

MEASURES TO ASSESS A HEALTH-LITERATE ORGANIZATION

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ABSTRACT

Health-literate health care organizations facilitate the engagement and navigation of patients and families within their system to promote the understanding and use of health information and services to improve health care. Recently, a work group sponsored by the Institute of Medicine (IOM) Health Literacy Roundtable identified 10 attributes of a health-literate organization. These 10 attributes of organizational health literacy (OHL) provide a guide for health care organizations to “make it easier for people to navigate, understand, and use information and services to take care of their health” [1] The attributes focus on addressing health literacy with specific leadership activities, staff training in health communication, delivery of health information, and processes to ensure that the organization’s environment is suitable for patients with varying levels of health literacy. The purpose of this paper is to describe existing measures that assess one or more of the 10 attributes of OHL. To accomplish this task, we performed a robust review that included a MEDLINE search, a “grey literature” search using Internet search engines, and solicitation from experts. Identified measures were mapped onto the 10 attributes of OHL. All measures were also reviewed for reliability, validity, and potential use for accountability, reporting, management, quality improvement, or research purposes. In addition, we contacted developers of the measures and queried organizations using the measures to learn about current practices. The initial MEDLINE search identified 1,926 unique articles. In addition, 59 potentially relevant measures or articles were identified through expert solicitation and Internet searches. A total of 203 articles or measures underwent full review, and 68 measures were judged to assess a minimum of one OHL attribute. Twelve of these measures assessed five or more OHL attributes; 27 measures assessed two to four of the OHL attributes, and 29

measures assessed a single OHL attribute. Measures typically assess OHL by gaining input from organization leaders, health care providers, and/or patients. Most measures have been developed with strong content validity, but little research has been done to examine their internal reliability, construct, or predictive validity. A significant number of organizations are starting to measure and address attributes of OHL. Several of the available measures have been dispersed widely across the United States and internationally. Future work should focus on advancing the validity of these measures and identifying optimal measures for use in different contexts (such as for accountability, quality improvement, and research). The availability of this broad array of measures provides an important opportunity for health care facilities and programs to assess attributes of OHL and track their progress as they seek to help patients and families access optimal health care to improve the health of the populations served.

INTRODUCTION

Health-literate health care organizations facilitate the engagement and navigation of people with their system, with the goal of promoting the understanding and use of health information and services to care for their health [1]. There is robust, and still expanding, evidence that people with limited health literacy are more likely to have less health-related knowledge, lower self-efficacy for self-care, worse control of their medical conditions, and increased rates of hospitalization and premature death [2]. Yet, it is clear that health literacy represents not only an individual's skills but also the burdens, complexities, and culture of the health care system [1]. Research has shown that specific strategies delivered by health care professionals to address health literacy can improve patient understanding, self-efficacy, self-care behaviors, and important clinical outcomes [3]. Far more work is needed to address health literacy at a system level, however.

One of the seven goals of the National Action Plan to Improve Health Literacy [4] is to “promote changes in the health care delivery system that improves health information, communication, informed decision-making, and access to health services” [4]. This goal calls on health care organizations to become easier to navigate, a commitment that could be incorporated into standard quality improvement processes [5]. By identifying opportunities to improve communication, allocate resources, and measure, monitor, and report health-literacy activities, organizations can demonstrate commitment to health-literate care.

Recently, a work group sponsored by the Institute of Medicine (IOM) Health Literacy Roundtable identified 10 attributes of a health-literate health care organization (Table 1). These 10 attributes of organizational health literacy (OHL) provide a guide for health care

organizations to “make it easier for people to navigate, understand, and use information and services to take care of their health” [1, 6, 7]. Attributes focus on addressing health literacy with specific leadership activities, staff training in health communication, delivery of health information, and processes to ensure that an organization’s environment is suitable for patients with varying levels of health literacy. The 10 attributes are relevant to health care organizations that provide direct patient care such as ambulatory practices, hospitals, community health systems, pharmacies, disease management organizations, integrated delivery systems, as well as to health care plans. Health care organizations that endorse and address these 10 attributes create an environment that promotes patients’ and families’ success in accessing and navigating an organization, which optimizes receipt and management of health care and, in turn, may improve health outcomes.

This paper was commissioned by the IOM to describe existing measures that assess one or more of the 10 attributes of OHL. Measurement is a key aspect of system-level efforts to address health literacy, as organizations need to be able to assess their current status for accountability purposes, to drive changes, and to track progress. In writing this paper, we performed a broad search of the published and “grey” literatures (publications outside of academic or commercially controlled outlets) and consulted with experts and organizations that are addressing OHL. This synthesis expands on previous work [8] and describes, for each measure, which attributes are assessed, the context in which the measure is to be used, how it is to be administered, and the intended respondents. When available, research evidence is provided, including measurement feasibility, reliability, and validity. Our goal was to provide a useful reference for clinicians, researchers, and, most important, health care organizations to consider when evaluating OHL.

METHODS

Data Sources and Searches

Identification of measures related to OHL and their current usage included a search of the published literature and the “grey literature,” a snowball sampling of experts in the field of health literacy, and a hand search of bibliographies of relevant articles, including those listed in the IOM’s report on OHL. We searched Ovid MEDLINE to locate published measures within articles at the intersection of three conceptual areas. One area included health literacy, health communication, or patient-centered care; the second included health facilities, services, or the delivery of care; and the third was measurement or evaluation. We worked with a reference librarian to define the search terms for each area, using a combination of Medical Subject Headings (MeSH) terms and keywords, and then used the Boolean term “AND” to combine the three conceptual areas. We limited the MEDLINE search to English-language studies and to the last 10 years (January 2004–January 2014). Certain low-yield publication types (e.g., commentaries, letters, and patient education handouts) and review articles that only discussed measures that were already identified in original publications were excluded. We also excluded articles that exclusively reported the health literacy of individual patients, because we were focused on organizational assessments. All citations were imported into an electronic database (EndNote X7.0.2, Thomson Reuters, New York), and duplicates were removed. Appendix A provides the search strategy in detail.

We also performed Internet searches for OHL, identified organizations that had a web-based presence in this area, and contacted them individually for information about their activities and assessments. In addition, we contacted experts in the field about contributing nonpublished measures assessing OHL and asked them about their knowledge of organizations that were addressing health literacy. Using a “snowball” sampling approach, we asked each expert to provide us with the names of any other relevant individuals we should contact about OHL activities [9]. A similar query was posted on several national listservs that feature health literacy. Finally, the IOM’s prior report on OHL provided a list of measures and select organizations that were using measures to address OHL [1].

Study Selection

Results of the MEDLINE search were divided among six investigators, each of whom reviewed approximately 300 abstracts. Full-text articles of potentially relevant references were retrieved for further review, as were measures obtained by grey literature search. A measure was selected for inclusion if it contained one or more items that pertained to one or more attributes of OHL, as previously defined by the IOM (Table 1) [1]. In approximately half of the cases, this assessment was straightforward and made by a single investigator. In cases of uncertainty, one or two additional investigators reviewed the measure to arrive at consensus. A similar process was followed for measures obtained through other search methods.

We broadly defined a “measure” as any instrument or tool that was designed to assess or quantify a construct, condition, or relationship related to OHL. In the right context, this could include single items, surveys, scales, indexes, or checklists or other instruments or tools that

were designed or being used specifically to try to assess any of the 10 attributes of OHL. Given the early stage of the measurement field for OHL, we did not restrict inclusion on the basis of whether the measure had been validated or how widely it had been reportedly used. We also reviewed measures that assessed OHL that were included as part of larger “toolkits” (compilations of measures, instruments, or tools); in these cases we reference the toolkit or guide that houses the measure(s). Although we believe that qualitative assessments can be important in assessing issues related to OHL, for the purpose of this work, we excluded measures that were restricted to qualitative methods (e.g., those that would require extensive coding of open-ended textual responses), because this method would be less practical at an organizational level.

Data Extraction

For each included measure, one investigator was assigned to determine which of the 10 OHL attributes the measure assessed, sometimes obtaining a second or third opinion when needed. Measures were then divided into groupings based on whether they pertained to five or more OHL attributes, two to four OHL attributes, or only one. For each measure, a member of the review team abstracted its format (e.g., survey) and intended respondent (e.g., patient, health care professional). All measures that were initially judged to pertain to five or more attributes were then reviewed and verified by a second investigator. Those measures were subsequently described in a narrative detailing their purpose; design; which of the 10 OHL attributes they assess; potential applicability of the instrument for accountability/reporting, management, quality improvement, or research purposes; data about reliability and/or validity (if known); and any other concerns or limitations. A measure was considered relevant for accountability/reporting if

it could be used to report findings or to define responsibility related to OHL activities. A measure was considered appropriate for management if it could be used to help guide organizational decisions that address OHL. A measure was considered to be applicable for quality improvement if it could specifically be used for continuous organizational efforts to “make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning) [10].” Finally, we considered a measure to be useful for research if it had robust measurement capacity, strong content validity, and the potential to be assessed quantitatively for predictive utility or performance improvement.

To assess how OHL measures were currently being used, we contacted organizations that were identified through our literature search, Internet search, listserv postings, the previous IOM report on OHL [1, 6, 8] , and our snowball sampling of experts. For measures that addressed five or more OHL attributes, we also attempted to ascertain how those measures were currently being used by contacting the developers as well as health care organizations identified by the developers. For each organization identified, we asked for the following information: (1) what measures were being used to assess OHL; (2) how those measures were being administered; (3) how information collected from those measures was being used; and (4) whether the measures were used for reporting, accountability, management, quality improvement, or research.

RESULTS

The initial MEDLINE search identified 1,941 articles, which were reduced to 1,926 original articles after removal of 15 duplicates. In addition, 59 potentially relevant documents (measures, toolkits, or articles) were identified through expert solicitation and Internet searches

(Figure 1). After we screened for citations and abstracts and other materials, we selected 203 documents for full-text review. From these materials, we identified and judged 68 measures or tools to have items assessing OHL, qualifying for inclusion. Twelve of these measures or toolkits addressed five or more OHL attributes (Table 2) and are described in additional detail below [11-28]. Of note, six of these 12 measures addressed eight or more OHL attributes. Table 3 summarizes the 27 measures that addressed two to four OHL attributes [13, 24, 29–56]. Many of the measures in Table 2 and Table 3 were designed specifically to address health literacy; however, several were designed for the broader context of patient-centered care and are less focused on health literacy [32, 33, 35, 41, 42, 50, 57–64]. The 29 measures that assessed a single OHL attribute are summarized in Table 4 [36, 42, 48, 57–92].

Detailed Description of Table 2 Measures

The *Enliven Organisational Health Literacy Self-Assessment Resource* was designed to assess all 10 attributes of OHL as defined by the IOM [1, 15]. The Enliven resource is a self-assessment that can be used to guide and inform one’s development as a health-literate organization. The resource provides a detailed definition of each of the IOM’s 10 attributes of OHL, along with a corresponding checklist of items that can be completed by an individual or individuals who rate the organization on a given attribute (i.e., determine the presence or absence of characteristics of the attribute within the organization and document notes or plans for future action). The entire measure contains 85 items. Each of the 10 attributes is assessed using varying number of items, ranging from two to fifteen. Although there has been limited information on the measure’s development or psychometric properties, it demonstrates strong content (face)

validity. The Enliven resource could potentially be used for accountability, planning, and quality improvement purposes.

The *Health Literacy Universal Precautions Toolkit* from the Agency for Healthcare Research and Quality (AHRQ) is a 227-page compendium that includes a wide array of tools and measures for addressing health literacy at the organizational level [14]. The toolkit was designed to be used by all levels of staff in a practice providing primary care, but it has applicability to other health care organizations. It includes 20 tools or measures with detailed instructions that focus on such issues as addressing health literacy at the practice/organizational level, improving oral or written communication, and improving self-management and shared goal setting with patients. The toolkit also includes an appendix with 25 additional resources related to addressing health literacy at the individual level and the system level. In its entirety, including all tools and measures, the toolkit assesses all 10 of the attributes of a health-literate organization [1] (see Table 1), although not all of the attributes receive equal coverage. Of particular utility is the measure called “Health Literacy Assessment Questions,” which contains 49 items to be completed by staff for assessing the organization’s current health literacy approaches. Those 49 items cover four domains—Spoken Communication; Written Communication; Self-Management and Empowerment; and Supportive Systems—that, together, assess OHL attributes 6–8 (see Table 2). The toolkit, including the Health Literacy Assessment Questions component, is particularly useful for quality improvement, management, planning, and accountability purposes, but it could potentially be used for research purposes as well. The reliability and validity of many of the measures within the toolkit have not been established, although many of the measures have strong content (face) validity and are based on previously validated materials.

The *Communication Climate Assessment Toolkit (C-CAT)* was developed by the American Medical Association (AMA) to help health care organizations or practices assess their communication practices [11, 16, 17]. The C-CAT includes survey measures for executive leaders, staff, and patients to give a robust review of health communication–related issues. The C-CAT robustly covers the first nine of the 10 attributes of a health-literate organization [1] (see Table 2), including these key domains: leadership commitment, information collection, community engagement, workforce development, individual engagement, sociocultural context, language services, health literacy, and performance evaluation. The staff survey has 74 items, the executive leadership survey has 70 items, and the patient survey has 56 items. Surveys can be completed by the respondent via paper, online, or automated voice response systems and have been developed in 11 different languages. The toolkit can be used for planning, management, accountability, and quality improvement. It could potentially be used for research purposes; however its use in this context has been limited. The development of the CCAT included robust field testing at multiple hospitals and clinics and psychometric evaluation. It has excellent content validity and shows strong construct validity with positive correlations between performance on the CCAT and patient-reported quality of care and trust in their health care system [11]. In a second analysis, the toolkit developers found that patients with lower health literacy were more likely to perceive lower patient-centered communication from the organization [17]. The C-CAT also demonstrated excellent internal reliability for each of the domains for the patient and staff surveys [11, 16, 17].

The *Health Literacy Environment of Hospitals and Health Centers* is a 164-page guide developed by Rudd and Anderson [18, 93] to help hospitals and health systems address health literacy throughout their organization. The guide includes instructions for reviewing one’s

organization for health literacy issues and includes measures related to navigation (31 items); print communication (24 items); oral exchange (8 items); availability of patient-facing technologies (18 items); and policies and protocols pertaining to the development and distribution of print materials, using plain language and patients' native language to communicate and training staff in health literacy and health communication issues (19 items). In addition, the guide provides approaches for improvement in these areas. The guide also includes an appendix with needs assessment tools that further address the five domains noted above. In its entirety the guide robustly covers the first eight of the 10 OHL attributes (see Table 1) with particular emphasis on attributes 6–8. The measures within the guide can be used for organizational assessment, planning, accountability, and quality improvement and could potentially be used for research purposes. This guide has very good content (face) validity and has been used nationally and internationally [18, 93], but to our knowledge no studies have explored its psychometric properties in more detail.

The Joint Commission's *Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals* [21] is a 93-page roadmap designed to “inspire hospitals to integrate concepts from the fields of communication, cultural competence, and patient- and family-centered care into their organizations.” Although health literacy is not mentioned explicitly in the title, the emphasis on the three core concepts of effective communication, cultural competence, and patient- and family-centered care is aligned with eight of the IOM's 10 attributes of a health-literate organization (see Table 2), and the report highlights 11 health literacy references in its resources section. Each chapter of the roadmap opens with a checklist of issues, recommended by an expert advisory panel, that are congruent with patient-centered communication standards for hospitals. Although not a

measurement scale per se, these checklists can be used by hospital key staff to perform a self-assessment for planning purposes as well as to catalogue progress made toward improving adherence to the core concepts. The same checklist could be used to evaluate compliance with relevant laws, regulations, and standards affecting hospitals in the United States. A tool developed from this checklist might not be best used for research or strict quality improvement purposes, but it certainly can be used for reporting, accountability, and management.

The *Pharmacy Health Literacy Assessment Tool*, developed with support from AHRQ, provides within its set of resources a method to measure how a pharmacy delivers high-quality services and focuses on the practices of a pharmacy related to clients with limited health literacy [28]. This assessment tool includes two complementary measures for pharmacy staff and independent auditors. The survey assessments for staff and auditors both include domains evaluating the pharmacy's print materials and pharmacists' verbal communication skills. The auditor survey, which totals 41 items, contains items about the access and ease of navigation, including signage and communication specific to services offered within the pharmacy. The staff survey, with 67 items, includes items assessing staff perspectives on the pharmacy's policies, training, and procedures specific to health literacy. In addition to these OHL measures, the toolkit includes a detailed description and materials to conduct consumer focus groups evaluating patient-identified barriers to pharmacy care among persons with limited health literacy. This tool aligns with most of the attributes of OHL, only missing an overt assessment of integration of health literacy into procedures (Attribute 2) and an assessment of communication related to pay for services (Attribute 10). No details describing its development or psychometric properties are available. In addition to research, this tool has potential applications for reporting, accountability, and management. In the only study identified about using the tool, 18 community pharmacies

used the ARHQ Pharmacy Health Literacy Assessment Tool [94] and concluded that the current version of the tool was difficult to use; however, it could be adapted to suit a specific pharmacy environment. Barriers to the tool's implementation, such as the perceived complexity and volume of items, in combination with the challenge of executing patient focus groups, have been reported as reasons for its slow adoption and implementation [95].

The *Health Plan Organizational Assessment of Health Literacy Activities* is an assessment tool intended for professionals within health insurance plans (i.e., those in executive departments, clinical/quality departments, member services, and communications departments) [20]. This comprehensive self-assessment survey tool consists of six evaluation areas: (1) information for members/navigation; (2) member services/communication; (3) web navigation; (4) forms; (5) nurse call line; and (6) disease management. Each of the sections contains multiple questions, and the entire survey takes about two hours to complete. The printed version of the survey is 25 pages long, but it can be completed online and saved in an Excel file. Once the plan is completed, its answers can be compared to a set of suggested recommendations for improvement that are contained in a separate document. The survey covers six of the attributes related to OHL (see Table 2) and in particular assesses Attribute 8 related to the suitability of materials very thoroughly. This is not a research tool; instead, it is geared toward continuous quality improvement but can also be used for reporting, accountability, and management purposes. Aside from the time it takes to complete, a related limitation is that it may take time to locate and contact the appropriate people and gather the necessary information. There are no reliability and validity studies, but the processes used to develop this assessment, which was done in conjunction with America's Health Insurance Plans (AHIP), demonstrate its feasibility and content validity [96].

The National Committee for Quality Assurance (NCQA) offers a Patient-Centered Medical Home (PCMH) recognition program that primary care practices can use as a guide for becoming a PCMH [22–26, 97, 98]. The organizational assessment, which is part of this process, contains six attributes (3–5, 7–9) related to OHL, such as the provision of culturally and linguistically appropriate services, self-care support, and the measurement of patient/family experiences related to communication. The assessment is suitable for quality improvement purposes. The 2014 standards document, which is available free of charge, is 55 pages long with 152 items. The recognition program is proprietary and extensive, though it has been completed by more than 5,000 practices.

The *Consumer Assessment of Healthcare Providers and Systems* (CAHPS) clinician and group survey is widely used in the outpatient setting as a measure of patient experience. The CAHPS Item Set for Addressing Health Literacy is one of several supplementary item sets available [12]. It was developed specifically to gather patients' opinions on providers' use of health literacy communication strategies and the presence of health literacy–related demands in the outpatient setting [12, 22, 23, 36, 38, 99]. The development process was rigorous, including an environmental scan to identify item domains, consultation with experts, item drafting, cognitive testing with respondents in English and Spanish languages, field testing, and psychometric analysis. The set of 31 items, released in 2012, addresses five OHL attributes (5–9; see Table 2). The items pertain to communication with providers; disease self-management; and communication about medicines, tests, and forms. The measure may be used in its entirety; subscales exist for health literacy communication skills (16 items, Cronbach's alpha = 0.89) and communication about medicines (five items, Cronbach's alpha = 0.71). The measure is

administered by phone or by mail. It is designed for reporting/accountability and for guiding quality improvement efforts, and it is sufficiently rigorous to be used for research purposes.

The CAHPS Hospital Survey (HCAHPS) is a measure of patient experience given within several weeks after hospital discharge [13, 37, 43, 44]. The HCAHPS Item Set for Addressing Health Literacy was developed in a similar manner as described above for the CAHPS health literacy items. It contains 58 items that pertain to five OHL attributes (5–9; see Table 2). Three subscales emerged in the initial field testing: communication about tests (Cronbach's alpha = 0.83), information about medicines and how to care for yourself at home (Cronbach's alpha = 0.71), and communication about forms (Cronbach's alpha = 0.65). In addition, other items from the set address nurses' communication, doctors' communication, and interpreter services; however, insufficient data are available to support their use as subscales. The HCAHPS health literacy items could be administered by phone or by mail. It is designed for reporting/accountability and for guiding quality improvement efforts, and it may also be suitable for research purposes.

The *Literacy Audit for Healthcare Settings* (LAHS) was developed by the National Adult Literacy Agency (NALA) of Ireland [19]. The NALA suggests that data derived from the audit be utilized to guide OHL improvement initiatives. The audit is embedded within a toolkit designed to guide and implement improvements indicated by the audit. The 57-item questionnaire assesses five OHL attributes: patient safety and quality improvement; meeting the needs of a range of health literacy skills without stigmatization; use of health literacy strategies in communications; provision of access to health information services and navigation assistance; and the design of print, audiovisual, and social media that is easy to understand and act on. The LAHS has particular strengths in assessing concrete and specific aspects of an organizational

environment, such as the use of Latin abbreviations or capital letters in health communications. The LAHS is currently designed to be administered on paper as a “self-report” by any type of staff member or management professional working in a health care environment. The LAHS could be used for quality improvement of patient communication systems. The authors suggest that the LAHS may be particularly helpful when completed by professionals who deal directly with patients or by those in communication departments for the planning or design of communication systems, or health websites. There are no available data on the development, validity, or reliability of the LAHS.

Other Measures

Table 3 outlines measures that assess two to four of the 10 OHL attributes. Most of these measures are designed as surveys to be completed by patients, health care providers, or organizations. Many of the measures address interpersonal communication (Attribute #6). Several of the measures were designed specifically to assess patient-centeredness, or the role of the PCMH. Of note, while the health literacy item sets of the CAHPS and HCAHPS robustly assess five of the OHL attributes (see Table 2), many of the other CAHPS surveys also address interpersonal communication and other attributes related to OHL. A large number of identified measures address a single OHL attribute (see Table 4). Most of these measures assess interpersonal communication (Attribute #6). Several measures assess training of staff, and one measure may be useful for care transitions.

Use of Measures by Organizations

A significant number of organizations are starting to measure and address attributes of OHL. Table 5 provides examples of organizations that are actively using measures to address OHL. Several of the available measures have been dispersed widely. For example, the Joint Commission reports that its *Roadmap for Hospitals* has been downloaded more than 40,000 times [100]. *The Health Literacy Environment of Hospitals and Health Centers* by Rudd and Anderson and AHRQ's *Health Literacy Universal Precautions Toolkit* have been used or adapted by clinics, hospitals, and other health care organizations across the United States and around the world. AHIP's *Health Plan Organizational Assessment of Health Literacy Activities* has also been used by organizations across the nation.

Many organizations are just starting to use these measures and have primarily focused on adopting these measures to meet their individual needs and goals. Some organizations have started to use the measures for accountability purposes or to drive quality improvement. Many organizations have adopted multiple measures and tools for their efforts to address health literacy. For example, Sutter Health, a not-for-profit health system that includes doctors, hospitals, and other health care services in more than 100 northern California cities and towns, has adopted materials from the AHRQ *Universal Precautions Toolkit*, from the IOM 10 attributes of a health-literate organization, and from the CAHPS related measures to help measure and address health literacy. Sutter has used these tools both to conduct assessments and to drive changes at their organization, such as new staff positions dedicated to addressing health literacy issues, new organizational policies, new staff training, and the development of clear health communication strategies [101].

Another example of using several OHL measures within one organization comes from the Center for Health Policy at the University of Missouri. The center made use of the AHRQ

Universal Precautions Toolkit, CAHPS health literacy items, and *The Health Literacy Environment of Hospitals and Health Centers* as part of a continuing education course on health literacy assessment and evaluation methods. Participants from Missouri and other states implement one or two tools from the *Universal Precautions Toolkit* and assess their own institutional progress for at least one year. Participants have also used the CAHPS health literacy questions to assess use of teach-back [102].

Urban Health Plan Inc. is a network of federally qualified community health centers located in the South Bronx and Corona, Queens, New York. This organization has also hired staff to focus on improving health literacy and education on an organizational level. The IOM report titled *Ten Attributes of Health Literate Health Care Organizations* and the *Health Literacy Environment of Hospitals and Health Centers* were chosen to guide and enhance the health literacy work at United Health Plan. In conjunction with these tools, AHRQ's *Universal Precautions Toolkit* was also used to conduct ongoing assessments of progress and plan for further development [103].

Novant Health, a health care system serving North Carolina, South Carolina, Virginia, and Georgia, has been working for several years toward improving its organization's health literacy appropriateness. Health literacy work has been integrated into patient education, communication, patient experience, safety policy, and EPIC and HIS system design¹. It has also hired staff to focus specifically on health literacy issues, and 97 percent of the staff is trained in addressing low health literacy. Novant has also used HCAHPS to assess and optimize health literacy issues, and it has incorporated the *Universal Precautions Toolkit* and the "Ask Me 3" program (from the National Patient Safety Foundation) to devise a form for assessing providers' usage of "teach-back" in its practices [104].

¹ EPIC and HIS are electronic health record systems

Carolinas Healthcare System, serving North and South Carolina, has also been exemplary in its multiple years of organizational health literacy work within its system. Carolinas used “Ask Me 3,” teach-back, and the *Universal Precautions Toolkit* to improve organizational health literacy. First, it trained 10,000 employees in teach-back and Ask Me 3 and then observed whether there was a change in health outcomes. A change score was created, which was based on changes suggested in the *Universal Precautions Toolkit* and chosen for their salience in the Carolinas system. Using this change score, Carolinas made changes on an organizational level, including requiring health literacy training for new employees and then following up on whether facilities actually put health literacy lessons into the new employee orientation. It also used HCAHPS, HHCAHPS (Home Health Care CAHPS Survey), HLHCAHPS (Health Literacy HCAHPS), and CAHPS to assess whether there was an improvement in health literacy [105]. Carolinas is currently attempting to determine how to prioritize the 10 OHL attributes, which metrics that should be used to measure the 10 attributes in its system, and how to measure each attribute on an organizational level.

AHIP has a Health Literacy Task Force that includes representatives from 65 member plans [20]. The task force has helped to identify and develop tools to help health plans address health literacy. A survey from the AHIP foundation conducted in 2010 found that 83 percent of health plans had instituted components of a health literacy program [20]. Program activities included adopting a targeted reading level for written consumer communications; standardizing member communications using plain language and avoiding jargon; conducting staff training in health literacy and clear health communication; translating materials into other languages; and adopting company policies that address health literacy. AHIP recently released a report detailing the health literacy–related activities of 30 health plans [20]. We also heard from smaller practices

and organizations that are starting to address health literacy by assessing the health literacy of their educational materials and the health literacy of their patients [106].

DISCUSSION

In this report we sought to identify and evaluate measures that are either currently being used to assess the IOM's 10 attributes of a health-literate health care organization (i.e., organizational health literacy) or could potentially be used for that purpose. After a thorough search of the published and "grey" literature, augmented by suggestions elicited from expert colleagues in the field of health literacy as well as from organizations committed to assessing their own health literacy activities, we identified and summarized a total of 68 measures (Tables 2, 3, and 4). Two measures, found in the *AHRQ Health Literacy Universal Precautions Toolkit* and in the *Enliven Organisational Health Literacy Self-Assessment Resource* [14, 15], address all 10 attributes of OHL, and several other measures address eight or nine attributes [11, 16–18, 21, 28, 93]. Many other measures, summarized in Tables 2 and 3, assess more than one of the attributes. Many of these measures were designed specifically to assess health literacy, and some of the measures were more focused on issues related to "patient-centeredness." Nearly half of the measures (Table 4) assessed only one of the 10 OHL attributes, principally Attribute #6 ("Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact"). Of note, few, if any, measures adequately addressed Attribute #10 ("Communicates clearly what health plans cover and what individuals will have to pay for services")—an important concern for many patients and families. Overall, the availability of this

broad array of measures is good news for health care facilities or programs that wish to assess their level of OHL or track their progress as they seek to become more health literate.

As noted above, we divided the measures into three groupings based on the number of attributes addressed, and we acknowledge this was somewhat arbitrary. We do wish to highlight those measures that were judged by our group to assess at least five of the 10 OHL attributes (Table 2). On the basis of our review, these are the most comprehensive measures of OHL currently available. Any organization wishing to conduct a comprehensive audit of where it stands vis-à-vis the IOM's standards for a health-literate organization would do well to choose one of the measures listed in Table 2.

Identifying measures of OHL involved several challenges, the first of which related to the search strategy. An initial narrow search of the literature using just the concepts of “organizational health literacy” and “measurement” yielded few instruments that were not already known and mentioned in the prior IOM report(s) on this topic [1]. By contrast, broader search strategies yielded thousands of references and had to be narrowed, given the time and resources available. For example, we excluded studies that reported measures of individual health literacy, such as the REALM [107], S-TOFHLA [108], Newest Vital Sign [109], and Brief Health Literacy Screen [110]. Although we recognized that assessing the health literacy of an organization's workforce or clientele using one of these instruments could, in fact, help meet one or more of the 10 attributes, we found that the overwhelming majority of studies reporting these measures pertained to clinical care rather than to OHL. The final search strategy, developed with assistance from a systematic-review expert and a medical librarian, sought to balance sensitivity and specificity, providing a reasonable number of references, which we supplemented with input from experts and organizations engaged in this area. Despite this multipronged approach, we

may have missed one or more appropriate measures, particularly those that were developed in non-English-speaking countries or that are used in specific health care settings or with specific conditions or populations.

Another challenge was distinguishing between constructs such as “health literacy,” “cultural competence,” “health communication,” “interpersonal communication,” and “patient-centered care.” We decided to include the last-mentioned term in the search because the provision of patient-centered care is virtually impossible without taking into account the degree of health literacy as well as communication preferences and abilities of the patient population being served. The recent proliferation of patient-centered medical homes and assessments of patient-centered care yielded a number of instruments that contain items that could be applied to the assessment of OHL, though that may not have been their initial purpose.

A third challenge related to mapping selected measures to individual attributes. Although this was straightforward in most cases, many times input from a second or third reviewer was required. For instance, Attribute #4 states, “Includes populations served in the design, implementation, *and* evaluation of health information *and* services” (italics added). In assessing whether an item (or measure) assessed this attribute, we had to determine whether that meant the item(s) needed to address the population’s involvement in all three phases—design, implementation, and evaluation—or whether it was sufficient for a measure to assess only whether the patients were involved in a single phase, for example in the evaluation phase. We included instruments that spoke to less than all three of those phases. Another example of a gray area needing judgment was in interpreting Attribute #5 (“Meets needs of populations with a range of health literacy skills while avoiding stigmatization”) because few of the measures explicitly addressed stigmatization, although the intent could sometimes be inferred. To guide

such judgments, we typically relied on the detailed description of each attribute in the prior IOM publications. Nevertheless, a different group of reviewers might have classified some of the measures differently, either in the number of OHL attributes or in the specific attributes that they address.

Finally, a challenge related to Attribute #9 (“Addresses health literacy in high-risk situations, including care transitions and communications about medicines”) was that some measures asked about communications related to medicines, and a small number assessed care transitions; however, few, if any, covered both, and almost none explicitly addressed health literacy in these contexts. In the end, we erred here on the side of inclusion.

Another observation from our review is that not all of the measures identified as pertinent to a particular attribute do an equally thorough job of assessing that attribute. Sometimes only one or two items in a given measure are pertinent, whereas in other instances, multiple items within an instrument address that specific attribute. More is not necessarily better. Sometimes a two- or three-item measure might be as valid as a 10-item measure. A shorter measure might not be as internally reliable because of its shorter length, but it will certainly be more efficient, especially if an organization’s objective is to get responses from a large number of individuals. Also, shorter instruments for a given attribute may make it possible to gather data efficiently on multiple attributes while limiting respondent burden. Given the lack of results on reliability and validity for many of the included measures, as well as their different formats (e.g., checklist vs. questionnaire) and lack of head-to-head comparison, we were unable to assess which measures provide the most robust assessment of each attribute. This is an important area for future work, again with the caveat that, in certain circumstances, a shorter assessment may be preferable to a longer one.

If an organization is particularly interested in a certain attribute, it might want to assess that particular attribute with more than one measure. That may mean piecing together one's own measure from a variety of sources. An organization could potentially mix and match parts of any of the measures or toolkits identified to come up with what works best for that organization's purposes. Sutter and Health Literacy Missouri are two programs that are successfully using a mix-and-match strategy. One caveat to this approach is that validity is not an immutable property of an instrument; just because a measure has been shown to be valid in one context does not guarantee it will be valid in a different context. So any new measure that was developed by "mixing and matching" should ideally be separately validated.

In the charge that we were given by the IOM planning group, we were asked to state the purpose for each of the measures we identified—that is, whether each measure could be used for reporting, management, accountability, quality improvement, or research purposes. Related to Table 2, we state that any of the instruments could be used for reporting, management, and/or accountability purposes. Many of them could also probably be used for quality improvement, but, generally, outcome measures for quality improvement or research projects need to have demonstrated a level of validity in the published literature that few of these tools have yet obtained. The increasing number of articles based on studies of OHL in the current literature and what will appear over the next several years will make it easier to identify which ones are suitable for more rigorous investigations and which are not.

Our study focused on quantitative measures of OHL. Nevertheless, this focus should not diminish the value of qualitative approaches to assessing OHL. Initial qualitative approaches could help an organization to understand the many facets that may be supporting or mitigating efforts to address OHL. Ongoing qualitative assessments could help an organization to ascertain

how their OHL efforts are affecting patients, providers, and staff and could help in the development of more robust measures and quality improvement endeavors [6].

Many of the measures that we identified were designed to be completed only by an organization or only by a provider. In our opinion, the ideal measure would be completed by all of these involved or affected by OHL, including administrative leadership, physicians, organizational staff, and patients and families. In addition, most of the current measures rely on patient, staff, or provider perception of how the organization is doing to address OHL attributes, rather than objective measures. A more robust assessment of OHL could include external review of existing OHL policies, training materials, rates of personnel trained in health communication, or other factors to provide a more independent valuation. In addition, many of the existing measures consist of dichotomous outcomes (e.g., whether an OHL attribute is addressed) or are based on an ordinal scale with just a few options (e.g., attribute not being met, attribute being addressed but not adequately, or attribute being addressed adequately). A measure that included more ratio-level quantitative assessments, such as the percent of personnel trained in using the teach-back technique, the average reading level of educational materials, or the percent of reading materials at a less than 6th-grade reading level, could provide more robust information for evaluation and monitoring. Finally, to advance the development of standards and norms of practice, a large number of organizations should administer the same OHL measure(s); then performance on these measures could be compared across organizations.

Moving forward, we think that a natural next step could be the creation of a uniform minimal set of items, or index, that could be used by any organization to assess all 10 of the IOM's attributes of a health-literate organization. Such a set of items or index could be as simple as restating each of the attributes as a question—e.g., for Attribute #1 the question would be, “To

what extent does your organization’s leadership make health literacy integral to your mission, structure, and operations?”—and then having multiple stakeholders rate the organization on that attribute on a scale ranging from “0 = not at all” to “10 = to the utmost extent possible.”

Summing over the 10 questions would yield a global OHL score with a possible range from 0 to 100, and statistical measures of central tendency (e.g., the mean or median) would give an indication of how health literate the organization is viewed by the stakeholders, while statistical measures of dispersion (e.g., standard deviation or interquartile range) would indicate the extent of agreement among the raters.

In order for this simple, yet novel, 10-item rating scale to work optimally, raters would need to be familiar with the IOM working group’s description of the 10 OHL attributes [1, 7] before making their ratings. Detailed definitions of the 10 attributes, such as those that accompany the *Enliven Organisational Health Literacy Self-Assessment Resource* [15], could be built right into the tool. If respondents would read the detailed definitions of the attributes before making their ratings, this new 10-item metric might be sufficiently reliable and valid to be used for any of the applications, most especially for quality improvement or research purposes. It would be more efficient and less burdensome than asking raters to complete an 85-item survey.

Despite the limitations of mapping and defining the current measures as related to OHL, many useful measures have been developed. Some of these measures were specifically designed to address health literacy at the organization level, and they assess many of the OHL attributes identified by the IOM working group. These measures are often incorporated into toolkits that provide not only the measures but also useful information about how to use the measures and other approaches to improve the OHL of one’s organization. Embracing these tools and the culture of creating a health-literate organization are the first steps to creating a health care

organization that can help individuals access optimal health care to improve the health care quality and safety and health outcomes of the populations served [1].

TABLE 1 Attributes of a Health Literate Organization*

A Health Literate Organization:	Examples
1. Has leadership that makes health literacy integral to its mission, structure, and operations	<ul style="list-style-type: none"> • Develops and/ implements policies and standards • Sets goals for health literacy improvement, establishes accountability and provides incentives • Allocates fiscal and human resources • Redesigns systems and physical space
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement	<ul style="list-style-type: none"> • Conducts health literacy organizational assessments • Assesses the impact of policies and programs on individuals with limited health literacy • Factors health literacy into all patient safety plans
3. Prepares the workforce to be health literate and monitors progress	<ul style="list-style-type: none"> • Hires diverse staff with expertise in health literacy • Sets goals for training of staff at all levels
4. Includes populations served in the design, implementation, and evaluation of health information and services	<ul style="list-style-type: none"> • Includes individuals who are adult learners or have limited health literacy • Obtains feedback on health information and services from individuals who use them
5. Meets needs of populations with a range of health literacy skills while avoiding stigmatization	<ul style="list-style-type: none"> • Adopts health literacy universal precautions, such as offering everyone help with health literacy tasks • Allocates resources proportionate to the concentration of individuals with limited health literacy
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact	<ul style="list-style-type: none"> • Confirms understanding (e.g., using the Teach-Back, Show-Me, or Chunk-and-Check methods) • Secures language assistance for speakers of languages other than English • Limits to two to three messages at a time • Uses easily understood symbols in way-finding signage
7. Provides easy access to health information and services and navigation assistance	<ul style="list-style-type: none"> • Makes electronic patient portals user-centered and provides training on how to use them • Facilitates scheduling appointments with other services
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on	<ul style="list-style-type: none"> • Involves diverse audiences, including those with limited health literacy, in development and rigorous user testing • Uses a quality translation process to produce materials in languages other than English
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines	<ul style="list-style-type: none"> • Prioritizes high-risk situations (e.g., informed consent for surgery and other invasive procedures) • Emphasizes high-risk topics (e.g., conditions that require extensive self-management)
10. Communicates clearly what health plans cover and what individuals will have to pay for services	<ul style="list-style-type: none"> • Provides easy-to-understand descriptions of health insurance policies • Communicates the out-of-pocket costs for health care services before they are delivered

*Reproduced from [1].

FIGURE 1 Inclusion of measures.

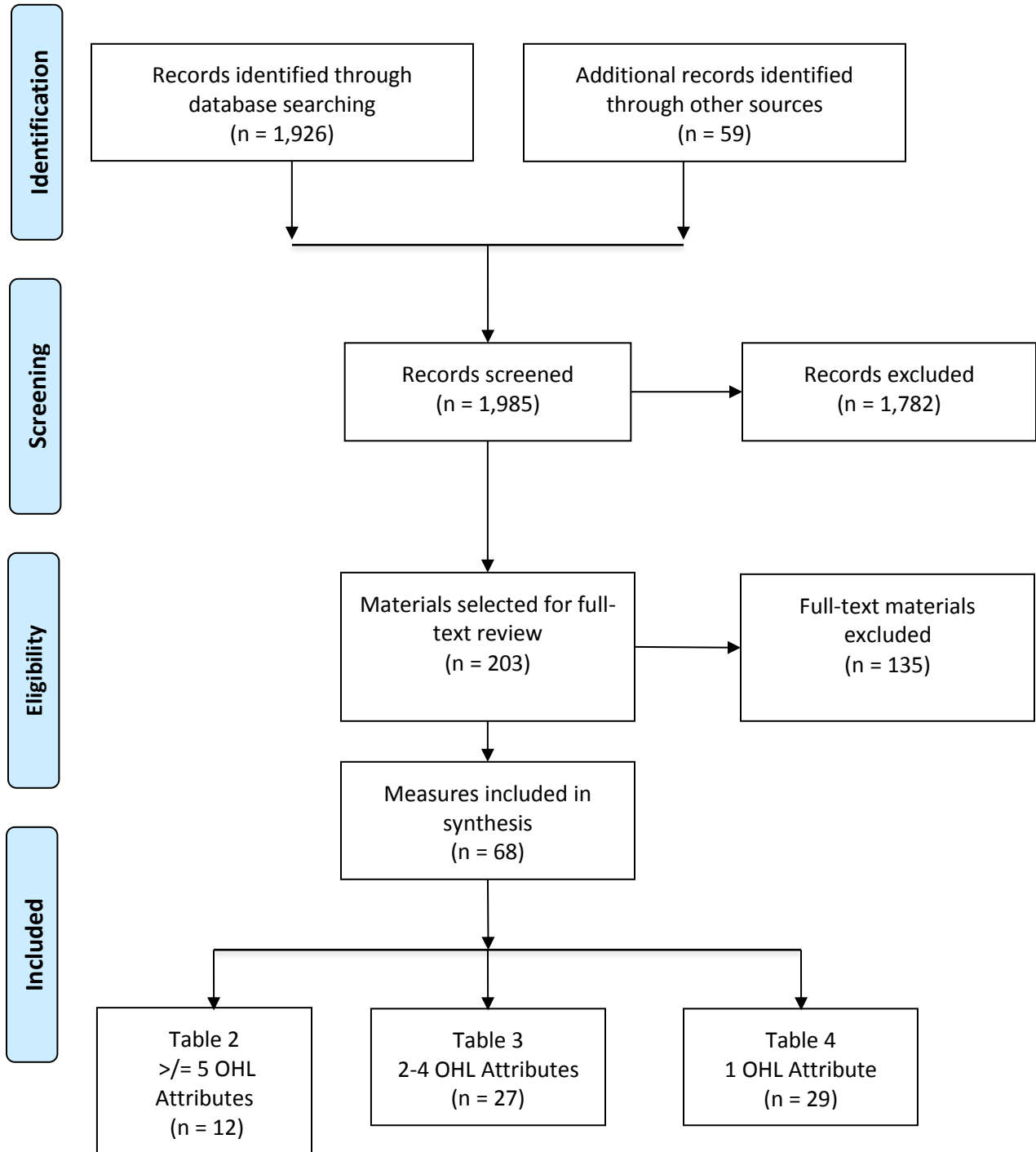


TABLE 2 Measures That Address Five or More OHL Attributes

Measure Name	# Items	Setting/Context	How Administered	Respondent	Relevant Attribute										
					1	2	3	4	5	6	7	8	9	10	
Enliven Organisational Health Literacy Self-Assessment Resource [15]	85	Designed for health and social service institutes to assess and guide health literacy appropriateness within their organizations.	Checklist	Organization	X	X	X	X	X	X	X	X	X	X	X
AHRQ Health Literacy Universal Precautions Toolkit [14]	>100	Designed to address literacy issues for health care organizations, particularly primary care practices.	Toolkit: surveys, checklists, materials	Organization	X	X	X	X	X	X	X	X	X	X	X
Organizational Communication Climate Assessment Toolkit (CCAT) [11, 16, 17]	10	Designed to gather data from patients, providers, and leaders to assess patient-centered communication.	Survey	Organization	X	X	X	X	X	X	X	X	X	X	
Health Literacy Environment of Hospitals and Health Centers [18, 93]	>100	Guides an organization through assessment, interpretation, and improvement of the health literacy environment of an institution.	Survey, checklist, guidance	Organization	X	X	X	X	X	X	X	X			
Joint Commission Roadmap for Hospitals [21]	>100	Includes checklists to assess effective communication, cultural competence, and patient- and family-centered care in hospitals.	Checklist	Organization	X	X	X	X	X	X	X		X		
Pharmacy Health Literacy Assessment Tool [28]	67	Designed to assess health literacy issues for pharmacies and pharmacy patients.	Toolkit: observation, survey, focus groups	Auditor, providers, patients	X		X	X	X	X	X	X	X		
Literacy Alberta Health Literacy Audit Tool [111]	>100	Designed to assess health organization patient services.	Toolkit; checklist; education	Organization, staff	X		X	X	X	X	X	X			
Health Plan Organizational Assessment of Health Literacy Activities [20]	>100	Designed by America’s Health Insurance Plans to assess health literacy appropriateness of insurance materials provided to patients.	Survey	Organization			X		X	X	X	X			X
NCQA Patient-Centered Medical Home (PCMH)	>100	Designed to guide organizations towards PCMH certification.	Checklist	Organization			X	X	X		X	X	X		

Measure Name	# Items	Setting/Context	How Administered	Respondent	Relevant Attribute										
					1	2	3	4	5	6	7	8	9	10	
assessment [22-26, 97, 98]															
CAHPS health literacy supplementary items [12, 13, 22, 23, 36, 38, 99, 112]	31	Designed specifically to target health literacy and provider communication from a patient's perspective.	Survey	Patient					X	X	X	X	X		
HCAHPS health literacy supplementary items [13, 37, 43, 44]	58	Designed to capture patients' experiences of communication with their hospital.	Survey	Patient					X	X	X	X	X		
NALA Literacy Audit for Healthcare Settings (Ireland) [19]	57	Designed to inform, assess, and improve the health literacy appropriateness in health care settings.	Toolkit: surveys, education, checklist	Providers, staff		X			X	X	X	X			

Table 3: Measures Addressing 2 to 4 OHL Attributes

Measure name	Setting/Context	How administered	Respondent	Relevant attribute										
				1	2	3	4	5	6	7	8	9	10	
Dentist Communication Techniques for Patients with Low Health Literacy[29, 30]	Assessing the use of 18 communication techniques in dentistry for patients with low HL (adapted from Schwartzberg et al. 2007 by the National Advisory Committee on Health Literacy in Dentistry (NACHLD))	Survey	Providers					X	X	X	X			
Medical Home Family Index (MHFI)[31, 32]	Designed to assess the patient perspective of the medical home concept implementation in pediatric settings.	Survey	Patients (Parents)				X		X	X	X			
Patient-centeredness for infertility (PCQ-infertility)[33]	Designed to assess patient-centeredness among patients being treated for infertility.	Survey	Patients						X	X	X	X		
Literacy Alberta Health Literacy Audit Short Form[111]	Designed to assess health organization patient services in a short form.	Checklist, Education	Organization, Staff			X			X	X	X			
CAHPS Health Plan survey[36]	Designed specifically to assess experiences with health plans from a patient's perspective.	Survey	Patients						X	X	X			
CAHPS Home Health Care survey[36]	Designed specifically to target patient perspectives of experiences with home healthcare providers, agencies, and staff.	Survey	Patients						X				X	
CAHPS Surgical Care survey[36]	Designed specifically to target surgical care experiences from a patient's perspective.	Survey	Patients						X		X	X		
Center for Medical Home Improvement Medical Home Index (MHI) [23, 32]	Designed to assess the degree to which an organization qualifies as a medical home. Adult and primary care versions available.	Survey	Organization				X			X	X			
Clinical Excellence Commission Health Literacy Guide[37]	Checklist for improving way-finding http://www.cec.health.nsw.gov.au/hlg	Checklist	Organization			X				X	X			
Promoting Healthy Development Survey (PHDS)[38]	Parent survey for young children's interactions with their health system.	Survey	Patients					X	X	X				

Measure name	Setting/Context	How administered	Respondent	Relevant attribute										
				1	2	3	4	5	6	7	8	9	10	
Staff training in Clear Health Communication Survey [40]	Pre and post training survey developed for healthcare workers.	Survey	Clinicians			X		X	X					
OHL attributes: patient and provider- Medical Home Patient Survey[41]	Designed to assess patient-centered medical home criteria, organization, and patient health from both patient and provider perspectives.	Checklist and Survey	Organization				X		X	X				
Patient Satisfaction with Nursing Quality Questionnaire (PSNCQQ)[42]	Focuses on patient satisfaction with nursing care.	Survey	Patients						X	X			X	
CAHPS American Indian survey[36]	Designed specifically to target patient perspectives of experiences with tribal clinics or clinics with a large number of American Indian patients.	Survey	Patients						X				X	
CAHPS hospital survey (HCAHPS)[13, 37, 43, 44]	Designed specifically to target patient perspectives of experiences with hospital care.	Survey	Patients						X				X	
Client-Centered Care Questionnaire[45]	Designed to assess caregiver perceptions of care given to terminally ill patients.	Survey	Patients, Caregivers						X	X				
Client-Centered Rehabilitation Questionnaire (CCRQ)[46]	Designed to assess client-centeredness of rehabilitation facilities.	Survey	Patients						X				X	
Communication Techniques for Patients with Low Health Literacy [29]	Assessing the use of 14 communication techniques for patients with low HL	Survey	Providers						X		X			
Health Care Communication Questionnaire (HCCQ)[47]	Designed to collect information from patients regarding the quality of hospital services.	Survey	Patients					X	X					
Individualized Care Instrument [48, 49]	Designed to focus on assessing providers on understanding of individuality of patients, and the shift that may occur as patients age.	Survey	Providers				X		X					
Joint Commission Self-assessment for Primary Care Medical Home (JCAHO)[50]	Designed to assist organizations pursuing PCMH certification in evaluating readiness for PCMH application.	Checklist and Survey	Organization				X		X					
Language Barriers and Patient-Centered Breast Care[51]	Designed to assess difficulty communicating with limited English	Survey	Provider					X	X					

Measure name	Setting/Context	How administered	Respondent	Relevant attribute										
				1	2	3	4	5	6	7	8	9	10	
	proficiency among providers in a breast cancer center.													
MLA Survey on Hospital Information Literacy[52]	Survey from the Medical Library Association for the role of libraries and other health information resource centers at local hospitals. A few items focus on “health information literacy.” Mainly assesses attitudes of survey participants.	Survey	Organization								X	X		
National Research Corporation Picker Pediatric Inpatient Survey (NRC Picker)[38]	There are both adult and pediatric versions of this survey designed to measure and improve patient care.	Survey	Patients							X				X
Patient Assessment of Chronic Illness Care (PACIC)[53, 55, 113]	Designed to assess patient perspective of communication, quality of care, and level of care received.	Survey	Patients							X				X
Patient-Centered Inpatient Scale (P-CIS)[42]	Designed to measure patient experience of patient-centered care.	Survey plus comments	Patients				X			X				
Pharmacy Patient-Centeredness [56]	Designed to assess patient satisfaction in a pharmacy setting.	Survey	Patients		X					X				

TABLE 4 Measures That Address a Single OHL Attribute

Measure Name	Setting/Context	How Administered	Respondent	Relevant Attribute										
				1	2	3	4	5	6	7	8	9	10	
Aligning Forces for Quality Consumer Survey (AF4QCS) [65, 66]	Intended for community quality improvement assessment.	Survey	Patients							X				
Attitudes about Health Literacy [67]	Designed to assess health care providers' and experts' attitudes regarding health literacy.	Survey	Providers							X				
CAHPS Clinician and Group Survey [36]	Designed specifically to assess patients' perspective of individual providers, groups, and services.	Survey	Patients							X				
CAHPS In-Center Hemodialysis Survey [36]	Designed specifically to assess patients' perspective of adult hemodialysis centers.	Survey	Patients							X				
Comprehensibility of Health Education Programs (COHEP) [68]	Designed to assess patients' perception of comprehensibility in group health education programs.	Survey	Patients							X				
Family-Centered Care (FCC) Assessment [69]	Designed to assess whether parents of patients and patients receive adequate family-centered care.	Survey	Parents of patients							X				
Family-Centered Care Items (from NHIS-MEPS) [70]	Items chosen to assess family and patient-centeredness of pediatric medical home.	Survey	Parents							X				
Four Habits Coding Scheme (4HCS) [71, 72]	Tool designed to improve providers' communication skills.	Observation	Providers							X				
Individualized Care Scale (ICS) [42, 48, 73-75]	Designed to evaluate providers' perspective of patients' individuality of care.	Survey	Providers							X				
Interpersonal Processes of Care Questionnaire (IPC) [76]	Designed to assess patient perspective of providers' interpersonal processes of care.	Survey—Read aloud	Patients							X				
Knowledge about Patient	Designed to assess pre- and	Survey	Staff							X				

Measure Name	Setting/Context	How Administered	Respondent	Relevant Attribute																
				1	2	3	4	5	6	7	8	9	10							
Centered Care [114]	post-training knowledge of patient-centered care.																			
Measure of Processes of Care (MPOC 56, 20, SP) [77, 115, 116]	Designed to assess the family-centeredness of medical facilities and processes. Parent and provider versions are available.	Survey	Parents of patients, providers							X										
Medical Expenditure Panel Survey (MEPS) Health and Health Opinions [78–82]	Designed to assess cost and use of health care and health insurance for patients.	Survey	Patients							X										
Medical Expenditure Panel Survey (MEPS) Household Component Supplement [78–82]	Designed to assess cost and use of health care and health insurance for patients.	Survey	Patients							X										
Medical Expenditure Panel Survey (MEPS) Satisfaction with Health Plan [78–82]	Designed to assess cost and use of health care and health insurance for patients.	Survey	Patients							X										
Patient Communication Assessment Tool (P-CAT) [83]	Designed to assess interpersonal and communication skills of providers from a patient perspective.	Survey	Patients							X										
Patient-Centered Behavior Items [58]	Provider-patient interactions observed using these items to guide evaluation of patient-centered care behaviors.	Observation	Patient and provider							X										
Patient-Centered Care Measure [59]	Designed to assess patient-centered care of subacute care facilities.	Survey	Patients							X										
PCMH Components/Patient-Centeredness [60]	Items were selected to evaluate practice and patient outcomes and practice transformation.	Survey, observation	Patients							X										
Pediatric Inpatient Experience Survey (PIES) [84]	Designed to assess parent and family experiences during child's inpatient hospital stay.	Survey	Parents of patients							X										
Perceptions of Consent-Related	Designed to assess	Survey	Patients							X										

Measure Name	Setting/Context	How Administered	Respondent	Relevant Attribute																
				1	2	3	4	5	6	7	8	9	10							
Perioperative Communication [85]	perceptions of informed consent communication.																			
Person-Centered Climate Questionnaire (PCQ), Staff Version (PCQ-S) [42, 86, 87]	Intended to assess person-centeredness of health care climates from either a staff or patient perspective.	Survey	Staff, patients								X									
Primary Care Assessment Survey (PCAS) [61, 62]	Designed to measure patients' perspective of patient-centered primary care elements.	Survey	Patients								X									
Safety Net Medical Home Scale (SNMHS) [63, 64]	Designed to assess capacity for improvement of and existing patient-centeredness in medical homes.	Survey	Organizations								X									
Shared Decision Making—Dyadic and Observer OPTION Instruments [88]	Tool to code decision-making communication behaviors between patients and providers.	Observation	Patient and provider								X									
Uncertainty Cardiovascular Population Scale (UCPS) [89]	Intended to assess patients' perception of heart disease severity and complexity.	Survey	Patients								X									
CHC/MI Staff Training Survey [90]	Intended to measure pre- and post-communication training knowledge.	Survey	Providers			X														
Limited Literacy Impact Measure (LLIM) [91]	Intended to assess knowledge of limited health literacy at an academic health center.	Survey	Providers (staff)			X														
Medication Counseling Questionnaire [92]	Designed to evaluate medication adherence counseling and health literacy skills pre- and post-education.	Survey	Providers																X	

TABLE 5: ORGANIZATIONS ADDRESSING HEALTH LITERACY

Primary Measure Being Used	Organization Name	Location	Examples
<p>Health Literacy Universal Precautions Toolkit (AHRQ)</p>	<p>Novant Health; University of Colorado; Arkansas AHEC; Sutter Health; University of Maryland; Health Missouri- Center for Health Policy at the University of Missouri; Urban Health Plan</p>	<p>NC, CO, AR, CA, MD, MO, NY</p>	<p><i>Novant Health has embedded the assessment and tools into the preparation of their medical practices for recognition as a NCQA Patient Centered Medical Home</i></p> <p><i>Sutter Health: Used to guide application of Ten Attributes in the health system.</i></p> <p><i>Carolinas Healthcare System (NC): Developed tools to assess change and operationalize the 10 attributes. Created change scores to assess health literacy goals based on suggested changes delineated in Toolkit.</i></p> <p><i>University of Maryland (MD): Used assessment to develop instruments and review educational tools to assess statewide literacy and determine use of AMA recommended communication tests.</i></p> <p><i>Health Missouri- Center for Health Policy at the University of Missouri: Used to select a process to modify, then match a tool to measure that process. Guided use of other tools, including use of teach back.</i></p>
<p>Organizational Communication Climate Assessment Toolkit (AMA)</p>	<p>Health Literacy Center; CulturaLink</p>	<p>TX, IN</p>	<p><i>Health Literacy Center (TX): Collecting data to expand language services, improve cultural competency. Data baseline reading on 9 communication C-CAT domains was used to report to CMS for language services and cultural competency programs. Plain Language revision for upcoming health literacy intervention is a result of C-CAT data (CMS internal based on data).</i></p> <p><i>CulturaLink(IN): Uses assessment to measure cultural competency. Suggested and designed qualitative component of C-CAT. Incorporates C-</i></p>

			<i>CAT into overall cultural competency of hospitals, hospital systems, and community organizations. Used C-CAT to compare community and healthcare systems understanding of health literacy.</i>
Health Literacy Environment of Hospitals and Health Centers	Fox Chase Cancer Center; Barnes Jewish Hospital, Veteran Affairs; University of Maryland; Iowa New Learners; University of Adelaide; West Virginia University; Portugal Hospitals; National Adult Literacy Program; University of London, Southbank; University of New Mexico; small rural health service in South Australia; Health Missouri- Center for Health Policy at the University of Missouri; Wisconsin Literacy; Urban Health Plan	PA, MO, MD, IA, NM, WI WV, NY, Portugal, Ireland, UK, Australia	<p><i>Fox Chase (PA): Used assessment to determine current health literacy appropriateness of printed materials and the physical environment. Used findings to create plan for improvement.</i></p> <p><i>University of Maryland (MD): Used assessment to develop instruments and review educational tools to assess statewide literacy and determine use of AMA recommended communication tests.</i></p> <p><i>Health Missouri- Center for Health Policy at the University of Missouri: Used to develop a service learning model and assess the environment of Missouri hospitals.</i></p> <p><i>West Virginia University Healthcare, Family Medicine Center and Geriatric Center: Used the resource with health care provider training as well as increasing awareness of staff in the Family Medicine Center. Also used in consultation regarding health literacy for the Geriatric Center. Used as basis for a modified brief pre-post checklist for healthcare provider assessments.</i></p> <p><i>Wisconsin Literacy: Used the resource to assess health literacy environment of Wisconsin hospitals. Recommend the guide for others to use for health literacy environment assessment.</i></p> <p><i>Urban Health Plan: Completed an organization-wide assessment that covered the five part rating system of navigation, print communication, oral exchange, technology and policies and procedures. Completed in September 2013.</i></p>

Joint Commission Roadmap for Hospitals	Downloaded over 40,000 times since publication		
Health Plan Organizational Assessment of Health Literacy Activities	Aetna, Inc.; AmeriHealth Caritas Louisiana; Blue Cross and Blue Shield of Minnesota; Blue Cross of Idaho; Centene Corporation; Cigna; Emblem Health; Fallon Community Health Plan (FCHP); Group Health; HAP ClearComm; Harvard Pilgrim HealthCare; Health Care Service Corporation (HCSC); Health Dialog; Health Net, Inc.; Health Partners; Highmark Inc.; Horizon Blue Cross Blue Shield of New Jersey; Humana, Independence Blue Cross; Kaiser Permanente; Keystone First; L.A. Care Health Plan; Molina; SCAN; Select Health of South Carolina; Tufts Health Plan; UCare; UnitedHealth Group; University of Pittsburgh Medical Center Health Plan WellPoint, Inc.	LA, MN, ID, MA, NJ, SC, PA	These organizations were listed in AHIP's Summaries of Health Literacy Activities[20]. Their activities are detailed in the AHIP report cited.
CAHPS health literacy supplementary items	Novant Health; Carolinas Healthcare System; Sutter Health; Health Missouri- Center for Health Policy at the University of Missouri	CA, NC, MO	<p>Novant Health utilizes the CAHPS to: determine opportunities for improvement, identify exemplars, as one of several measures to determine the impact of action plans to improve health literacy practices.</p> <p>Carolinas Healthcare System (NC): <i>Used to assess health literacy improvement among healthcare provider facilities.</i></p> <p>Health Missouri- Center for Health Policy at the University of Missouri: <i>Used these items to assess processes, such as teach back, based on Universal Precautions.</i></p>

			<i>Implementation of assessment items on an index-card for providers to ensure proper teach back processes and inclusion in daily practice. In some instances, CAHPS items have been modified to suit inpatient needs</i>
HCAHPS health literacy supplementary items	Good Samaritan Hospital, Novant Health, Sutter Health	CA, NC, SC	<p>Sutter Health: <i>Visiting Nurse Association and Hospice groups used the Home Health Care HCAHPS to assess patient understanding and clinician communication.</i></p> <p>Novant Health utilizes the CAHPS to: determine opportunities for improvement, identify exemplars, as one of several measures to determine the impact of action plans to improve health literacy practices.</p> <p>Carolinas Healthcare System (NC): <i>Used to assess health literacy improvement among hospitals.</i></p>
Literacy Audit for Healthcare Settings Ireland (LAHS, NALA)	Use in Irishtown Primary Care Centre (CHC), Information Centre in Temple Street Children's Hospital; Health Service Executive Community Care Centre in Waterford, Ireland; and Diabetic Clinic in St James' Hospital; St. John of God Organisation.	Ireland	<p>Used as an audit tool to assess current activities and drive changes to address health literacy</p> <p>St. John of God Organisation (Ireland): <i>Used the Literacy Audit to assess two of their programs STEP (a service which supports adults with intellectual disabilities) and City Gate. They are the first intellectual disability services in Ireland to engage in this process.</i></p>
Literacy Alberta Health Literacy Audit Tool Kit	Affinity Health	NY, Canada	<p>Affinity Health (NY): <i>Adapted to assess organizational communications and plan improvements.</i></p> <p>Centre for Literacy of Quebec: <i>Online education for healthcare provider training course.</i></p> <p>Legacies 2010 in British Columbia: <i>Part of training with primary care providers.</i></p> <p>North Bay Literacy Council in Ontario: <i>Training pharmacy students, who then conduct health literacy audits at their sites.</i></p>

Appendix A

MEDLINE SEARCH STRATEGY

# ▲	Searches	Results
1	*health literacy/	939
2	*health communication/	370
3	(literacy.ti. or literacy.ab.) and health.mp.	4,728
4	3 not (information literacy or media literacy or computer literacy).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	4,370
5	1 or 2 or 4	4,910
6	*patient centered care/	6,045
7	5 or 6	10,934
8	exp health facilities/	588,044
9	exp health services/	1,524,391
10	exp delivery of health care/	767,238
11	8 or 9 or 10	2,289,733
12	(evaluate\$ or evaluation or measure or measured or measurement or survey\$ or questionnaire or instrument).ti. or (evaluate\$ or evaluation or measure or measured or measurement or survey\$ or questionnaire or instrument).ab.	3,383,864
13	"Process Assessment (Health Care)"/	2,948
14	Organizational Case Studies/	9,612
15	Program Evaluation/	44,363
16	evaluation studies/	186,667
17	12 or 13 or 14 or 15 or 16	3,496,818
18	7 and 11 and 17	3,048

19	(REALM or rapid estimate of adult literacy or TOFHLA or test of functional health literacy or NVS or newest vital sign).mp.	3,934
20	18 not 19	2,797
21	limit 20 to English language	2,713
22	limit 21 to (comment or editorial or historical article or interview or letter or news or newspaper article or patient education handout or video-audio media or webcasts)	26
23	21 not 22	2,687
24	limit 23 to "review articles"	203
25	23 not 24	2,484
26	limit 25 to yr="2004-Current"	1,941

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