

Ten Attributes of Health Literate Health Care Organizations

Cindy Brach, Debra Keller, Lyla M. Hernandez, Cynthia Baur, Ruth Parker, Benard Dreyer, Paul Schyve, Andrew J. Lemerise, and Dean Schillinger*

June 2012

**Participants in the activities of the IOM Roundtable on Health Literacy.*

The views expressed in this discussion paper are those of the authors and not necessarily of the authors' organizations or of the Institute of Medicine. The paper is intended to help inform and stimulate discussion. It has not been subjected to the review procedures of the Institute of Medicine and is not a report of the Institute of Medicine or of the National Research Council.

Ten Attributes of Health Literate Health Care Organizations

Cindy Brach, Agency for Healthcare Research and Quality; Debra Keller, University of California, San Francisco (UCSF) School of Medicine; Lyla M. Hernandez, Institute of Medicine (IOM); Cynthia Baur, Centers for Disease Control and Prevention; Ruth Parker, Emory University School of Medicine; Benard Dreyer, New York University School of Medicine; Paul Schyve, The Joint Commission; Andrew J. Lemerise, IOM; and Dean Schillinger, UCSF School of Medicine¹

INTRODUCTION

This paper describes 10 attributes of health literate health care organizations, that is, health care organizations that make it easier for people to navigate, understand, and use information and services to take care of their health. Having health literate health care organizations benefits not only the 77 million Americans who have limited health literacy, but also the majority of Americans who have difficulty understanding and using currently available health information and health services (ODPHP, 2008).

Although health literacy is commonly defined as an individual trait—the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Ratzan and Parker, 2000)—there is a growing appreciation that health literacy does not depend on the skills of individuals alone (IOM, 2003). Health literacy is the product of individuals' capacities and the health literacy-related demands and complexities of the health care system (Baker, 2006; Rudd 2003). System changes are needed to align health care demands better with the public's skills and abilities (Parker, 2009; Rudd, 2007).

Health literacy has been identified as a priority area for national action, first by the Department of Health and Human Services as an objective for *Healthy People 2010* (HHS, 2000), and again in the 2003 Institute of Medicine report *Health Literacy: A Prescription to End Confusion* (IOM, 2004). The following decade saw the achievement of many milestones that marked health literacy's ascendancy in both the public and private sectors (Parker and Ratzan, 2010), including a National Action Plan to Improve Health Literacy (ODPHP, 2010). Health literacy has now reached a possible tipping point, the place where paying attention to it could quickly become the norm for health care organizations (Koh et al., 2012).

Recognizing that addressing health literacy is critical to delivering person-centered health care, a wide range of organizations have emphasized the need to tackle system-level factors to ensure that consumers can make informed health care decisions (AHIP, 2011; AMA, 2007; NQF, 2009; ODPHP, 2010; DeWalt et al., 2012;). This is particularly urgent for adults with limited health literacy (Martin and Parker 2011). They experience more serious medication errors (Schillinger et al., 2005), higher rates of emergency room visits and hospitalizations (Baker et al., 2002), worse preventive care and health outcomes for their children (Sanders et al., 2009), and increased mortality (Sudore et al., 2006; Bostock and Steptoe, 2012; Yaffe et al., 2006) compared with individuals with adequate health literacy. Health literacy has also become recognized as an

¹ Participants in the activities of the IOM Roundtable on Health Literacy.

important component to **delivering culturally and linguistically appropriate services**. A forthcoming enhancement of the National Standards for Culturally and Linguistically Appropriate Services acknowledges that addressing health literacy is integral to providing quality health care to diverse populations (HHS OS, 2000).

Health literate health care organizations recognize that **miscommunication** that negatively affects patient care and outcomes is very common. Misunderstandings occur not only in clinical situations, such as when treatment options and medicine instructions are discussed, but also when receptionists ask for a signature on a form and billing staff discuss covered services and financial responsibilities. Health literate health care organizations also recognize that individuals who ordinarily have adequate health literacy may have difficulty processing and using information when they are sick, frightened, or otherwise impaired. **Systems must therefore be redesigned to accommodate the unpredictability of limited health literacy skills** (Rudd, 2010). Finally, health literate health care organizations recognize that literacy, language, and culture are intertwined, and their health literacy efforts augment efforts to reduce disparities and improve the organization's linguistic and cultural competence (Andrulis and Brach, 2007; Sudore et al., 2009). Under the stewardship of health care organizations that are committed to being health literate, everyone benefits from communication that is clear and easy to understand.

This paper presents 10 attributes that exemplify a health literate health care organization. Health care organizations that embody these attributes create an environment that enables people to access and benefit optimally from the range of health care services. The list of attributes is by no means exhaustive, but rather represents an attempt to synthesize a body of knowledge and practice, supported to the greatest extent possible by the state of the science in the young field of health literacy. By providing an aspirational vision, this paper attempts to launch health care organizations on their journey to becoming health literate. The road to becoming health literate, however, is a long one. This paper aims to provide travelers with some guideposts.

Each attribute includes a brief elaboration of the meaning of and basis for the attribute. This is followed by a set of implementation strategies that can be used to achieve the attribute. These strategies are not meant to be prescriptive. There are many paths to becoming a health literate organization. Individual health care organizations will probably choose different strategies. Each should test how well its strategies work with the populations it serves and share the results of its efforts with others. Similarly, health care organizations will choose which attributes to address first and how thoroughly to address those attributes before broadening their efforts to encompass additional attributes.

The 10 attributes are most relevant to organizations that provide health care directly. Such organizations include group practices, clinics, inpatients units, subspecialty teams, hospitals, community health centers, disease management companies, pharmacy practices, and integrated delivery systems. The attributes are also relevant to health care professionals, such as doctors, nurses, physician and medical assistants, pharmacists, dentists, health educators, interpreters, and administrative staff. Finally, many of these attributes are relevant to the broader range of organizations and institutions, such as payers and health plans (e.g., health maintenance organizations, insurance carriers, employee-based plans, the Department of Veterans Affairs, and the Centers for Medicare and Medicaid Services), vendors of health information technology and health education products, accreditation and credentialing organizations, and benefits managers.

THE ATTRIBUTES

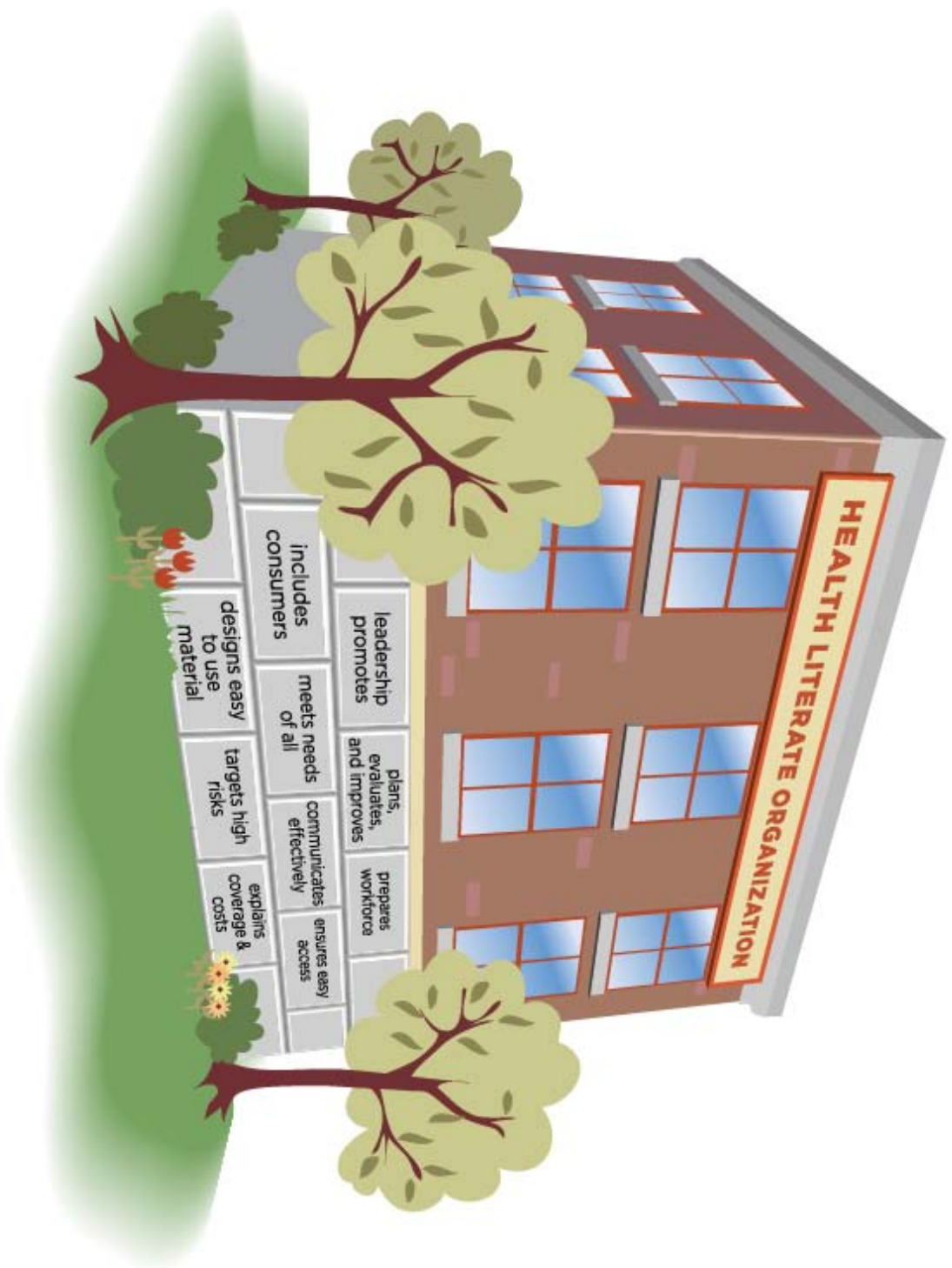
A health literate health care organization (see Figures 1A and 1B):

1. Has leadership that makes health literacy integral to its mission, structure, and operations.
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.
3. Prepares the workforce to be health literate and monitors progress.
4. Includes populations served in the design, implementation, and evaluation of health information and services.
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.
7. Provides easy access to health information and services and navigation assistance.
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.
10. Communicates clearly what health plans cover and what individuals will have to pay for services.

1. A Health Literate Health Care Organization Has Leadership That Makes Health Literacy Integral to Its Mission, Structure, and Operations.

Being a health literate organization is more than initiating a few projects that address health literacy; it means that health literacy is an organizational value. Health literacy strategies are infused throughout the organization and embraced as part of the organization's core business. It is the organization's leadership that establishes the culture of the organization through its language, expectations, and the behavior it models (Schryve, 2009), and through the design of service delivery processes (Rice, 2007). Ongoing organizational leadership is key to ensuring successful implementation and maintenance of the attributes of a health literate organization.

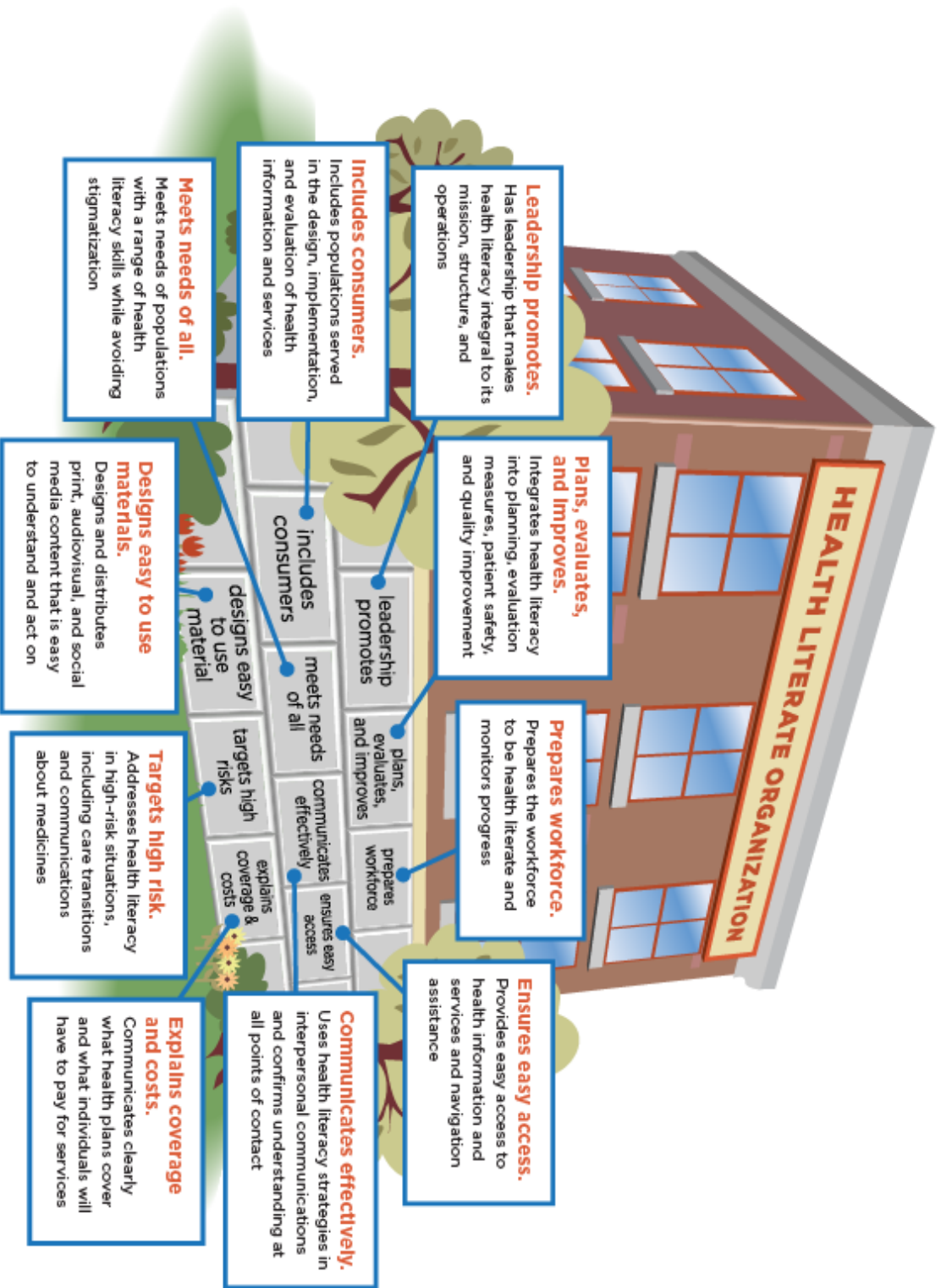
Health literate health care organizations implement evidence-based health literacy strategies. But given the relative paucity of "real-world" implementation research involving representative populations in non-academic health care settings (Sheridan et al., 2011), health literate organizations also develop mutually beneficial partnerships with health literacy researchers to help develop, identify, implement, and evaluate health literacy interventions (Allen et al., 2011; Ratanawongsa et al., 2012).



This graphic reflects the views of the authors of the Discussion Paper "Ten Attributes of Health Literate Health Care Organizations" and not necessarily of the authors' organizations or of the IOM. The paper has not been subjected to the review procedures of the IOM and is not a report of the IOM or of the National Research Council.



FIGURE 1A Foundations of a Health Literate Organization



This graphic reflects the views of the authors of the Discussion Paper "Ten Attributes of Health Literate Health Care Organizations" and not necessarily of the authors' organizations or of the IOM. The paper has not been subjected to the review procedures of the IOM and is not a report of the IOM or of the National Research Council.

FIGURE 1B Elaborations on the Foundations of a Health Literate Organization

Health literacy leadership takes a variety of forms. In a health literate health care organization, organizational leaders:

- Make clear and effective communication a priority across all levels of the organization and across all communication channels.
- Create a culture that values patient and consumer perspectives and emphasizes that communication is made up of two-way interactions between participants who have equally important roles.
- Include an explicit commitment to be health literate in the organization's mission statement.
- Create a culture that values patient and consumer perspectives and emphasizes patient responsibility and delegate two-way interactions between participants who have equally important roles to high-level health literacy goals or an addition to the Chief Medical Officer's job description).
- Set goals for health literacy improvement, provide incentives to achieve those goals, and establish accountability for outcomes at every level of the organization.
- Allocate fiscal and human resources necessary to effectively and efficiently meet health literacy improvement goals (e.g., funds for editing and testing materials with target audiences, extra time to support individuals who need additional reinforcement or assistance, funds and time for health literacy training).
- Cultivate health literacy champions throughout the organization.
- Redesign systems to maximize individuals' capacities to learn how to maintain good health, manage illness or disease, communicate effectively, and make informed decisions.
- Design space to support effective communication (e.g., private counseling space at the pharmacy).
- Encourage other organizations to be health literate by using influence, purchasing power, and collaboration.
- Contribute to local, state, and national efforts to improve organizational responses to health literacy (e.g., joining a state health literacy coalition or community-level health literacy efforts).
- Sponsor research or other forms of active inquiry to extend the evidence base on effective interventions to reduce disparities between those with limited and adequate health literacy.

2. A Health Literate Health Care Organization Integrates Health Literacy into Planning, Evaluation Measures, Patient Safety, and Quality Improvement.

Health literate health care organizations ensure that health literacy is deeply and explicitly integrated into all of their activities, and that health literacy informs both strategic and operational planning. Appropriate measures to evaluate specific health literacy initiatives are developed and used. More importantly, measurement of overall organizational performance assesses success with vulnerable populations.

Research shows that individuals with limited health literacy are less likely than those with adequate health literacy to receive preventive care, know how to self-manage their conditions, take their medicines safely, and manage and support their children's

health needs (Sanders et al., 2009; Sarkar et al., 2008, 2011; Sudore et al., 2006). Health literate health care organizations evaluate their processes and outcomes to monitor such disparities and use continuous quality-improvement methods to address them. Furthermore, health literate health care organizations implement quality-improvement initiatives that benefit *everyone*, ensuring that those with limited health literacy gain as much, if not more, than those with adequate health literacy. This does not imply the need for universal health literacy testing, the desirability and feasibility of which has not been established (Paasche-Orlow and Wolf, 2008). Rather, tactical use of qualitative and quantitative methods can be used to track health literacy disparities (Hanchate et al., 2008; Martin et al., 2009).

Health literacy is central to patient safety planning and activities. Miscommunication can result in harm to patients (IOM, 2006). One study, for example, showed that hospital patients with limited English proficiency (LEP) who experienced an adverse event were more likely to experience harm and the harm was more likely to be serious, compared with English-proficient patients (Divi et al., 2007). To safeguard patient safety and maximize quality, health literate health care organizations adhere to standards related to health literacy promulgated by health care accreditation and quality organizations (e.g., National Quality Forum Safe Practices²; The Joint Commission's primary care medical home option additional requirements³; National Committee for Quality Assurance⁴; and URAC⁵).

Health literate health care organizations:

- Incorporate health literacy into all planning activities.
- Conduct ongoing organizational assessments that reflect organizational performance and progress in promoting health literacy, including an assessment of the physical environment. A number of assessment tools are available, including:
 - The Health Literacy Environment of Hospitals and Health Centers (Rudd and Anderson, 2006);
 - CAHPS Item Set for Addressing Health Literacy (AHRQ, 2007a);
 - Health Literacy Assessment Questions (for primary care practices) (DeWalt et al., 2010);
 - Communication Climate Assessment Tool (for medical practices and hospitals) (Wynia et al., 2010);
 - Health Plan Organizational Assessment of Health Literacy Activities (Gazmararian et al., 2010); and
 - *Is Our Pharmacy Meeting Patients Needs? A Pharmacy Health Literacy Assessment Tool User's Guide* (Jacobson et al., 2007).

² http://www.qualityforum.org/Publications/2010/04/Safe_Practices_for_Better_Healthcare_-_2010_Update.aspx.

³ Focus Area: Patient Education, Health Literacy, and Self-Management, which can be found at http://www.jointcommission.org/assets/1/18/PCMH_new_std_by_5_characteristics.pdf (accessed March 16, 2012).

⁴ http://www.ncqa.org/Portals/0/Publications/Resource%20Library/NCQA_Primer_web.pdf.

⁵ This standard CORE 40 in the Consumer Protection and Empowerment category. https://www.urac.org/STDpdfs/STDGlance_DiseaseMgmt.pdf (accessed March 26, 2012).

- Develop metrics and routinely collect data to measure success in achieving the health literacy attributes and to identify areas for further improvement.
- Design and conduct rigorous program evaluations of health literacy interventions and activities.
- Assess the impact of policies and programs on individuals with limited health literacy.
- Use assessment, measurement, and evaluation to inform continuous health literacy improvement.
- Ensure that consumer surveys are designed to be understandable and easy to complete, and offer and provide assistance in completing surveys.
- Track and report communication failures and conduct root cause analyses to uncover and address the systematic sources of error.
- Harmonize health literacy with other organizational priorities, such as pursuing health equity.

3. A Health Literate Health Care Organization Prepares the Workforce to Be Health Literate and Monitors Progress.

Organizations such as The Joint Commission and the American Medical Association call for health literacy training (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs—American Medical Association, 1999; The Joint Commission, 2007). Health professionals often underuse best practice communication strategies (Schwartzberg et al, 2007; Turner et al., 2009; Rozier et al, 2011). Training, however, can increase health care professionals’ intentions to use clear communication techniques (Mackert et al., 2011). Health professionals who have attended health literacy trainings have succeeded in learning communication skills (Kripalani et al, 2006; Martin et al, 2009; Blake et al, 2010). Furthermore, interventions that involve health literacy training have reported improvements in cancer screening rates and better patient satisfaction ratings (Clark et al., 1998; Ferreira et al., 2005). While research has not yet established direct links between training and improving health outcomes, health literacy training has been shown to achieve desirable educational outcomes (Coleman, 2011)

Health literate health care organizations recognize that *everyone* needs health literacy training. Through widespread training, health literate health care organizations can establish a culture in which everyone works toward the unified goal of promoting successful communication. While the emphasis has been on training clinicians, it is equally important to build the health literacy skills of staff that are the face of the organization, such as receptionists and billing clerks. Furthermore, training is not just for staff who come into contact with patients or develop consumer materials. It is important that others in the organization, particularly executives who influence the organizational culture, are aware of health literacy issues and how to address them.

Health care team members tasked with health education roles require specialized training in educational techniques. Team members include physicians, health educators, nurses, physician and medical assistants, pharmacists, allied health professionals, health coaches, social workers, patient navigators, and community health workers.

Health literate health care organizations:

- Hire diverse workforce with expertise in health literacy.
- Set and meet goals for ongoing formal and informal health literacy training for all staff and members of governing bodies.
- Evaluate health literacy skills of staff on an on-going basis, provide training to those who do not meet standards of excellence, and evaluate the impact of the training.
- Incorporate health literacy into orientation sessions and other types of training (e.g., patient safety, cultural competence, patient-centered care).
- Arrange for staff to take advantage of online health literacy training resources (e.g., AHRQ, 2007b; AMA, 2007; CDC, 2011 ODPHP, 2007; DeWalt et al., 2010; HRSA, 2012; New York New Jersey Public Health Training Center, 2011).
- Support staff in attending specialized health literacy training outside the organization.
- Bring in outside health literacy professionals to augment in-house training resources.
- Develop “expert educators” with cross-cutting educational skills who can serve as role models, mentors, and teachers of health literacy skills to others.
- Identify and implement appropriate new curricula.
- Collaborate with patients who can be effective speakers and trainers (Garcia and Brach, 2008).

4. A Health Literate Health Care Organization Includes Populations Served in the Design, Implementation, and Evaluation of Health Information and Services.

Too often, community members are not consulted in the development and design of information and services, or are consulted only for the evaluation component. It is particularly important to pay attention to the voices of individuals with limited health literacy when planning programs and preparing materials that aim to address health literacy.

A model for partnering with community-based organizations is provided by the Iowa Health System and the New Readers of Iowa. Members of New Readers of Iowa conduct patient walk-throughs of health care facilities, review health forms, serve on committees, and share the adult learner’s point of view about accessing services.

Participatory design can result in products that meet the needs of target populations. For example, seniors and people with disabilities participated in developing a guidebook in English, Spanish, and Chinese to help these populations understand their health care choices under the California Medicaid program (Medi-Cal). An evaluation of the guidebook, which included accurate cultural adaptations, showed that it increased understanding of enrollment options and the capacity to make choices (Neuhauser et al., 2009).

Health literate health care organizations:

- Include members of the populations they serve on governing bodies.
- Establish advisory groups that involve individuals with limited health literacy, adult educators, and experts in health literacy.

- Collaborate with members of the target community in programmatic design and testing of interventions and in the development of materials.
- Obtain and incorporate feedback on health information and services from individuals who use them.
- Enlist community members to join evaluation teams assessing the successes of the organization's health literacy programming.

5. A Health Literate Health Care Organization Meets the Needs of Populations with a Range of Health Literacy Skills While Avoiding Stigmatization.

Some individuals can easily wade through complex information and use abstract quantitative information to solve problems, while others struggle with the meaning of drug labels or a short set of instructions (Kutner et al., 2006). Health care providers have difficulty predicting which individuals are the ones who struggle (Bass et al., 2002; Kelly and Haidet, 2007; Seligman et al., 2005). Individuals with limited literacy, in particular, may feel ashamed (Wolf et al., 2007) and hide their reading problems (Parikh et al., 1996).

Health literate health care organizations, therefore, apply **health literacy universal precautions**. They simplify all communication to the greatest extent possible and verify comprehension with everyone, because they do not make assumptions about who understands or needs extra assistance. By the same token, they also do not rely on written materials to communicate important information, knowing that not everyone can or will read and understand even simplified materials. **Treating everyone equally, such as making offers of assistance to all, can reduce the stigma associated with limited health literacy.**

Health literate health care organizations also “go the extra mile” for individuals who have the greatest difficulty with understanding and navigation. For example, health information technology (IT) can be configured to communicate without using the written word, providing both standardized and tailored information based on the individual's information needs.

While health literacy strategies can be integrated into current routines, others might require additional time, staff, or technology. Health literate health care organizations recognize that some regions or sites serve a disproportionate concentration of individuals with limited health literacy. Such organizations distribute funds and workforce across the organization so that areas that serve individuals with the greatest needs get more resources. Methods to estimate community health literacy levels can be used to locate these areas (Hanchate et al., 2008; Martin et al., 2009).

Health literate health care organizations:

- Adopt health literacy universal precautions.
- Create an environment that is welcoming and does not impose high literacy demands (e.g., walls and bulletin boards are not covered with lots of print information).
- Streamline information collection, collecting only essential information and collecting it only once.

- Employ appropriate innovations and technology to overcome barriers faced by individuals with limited health literacy.
- Provide extra assistance (e.g., health educators, patient navigators, case management help with insurance matters, follow up between visits) to those who need personal attention (Schillinger et al., 2008; Dewalt et al., 2010).
- Ask about problems with paying for medicine, provide assistance with applying for drug coverage, and link individuals with programs that help pay for medicines (DeWalt et al. 2010).
- Use written information to reinforce spoken communication and provide alternatives to written materials (e.g., audiovisual material).
- Allocate resources proportionate to the concentration of limited health literacy.

6. A Health Literate Health Care Organization Uses Health Literacy Strategies in Interpersonal Communications and Confirms Understanding at All Points of Contact.

Almost 8 percent of adults reported that their providers sometimes or never explained things in a way they could understand (AHRQ, 2010). Individuals with limited health literacy report worse communication with their providers than those with adequate health literacy (Schillinger et al., 2004). Similarly, in encounters with health professionals who did not speak their language, individuals with LEP report worse interactions than their counterparts who were English-proficient or had health professionals who spoke their language (Schenker et al., 2010). Furthermore, individuals with limited literacy have been found to be less likely to ask questions of their providers (Katz et al., 2007).

Health literacy experts have identified a number of best practices to promote two-way, effective communication (Schillinger et al., 2003; AMA, 2007; Sudore and Schillinger, 2009; Baker et al., 2011; DeWalt et al., 2012) and some of these have been adopted as patient safety practices (NQF, 2005, 2010; The Joint Commission, 2007). As noted in the Chronic Care Model, productive interactions require both an informed, activated patient as well as a prepared, proactive practice team (Bodenheimer, Wagner, and Grumbach 2002).

Health literacy strategies are not exclusively for clinical interactions. Clear communication is important when explaining a bill, giving directions, or scheduling an appointment. Health literate health care organizations create an environment that promotes and supports the adoption of these strategies, including strategies to be culturally and linguistically competent.

Health literate health care organizations:

- Foster a culture that emphasizes verification of understanding of every communication.
- Allow adequate time for all interactions.
- Ask about and accommodate different communication preferences (e.g., how to communicate test results).

- Plan for and provide language assistance (i.e., competent interpreters or bilingual staff with documented proficiency) to individuals whose preferred language is not English.
- Provide technology that facilitates communication (e.g., video interpreters, talking touchscreens).
- Launch campaigns to encourage question-asking (e.g., Questions Are the Answer⁶ and Ask Me Three⁷), using all staff to encourage and remind individuals to think of questions in advance.
- Treat communication failures as patient safety issues.

Staff members in health literate health care organizations:

- Do not make assumptions about an individual’s prior health knowledge and skills or health beliefs.
- Actively elicit concerns and priorities.
- Listen actively and reflectively, without interrupting.
- Use common, everyday, “living room” language; do not use acronyms or jargon; and minimize the use of medical terminology, defining all terms used.
- Limit the amount of information introduced in each conversation to two or three key messages.
- Verify comprehension and skills, using such techniques as teach-back or show-me,⁸ teach to goal (Baker et al., 2011), and chunk and check.⁹
- Speak clearly and at a moderate pace.
- Encourage question-asking and check that all questions have been satisfactorily answered.
- Focus on information that is actionable.
- Use graphics (e.g., draw pictures, use illustrations, demonstrate with 3-D models, show on computer screens).
- Do not assume written materials will be read and use them only in conjunction with spoken instructions, reviewing and highlighting written materials.
- Request interpreter services when the staff member does not have documented proficiency in the individual’s preferred language.

7. A Health Literate Health Care Organization Provides Easy Access to Health Information and Services and Navigation Assistance.

⁶ <http://www.ahrq.gov/questions/>.

⁷ <http://www.npsf.org/for-healthcare-professionals/programs/ask-me-3/>.

⁸ Patient understanding is confirmed when the patient is able to explain or demonstrate what the provider has explained. <http://www.ahrq.gov/qual/literacy/healthliteracytoolkit.pdf> (accessed March 16, 2012).

⁹ Using this technique, one stops “after giving each key point to solicit questions and have patients repeat the material back to you.” <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol142009/No3Sept09/Assessing-Health-Literacy-.html> (accessed March 16, 2012).

Navigation within the health care system involves interacting with the built environment, the electronic environment, and negotiating the increasingly complicated and fragmented health care system. Health literacy navigational tasks include finding health care facilities and offices within them, coordinating among service providers, and finding health information to make appropriate decisions.

Health care settings often have multiple directional signs that contain sophisticated words (e.g., ambulatory care). This can confuse the best readers, and baffle those with limited literacy or English proficiency (Rudd, 2004; Rudd et al., 2005). Health literate health care organizations go beyond improving signage, using architectural design and staff who provide directions to make finding one's way easier (Groene and Rudd 2011).

To contend with the bewildering assortment of sources of health information, health literate health care organizations steer individuals to accurate, easy-to-understand, and actionable information. Health care organizations increasingly rely on electronic means of sharing information with the populations they serve. Patient portals not only provide access to personal health information, they also afford the opportunity to interact with providers and receive electronic educational resources. A recent study, however, found that those with limited health literacy were less likely to access and use patient portals, even among those with Internet access (Sarkar et al., 2010). To ensure that everyone is able to benefit from technological advances, health literate health care organizations insist on user-friendly design in all products they purchase and develop (Eicher and Dullabh, 2007; IOM, 2009; ODPHP, 2010).

Navigation assistance can take the form of relieving the burden placed on individuals to coordinate their own care. For example, electronic referrals to specialists, which do not rely on individuals to aggregate and master complex health information related to their appointment, can improve the transmission of information among providers (Kim-Hwang et al., 2010). Another example of using technology to streamline procedures is the "One-e-App" program, an innovative web-based system that provides an efficient one-stop approach to enrollment in a range of public and private health, social service, and other support programs (California HealthCare Foundation, 2010).

Health literate health care organizations:

- Design health care facilities with features that help people find their way.
- Use easily understood language and symbols on signage, and have signage in commonly spoken languages.
- Train staff to respond to navigational inquiries in a courteous and effective manner, without assuming map-reading skills or car ownership.
- Integrate and co-locate multiple services in the same facility (e.g., primary care, specialty care, behavioral health care, health and wellness services, social services).
- Assist consumers and families in understanding what health care benefits and services are offered, including enrollment into wellness, case management, and disease management programs.
- Supply navigators (or community health workers [*promotores*], lay health advisors, peer coaches) to answer questions, problem solve, advocate, lend support, and give guidance and assistance in overcoming barriers to accessing information and services.

- Assist in scheduling appointments with other care providers (e.g., primary care providers, specialists, labs, physical therapists, home health).
- Do not rely on patients to relay information among care providers.
- Maintain a list of community health, literacy, and social service resources; establish referral relationships with these organizations; and institute processes for keeping the list current.
- Track referrals and follow-up to ensure they are completed.
- Maintain a user-friendly telephone system, educate callers in how to use it, and develop staff procedures on telephone etiquette.
- File health insurance claims and assist in troubleshooting denials and filing appeals and grievances.
- Purchase or develop consumer-facing electronic health applications (e.g., patient portals, information kiosks, decision-making aids, health-monitoring devices) that employ user-friendly design and have been pre-tested with populations with limited health literacy.
- Provide consumers training on how to use consumer-facing electronic health applications.
- Populate electronic health information applications (both electronic health records and patient portals) with easy-to-understand and actionable health information.
- Purchase or develop electronic health information applications that have the ability to link appropriate health education materials to meet each individual's needs, and use that functionality when "prescribing" health information.
- Program features that support and track health literacy practices into electronic health records and provide training to users.

8. A Health Literate Health Care Organization Designs and Distributes Print, Audiovisual, and Social Media Content That Is Easy to Understand and Act On.

Most health information is too technical and complex for the average American person, let alone individuals with limited literacy (Walsh and Volsko, 2008). Although health professionals may fear "dumbing down" information, even individuals with adequate literacy prefer clear, well-organized materials (Davis et al., 1998; Parker, 2000). Health literate health care organizations assess the suitability of materials for their target audience, going beyond mere readability calculations, to determine how easy they are to understand and act on. Finding materials that meet these criteria is not easy, although some sources (e.g., Medline-Plus's *easy to read* section) have a better selection than others. When suitable materials on a topic cannot be found, health literate health care organizations develop appropriate materials, engaging members of the target audience and clear-writing experts to help inform the content and design.

Health information is not limited to patient education materials on prevention, diagnosis, and treatment options. It includes, for example, information on insurance policies, explanation of benefits, bills, and test results. Furthermore, a health literate organization follows the principles of clear communication on forms and notices individuals are asked to fill out and sign.

Health literacy strategies such as using plain language, topic headings, and pictures, can enhance understanding (Campbell et al., 2004). Evidence-based approaches to making materials understandable include using illustrations (Delp and Jones, 1996) and pictograms (Yin et al., 2008). Clear communication practices also need to be observed with social media. Given the number of social media users (half of Facebook users log on every day and there are 100 million active Twitter users), health care organizations cannot afford to ignore social media as a powerful means of communicating (Kamel-Boullis, 2012). Short messages, however, are not synonymous with clear ones.

Health literate health care organizations do not rely solely on print material, but use the full array of audiovisual media. Alternatives to print, however, are not a panacea, each having its own pros and cons. For example, mobile devices have the advantage of permitting audio messages, but they have the disadvantage of having very small screens. In and of themselves, multimedia applications may not reduce disparities between those with adequate and limited health literacy (Kandula et al., 2009). Furthermore, health literate health care organizations bear in mind that individuals with limited health literacy often have low eHealth literacy. Such individuals have limited ability to seek, find, understand, evaluate, and use knowledge obtained from electronic sources to address or solve a health problem (Norman and Skinner, 2006).

Whether in print or audiovisual form, materials must be available in languages commonly spoken by the target population. Word-for-word translations are not adequate, as materials need to be adapted for cultural and linguistic differences to retain their meaning.

Health literate health care organizations:

- Consider educational materials a supplement to, not a substitute for, in-person education.
- Stock a variety of high-quality educational materials (e.g., 3-D models, audiovisual materials), including those that are appropriate for individuals with limited literacy (e.g., photo-novellas, cartoon illustrations, multimedia tutorials, podcasts) and use multiple channels of distributing them (e.g., DVDs, patient portals).
- Evaluate all distributed health materials using state-of-the-art assessment tools and obtain consumer feedback to ensure that they are appropriate for all members of the target group.
- Use tools that assist in developing easy-to-understand print and online health materials, such as:
 - Toolkit for Making Written Material Clear and Effective (CMS, 2011);
 - Health Literacy Online: A Guide to Writing and Designing Easy-to-use Health Web Sites (HHS, 2010);
 - *Accessible Health Information Technology (Health IT) for Populations with Limited Literacy: A Guide for Developers and Purchasers of Health IT* (Eichner and Dullabh, 2007); and
 - Clear & Simple: Developing Effective Print Materials for Low-literate Readers (NCI, 2003).
- Choose and create materials that
 - make their purpose clear;

- use common words (no jargon);
 - focus on a limited number of messages;
 - use simple visuals if they make the content more easily understood and refrain from using distracting visuals;
 - use short sentences written in the active voice;
 - allow users to hear words clearly (for audio only);
 - use checkboxes and provide a “don’t know” option so that individuals don’t feel compelled to check inaccurate information (for forms);
 - break information into manageable chunks, clearly label each section, and sequence them in a logical order;
 - do not require calculations to use the information, or, when calculations are unavoidable, provide simple instructions; and
 - communicate clearly what specific action to take, breaking actions into manageable steps.
- Make materials available in commonly-read languages.
 - Engage in a high-quality translation process to produce materials in languages other than English. For example:
 - Independent translations by two trained translators who are native speakers of the target language and are familiar with the cultures of the target audience.
 - Reconciliation of any differences between the two translators.
 - Review of the translation by a content specialist who is a native speaker of the target language and reconciliation of any differences.
 - Test comprehension with target audience.
 - Employ staff and consultants with health literacy expertise when developing new materials.
 - Involve the target audience, including individuals with limited health literacy, in participatory design and rigorous testing of materials.
 - Test messages with the target audience, including individuals with limited health literacy, before sending them through social or other electronic media.

9. A Health Literate Health Care Organization Addresses Health Literacy in High-Risk Situations, Including Care Transitions and Communications About Medicines.

While all communications should follow health literacy best practices, there are high-risk decisions, situations, and transitions that demand a heightened level of assurance that individuals fully understand. Examples include informed consent for surgery; administration of medicines with potentially serious consequences, especially if not taken correctly; advanced directives for end-of-life care; and transitions in care, such as discharge from the hospital. Health literate health care organizations identify which situations merit heightened safeguards and have standards and processes in place to ensure there is no miscommunication.

All too often, informed consent focuses on getting a signature on a form instead of optimizing the process by which an individual is informed about the benefits and risks of a procedure or treatment. The story of Toni Cordell, who was not a reader and did not

understand prior to surgery that her doctor’s solution to her “woman’s problem” was a hysterectomy, serves as a cautionary tale (Cordell, 2007). The National Quality Forum identifies **teach-back** when obtaining informed consent as a top safety practice (NQF, 2010).

Communication about medicines is a significant factor in medicine errors (IOM, 2006). One study showed that only 50 percent of patients’ understanding of their anticoagulation medicine regimen agreed with their doctors’ records (Schillinger et al., 2005). Individuals with limited health literacy are more likely to be unable to identify their medicines (Persell et al., 2007), and misunderstand prescription drug labels (Wolf et al., 2011), drug warnings (Davis et al., 2006), and how to take their medicines (Lindquist et al. 2012). Incorporating visual aids into medication counseling and labeling can reduce medicine-taking errors (Machtinger et al., 2007; Wolf et al., 2011; Yin et al., 2008). A health literate health care organization makes it a priority to implement systems and interventions that advance medicine safety and self-management.

Another area where precise communication is critical is end-of-life care decision-making. Instructions about life sustaining and palliative care are dependent on people’s understanding of potential end-of-life circumstances and prognosis, although complex end-of-life decision-making can be facilitated by the use of high quality decision aids. One study found that uncertainty about end-of-life preferences, which was greater for individuals with limited health literacy, could be reduced by showing a video to clearly communicate the situation being discussed (Vollandes et al., 2010). Furthermore, preferences for more aggressive end-of-life treatment, believed to be a cultural value, changed after patient education (Vollandes et al., 2008a; Vollandes et al., 2008b).

Assuring smooth transitions from hospitals to homes and reducing readmissions has become a focus of national attention (Partnership for Patients¹⁰). Successful readmission reduction programs frequently feature health literacy strategies. For example, one randomized controlled trial of an intervention that employed a number of health literacy strategies, the Re-Engineered Discharge (RED), reduced rehospitalizations by 30 percent (Jack et al., 2009).

Health literate health care organizations:

- Identify high risk-situations and topics that require extra attention and resources, and establish and implement plans to ensure safe communication. Actions may include
 - Fostering a culture that values and practices meaningful informed consent.
 - Improving the understandability of informed consent forms and translating forms into a patient’s preferred written language.
 - Establishing an informed consent process that consists of obtaining interpreter services if needed; offering to read forms; verifying that patients have understood by asking them to explain in their own words the procedure and the reason for the procedure or treatment, the hoped-

¹⁰ <http://www.healthcare.gov/compare/partnership-for-patients/index.html>.

for benefits, likelihood of success, and possible risks; and certifying that this process was followed (AHRQ, 2009; Fleischer et al., 2009; NQF, 2005).

- Using aids (e.g., pill boxes, pill cards, pill charts, appropriate dosing devices) to encourage and remind individuals how to take their medicine correctly (DeWalt et al., 2012; Yin et al., 2010).
- Giving providers incentives (time and reimbursement) to conduct, on a regular basis, brown-bag medicine reviews, i.e., asking individuals to bring in all medicines, supplements, and herbal remedies and describe why and when, and how and how much of each medicine they take.
- Affixing patient-centered labels on medicine containers that follow recommendations of U.S. Pharmacopeia (U.S. Pharmacopeial Convention, 2011).
- Using easy-to-understand language and decision-making tools when discussing and documenting end-of-life care decisions with patients and their families.
- Educating patients and their caregivers and confirming understanding throughout their hospital stays, sending them home with easy-to-understand written information and instructions, making appointments to see primary care and other providers before discharge, providing discharge summaries within 24 hours, and following up with patients after discharge (BUMC, 2011; The Joint Commission, 2007).

10. A Health Literate Health Care Organization Communicates Clearly What Health Plans Cover and What Individuals Will Have to Pay for Services.

Many individuals need to make decisions about health insurance coverage. The information overload and administrative complexity of selecting and enrolling in a plan is likely to be overwhelming and burdensome for many.

Clear, consistent, and comparable information about health plan benefits and coverage is needed. The Center for Consumer Information and Insurance Oversight (CCIIO) has developed a template for plans to use to summarize the key features of the plan or coverage in plain language. CCIIO has also developed a glossary of commonly-used insurance terms.¹¹

While simple and consistent information about health plan benefits and coverage will be very helpful, many individuals will need additional help to make sense of their options. State Health Insurance Exchanges are establishing navigator programs, which provide culturally and linguistically appropriate education and enrollment assistance. Navigators are not a new concept, and build upon such programs as the State Health Insurance Counseling and Assistance Programs (SHIP). SHIP provides personalized counseling and assistance, including answering questions about coverage and benefits, to 45 million Medicare beneficiaries and their caregivers. State-based Consumer Assistance

¹¹ Additional information can be found at <http://cciio.cms.gov/programs/consumer/summaryandglossary/index.html> (accessed March 22, 2012).

Programs (CAPs) provide enrollment assistance to those who do not obtain coverage through the State Health Insurance Exchanges, and also provide more intensive assistance, such as help with appeals.

Transparency of coverage and cost is also needed at the point of care. Prescribers need to know which medicines will be covered. Consumers need to know what the out-of-pocket cost of treatment will be before they give their consent. No one is expected to order from a restaurant menu with no prices on it, but too often consumers are expected to make health care decisions without first knowing what it will cost them. Technological innovation and collaboration among payers could give rise to systems that would compute expected out-of-pocket expenses in real time.

Health literate insurers:

- Provide easy-to-understand, comparable information on coverage and benefits, including out-of-pocket cost policies.
- Respond promptly and accurately to requests for information about coverage for specific treatments and procedures.
- Routinely provide up-to-date information on formularies and other drug payment policies to prescribers.

Health literate health care organizations:

- Provide staff and resources to find out whether a treatment is covered and what out-of-pocket expenses will be, and troubleshoot difficulties in obtaining reimbursement.
- Communicate costs of care in advance.
- Are familiar with and take into consideration insurance drug coverage that affects the cost of medicine to consumers before prescribing.
- Refer individuals to health insurance consumer and navigator programs.

CONCLUSION

This paper introduces a set of 10 attributes that health literate health care organizations can adopt and invest in to help everyone benefit fully from the nation's health care systems. The concept of "health literate health care organizations" will profit from further discussion and refinement. The many examples in this paper, however, demonstrate that health care organizations can immediately take concrete, practical actions to close the gap between individuals' health literacy skills and the demands of complex health care systems. **The transformation to a more person-centered health care system provides opportunities to redesign health information and services, integrating principles of health literacy into organizational objectives, infrastructure, policies and practices, workforce development, and communication strategies.** If health care organizations adopt most of the 10 attributes in even a modest way, they will not only be more responsive to individuals' needs, and especially those with limited health literacy, they will also make a substantial contribution to improved population health.

REFERENCES

- Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs—American Medical Association. 1999. Health literacy. *Journal of the American Medical Association* 281(6):552-557.
- AHIP (America's Health Insurance Plans). 2011. *Health literacy and America's Health Insurance Plans: Laying the foundation and beyond*. Washington, DC: America's Health Insurance Plans.
- AHRQ (Agency for Healthcare Research and Quality). 2007a. *CAHPS health literacy item set*. www.cahps.ahrq.gov/content/products/HL/PROD_HL_Intro.asp (accessed August 15, 2007).
- AHRQ. 2007b. *Strategies to improve communication between pharmacy staff and patients training program for pharmacy staff*. <http://www.ahrq.gov/qual/pharmlit/pharmtrain.htm> (accessed March 16, 2012).
- AHRQ. 2009. *The AHRQ informed consent and authorization toolkit for minimal risk research*. <http://www.ahrq.gov/fund/informedconsent/> (accessed March 16, 2012).
- AHRQ. 2010. *National healthcare disparities report*. Rockville, MD: Agency for Healthcare Research and Quality.
- Allen, K., J. Zoellner, M. Motley, and P. A. Estabrooks. 2011. Understanding the internal and external validity of health literacy interventions: A systematic literature review using the RE-AIM framework. *Journal of Health Communication* 16(Suppl 3):55-72.
- AMA (American Medical Association). 2007. *Health literacy and patient safety: Help patients understand (Manual for clinicians)*. <http://www.ama-assn.org/ama1/pub/upload/mm/367/healthlitclinicians.pdf> (accessed March 16, 2012).
- Andrulis, D. P., and C. Brach. 2007. Integrating literacy, culture, and language to improve health care quality for diverse populations. *American Journal of Health Behavior* 31(Suppl 1):S122-S133.
- Baker, D. W. 2006. The meaning and the measure of health literacy. *Journal of General Internal Medicine* 21(8):878-883.
- Baker, D. W., D. A. DeWalt, D. Schillinger, V. Hawk, B. Ruo, K. Bibbins-Domingo, M. Weinberger, A. Macabasco-O'Connell, and M. Pignone. 2011. "Teach to goal": Theory and design principles of an intervention to improve heart failure self-management skills of patients with low health literacy. *Journal of Health Communication* 16(Suppl 3):73-88.
- Baker, D. W., J. A. Gazmararian, M. V. Williams, T. Scott, R. M. Parker, D. Green, J. Ren, and J. Peel. 2002. Functional health literacy and the risk of hospital admission among medicare managed care enrollees. *American Journal of Public Health* 92(8):1278-1283.
- Bass, P. F. I., J. F. Wilson, C. H. Griffith, and D. R. Barnett. 2002. Residents' ability to identify patients with poor literacy skills. *Academic Medicine* 77(10):1039-1041.
- Blake, S. C., K. McMorris, K. L. Jacobson, J. A. Gazmararian, and S. Kripalani. 2010. A qualitative evaluation of a health literacy intervention to improve medication adherence for underserved pharmacy patients. *Journal of Health Care for the Poor and Underserved* 21(2):559-567.
- Bodenheimer T., E. H. Wagner, K. Grumbach. 2002. Improving primary care for patients with chronic illness. *JAMA* 288(14):1775-1779.
- Bostock, S., and A. Steptoe. 2012. Association between low functional health literacy and mortality in older adults: Longitudinal cohort study. *BMJ* 344:e1602.
- BUMC (Boston University Medical Center). 2011. *The new and improved RED toolkit*. <http://www.bu.edu/fammed/projectred/newtoolkit/index.html> (accessed March 16, 2012).

- California HealthCare Foundation. 2010. *One-e-App: One-stop access to health and social service programs*. <http://www.chcf.org/projects/2007/oneeapp-onestop-access-to-health-care> (accessed March 16, 2012).
- Campbell, F. A., B. D. Goldman, M. L. Boccia, and M. Skinner. 2004. The effect of format modifications and reading comprehension on recall of informed consent information by low-income parents: A comparison of print, video, and computer-based presentations. *Patient Education and Counseling* 53(2):205-216.
- CDC (Centers for Disease Control and Prevention). 2011 *Health literacy for public health professionals*. <http://www.cdc.gov/healthliteracy/GetTrainingCE.html> (accessed June 20, 2012).
- Clark, N. M., M. Gong, M. A. Schork, D. Evans, D. Roloff, M. Hurwitz, L. Maiman, and R. B. Mellins. 1998. Impact of education for physicians on patient outcomes. *Pediatrics* 101(5):831-836.
- CMS (Centers for Medicare & Medicaid Services). 2011. *Toolkit for making written material clear and effective*. <https://www.cms.gov/WrittenMaterialsToolkit/> (accessed March 16, 2012).
- Coleman, C. 2011. Teaching health care professionals about health literacy: A review of the literature. *Nursing Outlook* 59(2):70-78.
- Cordell, T. 2007. Chasing the monster. *North Carolina Medical Journal*. 68(5):331-332.
- Davis T. C., D. D. Fredrickson, C. Arnold, P. W. Murphy, M. Herbst, and J. A. Bocchini. 1998. A polio immunization pamphlet with increased appeal and simplified language does not improve comprehension to an acceptable level. *Patient Education Counseling* 33(1):25-37.
- Davis, T. C., M. S. Wolf, P. F. Bass, M. Middlebrooks, E. Kennen, D. W. Baker, C. L. Bennett, R. Durazo-Arvizu, A. Bocchini, S. Savory, and R. M. Parker. 2006. Low literacy impairs comprehension of prescription drug warning labels. *Journal of General Internal Medicine* 21(8):847-851.
- Delp, C., and J. Jones. 1996. Communicating information to patients: The use of cartoon illustrations to improve comprehension of instructions. *Academic Emergency Medicine* 3(3):264-270.
- DeWalt, D. A., L. F. Callahan, V. H. Hawk, K. A. Broucksou, A. Hink, R. Rudd, and C. Brach. 2010. *Health literacy universal precautions toolkit*. <http://www.ahrq.gov/qual/literacy/healthliteracytoolkit.pdf> (accessed March 16, 2012).
- Divi, C., R. G. Koss, S. P. Schmaltz, and J. M. Loeb. 2007. Language proficiency and adverse events in US hospitals: A pilot study. *International Journal for Quality in Health Care* 19(2):60-67.
- Eichner, J., and P. Dullabh. 2007. *Accessible health information technology (health IT) for populations with limited literacy: A guide for developers and purchasers of health IT*. Rockville, MD: Agency for Healthcare Research and Quality.
- Ferreira, M. R., N. C. Dolan, M. L. Fitzgibbon, T. C. Davis, N. Gorby, L. Ladewski, D. Liu, A. W. Rademaker, F. Medio, B. P. Schmitt, and C. L. Bennett. 2005. Health care provider-directed intervention to increase colorectal cancer screening among veterans: Results of a randomized controlled trial. *Journal of Clinical Oncology* 23(7):1548-1554.
- Fleischer, L., S. Raivitch, S. M. Miller, Y. Partida, A. Martin-Boyan, C. Soltoff, and P. Courter. 2009. *A practical guide to consent*. <http://www.templehealth.org/ICTOOLKIT/html/ictoolkitpage1.html> (accessed March 16, 2012).
- Garcia, C., and C. Brach. 2008. Integrating health literacy into patient safety partnerships. In *Engaging patients as safety partners: A guide for reducing errors and improving satisfaction*, edited by P. L. Spath. Chicago: Health Forum. Pp. 121-162.

- Gazmararian, J. A., K. Beditz, S. Pisano, and R. Carreón. 2010. The development of a health literacy assessment tool for health plans. *Journal of Health Communication* 15(Suppl 2):93-101.
- Hanchate, A., A. Ash, J. Gazmararian, M. Wolf, and M. Paasche-Orlow. 2008. The demographic assessment for health literacy (DAHL): A new tool for estimating associations between health literacy and outcomes in national surveys. *Journal of General Internal Medicine* 23(10):1561-1566.
- HHS (U.S. Department of Health and Human Services). 2000. *Healthy people 2010: Understanding and improving health*. Washington, DC: U.S. Government Printing Office.
- HHS. 2010. *Health literacy online: A guide to writing and designing easy-to-use health web sites*. http://www.health.gov/healthliteracyonline/Web_Guide_Health_Lit_Online.pdf (accessed March 16, 2012).
- HHS OS (U.S. Department of Health and Human Services Office of the Secretary). 2000. National standards on culturally and linguistically appropriate services (CLAS) in health care. *Federal Register* 65(247):80865-80879.
- HRSA (Health Resources and Services Administration). 2012. *Effective communication tools for healthcare professionals*. <http://www.hrsa.gov/publichealth/healthliteracy/> (accessed Mary 31, 2012).
- IOM (Institute of Medicine). 2003. *Priority areas for national action: transforming health care quality*. Washington DC: The National Academies Press
- IOM. 2004. *Health literacy: A prescription to end confusion*. Washington, DC: The National Academies Press.
- IOM. 2006. *Preventing medication errors: Quality chasm series*. Washington, DC: The National Academies Press.
- IOM. 2009. *Health literacy, ehealth, and communication: Putting the consumer first: Workshop summary*. Washington, DC: The National Academies Press.
- Jack, B. W., V. K. Chetty, D. Anthony, J. L. Greenwald, G. M. Sanchez, A. E. Johnson, S. R. Forsythe, J. K. O'Donnell, M. K. Paasche-Orlow, C. Manasseh, S. Martin, and L. Culpepper. 2009. A reengineered hospital discharge program to decrease rehospitalization. *Annals of Internal Medicine* 150(3):178-187.
- Jacobson, K., J. Gazmararian, S. Kripalani, K. McMorris, S. Blake, and C. Brach. 2007. *Is our pharmacy meeting patients' needs? A pharmacy health literacy assessment tool user's guide*. Rockville, MD: Agency for Healthcare Research and Quality.
- Kamel-Boulis, M. N. 2012. On social media and health literacy. *WebmedCentral Health Informatics* 3(1).
- Kandula, N. R., P. A. Nsiah-Kumi, G. Makoul, J. Sager, C. P. Zei, S. Glass, Q. Stephens, and D. W. Baker. 2009. The relationship between health literacy and knowledge improvement after a multimedia type 2 diabetes education program. *Patient Education and Counseling* 75(3):321-327.
- Katz, M., T. Jacobson, E. Veledar, and S. Kripalani. 2007. Patient literacy and question-asking behavior during the medical encounter: A mixed-methods analysis. *Journal of General Internal Medicine* 22(6):782-786.
- Kelly, P. A., and P. Haidet. 2007. Physician overestimation of patient literacy: A potential source of health care disparities. *Patient Education and Counseling* 66(1):119-122.
- Kim-Hwang, J., A. Chen, D. Bell, D. Guzman, H. Yee, and M. Kushel. 2010. Evaluating electronic referrals for specialty care at a public hospital. *Journal of General Internal Medicine* 25(10):1123-1128.
- Koh, H. K., D. M. Berwick, C. M. Clancy, C. Baur, C. Brach, L. M. Harris, and E. G. Zerhusen. 2012. New federal policy initiatives to boost health literacy can help the nation move beyond the cycle of costly "crisis care." *Health Affairs* 31(2):434-443.

- Kripalani, S., L. E. Henderson, E. Y. Chiu, R. Robertson, P. Kolm, and T. A. Jacobson. 2006. Predictors of medication self-management skill in a low-literacy population. *Journal of General Internal Medicine* 21(8):852-856.
- Kutner, M., E. Greenberg, Y. Jin, and C. Paulsen. 2006. *The health literacy of America's adults: Results from the 2003 National Assessment of Adult Literacy*. Washington, DC: National Center for Education Statistics.
- Lindquist, L.A., L. Go, J. Fleisher, N. Jain, E. Friesema, D.W. Baker. 2012. Relationship of health literacy to intentional and unintentional non-adherence of hospital discharge medications. *Journal of General Internal Medicine*. 27(2):173-178.
- Machtiger, E. L., F. Wang, L. L. Chen, M. Rodriguez, S. Wu, and D. Schillinger. 2007. A visual medication schedule to improve anticoagulation control: A randomized, controlled trial. *Joint Commission Journal on Quality and Patient Safety* 33(10):625-635.
- Mackert, M., J. Ball, and N. Lopez. 2011. Health literacy awareness training for healthcare workers: Improving knowledge and intentions to use clear communication techniques. *Patient Education and Counseling* 85(3):e225-e228.
- Martin, L., T. Ruder, J. Escarce, B. Ghosh-Dastidar, D. Sherman, M. Elliott, C. Bird, A. Fremont, C. Gasper, A. Culbert, and N. Lurie. 2009. Developing predictive models of health literacy. *Journal of General Internal Medicine* 24(11):1211-1216.
- Martin, L.T. and R.M. Parker. 2011. Insurance expansion and health literacy. *JAMA* 306(8):874-875.
- NCI (National Cancer Institute). 2003. *Clear & simple: Developing effective print materials for low-literate readers*. <http://www.cancer.gov/cancertopics/cancerlibrary/clear-and-simple/page1/AllPages> (accessed March 16, 2012).
- Neuhauser, L., B. Rothschild, C. Graham, S. L. Ivey, and S. Konishi. 2009. Participatory design of mass health communication in three languages for seniors and people with disabilities on Medicaid. *American Journal of Public Health* 99(12):2188-2195.
- New York New Jersey Public Health Training Center. 2011. *Health literacy & public health: Strategies for addressing low health literacy*. <http://www.nynj-phtc.org/pages/catalog/phlit02/> (accessed March 16, 2012).
- Norman, C. D., and H. A. Skinner. 2006. Ehealth: The ehealth literacy scale. *Journal of Medical Internet Research* 8(4):e27.
- NQF (National Quality Forum). 2005. *Improving patient safety through informed consent for patients with limited health literacy*. Washington, DC: National Quality Forum.
- NQF. 2009. *Health literacy: A linchpin in achieving national goals for health and healthcare*. Washington, DC: National Quality Forum.
- NQF. 2010. *Safe practices for better healthcare—2010 update*. Washington, DC: National Quality Forum.
- ODPHP (Office of Disease Prevention and Health Promotion). 2007. *Quick guide to health literacy*. <http://www.health.gov/communication/literacy/quickguide/> (accessed June 12, 2012).
- ODPHP. 2008. *America's health literacy: Why we need accessible health information*. Rockville, MD: U.S. Department of Health and Human Services.
- ODPHP. 2010. *National action plan to improve health literacy*. <http://www.health.gov/communication/HLActionPlan> (accessed March 16, 2012).
- Paasche-Orlow, M., and M. Wolf. 2008. Evidence does not support clinical screening of literacy. *Journal of General Internal Medicine* 23(1):100-102.
- Parikh, N. S., R. M. Parker, J. R. Nurss, D. W. Baker, and M. V. Williams. 1996. Shame and health literacy: The unspoken connection. *Patient Education and Counseling* 27(1):33-39.
- Parker, R. 2000. Health literacy: A challenge for American patients and their health care providers. *Health Promotion International* 15(4):277-283.

- Parker, R., and S. C. Ratzan. 2010. Health literacy: A second decade of distinction for Americans. *Journal of Health Communication* 15(Suppl 2):20-33.
- Parker, R. M. 2009. *What? So what? Now what?* Paper presented at Measures of Health Literacy Workshop, Washington, DC.
- Persell, S., C. Osborn, R. Richard, S. Skripkauskas, and M. Wolf. 2007. Limited health literacy is a barrier to medication reconciliation in ambulatory care. *Journal of General Internal Medicine* 22(11):1523-1526.
- Ratanawongsa, N., M. Handley, J. Quan, U. Sarkar, K. Pfeifer, C. Soria, and D. Schillinger. 2012. Quasi-experimental trial of diabetes self-management automated and real-time telephonic support (SMARTSteps) in a Medicaid managed care plan: Study protocol. *BMC Health Services Research* 12(1):22.
- Ratzan, S. C., and R. M. Parker. 2000. Introduction. In *National Library of Medicine current bibliographies in medicine: Health literacy*, edited by C. Selden, M. Zorn, S. C. Ratzan and R. M. Parker. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services.
- Rice, M. F. 2007. Promoting cultural competency in public administration and public service delivery: Utilizing self-assessment tools and performance measures. *Journal of Public Affairs Education* 13(1):41-57.
- Rozier, R. G., A. M. Horowitz, and G. Podschun. 2011. Dentist-patient communication techniques used in the United States. *Journal of the American Dental Association* 142(5):518-530.
- Rudd, R. 2003. Objective 11-2. Improvement of health literacy. In *Communicating health: Priorities and strategies for progress*. Washington, DC: U.S. Department of Health and Human Services.
- Rudd, R. 2004. Navigating hospitals: Literacy barriers. *Literacy Harvest* (Fall):19-24.
- Rudd, R., and J. Anderson. 2006. *The health literacy environment of hospitals and health centers*. <http://www.hsph.harvard.edu/healthliteracy/files/healthliteracyenvironment.pdf> (accessed March 16, 2012).
- Rudd, R.E. 2007. Health literacy skills of U.S. adults. *Journal of Health Behaviors*. 31(S1):S8-18.
- Rudd, R.E. 2010. Improving Americans' Health Literacy. *New England Journal of Medicine*, 363(24):2283-5.
- Rudd, R., D. Renzulli, A. Pereira, and L. Daltory. 2005. Literacy demands in health care settings: The patient perspective. In *Understanding health literacy: Implications for medicine and public health*, edited by J. G. Schwartzberg, J. B. VanGeest and C. C. Wang. Chicago: AMA Press.
- Sanders, L. M., S. Federico, P. Klass, M. A. Abrams, and B. Dreyer. 2009. Literacy and child health: A systematic review. *Archives of Pediatrics & Adolescent Medicine* 163(2):131-140.
- Sarkar, U., A. J. Karter, J. Y. Liu, N. E. Adler, R. Nguyen, A. López, and D. Schillinger. 2010. The literacy divide: Health literacy and the use of an internet-based patient portal in an integrated health system—results from the Diabetes Study of Northern California (DISTANCE). *Journal of Health Communication* 15(Suppl 2):183-196.
- Sarkar, U., J. D. Piette, R. Gonzales, D. Lessler, L. D. Chew, B. Reilly, J. Johnson, M. Brunt, J. Huang, M. Regenstein, and D. Schillinger. 2008. Preferences for self-management support: Findings from a survey of diabetes patients in safety-net health systems. *Patient Education and Counseling* 70(1):102-110.
- Sarkar, U., D. Schillinger, K. Bibbins-Domingo, A. Nápoles, L. Karliner, and E. J. Pérez-Stable. 2011. Patient–physicians' information exchange in outpatient cardiac care: Time for a heart to heart? *Patient Education and Counseling* 85(2):173-179.

- Schenker, Y., A. J. Karter, D. Schillinger, E. M. Warton, N. E. Adler, H. H. Moffet, A. T. Ahmed, and A. Fernandez. 2010. The impact of limited English proficiency and physician language concordance on reports of clinical interactions among patients with diabetes: The DISTANCE study. *Patient Education and Counseling* 81(2):222-228.
- Schillinger, D., A. Bindman, F. Wang, A. Stewart, and J. Piette. 2004. Functional health literacy and the quality of physician-patient communication among diabetes patients. *Patient Education and Counseling* 52(3):315-323.
- Schillinger, D., H. Hammer, F. Wang, J. Palacios, I. McLean, A. Tang, S. Youmans, and M. Handley. 2008. Seeing in 3-D: Examining the reach of diabetes self-management support strategies in a public health care system. *Health Education & Behavior* 35(5):664-682.
- Schillinger, D., E. L. Machtinger, F. Wang, L. L. Chen, K. Win, J. Palacios, M. Rodriguez, and A. Bindman. 2005. *Language, literacy, and communication regarding medication in an anticoagulation clinic: Are pictures better than words? Advances in patient safety: From research to implementation*. Rockville, MD: Agency for Healthcare Research and Quality.
- Schillinger, D., J. Piette, K. Grumbach, F. Wang, C. Wilson, C. Daher, K. Leong-Grotz, C. Castro, and A. B. Bindman. 2003. Closing the loop: Physician communication with diabetic patients who have low health literacy. *Archives of Internal Medicine* 163(1):83-90.
- Schwartzberg, J. G., A. Cowett, J. VanGeest, and M. S. Wolf. 2007. Communication techniques for patients with low health literacy: A survey of physicians, nurses, and pharmacists. *American Journal of Health Behavior* 31(Suppl 1):S96-S104.
- Schyve, P. 2009. *Leadership in healthcare organizations: A guide to Joint Commission leadership standards*. San Diego, CA: The Joint Commission.
- Seligman, H. K., F. F. Wang, J. L. Palacios, C. C. Wilson, C. Daher, J. D. Piette, and D. Schillinger. 2005. Physician notification of their diabetes patients' limited health literacy. *Journal of General Internal Medicine* 20(11):1001-1007.
- Sheridan, S. L., D. J. Halpern, A. J. Viera, N. D. Berkman, K. E. Donahue, and K. Crotty. 2011. Interventions for individuals with low health literacy: A systematic review. *Journal of Health Communication* 16(Suppl 3):30-54.
- Sudore, R. L., C. S. Landefeld, E. J. Prez-Stable, K. Bibbins-Domingo, B. A. Williams, and D. Schillinger. 2009. Unraveling the relationship between literacy, language proficiency, and patient-physician communication. *Patient Education and Counseling* 75(3):398-402.
- Sudore, R. L., and D. Schillinger. 2009. Interventions to improve care for patients with limited health literacy. *Journal of Clinical Outcomes Management* 16(1):20.
- Sudore, R. L., K. Yaffe, S. Satterfield, T. B. Harris, K. M. Mehta, E. M. Simonsick, A. B. Newman, C. Rosano, R. Rooks, S. M. Rubin, H. N. Ayonayon, and D. Schillinger. 2006. Limited literacy and mortality in the elderly: The health, aging, and body composition study. *Journal of General Internal Medicine* 21(8):806-812.
- The Joint Commission. 2007. "What did the doctor say?" *Improving health literacy to protect patient safety*. Oakbrook Terrace, IL: The Joint Commission.
- Turner, T., W. L. Cull, B. Bayldon, P. Klass, L. M. Sanders, M. P. Frintner, M. A. Abrams, and B. Dreyer. 2009. Pediatricians and health literacy: Descriptive results from a national survey. *Pediatrics* 124(Suppl 3):S299-S305.
- U.S. Pharmacopeial Convention. 2011. *Proposed chapter 17 prescription container labeling*. www.usp.org/sites/default/files/usp_pdf/EN/USPNF/M5531.pdf (accessed March 16, 2012).
- Volandes A.E., M. Ariza, E.D. Abbo, M. Paasche-Orlow. 2008a. Overcoming educational barriers for advance care planning in Latinos with video images. *Journal of Palliative Medicine* (5):700-706.

- Volandes A.E., M. Paasche-Orlow, M.R. Gillick, E.F. Cook, S. Shaykevich, E.D. Abbo, L. Lehmann. 2008b. Health literacy not race predicts end-of-life care preferences. *Journal of Palliative Medicine*. 11(5):754-762.
- Volandes A.E., M.J. Barry, Y. Chang, M.K. Paasche-Orlow. 2010. Improving decision making at the end of life with video images. *Medical Decision Making* 30(1):29-34.
- Walsh, T. M., and T. A. Volsko. 2008. Readability assessment of Internet-based consumer health information. *Respiratory Care* 53(10):1310-1315.
- Wolf, M. S., T. C. Davis, L. M. Curtis, J. A. Webb, S. C. Bailey, W. H. Shrank, L. Lindquist, B. Ruo, M. V. Bocchini, R. M. Parker, and A. J. J. Wood. 2011. Effect of standardized, patient-centered label instructions to improve comprehension of prescription drug use. *Medical Care* 49(1):96-100, 110.1097/MLR.1090b1013e3181f38174.
- Wolf, M. S., M. V. Williams, R. M. Parker, N. S. Parikh, A. W. Nowlan, and D. W. Baker. 2007. Patients' shame and attitudes toward discussing the results of literacy screening. *Journal of Health Communication* 12(8):721-732.
- Wynia, M. K., M. Johnson, T. P. McCoy, L. P. Griffin, and C. Y. Osborn. 2010. Validation of an organizational communication climate assessment toolkit. *American Journal of Medical Quality* 25(6):436-443.
- Yin, H. S., B. P. Dreyer, L. van Schaick, G. L. Foltin, C. Dinglas, and A. L. Mendelsohn. 2008. Randomized controlled trial of a pictogram-based intervention to reduce liquid medication dosing errors and improve adherence among caregivers of young children. *Archives of Pediatrics & Adolescent Medicine* 162(9):814-822.
- Yin, H. S., A. L. Mendelsohn, M. S. Wolf, R. M. Parker, A. Fierman, L. van Schaick, I. S. Bazan, M. D. Kline, and B. P. Dreyer. 2010. Parents' medication administration errors: Role of dosing instruments and health literacy. *Archives of Pediatrics & Adolescent Medicine* 164(2):181-186.