS database which includes information on the

literacy proficiencies of a sample of 26,091 adults aged 16 and older as well as supplemental samples from 12 states yielding state representative samples (Kirsch et al., 1993).

HALS findings indicate that large percentages of vulnerable or at-risk groups in this country do not have adequate skills to meet many of the health-related demands they are likely to encounter. Findings indicate that the distribution of health-related literacy is not independent of general literacy skills at a population or subpopulation level. While there are clearly some unique procedural and declarative knowledge that is needed to function in health contexts, those with more general literacy skills will also be more likely to have stronger health literacy skills. Consequently, large percentages of adults with limited literacy would be expected to have a great deal of difficulty successfully performing a broad range of health-related literacy activities found in the U.S.

The following table illustrates HALS scores for working adults with and without resources, elders with and without resources, and for those living in poverty by educational attainment level (less than high school, with a high school diploma or a GED, and more than high school). Educators and economists report that scores above 275 are needed for full engagement in the current economy (Comings, Sum, & Uvin, 2000).

***Health Literacy Proficiency Scores***  
*(Range = 0 to 500)*  
***Based on Access to Resources and Education***

|                                       | Less than High School | HS/GED | More than High School |
|---------------------------------------|-----------------------|--------|-----------------------|
| Working Adults With resources         | 273                   | 291    | 321                   |
| Working Adults without resources      | 218                   | 267    | 293                   |
| Elders with resources                 | 216                   | 257    | 285                   |
| Poor without resources                | 217                   | 264    | 281                   |
| Elders in poverty (without resources) | 188                   | 240    | 261                   |

The HALS analysis indicates that those with limited health literacy proficiencies are generally those who have not completed high school or obtained a GED and likely to report living in poverty with no income from savings, dividends, or retirement. Furthermore, among those adults with limited health literacy proficiencies are those with health-related restrictions on their ability to attend school or work, members of minority

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population groups, and those who have immigrated to the United States. Adults with limited health literacy proficiency are less likely to report obtaining information from text-based sources and are less engaged with the 'information economy' that is shaping life in the 21<sup>st</sup> century U.S. (Comings et al., 2000). Consequently, those without needed literacy skills are further disadvantaged. Differences in literacy proficiencies based on educational attainment, poverty and access to resources, and on majority versus minority status indicate the powerful effects of social factors.

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**The following pages offer summaries of and links to major reports in health literacy and in adult literacy.**



Rima E. Rudd  
Health Literacy and Communication

## RESOURCES

### HEALTH LITERACY RESEARCH AND POLICY REPORTS

#### *Literacy and Health in America*

Rudd, Kirsch, and Yamamoto found that some 12 percent or 23 million of U.S. adults are estimated to have skills in the lowest level (Level 1) on the Health and Literacy Scale, while an additional 7 percent or 13.4 million are not able to perform even simple health literacy tasks with a high degree of proficiency (below Level 1). Those performing below Level 1 are about evenly divided between U.S.-born and foreign-born adults. Results are alarming for at-risk and vulnerable populations. For example, among adults who have not completed high school, almost half scored at or below the lowest literacy level. Similarly, almost half of adults over the age of 65 performed at or below the lowest level. Minority populations, including adults born outside the United States, scored significantly below white adults and adults born in the United States, on average.

#### *Health Literacy: a prescription to end confusion*

The Institute of Medicine, National Academies of Science, impaneled a Committee on Health Literacy which defines health literacy and its scope, identifies obstacles to creating a health literate public, assesses the approaches that have been attempted to increase health literacy, and identifies goals for health literacy efforts as well as key players who may contribute to these goals. The committee concludes that nearly half of all U.S. adults have difficulty understanding and acting upon health information.

#### *Literacy and Health Outcomes*

The report, *Literacy and Health Outcomes*, from the Agency for Healthcare Research and Quality offers a systematic review of healthy literacy outcome studies published between 1980 and 2003. The authors conclude that low literacy, as measured by reading skills, is associated with several adverse health outcomes, including low health knowledge, increased incidence of chronic illness, poorer intermediate disease markers, and less than optimal use of preventive health services. Interventions to mitigate the effects of low literacy have been studied, and some have shown promise for improving patient health and receipt of health care services. Future research, using more rigorous methods, is required to better define these relationships and to guide development of new interventions.

#### *Communicating Health: Priorities and Strategies for Progress*

##### Action Plans To Achieve the Health Communication Objectives in Healthy People 2010

The action plans focus the attention of researchers, teachers, practitioners, policymakers, and organizations on the general strategies and specific steps that they can take in support of the objectives. [Objective 11-2. Improvement of Health Literacy](#): All of the proposed strategies and solutions depend on building increased awareness of the magnitude of health literacy problems in the United States and on identifying systemic changes that will make U.S. health systems easier for individuals to understand and use. A critical link among literacy, health, and health status must be recognized at a broad societal level. Ensuring health literacy in the United States is a fundamental issue of fairness and basic human rights.

## RESOURCES: LITERACY RESEARCH AND POLICY REPORTS

### ***National Assessment of Adult Literacy (NAAL)***

The 2003 National Assessment of Adult Literacy is a nationally representative assessment of English literacy among American adults age 16 and older. Sponsored by the [National Center for Education Statistics](#) (NCES), NAAL is the nation's most comprehensive measure of adult literacy since the [1992 National Adult Literacy Survey](#) (NALS). Findings indicate no significant change in prose and document literacy between 1992 and 2003 and a small increase in quantitative literacy. Web site: <http://nces.ed.gov/NAAL/index.asp?file=KeyFindings>

***The Twin Challenges of Mediocrity and Inequality: Literacy in the U.S. from an International Perspective***, by A. Sum, I. Kirsch and R. Taggart. Educational Testing Services, Statistics and Research Division; Center for Global Assessment; February, 2002. The authors compare the US results on the International Adult Literacy Surveys (IALS) with the results of 20 other industrialized nations. The performance of all US adults on the NALS/IALS assessment can be described as "average" for the participating high-income countries. The results were broken down by age, gender, race/ethnicity, and native vs. foreign born. The authors argue that if we fail to reduce the degree of inequality in literacy skills over the coming decade, then the cognitive demands for access to most high-skilled, high wage jobs in US labor markets and for active participation in civic and political life will create an unequal divide in the distribution of economic and political rewards in the future. Additionally, the nation's changing demographics will likely exacerbate the literacy skill deficit in the coming years since most of the fastest-growing population groups are those with below-average skills. The full report is available through the Educational Testing Services web site: [www.ets.org](http://www.ets.org).

***International Adult Literacy Survey. Benchmarking Adult Literacy in America: An International Comparative Study***, by A. Tuijnman. U.S. Department of Education; September 2000. The author compares findings from the National Adult Literacy Survey (NALS) conducted in the U.S. in 1992, with findings from the International Adult Literacy Survey (IALS), conducted in 22 industrialized countries between 1994 and 1998. The analysis focuses on 10 indicators that allow the reader to compare prose literacy skills of adults in the U.S. with those of adults in other countries. Analyses indicate that U.S. adults score in the mid-range of prose literacy scores. However, the U.S. NALS findings indicate a larger disparity among various population groups than is found in other countries. The author suggests that policy makers use "life-long learning" as a framework for improving literacy in the U.S. and offers 10 specific targets and tools for improving literacy. Available at: [www.hrdc-drhc.gc.ca/sp-ps/arb-dgra/publications/research/2000docs/89-572-xie.pdf](http://www.hrdc-drhc.gc.ca/sp-ps/arb-dgra/publications/research/2000docs/89-572-xie.pdf).

***Adult Literacy in America: The First Look at the Results of the National Adult Literacy Survey (NALS)***, by I. Kirsch, A. Jungeblut, L. Jenkins and A. Kolstad. Washington, DC: U.S. Department of Education; 1993. The NALS provides a profile of the English literacy of U.S. adults, based on their performance on varied tasks that represent materials used and skills needed in everyday life. In 1992, interviews were conducted with over 26,000 individuals, aged 16 and over. Proficiency scores were calculated on three scales: prose, document and quantitative literacy. NALS results suggest that 21 to 23 percent, or about 20 percent of the total population, demonstrated skills in the lowest level (Level 1) of prose, document and quantitative literacy. About 25 to 28 percent of respondents scored in Level 2 on each of the literacy scales. Available from the U.S. Government Printing Office Order Desk. Tel: (202) 783-3238.