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Nurses' Perceptions of Importance and Achievability of the Ten Attributes of Health Literate Healthcare Organizations in their Institutions: A Descriptive

Anna Ten Napel

This research was completed as part of the degree requirements for the Nursing Department at Molloy College.

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Molloy College

The Division of Nursing

PhD in Nursing Program

NURSES' PERCEPTIONS OF IMPORTANCE AND ACHIEVABILITY
OF THE TEN ATTRIBUTES OF HEALTH LITERATE HEALTHCARE
ORGANIZATIONS IN THEIR INSTITUTIONS: A DESCRIPTIVE
STUDY

a dissertation

by

ANNA TEN NAPEL

submitted in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

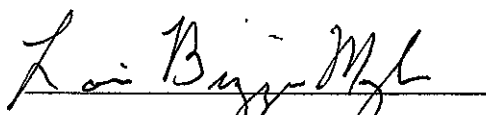April 26, 2016

MOLLOY COLLEGE

DIVISION OF NURSING

The dissertation of Anna ten Napel entitled NURSES' PERCEPTIONS OF IMPORTANCE
AND ACHIEVABILITY OF THE TEN ATTRIBUTES OF HEALTH LITERATE
ORGANIZATIONS IN THEIR INSTITUTIONS: A DESCRIPTIVE STUDY

in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Division
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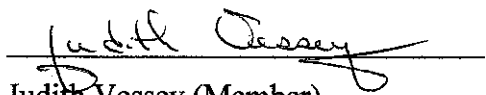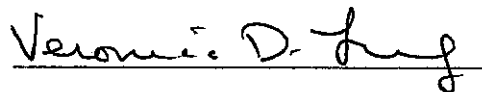
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Abstract

Nurses' Perceptions of Importance and Achievability of the

Ten Attributes of Health Literate Healthcare Organizations in their Institutions:

A Descriptive Study

by

Anna ten Napel, PhD, NP, RN

Health literacy defined is the degree to which individuals have the capacity to
obtain process and understand basic health information to make appropriate health
decisions (IOM, 2004). To be a health literate consumer, a person must be able to read,
listen, understand, and make decisions related to their health. Hospitals seeking to be
Health Literate Organizations must have a strong commitment to improving and
reengineering to make it easier for patients to navigate, understand and use information
and services to take care of their health (IOM, 2013). High quality, safe health care
depends on clear communication between patients, families, providers, and health
systems. Healthcare organizations need to recognize this and work toward addressing
health literacy in their daily work.

The purpose of this study was to examine the relationship between the perceived
importance and perceived achievability of the IOM Ten Attributes of Health Literate
Healthcare Organizations among Quality Improvement Registered Nurses working in
acute care hospitals across the United States.

A survey was designed to yield descriptive and correlational data among study
variables. These types of studies often provide useful information about relationships

among variables as well as identifying possible gaps that, by filling, may improve the quality and safety of care provided to patients.

The results of the study revealed being a Health Literate Organization is perceived by quality improvement nurses as both important and achievable. In a majority of the sample population studied the participants determined on average over 70% of the time the IOM Ten Attributes of Health Literate Healthcare Organizations were perceived to be important and achievable. A small percent on average ($< 8\%$), of those quality improvement nurses surveyed perceived the attributes were not important or achievable.

The healthcare challenge for those hospitals seeking to become Health Literate Organizations will be to integrate the IOM Ten Attributes into their everyday work flow. Implementation will require making clear and effective communication a priority with leadership support being critical to success. Changes such as hardwiring new and innovative processes into place to effect open communication among all staff, providers, patients and families will need to occur. The potential results are momentous, actively engaged patients who are experiencing safe, effective care with improved health outcomes at hospitals which are successfully meeting the needs of all populations being cared for –the ultimate goal of becoming a Health Literate Organization.

Dedication

This dissertation is dedicated to my family.

First, to my parents—always advocates for me, but especially on my educational journey. Mom, I can hear you saying… "A good education is something no one can take away from you." I love you both and I know you are smiling at me from heaven.

Second, to my two older brothers, David and Billy, who were un-expectedly called home too early. David, although our time together was short, I always felt your brotherly love! Billy, you kept asking when this PhD would be finished- finally it's done. My biggest regret is that you aren't here to celebrate the joy and success of completion! I love you boys, our times spent together are some of my most cherished memories!

Next, to my beautiful girls, Erika, Melissa and Kristen- I still remember how excited you were for me when I started down this PhD road. I studied and you each provided your share of encouraging cards, flowers, notes and front door posters which made me smile. Each of you stood beside me when the challenge seemed impossible and now thankfully it is completed! I love you so much and could not have gotten this PhD without your unconditional love and support!

Finally, to my husband Robert, who supported me from the very beginning and patiently waited, and waited, and waited for me to finish! Your love and encouragement was the inspiration I needed to continue on and finish, especially when the road seemed endless! Ik hou van jou Knuffeldertje, voor eeuwig en altijd, Teentje!

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Special thanks to Dr. Kathy Smith and the Community Research Institute Team who assisted my initial dissertation work helping me to begin its growth.

To my committee Dr. Lois Moylan and Dr. Judith Vessey whose guidance shaped my doctoral work into a contribution to nursing research - I am grateful for your expertise, knowledge, support, and ability to keep me on track and moving forward.

An extra special thanks to Dr. Patricia Eckardt whose statistical expertise guided me with my data analysis. Please know your patient, kind, and gentle manner gave me confidence and is a special blessing to all nurses who have the privilege to work with you!

To the Pioneer Cohort- who would have ever imagined what a fabulous experience we were destined to have together- I feel so fortunate to have journeyed down this road with such an intelligent group of women.

Finally, to my chair, Dr. Veronica Feeg, special thanks for not only selecting me to be part of the initial "pioneer" doctoral cohort, but also agreeing to chair my dissertation committee. Your dedication and passion toward nursing scholarship has been an incredible inspiration to me. Through the challenges of life during these past 6 years your support has been unending - my most sincere gratitude for helping me believe in myself and sticking with me to the end!

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CHAPTER I - Introduction

Health literacy is a relatively new concept that has been evolving rapidly over the past decade with growing attention in public policy arenas. The Institute of Medicine (IOM) in its 2004 report, *Health Literacy: A Prescription to End Confusion*, defined health literacy as, " the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." Since this 2004 publication, several health reform initiatives have incorporated health literacy strategies into desired healthcare improvement recommendations and activities. The United States Department of Health and Human Services strategic initiative, *Healthy People 2020,* in its scientifically based national objectives, identified health literacy as a priority for immediate national action. The *National Plan to Improve Health Literacy* of the Department of Health and Human Services based its health literacy strategies on the principle that all people have the right to health information delivered in understandable ways to assist them to make informed decisions leading toward optimal well-being (U.S. Department of Health and Human Services & Office of Disease Prevention and Health Promotion 2010). The *Plain Writing Act of 2010* requires all new publications, forms, and publicly distributed documents from the federal government to be written in a clear, concise, well-organized manner (U.S. Office of Personnel, 2010). The *Patient Protection and Affordable Care Act of 2010 section 2715* require health plans and insurers to provide consumers with clear, concise, health information (Koh, H. K., Berwick, D. M.,Clancy, C. M., Baur, C., Brach, C., Harris, L. M., Zerhusen, E. G., 2012). Each of these federal policy initiatives, *Healthy People 2020*, the *National Action Plan to Improve Health Literacy,* the *Plain Writing Act*

of 2010, and the *Affordable Care Act of 2010,* have collectively assisted in bringing the issue of health literacy to a tipping point, positioning it to transition from the margins to the mainstream of healthcare delivery (Koh et al., 2012).

Health Literacy

Modern health systems make complex demands on the health consumer. Individuals are being asked to take on new roles in seeking information and understanding their rights and responsibilities as they make health decisions for themselves and family members. Underlying these demands are assumptions about people's health knowledge and skills (IOM, 2004). It has been determined that many people who deal effectively with other aspects of their lives may find health information difficult to obtain, understand, or use. Low health literacy can be a hidden problem. People with low literacy may be ashamed to speak up, often embarrassed by their inadequacies (Farrell, T. W., Chandran, R., & Gramling, R., 2008).

Health literacy is perceived as a means of social and human development. Experts defined health literacy as the capacity to understand basic health information and make appropriate health care decisions (Koh et al., 2012). In the IOM workshop on Health Literacy in 2013, Jacob Kumaresan, the executive director of the World Health Organization, defined health literacy as cognitive and social skills that determine the motivation and ability of individuals to gain access to information in order to understand and use it in ways that promote and maintain good health. Health literacy arises from a convergence of education, health services, and social and cultural factors. Specifically each of these factors are based on an individuals' personal skills within health contexts, the healthcare system, the education system, and broad social and cultural influences at

home, at work, and in the community (IOM, 2004). Health literacy emerges when the expectations, preferences, and skills of individuals seeking health information meet those providing the information and services (IOM, 2013). The health system which services individuals carries significant but not the sole, responsibility in assisting to improve an individual's health literacy (IOM, 2004). Health literacy can be expressed as the product of the interaction between individuals' capacities and their health literacy related demands and the complexities of the healthcare system (IOM, 2013).

Health literacy is equally important for people of both genders and all ages, races, ethnic backgrounds, and socio-economic levels. It is influenced by a person's ability to search for and use health information, adopt healthy behaviors, and act on important health issues. According to experts in the field, low health literacy is associated with numerous suboptimal health-related outcomes including increased hospitalizations, greater use of emergency care, and worse overall health status with higher mortality rates than those with high health literacy (Koh et al., 2012). Researchers have found a strong relationship between health literacy and individuals' knowledge, health behaviors, health outcomes, and medical costs (Baker, 2006). A positive relationship between health literacy and health status, first demonstrated by Williams and colleagues in their seminal work in 1995, suggests that improving health literacy can also positively influence patient outcomes and lower costs (Williams, M. V., Parker, R. M., Parikh, N. S., Pitkin, K., Coates, W. C., & Nurss, J. R., 1995).

It is critical for healthcare professionals to recognize that health literacy does not depend on the skills of individuals alone, but rather it is a dynamic systems issue. It encompasses both the health information presented to the patient and the philosophy of

the healthcare system being navigated (IOM, 2013). Establishing patient-centered care that focuses on health literacy requires organizational commitment. The movement toward organizational health literacy, according to the Joint Commission, a leading healthcare organization accreditation body and recognized nationwide as a symbol of quality and safety, must be seen as a journey rather than a destination (Joint Commission, 2010). Health literacy requires exploration and evaluation of new ways for staff to collaborate, educate and communicate with patients and families. As the body of health literacy knowledge grows, transformation of healthcare organizations to become health literate will occur. This will facilitate the linkage of patient health literacy with their individual health outcomes, improving and advancing healthcare delivery and quality.

In 2006, at the U.S. Surgeon General's workshop on improving the general public's health literacy, Dr. Rima Rudd identified determinates requiring a two-sided approach toward achieving a more health literate population. First, in order to understand and improve health literacy, the demand side- or what a healthcare system may require- must be defined. Second, the skills of the individuals using the healthcare system- or the individual's capacity to respond to the system demands- must be addressed. Her work concluded that, for many, the demands of the system and the skill level of the individual using it are often mismatched causing confusion and missed opportunities for both teaching and learning. This inconsistency has been shown to produce poor patient outcomes (Office of the Surgeon General, & Office of Disease Prevention and Health Promotion, 2006).

Health Literacy Costs and Quality

It is important to understand how people obtain and use health information in order to understand the potential impact of, and need for, this health literacy study. Houston and Allison (2002) explain that information about health is produced by many sources, including, but not limited to, the government, food and drug industries, and special interest groups. This information is generally distributed to the public by the popular media. Houston and Allison discussed the commercial and social marketing of health information as a multibillion dollar industry describing how people are frequently exposed to quick, but often incomplete or contradictory, bits of information. Their 2002 study focused on experiences of online health information seekers. Those individuals with apparent illness were more frequent users of specific internet health information and therefore may be a population especially vulnerable to the varying availability and quality of internet health information (Houston & Allison, 2002).

With the internet becoming an increasingly important source of health information, the possibility to be inundated with information of highly varied degrees of quality has increased dramatically. Socioeconomic status, education level, culture, and primary language all affect whether consumers will seek out health information, where they will look for it, what type of information they prefer, and how they will interpret what they have found. Patients who experience limited health literacy have a decreased likelihood of exposure and less accessibility to health-related information (Houston & Allison, 2002).

Every day millions of individuals must make health decisions and take actions on issues that protect not only their own well-being, but also that of their family members.

These actions occur in homes, places of employment, schools, community forums, and traditional healthcare settings such as clinics, physician offices, and hospitals. There is no doubt that health literacy related activities are part of the daily life of all people, whether they are in good health or compromised by illness or disability.

Health literacy is intimately linked to many issues of critical importance to the nation and to its health policies. The public health mandate of protecting and understanding the health needs of the nation relies on effective communication strategies. Health literacy is both a public imperative and a critical economic issue. Data suggest that there is an association between health literacy, healthcare utilization, and healthcare costs. Studies estimate the cost of limited health literacy to the nation's economy to be between 106 and 236 billion U.S. dollars annually (U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion, 2010). In 2016, using the most recent U.S. inflation calculator this equates to 115 to 256 billion dollars. In 2002, a team of experts determined inadequate health literacy to be an independent risk factor for hospital admission among elderly managed care enrollees (Baker et al., 2002). Studies found that public hospital patients with limited health literacy had higher rates of hospitalizations than those with adequate health literacy (Baker, 2006). Weiss and Palmer (2004) reported a direct measure of cost in a small sample of Medicaid patients in Arizona where patients with a reading level at or below third grade had mean Medicaid charges $7,500 higher than those who read above the third grade level. Additionally, Hartsell determined that Medicaid patients with low health-literacy levels tended to have more hospitalizations, fewer primary care physician visits, and poor adherence to physician recommendations (Hartsell, 2005).

In 2014, an additional 30 million Americans were added to the health insured population across the United States increasing the challenge of health literacy. A variety of healthcare professionals provide services to these insured populations. The Patient Protection and Affordable Care Act (PPACA) of 2010 directly addresses the need to promote health literacy by requiring that health literacy be incorporated into education and training as stated in the PPACA section 5301. With more than three million registered nurses in the United States representing the largest sector of healthcare professionals, nurses have the potential- and obligation- to make substantial differences in the health literacy and care provided to patients (IOM, 2011).

Quality care delivery in nursing touches all points across the healthcare continuum. There are many nurses today who work exclusively in the area of quality. Often referred to as Quality Improvement (QI) nurses, these nurses provide a dedicated commitment to patient care with their job description primarily focusing on quality, patient safety, and outcomes. QI nurses are required to demonstrate competency, skill and understanding of program development, quality improvement concepts, coordination of survey processes, communication and education techniques, with a focus on quality and departmental management (National Association for Healthcare Quality Annual Report, 2014).

The National Association for Healthcare Quality (NAHQ) is a professional association dedicated to the advancement of healthcare quality, patient safety and the individual professionals working in the field. The National Association for Healthcare Quality Annual Report quantified that there were over 10,000 members with 7,400 holding certification in healthcare quality (CPHQ). This nationally recognized

organization is comprised largely of professional disciplines such as nurses, doctors, social workers, and medical technologists. Their 2014 annual report reflected that as quality and patient safety gain increasing value in the healthcare industry, CPHQ nurses are being recognized for contributing their unique knowledge and skills toward the goal of understanding concepts and enhancing resources aimed at improving healthcare quality.

One fundamental responsibility that the QI nurse has in a healthcare organization is to ensure all patients receive the highest quality care achievable. For the QI nurse, validation of this care is accomplished by collecting, reviewing and analyzing data. The QI nursing specialty focuses on developing and implementing action plans that address excellence and improve patient outcomes (National Association for Healthcare Quality Annual Report, 2014). QI nurses who work toward achieving and improving quality of care are committed stakeholders in the health literacy process by both collaborating with the team and advocating for improved health outcomes for all patients (Brach, C., Keller, D., Hernandez, L. M., Baur, C., Parker, R., Dreyer, B., Schyve, P, Lemerise, A., Schillinger, D., 2012).

Historically, healthcare quality has been seen as a difficult notion to define. Lee and Jones (1933), experts in the field of good medical care in the early 1930s, used what they referred to as "articles of faith" in defining quality care. This seminal work conveyed conceptually that criteria of quality are nothing more than value judgments applied to several aspects, properties, ingredients or dimensions of processes which are referred to as "good medical care" (Lee & Jones, 1933). Other experts such as Klein and colleagues expanded on this early work. They determined that there will never be a single

comprehensive criterion by which to measure the quality of patient care but there are a multitude of possible dimensions. These dimensions have a profound influence on the approaches and methods one employs in the actual assessment of quality patient care (Klein, M. W., Malone, M. F., Bennis, W. G., & Berkowitz, N. H., 1961).

The outcomes of medical care have been used frequently as an indicator of quality according to Donabedian (2005). The advantage in using outcomes is that validity is seldom questioned because it tends to be concrete and amenable to precise measurement. Outcomes are seen in the medical field as the ultimate validation for effectiveness and quality of medical care provided (Donabedian, 2005).

Poor healthcare quality affects millions of patients admitted to United States hospitals. Experts estimate that as many as 98,000 people die in any given year from medical errors that occur in hospitals (AMA, 1999). The 1999 IOM report, *To Err Is Human: Building a Safer Health System* initiated a national movement to improve patient safety. It provided a careful examination of how the forces of legislation, regulation, and market activity influenced quality of care (IOM, 2000). In 2001, healthcare quality concerns continued to be recognized with the IOM publication *Crossing the Quality Chasm; A New Health System for the 21st Century*. This publication documented the causes of the quality gap, identified current practices that impeded quality care, and explored how systems approaches could be used to implement change (IOM, 2001). Dr. Donald Berwick identified quality issue concerns with the launching of Institute for Healthcare Improvement's *100,000 Lives Campaign* in 2004. This movement was designed to reduce patient harm by encouraging hospitals and other healthcare providers to take steps with very prescriptive interventions. When implemented, these interventions

were designed to greatly reduce morbidity and mortality. Building on the momentum of the IHI's 100,000 Lives Campaign, the 5 Million Lives Campaign was announced in 2006 to support the improvement of medical care in the United States, setting a numeric goal to prevent 5 million incidents of medical harm over a period of two years that being December 12, 2006 through December 9, 2008 (McCannon, C. J., Hackbarth, A.D., & Griffin, F. A., 2007).

Each of these publications illustrates concerns with safety and quality patient care. However, as healthcare moves forward, it has been determined that healthcare environments do not transfer the known scientific findings which are triangulated with expert opinion and patient preference into evidence based practice rapidly enough (Chassin, 2013).

Although hospitals have devoted considerable time, energy, and resources to solving some of their quality issues, these efforts do not constitute an adequate response to the large and growing problems confronting value driven healthcare. There has been insufficient attention devoted to changing organizational culture according to Dr. Chassin, the president and CEO of the Joint Commission. A fresh and different strategy is needed that distinguishes quality care problems as complex; those which cannot be solved by simple discreet solutions (Chassin, 2013).

Health literacy plays an important role in assisting with improvements in healthcare quality. It involves the health system treating the patient as well as an engaged public who value health promotion and have access to health information. Healthcare organizations must recognize and work towards eliminating barriers, developing clear

communication, and providing useable, actionable health information and services in order to improve the quality of healthcare (Baur, 2011).

Many healthcare organizations contract with regulatory bodies such as the Joint Commission to assist with their quality and patient safety improvement initiatives. The Joint Commission accredits and certifies 19,000 organizations and programs throughout the United States including hospitals. The purpose of the accreditation process is to ensure safety and improve outcomes within organizations. The executive vice president and chief medical officer of the Joint Commission, Ana McKee, in a reaction panel at the 2012 IOM Health Literacy Workshop, shared how the Joint Commission's focus on health literacy started in 2002. She described how the Joint Commission in conjunction with the Centers for Medicare and Medicaid Services (CMS), launched its national "Speak Up" campaign. This movement urged patients to take an active role in preventing errors by becoming involved participants on their healthcare team. The "Speak Up" program features brochures and posters on a variety of patient safety quality driven topics which organizations can use and distribute to patients to assist in promoting safety and quality (IOM, 2013).

Health literacy permeates all areas of the provider-consumer information exchange, and provides a common pathway for the successful transfer of information. A number of emerging areas are likely to increase the burden of limited health literacy on those entering and using the healthcare system. These include demands inherent in chronic disease management, increased use of new technologies, decreased time for patient/provider discussions, multiculturalism, and expanded legal and regulatory

requirements. Many diverse interventions and approaches may hold promise for addressing health literacy but few have been formally evaluated (IOM, 2004).

Although there is a large body of research on health literacy as it relates to clinical care, there are gaps in health literacy awareness and knowledge among nurses, physicians and other allied health professionals (Coleman, 2011). This includes the clinical recognition of a patient's level of health literacy, skills and practices designed to address low health literacy, and attitudes about patients with low health literacy. Of additional importance, professionals whose positions focus specifically on their organization's quality mission ought to have knowledge of what constitutes a health literate organization in order to identify and facilitate necessary improvement activities. Researchers have yet to explore the perception of nurses who work in quality improvement regarding the importance and achievability of identified attributes of Health Literate Organizations (HLO).

There is a substantial need for research in the area of health literacy and the responsibility of the healthcare organization to deliver quality care. QI nurses are part of the team influencing continuity of care and patient outcomes. They are uniquely positioned to make a meaningful contribution in HLO development because they understand how systems operate, recognize the critical concern the lack of health literacy poses, and have the opportunity to influence evidence based best practice changes to improve quality patient care and outcomes. Nurses' regular, close proximity to patients, viewed as highly trusted members of the team coupled with their scientific understanding of care processes across the continuum, give them a special ability to act as partners to lead in the improvement of the healthcare system (IOM, 2011).

Statement of the Problem

Patients with limited health literacy report having lower quality communication with health professionals. Patients express confusion regarding medical terminology, report having insufficient time to express concerns, and describe receiving unclear information from their healthcare providers (Safeer & Keenan, 2005). Low health literacy is associated with problems individuals face managing chronic illness and disability, greater likelihood of experiencing serious medication errors, difficulty communicating with health providers, increased risk of hospitalization, and, in general, poorer quality of life (Parker & Hernandez, 2012; Koh et al., 2012; Baur, 2011; Paasche-Orlow & Wolf, 2007). Clinician deficits in health literacy knowledge decrease their use of effective techniques to address patients' limited health literacy (Coleman, 2011).

Health literacy is not being adequately addressed in the United States at the organizational or individual hospital level. Research shows there to be a significant gap existing in awareness, knowledge, and clinical recognition of low health literacy of patients among healthcare professionals. In its seminal report on the topic, the IOM found that health professionals have limited education, training and practice opportunities to develop skills for improving their patient's health literacy (IOM, 2004). Healthcare organizations must support professionals they employ by providing resources that build knowledge and recognize the importance of both patient and organizational health literacy. Health literate organizations connect knowledgeable providers and engaged patients with health information to facilitate quality patient care and improve outcomes.

There is perhaps no more critical a time than now to expand the focus from not only improving the health literacy skills of patients to also include the health literacy

promoting attributes of healthcare organizations. In order to address many facets of the problem of low health literacy, the IOM convened a Roundtable Committee on Health Literacy composed of expert panelists from a wide range of academic disciplines. Up until this meeting, the experts determined that a vast majority of the research on health literacy had focused on characterizing patients' deficits, on how best to measure patients' health literacy, and on health outcomes. Most of the research studied how to intervene with patients who have limited health literacy. There is a growing appreciation, however, that health literacy is a dynamic state that is represented by a balance between an individual's capacities to comprehend and apply health related decisions and to acquire health related skills, and the health literacy related demands and attributes of the healthcare system (IOM, 2012).

The need to address system level factors that place undue health literacy demands on patients utilizing the healthcare system has been emphasized by a variety of governmental entities and public policy organizations. They include the United States Surgeon General in 2006, the American Medical Association in 2007, the Joint Commission in 2007, the United States Department of Health and Human Services Office of Disease Prevention and Health Promotion in 2010, the Agency of Research and Quality, and the National Institute for Health. Enactment of the Patient Protection and Affordable Care Act (PPACA) has provided opportunities to improve the experience of care and the health outcomes for limited health literacy population through insurance reform, Medicaid expansion, and the establishment of insurance exchanges (IOM, 2012). Maximizing this opportunity will require healthcare organizations to attend to the communication needs of limited health literate populations.

A set of ten attributes to mitigate the negative consequences of limited health literacy while determining ways to improve access to quality value-driven healthcare were developed. Those organizations that commit to adopting strategies to implement these attributes of health literacy will be recognized as healthcare literate organizations and will share significant responsibility in promoting health literacy among the populations they serve (IOM, 2012).

The IOM Health Literacy Roundtable commissioned a paper to be written that would present and explore these attributes that define a health literate healthcare organization. By definition a health literate organization is one that makes it easier for people to navigate, understand, and use information and services to take care of their health (Brach et al., 2012). Experts in the area of health literacy, Dr. Dean Schillinger, with the assistance of Dr. Debra Keller, consented to write the paper. The intent was to describe how organizations committed to quality and patient care improvements could accommodate a variety of needs of populations with limited health literacy. A bi-directional pyramid framework was used to conceptualize broad categories in which the needed attributes would be placed. The first foundational row begins with organizational commitment followed by the second row which contains accessible educational infrastructure. The third and fourth rows include, respectively, an augmented workforce and embedded policy and procedures. At the top of the pyramid is effective bidirectional communication (IOM, 2012).

In early 2012, a discussion paper was published by members of the IOM Health Literacy Roundtable and focused on what were determined to be the ten attributes of a health literate healthcare organization. It was recognized that achieving the ten attributes

required not only knowledge about health literacy but also a focus on systems and organizational change. The ten published attributes postulate a health literate health care organization:

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.

This study will examine, by using the IOM's Ten Attributes of Health Literate Healthcare Organizations, nurses' perceptions of organizational adoption,

implementation, and sustainability of these attributes. As federal and state rules change, health literacy awareness is becoming more of a healthcare focus. Those organizations that strive to become HLOs will need to ensure they possess innovative methodologies to actively work toward achievement of these IOM Ten Health Literate Attributes (IOM, 2013).

Purpose of the Study

The purpose of this descriptive study was to measure Quality Improvement (QI) nurses' knowledge of the establishment of the IOM Ten Health Literacy Attributes within their hospitals of employment. The aim was to explore health literacy in acute care hospitals from the quality nurse's perspective, those nurses, who by job title, perform a dedicated role in their organization's quality mission. The study included measuring QI nurses' perceived importance of, and achievability of, the IOM's Ten Attributes of Health Literate Healthcare Organizations in their place of employment. Data from the survey of the QI nurses perceptions, as they related to health literacy were collected and analyzed.

To achieve the study aim, five questions were formulated and examined through the use of survey methodology. The study explored QI nurses' perceptions regarding importance and achievability of their organizations commitment to the IOM Ten Attributes of Health Literate Healthcare Organizations. It also assessed, from the nurses' perspective, the health literacy level of their organization in relation to hospital changes, spoken communication, written communication, self-management and empowerment, and improving supportive systems. Demographic information and the professional profile of survey participants were obtained. Additionally, characteristics of the nurses and of their organization were examined to identify if these were related to, or associated

with, the nurses' perceptions of the importance and achievability of their organizations to the IOM Ten Attributes of Health Literate Healthcare Organizations.

Research Questions

Focusing on registered nurses (RNs) who are administrative and whose work responsibilities make them uniquely knowledgeable about their organizations' quality care and performance improvement activities, this study posed questions concerning the nurses' perceptions about their organization's progress in the process of becoming a "Health Literate Organization" (HLO). It elicited information related to the nurses' perceptions about the importance of HLOs and queried them about their thoughts related to their organizations' likelihood to achieve each of the Ten Attributes of Health Literacy identified by the IOM. The following were the five broad and direct research questions posed:

1. What are QI RNs' perceived levels of importance of the IOM's Ten Attributes of Health Literate Organizations (HLOs)?

2. How likely do QI RNs' believe that their organizations can achieve the IOM's Ten Attributes of Health Literate Organizations (HLOs)?

3. How do QI RNs' assess their organizations progress with the IOM's Ten Attributes of Health Literate Organizations (HLOs)?

4. What are the characteristics associated with QI RNs' knowledge and perceptions of the IOM's Ten Attributes of Health Literate Organizations (HLOs)?

5. What are the characteristics of the organization associated with QI RNs' perceived likelihood that their organization can become a Health Literate Organization (HLO)?

Over the last decade, health literacy has become a vibrant area of research. Although there are a number of research studies related to the issues of health literacy, meaningful exploration of organizational aspects of quality nurses interpretations of health literacy has not yet been presented in the literature. Yet there is increasing value being seen when organizations are able to commit resources to improve the health literacy of their patients (IOM, 2013).

In 2014, Vanderbilt Center for Effective Health Communication was called upon by the IOM Health Literacy Roundtable to provide a guide for health care organizations to assist patients to more easily navigate and understand the information needed to take care of their health. The Vanderbilt study identified healthcare organizations as beginning to quantify and measure health literacy as addressed by the IOM Ten Attributes of Health Literate Organizations. This recent research identified a broad array of measures which provide an important opportunity for healthcare facilities to assess all of the 10 attributes as they seek to help patients achieve optimal health and improve the health of populations served. Moving forward, this research suggests the creation of a uniform set of items to be used by any organization to assess all 10 of the attributes of a health-literate organization. These IOM Ten Attributes are focused on addressing health literacy at the organizational level. With consistent use, these attributes will help improve the healthcare quality, safety and outcomes of all populations served (Kripalani, S., Wallston, K., Cavanaugh, K. L., Osborn, C. Y., Mulvaney, S., McDougald, S., Rothman, R. L., 2014).

Definitions of Terms

The following definitions are being used for this research study -

Attribute - a value based strategy that healthcare organizations embrace as important to its core business requirements.

Cross-walking - the establishment of a relationship or association of elements from one given set with that of another given set.

Healthcare Quality **-** the degree to which health services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge.

Health Literacy - the product of an individual's capacity and the health literacy demands and complexities of the healthcare system from which he/she receives services (Baker, 2006). Health literacy emerges when the expectation, preferences, and skills of that individual seeking health information meet those providing the information and services (IOM, 2009).

Health Literate Organizations (HLOs) - those organizations that have a commitment to improving and reengineering themselves to make it easier for patients to navigate, understand and use information and services to take care of their health (IOM, 2004). Attributes of HLOs include those organizations that exercise Health Literacy Universal Precautions Toolkit practices to assure patients' comprehension. They have developed communication technology platforms and models to promote meaningful communication across providers, patients, and their families. Organizations evolving toward organizational health literacy make patient-centered care a priority by streamlining, simplifying, and standardizing processes. HLOs have developed structures to meet quality targets for at-risk populations. These are offered as a guide as organizations strive to become HLOs. These attributes should be integrated into operational functions such as

patient safety, the patients' healthcare experiences, community outreach, and employee

engagement (Brega, A., Barnard, J., Mabachi, N., Weiss, B., DeWalt, D., Brach, C.,

Cifuentes, M., Albright, K., & West, D., 2015).

Knowledge - the proxy for knowledge in this study will be those nurses who have been

briefed or trained in health literacy.

Quality Improvement Registered Nurse (QI RN) - a registered nurse who provides a

dedicated commitment to patient care and whose primary role focuses on quality

improvement, patient safety and improved outcomes. The job description of the QI nurse

makes her/him responsible to collect, review, and analyze documents and processes

related to quality issues within a hospital. The QI RN uses tools and methodologies for

quality assessment and data collection while collaborating with physicians and other team

members to improve patient outcomes. The QI RN is a patient advocate, serves on

hospital committees and assures continuity of performance improvement, data collection,

assessment and is responsible for follow up on identified quality care issues (National

Association for Healthcare Quality Annual Report, 2014).

Quality Care - the reflection of values and goals currently in the medical care system and

in the larger society of which it is a part. The outcome of medical care has frequently

been used as an indicator of quality care (Donabedian, 2005).

Operational Definitions

Importance of the IOM Attributes **-** the sum score of the 10 item responses on the Likert

scale.

Achievability of the IOM Attributes - the sum score of the 10 item responses on the Likert

scale.

Reliability - how consistent and predictable the measurement is. Seeking to achieve a Cronbach's alpha =.80.

Content Validity - how adequately content domain is covered.

Summary

Professionals who work in hospital quality improvement areas are pivotal to their organizations' efforts in achieving health literacy goals. QI RNs specifically can play a critical role in their organizations health literacy journey. Researchers have studied health literacy with specific foci on patient's knowledge, health behaviors, health outcomes, and medical costs. In the past, clinicians and researchers viewed these issues and outcomes in terms of individual patient deficits (IOM, 2004). Now, health literacy is recognized as a dynamic systems issue reflecting the complexity of both the health information being presented and the healthcare system being navigated (IOM, 2013). Health systems often function as if all patients have health literacy skills and can be vigilant advocates for themselves (Paasche-Orlow, M. K., Schillinger, D., Greene, S. M., & Wagner, E. H., 2006). In reality, a wide chasm often separates what providers intend to convey in written and oral communication and what patients truly understand (IOM, 2001). More rigorous work is needed to develop appropriate, reliable and valid measures for identifying health literacy at the organizational level in the acute care hospital setting. Research as a tool of science can assist in describing the importance and achievability of health literacy in healthcare organizations. Viewed from the QI RNs perspective, this study provided valuable information regarding healthcare organizations' health literacy present state, thereby providing data to support facilitating improving processes for accomplishing better patient outcomes in the future.

CHAPTER II – Literature Review

Health Literacy-An Overview

Healthcare systems make complex demands on patients. As the burden of self-management of healthcare increases, patients are being asked to assume new roles in seeking information, understanding rights and responsibilities, and making health decisions for themselves and others for whom they care. Underlying these demands are assumptions about people's knowledge and skills related to health and well-being including understanding and navigating in a multifaceted healthcare environment (IOM, 2004).

Strategic planning by systems for patients who receive healthcare services in their institutions will require effective care which addresses communication needs of all patients, with special attention to those patients who have limited health literacy (IOM, 2004). Hospital administrative leadership will need to ensure that staffs are prepared to deliver quality care while at the same time identifying the health literacy needs of their patients. Identifying the changing and diverse health literacy needs of patients, healthcare systems will need to increase their focus on the knowledge, awareness and responsiveness toward their staffs' and patients' health literacy requirements.

The terms ''literacy'' and ''health literacy'' have been defined, refined, and measured in a variety of ways over the years, responding to the changing demands in an increasingly complex healthcare system and society. Health literacy is being seen as an integral component of health communication. Lack of consensus about the one true definition of health literacy potentially handicaps progress in its measurement. Conversely, the broad range of definitions reflects an appreciation for the complexity of

the construct itself. The field of health literacy is growing rapidly, broadening to involve a larger and more interdisciplinary audience demonstrating greater recognition of its complex and multifaceted nature (Berkman, N. D., Davis, T. C., & McCormack, L., 2010).

Origins of the Concept of Literacy and Health Literacy

In early United States' history, definitions and measurement of literacy were crude. Before the Civil War, an individual's ability to sign his name on a legal document was an indication of literacy (Lockridge, 1974). In the mid-1800s through the mid-1930s, the U.S. Census Bureau merely asked individuals if they could read and write in any language to confirm literacy (Kaestle & Damon-Moore, 1993). In the twentieth century, more sophisticated definitions, conceptualizations, and measurement of literacy began to evolve because military and labor experts were interested in determining what individuals needed to function in the workforce. The Civilian Conservation Corps coined the term ''functional literacy,'' and defined it as having three or more years of schooling. For the next thirty years, literacy was defined in relation to increasing levels of school achievement, corresponding to the greater demands in the labor market and society overall. In the 1940s, a fourth grade education was considered the literacy level needed for establishing a ranked position in the army (Comings, 2005). The origins around conceptually placing health and literacy together dates back to the time period when United States soldiers were returning home from World War II. It was determined at the close of World War II that universal and understandable simple language materials were needed for returning soldiers (Brandt, 2004).

As healthcare progressed into the 1950s and 1960s, the modern medical ethics movement and the emergence of patient rights occurred. A new healthcare standard was created. Patients recognized it was their personal right to learn about illness and to decide on a chosen treatment. Patient autonomy, including the health literate concept of true informed consent for the patient by the physician, became a highly prized and respected value (Reiser, 1993).

The advent of the 1960s brought about the consumer health movement. Health information was being demanded by individuals who were no longer satisfied to be passive healthcare participants but ready and desiring to take an active role in their personal healthcare. In 1966, the federal government passed the first adult education legislation in the Nation's history. The goal of the Adult Education Act of 1966 was to have a fully literate society, a more productive skilled workforce which would build a strong economy founded on a well-educated citizenry (U.S. Department of Education, 1991). It was during this time that nurses became engaged in patient education as a method for health improvement (Redman, 1993).

The term "health literacy" was cited in 1974 in peer-reviewed academic literature by Simonds, who defined it as, "a person having the basic skills needed to function in a healthcare environment." By the author's own report, that use had nothing to do with the current understanding of the concept and was more an accident of English than an intentional representation of a singular concept (IOM, 2013). Simonds (1974) used it in a paper entitled, "Health Education as Social Policy" where heath literacy was addressed as a goal to be established for kindergarten through grade12. Definitions of health literacy have undergone numerous iterations since the early 1970s. The term health literacy began

being promulgated by private and public sectors as well as federal and state agencies

(Simonds, 1974). The term began appearing in the academic peer-reviewed literature in

earnest in the early 1990s and has experienced exponential growth since that beginning

(Pleasant, 2011).

Definitions of Health Literacy

The definition of health literacy has been evolving over time and thus it has not

been consistently applied to policy development or program implementation (Berkman et

al., 2004). Reaching a consensus on a definition for health literacy appears quite

complicated. The difficulty could arise from the fact that a variety of skill levels are

associated with its definition. In 1999, the American Medical Association first defined

health literacy as the ability to apply basic reading and numeracy skills in the healthcare

context. Since then, a number of definitions have been promulgated. Table 1 presents a

sampling of additional relevant definitions of health literacy beginning with the AMA

definition (Berkman, N., DeWalt, D., Pignone, M., Sheridan, S., Lohr, K., Lux, L., &

Sutton, S., 2004).

Table 1. Definitions of Health Literacy

American Medical Association	1999	"The constellation of skills, including the ability to perform basic reading and numerical tasks required to function in the healthcare environment."
Nutbeam	2000	"The personal, cognitive and social skills which determine the ability of individuals to gain access to, understand, and use information to promote and maintain good health"
Institute of Medicine	2004	"The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."
Zarcadoolas, Pleasant, & Greer	2005	"A wide range of skills that people develop to seek out, comprehend, evaluate, and use health information and concepts to make informed choices, reduce health risks, and increase quality of life."
McCabe	2006	"A tapestry of skills combining basic health literacy, math skills, and a belief in the basic tenets of the treatment modality."
Mancuso	2009	"An evolving lifetime process that includes the attributes of capacity, comprehension and communication."
Freedman et al.	2009	"The degree to which individuals and groups can obtain, process, understand, evaluate, and act upon information needed to make public health decisions that benefit the community."
Berkman, Davis, & McCormack	2010	"Dependent upon individual and system factors, which also include the communication skills, knowledge, and culture of both the professional and lay person, the contest as well as the demands of the health care and public health system."

(Sorensen, K., Van den Broucke, S., Fullan, J., Doyle, G., Pelikan, J., Slonska, Z., Brand, H., 2012).

Efforts to describe health literacy in the last decade have helped us define the issue and recognize that our public's skills and abilities are not adequate for successfully navigating the growing demands and complexity of healthcare environments. Much of the work done in the 1990s focused on defining health literacy, initially measuring its prevalence and subsequently looking at its associations (Parker & Ratzan, 2010).

The multiple definitions of health literacy examined in Table 1 explicate the development of its numerous meanings and nuances over time. Some of these definitions characterize health literacy as an individual trait while others identify it as a product of

both an individual's capabilities and the demands of the healthcare system (Baker, 2006;

U.S. Department of Health and Human Services, & Office of Disease Prevention and

Health Promotion, 2010). In 2006, Baker offered a perspective about the meaning and the

measure of health literacy where he astutely acknowledged that there was a lack of shared

meaning of the term health literacy. He noted that even though the field of health literacy

has expanded in scope and depth, the term itself has come to mean different things to

various audiences and has become a source of confusion and debate. Baker's goal of

adopting a shared definition of ''health literacy'' among researchers and other experts—

as recommended by the IOM (2004)—has yet to be realized. Presently it can be stated

that health literacy can be viewed using a variety of lenses, resulting in differently

nuanced interpretations. The definition that one selects may depend ultimately on one's

goal (Berkman et al., 2010).

Rudd, at the *Surgeon General's Workshop on Improving Health Literacy* in 2006,

identified determinates of health literacy as requiring a two-sided approach. First, the

demand side needs to define what a healthcare system requires of the patient, and second,

the skills of the individuals using the healthcare system to meet these demands. Her work

concluded that for many, the demands of the system and the skill level of the individual

using it are often mismatched causing confusion and missed opportunities for both

teaching and learning, leading to poor patient outcomes (Office of the Surgeon General &

Office of Disease Prevention and Health Promotion, 2006).

Although many definitions have originated in leading agencies and organizations,

there is still a need to refine and standardize the definition of health literacy (Protheroe,

J., Wallace, L. S., Rowlands, G., & DeVoe, J. E., 2009). The terms "health" and

"literacy" together form a powerful concept that has evolved from the 1970s to one that

currently has garnered the attention of a wide range of disciplines; most notably,

education and healthcare, but also library science, public health, and the mental health

arenas. Despite the many definitions of health literacy, none encompass the totality by

which the concept is constructed (Mancuso, 2009).

Within the healthcare realm, the discipline of nursing offers two formal concept

analyses regarding health literacy. In 2005, Speros performed an examination of the

concept of health literacy in order to clarify its meaning, reduce ambiguities, and promote

consistency using the concept analysis approach described by Walker and Avant in 1995.

A few years later, Mancuso sought to develop a clearer understanding of health literacy

using the method of concept analysis defined by Rodgers and Knafl in 2000. Although

two different methodologies for concept analysis were used, Speros and Mancuso's

conclusions were similar. The consequences of high health literacy were determined by

both investigators to be improved self-reported health status, lower health costs,

increased knowledge, shorter hospitalizations, and decreased use of health services

(Speros, 2005; Mancuso, 2009).

In 1999, an ad hoc committee of the Council of Scientific Affairs of the American

Medical Association (AMA) officially recognized and defined functional health literacy

as "the ability to read and comprehend prescription bottles, appointment slips, and other

essential health related materials required to successfully function as a patient (AMA,

1999)." The Agency for Healthcare Research and Quality (AHRQ) broadened the

AMA's definition calling health literacy, "a constellation of skills that constitute the ability to perform basic reading and numerical tasks for functioning in the healthcare environment and acting on healthcare information (AHRQ, 2004)." Governmental, private, and academic interest had been piqued by numerous health literacy focused publications. This resulted in a shift challenging the nation to begin to approach the health of a population through prevention rather than medical treatments as it had in the past (Mason & McGinnis, 1990).

During the last decades of the 20th century the United States identified growing disparities in the educational levels of its population. These discrepancies were coupled with the increased patient demands stemming from a progressively more complex healthcare system. In 1990, a National Literacy Day was declared and the U.S. Department of Health and Human Services' *Healthy People* was established. *Healthy People* represents quantitative benchmarks to be achieved over the decade. It is meant to be a report card for the nation. *Healthy People* objectives are designed to prompt Americans to consider better ways of advancing the quantity and quality of life, healthy places and environments, health equity, and disease prevention. Since the first iteration, the successive plans of *Healthy People 2000* (released in 1990) *Healthy People 2010* (released in 2000) and *Healthy People 2020* (released in 2010) have identified emerging public health priorities and helped to align health-promotion resources, strategies, and research. Each decade, the program sets objectives deemed important, understandable, prevention-oriented, actionable, and measurable with available high-quality data, comparable to those in previous versions. Over the years, the responsibility of developing and implementing these objectives has engaged a growing network of professional and

public partners including healthcare systems (Koh, 2010; U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion, 2010).

Although *Healthy People 2000* did not include any direct reference to health literacy, it did set the stage for significant governmental, private, and academic interest in the field. *Healthy People 2010* objectives declared health literacy to be an important national health priority. According to *Healthy People 2010,* an individual was considered to be health literate when he or she possessed the skills to understand information and services and use them to make appropriate decisions about health. *Healthy People 2010* broadened the definition of health literacy to go beyond the individual patient, including what they referred to as a by-product of system-level contributions. *Healthy People 2020* continues to promote individuals to have high quality lives, free of preventable disease, while achieving health equity and the development of healthy behaviors across life stages (Koh, 2010, Healthy People 2020).

Several hundred studies have depicted associations between limited health literacy skills and various problems with healthcare among adults in the United States over the past two decades (Rothman, R. L., Yin, H. S., Mulvaney, S., Co, J.P., Homer, C., & Lannon, C., 2009). A major contribution to this body of knowledge was provided in 2004 by the Institute of Medicine's report, *Health Literacy*: *A Prescription to End Confusion.* This publication discussed the most fundamental cognitive and social processes associated with learning about one's health, revealing the complexities attributed to the requisite tasks imparted by the healthcare system (Wolf, M. S., Williams, M. V., Parker, R. M., Parkih, N. S., Nowlan, A. W., & Baker, D.W., 2007). Studies of this nature continue to foster dialogue and discussion seeking to improve the translation

of research findings into healthcare practice, quality patient care and professional education.

There has been strong legislative language, regulations, and fiscal appropriations to advance concerted efforts designed to address health literacy improvements. Congressional bills such as the National Health Literacy Act of 2007 and the Plain Language Act of 2009, each individually, map out meaningful health literacy strategies. The Patient Protection and Affordable Care Act (PPACA) of 2010 pushed forward the national health literacy agenda by requiring health plans and insurers to provide consumers with clear, concise, health information (Somers & Mahadevan, 2010). The field of health literacy is growing rapidly and has broadened, involving a larger more interdisciplinary audience. This has resulted in a greater recognition of health literacy's differing definitions, complexity, and multifaceted nature of the concept (Berkman et al., 2010).

Health Literacy Gains Momentum

The National Adult Literacy Survey (NALS) in 1993 found that the average reading level of Americans was between the eighth and ninth grade levels (Kirsh, I., Jungeblut, A., Jenkins, L., & Kolstad, A., 1993). In 2003, the U.S. Department of Education (DOE), with the support of the Institute of Educational Sciences, National Center for Education Statistics, administered the National Assessment of Adult Literacy Survey (NAAL) to over 19,000 adults. This survey included a health literacy component to collect data for the *Healthy People 2010* objective. The goal of NAALS was to assess the status of English adult literacy in the United States since the previous NAALS which was completed in 1993. It was also the first nationally represented study to have a

specific component to evaluate health literacy in the American population with the intent

to measure the ability to read, understand, and apply health-related information in English

(White, 2008). This was extremely important as it provided the first systematic feedback

to the education system and to the healthcare system regarding American adults' health

literacy levels. The level of feedback demonstrated that the education and healthcare

systems being measured were not a good match with the abilities of most adults. The

NAAL further identified substantial disparities associated with race, ethnicity, age, and

insurance status (White, 2008).

Private not-for-profit and for-profit organizations also expressed interest in the

consequences of low health literacy. America's Health Insurance Plans, the American

College of Physicians, The Joint Commission, and Pfizer Pharmaceuticals Incorporated

all publically recognized the importance of having a health literate population. For

example, in 2003, Pfizer Pharmaceuticals launched their *Clear Health Communication

Initiative* engaging the research and practice communities and producing a published

white paper on the topic. In this paper Pfizer defined health literacy as, "the ability to

read, understand and act on health information (Partnership for Clear Health

Communication Steering Committee, 2003)." Pfizer was the first for-profit company to

identify the importance of an individual needing to "act on health information" in their

definition of health literacy (Partnership for Clear Health Communication Steering

Committee, 2003). The Joint Commission added guidelines to their patient and family

education standards to assess literacy levels when teaching (Murphy-Knoll, 2007). The

Joint Commission in conjunction with the Centers for Medicare and Medicaid Services

launched the National Speak Up Campaign which urged patients to take a role in preventing healthcare errors by becoming an active participant on the healthcare team (IOM, 2012).

The National Institute for Health (NIH) in September 2006 held a Surgeon General's Workshop on "Improving Health Literacy." Individual healthcare specialists joined in this effort to discuss the state of health literacy. The workshop was divided into three panels. The first panel was entitled, "Health literacy, literacy and health outcomes," the second, "Meeting the health literacy needs of special populations," and third, "Toward an informed engaged public." From the work of these three panels four conclusions were established. The first determined the general public cannot be expected to adopt health behaviors without clear communication. The second determined that without attending to the health literacy of patients' advances in medicine, health information technology and delivery of care will not be realized. The third stated that health literacy must be viewed within the context of complex social, cultural, educational, and public health systems. Finally, the last conclusion reported that although there is sufficient information to begin making improvements in health literacy more research is needed (Office of the Surgeon & Office of Disease Prevention and Health Promotion, 2006).

The tsunami of emerging science and health is evolving at unprecedented speed. Timely translation of complex health-related information for patients requiring healthcare is essential for the populations being served. Nurses are employed across many areas of healthcare as primary advocates for patients. Unfortunately, research shows there are

significant gaps among RNs regarding health literacy awareness, knowledge, skills and practices (Coleman, 2011). RNs however, are uniquely positioned to create a cultural change in healthcare organizations that will shift the focus toward optimizing health and wellness (Parnell, 2015).

Measurement of Health Literacy

While the 2003 NAAL provided an overall assessment of the level of health literacy of American adults, various research measures have been used to establish the relationships among limited health literacy, quality healthcare and health outcomes (IOM, 2009). In 1991, Davis et al., created the first screening instrument, the Rapid Estimate of Adult Literacy in Medicine (REALM), to estimate patient literacy in primary care, patient education, and medical research settings. The REALM is a 125 word recognition and pronunciation screening test where participants read common medical terms and, depending on correct reading and pronouncing of the words, a score is obtained (Davis et al., 1993). Parker and colleagues followed in 1995 with the creation of the Test for Functional Literacy in Adults (TOFHLA). The TOFHLA takes approximately 20-25 minutes to complete and includes a 17 item numerical test and 56 item reading comprehension test (Parker, R.M., Baker, D.W., Williams, M. V., & Nurss, J. R., 1995). The REALM and the TOFLHA focus primarily on reading-related skills. The TOFLHA was used to determine that inadequate health literacy independently predicts all-cause mortality and cardiovascular death among elderly persons and that health literacy is a more powerful predictor variable than education (IOM, 2009). In 2005, Weiss et al., developed the Newest Vital Sign Health Literacy Assessment Tool. It used a nutrition

label which challenges a patient's ability to read and at the same time analyze information. The patient's response allows providers to appropriately adapt their communication practices in an effort to achieve better patient-specific health outcomes. Each of these measures has contributed to shaping the field of health literacy measurement by allowing researchers to determine that those with lower health literacy have poorer health outcomes (Berkman et al., 2010). A variety of other tools have been used with less than optimal results.

In the clinical practice setting, practitioners commonly overestimate the health literacy of their patients (Koh, H. K., Brach, C., Harris, L.M., & Parchman, M. L., 2013). Assessing the health literacy of a sample of patients can provide the clinician with information about his or her average reading level, which can then be used as a guide in the selection and development of patient education materials. There remains some concern, however, about universal testing of patients which is associated with alienation and stigmatization of patients with limited health literacy (IOM, 2009).

Health literacy is an important powerful tool for improving health. Adequate and accurate measurement is a means for providing appropriate attention to the topic of health literacy. This type of attention can potentially lead to changes in health systems. There are a number of different tools that are available to address health literacy. Table 2 provides a sample list of tools available to address health literacy.

Table 2. Tools Available to Address Health Literacy

Author/Date/Tool	Purpose	Design	Reliability/Validity
Davis et al., (1991) Rapid Estimate of Adult Literacy in Medicine (REALM)	Rapid screening instrument designed to assess how well patients read common medical and lay terms that adult primary care patients are expected to recognize allowing for the appropriate level of patient education.	A reading recognition test to assess ability to read and pronounce common medical terminology in ascending order of difficulty.	Test-retest Reliability = 0.98 Content and Face Validity: established Criterion Validity SORT: r = 0.95; PIAT-R: r = 0.98
Parker et al., (1995) Test of Functional Health Literacy (TOFHLA)	To measure a patient's ability to perform health – related tasks that require reading and numerical skills.	A timed reading comprehension and timed numeracy section	Cronbach's α = 0.98 Criterion Validity REALM r = 0.84; WRAT-R r = 0.74 Content: established
Hanson-Divers (1997) Medical Achievement Reading Test (MART)	To develop a terminology literacy test that is easily and quickly administered and can accurately assess reading levels.	Medical word recognition from prescription labels and patient education materials.	Cronbach's α = 0.98 Content Validity: claims established Criterion Validity: not established
Weiss et al., (2005) Newest Vital Sign (NVS)	To develop an English and Spanish screening tool that identifies patients at risk for low health literacy by eliciting information allowing providers to adapt communication to achieve better health outcomes.	A nutrition label from an ice cream container is used giving patients queries about how they would interpret a series of six questions.	Cronbach's α = 0.76 English Cronbach's α = 0.69 Spanish Criterion Validity TOFHLA: r = 0.59 (English) TOFHLA: r = 0.49 (Spanish)
Lee et al., (2006) Short Assessment of Health Literacy for Spanish Speaking Adults (SAHLSA)	To develop an easy to use health literacy test for the Spanish speaking population.	Medical word recognition with a comprehension component.	Cronbach's α = 0.92 Test-retest Reliability = 0.86 Criterion Validity TOFHLA-S: r = 0.65

(Mancuso, 2009).

Although some of the sample tools in Table 2 are described as those which

measure health literacy they are actually screening, rather than assessment tools.

Screening and assessment tools have an important fundamental difference. Screening

tools are meant to be short, quick, easy to use, and emphasize specificity over sensitivity.

Assessment tools explore structure and function and should establish the basis for reliable

screening tools (IOM, 2009). None of the above tools measure health literacy in the

context of both the healthcare system and the individual. It has been recognized that current health literacy measures do not describe how possessing health literacy actually causes improved health. The mechanism of how an individual with high levels of health literacy leads to experiencing improved health has yet to be shown. Weiss speculates that unless it can be shown that health literacy has improved in a patient, it can never be shown that health outcomes have improved as a result of improved health literacy (IOM, 2009).

Health Literacy Nexus to Patient Care, Quality, and Safety

In an era in which medical knowledge has resulted in breakthrough drug regimens and technology that produces life-saving treatments, one of the most basic obstacles to effective healthcare today is a comprehensive approach to health literacy across all stakeholders. Simply because a patient is being treated in a hospital, high quality outcomes do not automatically occur. Empiric data suggest that health literacy has not been adequately addressed in the United States health professions schools (Coleman, 2011). Addressing the burden of low health literacy warrants the attention of many stakeholders. Specific focus needs to be placed on one aspect of health literacy that has gone largely unnoticed, the component of organizational health literacy.

With reports on healthcare quality and patient safety, the IOM provided a call to action for the healthcare industry to substantially reduce the frequency of preventable medical errors. Healthcare organizations have rallied around safety, quality, and error reduction. Several IOM publications have provided contributions toward helping to shape the quality and safety of healthcare. In 1999, the IOM report *To Err is Human Building a Safer Health System*, set a National agenda for designing a safer healthcare

system. Building a safer system according to the IOM's 1999 report requires designing processes of care to ensure patients are safe from accidental injury. Patients should have the assurance that when the appropriate medical treatment is provided they have the best chance of achieving the desired outcome (Kohn, L. T., Corrigan, J., & Donaldson, M., 1999). The overarching goal of this IOM publication was to examine the quality of healthcare in America breaking the cycle of inaction and to no longer allow patients to accept the status quo. The 1999 IOM report, *To Err is Human Building a Safer Health System* stated that doing no harm to patients must be at the very minimum standard assured by all healthcare systems.

Healthcare organizations seeking to improve quality and safety must help individual patients understand and process healthcare information. The lack of consistent safe and high quality medical care in America's healthcare delivery systems became the basis for additional IOM publications including *Crossing the Quality Chasm: A New Health System for the 21st Century*, published in 2001. This report recognized a gap that separated what healthcare organizations intend to convey in written and oral communication and what patients truly understand. According to this report the nation's healthcare delivery system has fallen short in its ability to translate knowledge into practice while applying new technology safely. Delivery of care in this publication is described as overly complex; conducted in uncoordinated silos; cumbersome and wasteful of resources; and ultimately leaving unaccountable voids or excesses in the amount and quality of care provided. Healthcare quality is in need of reinvention which fosters innovation and quality improvement initiatives. The plan for this change, a comprehensive strategy for improvement, is discussed at length in this IOM 2001 report.

The 2004 IOM report, *Health Literacy*: *A Prescription to End Confusion* describes efforts to improve quality, reduce costs, and reduce disparities while simultaneously making improvements in health literacy (IOM, 2004). A fundamental problem determined through this report's investigation was the lack of a concrete, consistent definition for health literacy. Building a health literate public, while assessing approaches that have already worked and combining them with new safer and innovative approaches, was the desired outcomes outlined in report (IOM, 2004).

Quality Medical Care and Patient Outcomes

Historically, healthcare quality has been seen as an unusually difficult notion to define. In the early 1930s, Lee and Jones, experts in the field of good medical care, used "articles of faith" in defining quality care. Conceptually, this seminal work conveyed criteria of quality as value judgments, which when applied to aspects, properties, ingredients, and dimensions of processes are referred to as good medical care (Lee & Jones, 1933). Others have also determined there are a multitude of possible dimensions by which to measure the quality of patient care; how these dimensions are defined have a profound influence on the approaches and methods one employs in the actual assessment of quality patient care (Klein et al., 1961).

In the 1980s, hospital quality management initiatives focusing on major trends toward better quality of care were introduced as reflected in the writings of Juran and Godfrey's *Quality Handbook* (1999). At that time, a new emphasis on opportunities for healthcare quality improvement began to blossom. Healthcare experts Berwick and Bisognano, in Juran & Godfrey's book, discuss how medical care was found to be susceptible to multiple and fragmented quality efforts that impeded systemic vision of

optimization. Like other new industries that came to improvement methods, healthcare organizations often simply did not believe significant quality improvement was possible (Juran & Godfrey, 1999). It was Berwick and Bisognano who projected that the twenty-first century would witness the maturing of a quality-driven healthcare system. Characteristics of the system would include: improved service quality, decreasing costs, health care downsizing, focus on prevention, participative decision making, and information systems advancement. It was their prediction that health and healthcare in the twenty-first century would be transformed forever (Juran & Godfrey, 1999).

There is currently growing concern that meaningful quality improvements that organizations attempt to provide suffer "project fatigue" because of the large number of problems needing attention. No hospitals or health systems have achieved consistent excellence. The toughest ingredient to implement is the creation of a transparent safety culture. Healthcare leaders and healthcare organizations are being called upon to reflect on their commitment and ongoing support toward making quality care and patient safety gains comparable to those of the best high-reliability organizations (Chassin, 2013).

Dr. Richard H. Carmona, the 17th Surgeon General, describes health literacy as currency for all populations' health and wellness. He stated in a 2015 presentation entitled *Hidden Barriers and Practical Strategies,* that "(as) a former nurse, trauma surgeon, and public health director [I realized] there was a wall between us and the people we were trying to serve. Health care professionals do not recognize that patients do not understand the health information we are trying to communicate." Dr. Carmona used this presentation to urge healthcare providers to close the gap between what

healthcare professionals know about health literacy and what patients understand (AHRQ, 2015).

Inspiring organizations to excel and provide safe and effective care is part of the mission of the Joint Commission. The Joint Commission provides accreditation while partnering with organizations to create highly reliable healthcare organizations which deliver quality care in accordance with, and measured by, a specific set of Joint Commission standards (Chassin, M. R., Loeb, J. M., Schmaltz, S. P., & Wachter, R. M., 2010). Joint Commission standards are principles based on concepts which drive patient safety, process improvement, quality care and patient rights. In January of 2010, the Joint Commission released a new set of standards for patient-centered communication as part of a project to advance effective communication, cultural competence, and patient and family-centered care. Four key concentrations these Joint Commission standards share with the IOM Ten Attributes of Health Literate Healthcare Organizations include focus on leadership, human resources, provisions of care, and rights and responsibilities of individuals (IOM, 2013).

The Joint Commission standards underscore the fundamental right and need for patients to receive information about their care in a way in which they can understand. The Joint Commission views effective communication, cultural competence, and patient and family-centered care as important components of safe, quality care. Relevant standards the Joint Commission currently use to measure hospitals quality compliance include, for example, Leadership Standard (LD) 02.01.01- The mission, vision, and goals of the hospital support the safety and quality of care, treatment and services and Environmental Care (EC) Standard 02.06.01- The hospital establishes and maintains a

safe, functional environment (The Joint Commission, 2010). The Joint Commission uses

the rationale for these standards by explaining that the primary responsibility of any

hospital leader is to provide safe quality care for all patients. The purpose of the

hospital's mission, vision, and goals is to define how the hospital will achieve safety and

quality. Leaders are more likely to be aligned with the mission, vision, and goals when

they contribute to their development. The mission, vision and values of a hospital are

most likely achieved when they are understood by all who work in the hospital (Joint

Commission, 2010).

Organizational change requires the commitment and engagement of leaders. In an

increasingly complex healthcare environment, organizations must be given opportunities

to improve the safety and quality of patient care through training and development of

health literacy skills of their workforce. A hospital's accreditation requirements and

rating systems make health literacy necessary and provide additional incentives to

support and sustain health literacy efforts (IOM, 2012).

Patient Care Outcomes Linked to Organizational Health Literacy

The advent of patients being allowed to make healthcare decisions elevated their

place in medical history. The focus on the patient as the individual receiving the product

of healthcare is considered the hallmark of the modern medical ethics movement. Reiser

(1993) reported that this ethics movement began to develop in the 1980s. Intended

outcomes and other consequences of medical intervention became major criteria when

determining its value. This action further enhanced the authority of the patient's

perspective. As a result of this ethical movement, objective biological standards of

medicine were founded. It was during this time period that the effects of a medical

procedure or its outcomes could be used to determine both adequacy and inadequacy of medicine. Thus, the medical ethics of the outcomes movement drew its strength from the significance given to the patient's view of their own illness and their progression in therapy (Reiser, 1993).

Multiple factors affecting patients and outcomes of therapies emerged through the work of the iconoclastic surgeon E.A. Codman. It was Codman in the early 20th century, who asked physicians to document results of their interventions to evaluate the reasons for their outcomes. It was Codman's lifelong pursuit to establish an "end results system" to track the outcomes of patient treatments. He saw this as an opportunity to identify clinical misadventures, thus providing the foundation for improving the care of future patients. He also believed this type of information should be made public so that patients could be guided in their choices of physicians and hospitals. His efforts to reform medical science with a focus on outcome studies and evidence-based medicine unfortunately brought him mostly ridicule, censure and poverty (Brand, 2009).

In the 1980s, as a result of variations in physicians' therapies and growing healthcare costs, a new interest in outcomes measurement appeared (Reiser, 1993). The emergence of outcomes measurement directed attention toward the patient's well-being and emphasized unique individual patients over patient cohorts or society at large. This development was identified by the term "outcomes measurement" (Lohr, 1988). Researchers were identifying the patient as being at the center of the outcome.

In an attempt to enhance health outcomes, the healthcare analyst Ellwood (1988) developed what he identified as "outcomes management." He described this term as skills concerned with patient experience designed to help patients, payers, and providers make

rational medical care related choices. These choices were based on improved evidence and considered the effects they had on the patient's lifestyle. This technique pooled evidence from functional measures of patient status and clinical results into a universally accessible database. The focus of collecting the data was to track and measure the well-being of patients. Quality measurement efforts continue to examine reports of patient's experiences, values, and needs which allowed for evaluation of care interventions and outcomes (Ellwood, 1988).

The views of patients, as consumers, in the 1990s were seen as catalysts for change in healthcare. By measuring the success of healthcare in terms of patients' experiences and values, the patient outcomes movement can be seen to have been distinctly influenced by the ethics movement. The unique perspective the patient brought to healthcare in the 1990s was seen as an impetus to focus on individual outcomes which in turn has helped shape the practice, research, education, quality, and policy initiatives that followed (Reiser, 1993).

Theoretical Framework – A Proposed Health Literate Care Model

Improving health outcomes relies heavily on patients' full engagement, decision-making, and self-management activities. Health literacy, or a person's ability to obtain, process, communicate, and understand basic health information, is essential to those actions. Unfortunately, not all individuals are proficient in understanding and acting on available health information (Koh et al., 2013).

Healthcare delivery is generally considered to be poorly organized in meeting the needs of patients, specifically those with chronic diseases and disabilities. Many patients demonstrate insufficient knowledge of their medical condition and have difficulty

completing basic healthcare forms (Koh et al., 2013). Rushed practitioners have difficulty

following established care guidelines while inadequate education leaves patients ill-

equipped to manage their illness (Coleman, 2011).

The Chronic Care Model (CCM) developed in 1995 by Dr. E. Wagner and others

poses a framework aimed at improving and guiding chronic illness care (IOM, 2004).

The model itself was constructed by drawing on available literature about promising

strategies for chronic illness management. The original model identified six essential

elements of a healthcare system that encouraged high quality chronic disease care. These

elements included community, the health system, self-management support, delivery

system design, decision support, and clinical information systems (Wagner, E.H., Austin,

B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A., 2001). The CCM had

become a widely adopted effective approach to improving care and clinical quality

initiatives across the United States. Evidence supported the CCM as an integrated

framework to guide practice redesign. Studies suggest that redesigning care using the

CCM could lead to improved patient care and better health outcomes (Wagner, et al.,

2001; Coleman, K., Austin, B. T., Brach, C., & Wagner, E. H., 2009; Koh et al., 2013).

The proposal of a "Health Literate Care Model" (HLCM) was developed from,

and formerly known, as both the "Chronic Care Model" (CCM) and "Care Model" (CM).

It integrated health literacy strategies into the widely adopted CM. This original CCM

designed by Wagner and associates was expanded over time to encompass high-quality

care including patient-centeredness and disease prevention, thus resulting in the CM. This

newly named CM added a new facet calling on healthcare organizations to forge

partnerships with their communities to provide resources to help meet patients' needs.

Although this evolving model brought patient engagement and higher quality of care, it had yet to incorporate health literacy strategies into its structure (Koh et al., 2013).

The HLCM incorporated health literacy principles into the Care Model. Health literacy was added as a value to be modeled by leadership and integrated into all aspects of planning and operations. In 2013, Koh and colleagues determined that healthcare organization leadership is central to this evolving model. Leaders create a culture and operational mechanisms that promote safe, high quality care with the ultimate goal of improved outcomes (Koh et al., 2013). This goal is supported by an informed patient and a prepared proactive healthcare team (see Appendix B - Health Literate Care Model). Although all aspects of this model are important, the central portion of the HLCM entitled, "Strategies for Health Literate Organizations" is the area on which this study predominantly focused. As the field of health literacy expands, more needs to be known about the connections between education and health, the role of literacy, and the discrete contribution of health literacy to health and well-being of patients being cared for by healthcare organizations (IOM, 2012).

Institute of Medicine Ten Attributes of Health Literate Healthcare Organizations

In 2012, members of the IOM Roundtable on Health Literacy published a discussion paper that focused on the Ten Attributes of Health Literate Healthcare Organizations. They brought together leaders from the federal government, private foundations, health plans, professional associations, and private companies to address challenges facing health literacy practice and research and to identify approaches to promote health literacy in public and private sectors. It was determined to be of primary importance to develop strategies that healthcare organizations could use to improve their

health literacy-promoting attributes as each explored ways to determine what it meant to be a Health Literate Organization (IOM, 2012). The paper detailed the Ten Attributes of Health Literate Healthcare Organizations, along with references and suggestions on how to realize the attributes. Achieving the ten attributes, according to the authors, requires not only knowledge about health literacy but also a focus on systems and organizational change (Brach et al., 2012). The specific details of the attributes focus on addressing health literacy with leadership activities, staff training in health communication, delivery of health information, and processes to ensure that the organization's environment is ready and prepared for patients with varying levels of health literacy (Kripalani et al., 2014).

The ten attributes identified represent an attempt to synthesize a body of knowledge and practice, supported by the state of the science in the field of health literacy (Brach et al., 2012). Healthcare organizations that embody these attributes will be able to create an environment that allow patients to access and benefit optimally from a full range of healthcare services in a clear understandable way (Brach et al., 2012). The road to establishing institutional health literacy is extensive. The Ten Attributes for Health Literate Healthcare Organizations serve as a guide for organizations evolving toward becoming HLOs. In accordance with the experts an organization that is considered to be health literate:

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.

The framework, from which the attributes were originally developed by Schillinger & Keller, comprises a pyramid with five tiers. Each of the ten attributes belongs in one or more of the five tiers of the pyramid. At the base of the pyramid the concept of organizational commitment is the building block of support for the pyramid. This is followed by the second tier of accessible educational technology infrastructure. The third tier is augmented workforce and the fourth tier includes embedded policies and

practices. The top tier includes effective bi-directional communication. Each tier contains an integral portion of the framework with bi-directional flow allowing for course correction and open communication. Foundational to this entire organizational health literacy process is organizational commitment (Schillinger & Keller, 2012).

Agency for Healthcare Research and Quality Health Literacy Toolkit

The evolution toward becoming a HLO requires the use of research and evidence based best practice. Healthcare is complicated and many patients struggle with understanding medications, self-care, discharge management instructions, and follow-up plans. The Agency for Healthcare Research and Quality (AHRQ) commissioned The University of North Carolina at Chapel Hill to develop and test a *Health Literacy Universal Precautions Toolkit* providing step-by-step guidance for hospitals and practices to assess and make changes to connect with patients of all literacy levels (DeWalt et al., 2010). When used effectively, the AHRQ Health Literacy Universal Precautions Toolkit approach to health literacy never assumes a patient's health literacy level but considers all patients as if they are at risk of not understanding necessary healthcare teaching information needed to be communicated (DeWalt et al., 2010).

Organizational Health Literacy is not a program that can be picked up and simply dropped into place. The evolution toward becoming a HLO requires embarking upon plans and activities specific to each of the IOM Ten Attributes. Many organizations that have made attempts to institute health literacy find it difficult, time consuming and expensive without realizing the desired gains from their efforts. This suggests the need for the implementation of an organizational cultural change concomitant with efforts designed to improve organizational health literacy (IOM, 2013). One barrier that health

literacy efforts have confronted is an entrenched way of thinking or acting. For example, physicians resist health literacy tools because they often do not see teaching as part of their role (Coleman, 2011). Provider acceptance of health literacy efforts varies and is an area of continuing work (IOM, 2013). One example offered by a healthcare system on its journey towards becoming a HLO is the reality that implementing health literacy takes time and resources. Nurses are at the front line of advancing patients' health literacy but they cannot do everything alone and trying to get physicians to participate in health literacy is often seen as a challenge (IOM, 2013).

Organizations that have been able to incorporate health literacy strategies into their hospitals' culture offer the following three suggestions as keys to success. First, health literacy must be a system goal. Second, feedback from the actual consumers is critical, particularly those with low health literacy. Third, the system initiative must recognize and embrace the nexus among quality, safety, patient-centered care, risk management, and healthcare system transformation in its design (IOM, 2013).

Additional success stories include HLOs that incorporate health literacy into all planning activities. HLOs that set and meet goals for ongoing formal and informal health literacy training for all staff members and governing bodies will be able to institute health literacy in their organizations (Brach et al., 2012). Workforces that are encouraged to become competent in health literacy assessment help to ensure patients receive quality health literate healthcare services (IOM, 2013).

Those organizations that have successfully incorporated the IOM's Ten Attributes into their culture recognize the need to communicate effectively with patients during every encounter regardless of language, cultural background, age, educational level, and

previous experience with healthcare. Health literate organizations recognize that literacy, language and culture are intertwined and that health literacy augments efforts to reduce disparities and improve linguistic and cultural competence (Andrulis & Brach, 2007). Additionally, health literate organizations recognize that individuals who ordinarily have adequate health literacy may have difficulty processing and using information when they are sick, frightened, in pain, on medication, or otherwise impaired (Brach et al., 2012). Under the stewardship of healthcare organizations committed to becoming health literate, gaps between the organizations and the patients are bridged.

Organizations that make it easier for patients to navigate, understand, and use information and services to take care of their health are considered HLOs (IOM, 2004). However, for hospitals to be identified as a Health Literate Organizations, they must do more than initiate a few projects that address health literacy. Organizational health literacy involves bringing a fundamental value to the organization's mission, vision, and operations. This value needs to become pervasive throughout the organization and embraced as part of the HLOs core business plan (Brach et al. 2012). HLOs implement evidence-based best practice strategies to become health literate. HLOs make patient-centered care an organizational priority by streamlining, simplifying, and standardizing processes in a clear and consistent manner.

Health literacy experts are now advocating for this *Health Literacy Universal Precautions Toolkit*. The toolkit was developed for AHRQ in 2010 and modeled after the concept of Universal Precautions to avoid infection. The Universal Precautions approach to infection control seeks to treat all human blood and certain human body fluids as if they were known to be infectious specifically for blood borne pathogens as stated in the

OSHA Blood borne Pathogens Standard <u>29 CFR 1910.1030(b)</u> definitions. This across-the-board adoption of the Universal Precautions approach by all healthcare professionals for consistency applies equally to the *Health Literacy Universal Precautions Toolkit*. Testimonials from those who have moved to adopting the *AHRQ Health Literacy Universal Precautions Toolkit* strategies include: "Before reviewing this toolkit, we had never heard of health literacy. As we assessed our practice and reviewed the tools, we realized that the concerns addressed in this toolkit are things patients struggle with every day." A second testimonial stated, "When the toolkit was first introduced our staff thought, 'Oh great, more responsibilities' but what was quickly realized was it is not adding more, it was learning to do things differently (DeWalt et al., 2010)."

The experts who developed the toolkit recommend assuming that everyone may have difficulty understanding. Their suggestion was to create an environment where patients of all literacy levels can thrive. Improving patient understanding is beneficial for the patient and health care provider. Research suggests that clear communication practices and removing all literacy related barriers will improve care for all patients regardless of their level of health literacy (DeWalt et al., 2010).

The IOM's ten attributes of health literate healthcare organizations and the AHRQ *Universal Health Literacy Toolkit* share overlapping content. The toolkit can be used by organizations on their journey toward becoming HLOs. One of the toolkit's primary purposes is to minimize patient risk while maximizing successful patient outcomes (DeWalt et al., 2010). A number of studies in areas such as diabetes and heart disease have shown that by focusing on improving health literacy practices, health outcomes improve (Pignone,M., DeWalt, D. A., Sheridan, S., Berkman, N., & Lohr, K. N., 2005).

To obtain optimal health outcomes, patients need healthcare access, health knowledge, and proactive behavior (DeWalt et al., 2010). The AHRQ *Universal Health Literacy Toolkit* offers a structure to assist with the implementation of facilitators such as the application of the IOM Ten Health Literacy Attributes. The terminology used by the AHRQ health literacy toolkit discusses hospital changes, improving spoken and written communication, improving self-management, empowerment, and finally, improving supportive systems. These toolkit terms and associated assessment questions can easily be associated with each of the five rows of the pyramid framework from which the IOM Ten Health Literacy Attributes are based. The toolkit now in its 2nd edition helps reduce the complexity associated with healthcare while assisting to increase the patient understanding of information shared with them (Brega et al., 2015).

HLO leadership support health literacy and incorporates it into all planning activities. HLOs set and meet goals for ongoing formal and informal health literacy training for all staff members and governing bodies. They conduct ongoing assessments that reflect their organizations' performance and progress in promoting health literacy. Staffs that are competent in health literacy assessment help to ensure patients receive quality healthcare services. The types of organizations that are seeking to become HLOs themselves must be committed to progressing and evolving toward health literacy by addressing the specific needs of the populations they serve in an understandable manner. The IOM's Ten Attributes provide those healthcare organizations seeking to become HLOs an opportunity to take concrete actions toward closing the gap between individual's health literacy skills and the demands of complex healthcare systems (Brach et al., 2012).

Health Literacy and Effective Dynamic Communication

The Board on Population Health and Public Health Practice of the Institute of Medicine established a Roundtable on Health Literacy to foster dialogue and discussion to advance the field of health literacy and improve the translation of research findings to healthcare, education, and policy. The goal of this roundtable was to enhance mutual understanding of health literacy among the health community and the general public and to provide a mechanism that fosters collaboration and open clear communication among stakeholders. To accomplish its purpose, the roundtable brought together leaders from academia, industry, government, private foundations, and professional associations and representatives of patient and consumer groups who had an interest and role in improving health literacy. As a conduit to inform its stakeholders, the IOM (2013) commissioned papers and conducted workshops focusing on improved quality of care for patients with low health literacy.

In support of efforts to reduce the complex demands of organizational health systems and foster dialogue to advance the complex topic of health literacy, the Board of Population Health and Public Health Practice of the IOM established a Roundtable Collaborative. This collaborative prepared a discussion paper titled "Ten Attributes of Health Literate Healthcare Organizations". The discussion paper provided a re-analysis and revision of research contained in a commissioned paper authored by Schillinger and Keller, *The Other Side of the Coin: Attributes of a Health Literate Health Care Organization*, presented at the November 2011 IOM health literacy workshop. The discussion paper, besides describing the ten attributes, also suggests ways healthcare

organizations could mitigate the negative consequences of limited health literacy. These ten attributes provide focus areas for all healthcare organizations committed to reengineering systems to better accommodate the needs of populations with limited health literacy (IOM, 2012). These ten attributes individually and collectively have shown health literacy is complicated and methods must be identified to make the concepts understandable, clear, actionable, and useful (IOM, 2013).

To synthesize the increasing volume of literature on health literacy, health literacy interventions and outcomes were researched with a systematic review of health care service use and health outcomes. Differences in health literacy levels and interventions designed to improve outcomes for individuals with low health literacy was conducted. Disparities in health outcomes and effectiveness of interventions among different socio-demographic groups were examined. Differences in health literacy levels were consistently associated with increased hospitalizations, greater emergency care use, lower use of mammography, lower receipt of influenza vaccine, poorer ability to demonstrate taking medications appropriately, poorer ability to interpret labels and health messages, and, among seniors, poorer overall health status and higher mortality (AHRQ, 2011).

Health literacy continues to be a dynamic research topic. In 2014, Vanderbilt Center for Effective Health Communication was called upon by the IOM Health Literacy Roundtable to gather a group of health literacy scholars to provide a guide for health care organizations to assist patients to more easily navigate and understand the information needed to take care of their health. The 2014 Vanderbilt study identified healthcare organizations that are beginning to quantify and measure health literacy as addressed by

the IOM Ten Attributes of Health Literate Healthcare Organizations. This recent research identified a broad array of measures which provide important opportunities for healthcare facilities to assess all of the Ten IOM Attributes as they seek to help patients achieve optimal health and improve the outcomes of populations served. The research determined that many health literacy measures have strong content validity but little research has been done on the internal reliability, construct, or predictive validity. Moving forward, this Vanderbilt research suggests the creation of a uniform set of items to be used by any organization to assess all ten of the attributes of a health-literate organization. These IOM Ten Attributes are focused on addressing health literacy at the organizational level. With consistent use these attributes will help improve the healthcare quality, safety and health outcomes of all populations served (Kripalani et al., 2014).

Chapter Summary

Although health literacy is commonly defined as an individual trait, there is growing appreciation that health literacy does not depend on the skills of individuals alone. Health literacy is the product of the interaction between individuals' capacity and the health literacy related demands and complexities of the healthcare system. Healthcare system changes are needed to better align healthcare demands with the public's skills and abilities (IOM, 2013). If professionals who promote health and treat illness, create policy, develop materials, and have a clear understanding of the problem of health literacy, then policies, processes, and programs can better meet the health literacy needs of the population. The healthcare system carries significant, but not sole, responsibility to improve health literacy. Reliable and valid means to measure both a patients' health literacy and where organizations are in their health literacy journey is needed.

Development of uniform measuring tools will assist researchers in establishing and

monitoring the magnitude of the health literacy issue with defined indicators to move this

field of inquiry forward.

Chapter III – Methods and Procedures

Chapter three presents the methods and procedures used in this study. This chapter includes a description of the research purpose, design, setting, including the target population, sample selection, survey instrument, data collection, and data analysis. Most health literacy studies to date have focused on characterizing patients' health literacy deficits, how to best measure a patient's health literacy, or on clarifying relationships between health literacy and outcomes (Schillinger & Keller, 2012). A shift in focus took place with this study from the patients' role in health literacy to the organization's role in health literacy as reported by acute care hospital quality improvement registered nurses.

Purpose of the Study

The purpose of this study was to quantify quality nurses' (QI) perceptions of organizational health literacy. The study measured QI RN's perceived importance and achievability of the IOM's Ten Attributes of Health Literate Healthcare Organizations in the hospitals in which they work. Additionally, select AHRQ Health Literacy Universal Precautions Toolkit (2015) assessment statements were cross-walked with the IOM Ten Attributes of Health Literate Healthcare Organizations to assist the researcher to identify relationships that may or may not exist between health literacy and the hospital in which the quality nurse participating in this study was employed. The following are the five research questions being posed by this study:

1. What are QI RNs' perceived levels of importance of the IOM's ten attributes of health literate organizations?

2. How likely do QI RNs believe that their organizations can achieve the IOM's ten attributes of health literate organizations?

3. How do QI RNs who work in quality care and performance improvement assess their organizations progress with the IOM's ten attributes of health literate organizations?

4. What are the characteristics associated with QI RNs' knowledge and perceptions of the IOM ten attributes of health literate organizations?

5. What are the characteristics of the organization associated with QI RNs' perceived likelihood that their organization can become health literate organizations?

Research Design

This is a quantitative descriptive study that used research survey methodology. The nature of a descriptive study is to collect data for examining research questions concerning perceptions, attitudes, opinions, and conditions of the participants of the study (Polit & Beck, 2012). Findings from a descriptive study can provide new insights and create new avenues of exploration for researchers. It sheds light on various ways in which a phenomenon is manifested and can allow opportunities for benchmarking. Descriptive data were generated by scales measuring importance and achievability. Demographic data were obtained in the survey for statistical analyses.

Research Setting and Target Population

The target population for this study was quality improvement registered nurses (QI RNs). The pilot feasibility study group came from a group of QI RN's who work for Catholic Health Services of Long Island (CHSLI), a healthcare system comprised of six

acute care hospitals on Long Island, New York. Following completion of the pilot

feasibility study, quality improvement nurses from the National Association for

Healthcare Quality (NAHQ) from across the United States were invited to participate in

the survey.

Catholic Health Services of Long Island is an integrated health delivery system on

Long Island in New York that includes six acute care community based hospitals, three

skilled nursing facilities, a regional home health agency, a 16 bed free-standing hospice

and a multiservice, community based agency for persons with special needs. Under the

sponsorship of the Diocese of Rockville Centre, CHSLI serves thousands of Long

Islanders each year, providing care that extends from the beginning of life to helping

people live their final years in comfort and dignity. Registered nurses who work in each

of these six hospitals' quality management departments were invited to participate in this

study following Molloy Institutional Review Board (IRB) approval and after permission

from CHSLI hospital administration was obtained.

The National Association of Healthcare Quality (NAHQ) is an organization

focusing on quality healthcare founded in 1976. The NAHQ 2014 Annual Report stated

that membership drives the delivery of vital data for effective decision-making in

healthcare systems by combining technology with the unique expertise in quality

management. Participation in this study was requested from the NAHQ membership in

the following manner. A written request had been made to NAHQ via email indicating

this researcher would be seeking voluntary participation for this study. The researcher

was notified that no formal permission was needed for this type of request. As a member

of NAHQ, this researcher has access to all listserv/ email enrolled groups. Queries and

requested professional assistance among nationally participating members occurs regularly. The posting invite for survey participation went out to QI RN colleagues, members of NAHQ, who are employed in hospitals across the United States, thus allowing a rich diverse sampling of quality nurses from a variety of settings. Snowball sampling was encouraged from participants. Forwarding the survey link on to other QI RNs working in acute care hospitals is an acceptable technique that was used to increase the studies sample size of participating nurses.

Selection of the Sample

The sample was drawn from a subset of the population of nurses who work in the quality department and who possess the studies' defining characteristics. This is supported by Polit and Beck (2012) who state that, "sample size is the number of people who participate in the study." Quality of the sample subset for this study sought to best reflect a typical sample of this unique population. This sample selected conforms to the designated criteria set by the researcher and is a population that is accessible for this study by this researcher.

The target sample size projected included an n = 85 with a ceiling of N = 250. Nunnally (1978) supports at least 5 subjects per item for instrument use. A ceiling of 250 participants was set to account for the event that the results yielded a higher sample number beyond requested to the IRB. This defined "n" will allow the researcher to establish summary descriptive statistics to use to estimate its representativeness of the population.

Defining criteria which classified an individual as a member of the population included only registered professional nurses who work in an acute care hospital with the

specified quality improvement job description. Exclusion criteria were those QI RNs who could not read English and who did not have computer skills to be able to respond to a series of English based queries electronically.

Development of the Survey Instrument

In this study, the survey instrument was developed by the researcher using two evidence based health literacy documents. These included the IOM *Ten Attributes of Health Literate Healthcare Organizations* and a select portion of the AHRQ *Health Literacy Universal Precautions Toolkit*.

The survey tool constituted questions from both the IOM Ten Attributes of Health Literate Healthcare Organizations and the AHRQ Health Literacy Universal Precautions Toolkit Assessment. The survey instrument was divided into three sections. The first section questions 1-6 entitled, "Definitions for Health Literacy" and featured statements requesting participants' opinions on perceived importance and achievability regarding each of the IOM *Ten Attributes of Health Literate Healthcare Organizations* including four ranking questions. The second section, "Health Literacy Assessment in Your Institution" included questions 7-10 where participants' were asked about their present understanding of health literacy in their organization as it pertains to the selected AHRQ *Health Literacy Universal Precautions Toolkit* items. These questions specifically focused on the relationship of health literacy to hospital changes, spoken communication, written communication, self-management and improving supportive systems within the participants' hospital. Each of these five broad topics had several sub-scale statements included in their section for response. The third section was entitled, "Brief Nurse Demographics" where questions 11-24 were included to gain information related to

characteristics of the participants and characteristics of the organization in which they are

employed (see Sample Survey Appendix C).

The questions numbered 1 and 4 in the instrument have been developed

specifically with the IOM *Ten Attributes of Health Literate Healthcare Organizations* as

statements for participants to rate. A Likert Scale was used with scores from 1 to 5

assigned to each response with higher scores associated with the positively worded

adjective. How important is each of the attributes in the organization in which they are

employed (rank from not important at all, somewhat important, neutral, important, and

extremely important)? Question 4 asked participants to comment on their perceived

achievability of the IOM ten attributes in the hospital in which they are employed (rank

from not achievable, somewhat achievable, neutral, likely to achieve, and completely

achievable)? In questions 2 and 3 and 5 and 6 participants were asked to rank

respectively, their top 3 selections for the most and least important attributes (questions 2

and 3) and most and least achievable attributes (questions 5 and 6) by selecting from the

entire list of IOM ten attributes. Next, instrument questions 7-10 were selected from the

AHRQ Health Literacy Universal Precautions Toolkit. These questions are part of a

toolkit document in the public domain and may be used without any type of special

permission. Items 7-10 focus on health literacy related to hospital changes, spoken

communication, written communication, self-management and improving supportive

systems. Each of the questions 7, 8, 9, and 10 had sub-statements where participants were

asked to determine and select the closest categorical answer related to their organization

of employment with the following choices: (1) Doing Well; (2) Need Improvement; (3)

Not Doing; (4) Not Sure or Not Applicable (N/A). Finally, questions 11-24 represented demographic queries of the participants needed for the study.

The pyramid framework consisting of five concepts from which the health literacy attributes were built by Schillinger and Keller (2012), mentioned in Chapter 2, was used as an association guide to cross-walk IOM Ten Attributes and the AHRQ Health Literacy Universal Precautions Toolkit statements. Cross-walking for purposes of this study was defined as the establishment of a relationship or association of elements from one given set with that of another given set.

The IOM attributes and the AHRQ statements have been cross-walked with one or more associated rows from the pyramid framework. Each of the ten attributes was connected by topic to an AHRQ Health Literacy Toolkit Assessment statement. Cross-walking these associated statements allowed this researcher to create a grid for review. For example, Attribute #1- "Has leadership that makes health literacy integral to its mission, structure, and operations." Of the five pyramid framework descriptors the bottom first row "Organizational Commitment" best categorizes this #1 Attribute. The AHRQ Health Literacy Universal Precautions Toolkit assessment statement under the sub-scale topic of, "Hospital Changes," indicates the health literacy team meets regularly, also fits into the bottom first row of the pyramid demonstrating organizational commitment (see Appendix D).

Psychometric Properties of the Quality Nurse Health Literacy QI RN Instrument

Establishing the validity of any survey instrument being used is of critical importance to a study. Construct validity is defined as the degree to which a survey instrument actually measures the concept it is intended to measure (Polit & Beck, 2012).

Previously validated measures such as those incorporated into the IOM Ten Attributes of

Health Literate Healthcare Organizations and the AHRQ Health Literacy Universal

Precautions Toolkit were used ensuring validity. Validity in quantitative research seeks to

ensure the instrument construction measures the intended variables being researched

(Polit & Beck, 2012).

Reliability refers to the degree of consistency and/or dependability with which an

instrument measures an attribute (Polit & Beck, 2012). The reliability of how consistent

and predictable the select measures were was sought to ensure these same types of

participants scored the tool in a similar manner to seek homogeneity. The most

commonly reported estimate of internal consistency reliability is Cronbach's coefficient

alpha (α). Reliability was assessed in a pilot/ feasibility survey. Evaluating internal

consistency with an acceptable Cronbach's alpha on several selected groups of items with

total measures (i.e. sub-group totals, item totals) on this 24 item survey instrument were

used to determine consistency. Cronbach's coefficient alpha represents a quantitative

index (usually ranging from .00 to1.00) whereby alpha values of .90 or above are

considered to be "excellent", values of .80 are "very good", and values of .70 are

"adequate" (Kline, 1999). These values were used as benchmarks for the Cronbach's

coefficient alpha reported in this study.

The AHRQ Health Literacy Universal Precautions Toolkit was used in this study

to measure concurrent validity. Twenty-two AHRQ Health Literacy Universal

Precautions Toolkit assessment statements were selected for this study to determine

concurrent validity. In the AHRQ's toolkit "Health Literacy Assessment," each of the

IOM Ten Attributes of Health Literate Healthcare Organizations have been addressed for

their usefulness in quality improvement and research activities. It is important to recognize that although not all of the tools in the toolkit have established reliability and validity, many do have strong content validity, which this assessment tool has, and are based on previously validated materials (Brega, 2015; Kripalani et al., 2014).

Proposed Pilot Feasibility Study

A pilot/feasibility study is highly recommended to any researcher before making a significant time commitment to conducting a study. An important step in developing and using survey instruments, a pilot/feasibility study can inform subsequent efforts to generate valid evidence for nursing practice. Additionally, pilot/feasibility studies can serve a number of important functions in planning for the next steps of a descriptive study. The findings can assist the researcher to look at things such as adequacy of study methods and procedures, likely success of a particular recruitment strategy, appropriateness of quality of instruments and achievability. Additionally, pilot/feasibility studies show strength of relationships between key variables so the number of needed study participants can be better estimated, and the extent to which the preliminary evidence justifies more rigorous research (Polit & Beck, 2012).

The Catholic Health Services (CHS) pilot/feasibility study was conducted following IRB approval. Permission for participation was obtained from each of the six CHS facilities in a written email request to the Chief Nursing Officers (CNO). The CNO's have direct oversight of the QI RN's who were the identified population sample to be surveyed. Once permission was received, a roster was obtained listing the QI RN's at each of the six acute care hospitals. Each listed participant was sent a sealed envelope which included: an invitation to participate in the study, a 24 question paper survey, an

addressed envelope for returning the survey to the researcher and a gift card as a token of

appreciation for completing and returning the survey (see Appendix C).

Data collection for the pilot/feasibility study used a paper survey tool distributed

to n= 30 participants via CHSLI interoffice mail the week of December15, 2014. The

time allotted for completion and return of the paper based survey was 5 weeks. Two

email reminders were sent to the group of participants encouraging completion and return

of the packet. The pilot/feasibility closed on January 23rd, 2015 and yielded returned

surveys equal to an n = 26. Consent for survey participation was implied by agreeing to

complete and return the survey. The returned paper surveys were coded numerically to

de-identify any names or individual hospitals. The data were manually entered from the

paper survey into an electronic survey database beginning January 24, 2015. Based on the

comments from the initial pilot/feasibility study the instrument was modified in the

demographic section for the subsequent electronic version release. The pilot feasibility

study preceded the release of the electronic version of the study by two months.

Data Collection Procedures

Approval from the Molloy College Institutional Review Board was obtained for

this study in December 2014. Following approval, a pilot/ feasibility study was

completed with a paper survey tool which provided one recommended change to the

demographic section of the survey tool. The appropriate change was incorporated into

the electronic survey tool and pre-tested for usability prior to release (see Sample Survey

Tool Appendix C).

The initiation of data collection via the electronic email survey began with the

recruitment of QI RNs beginning on April 9, 2015. An email was sent inviting QI RNs,

who were members of the National Association for Healthcare Quality (NAHQ) and who were interested in participating in this study, to open the survey monkey link and complete the online survey. All survey communication with participants was completed electronically. Each participant was requested to forward the online link to any QI RN colleagues who might be interested in being part of this survey. Several reminder emails were sent to the NAHQ listserv groups in the months of April, May, and June of 2015 prompting participants to participate in the survey. Electronic submission of data for the survey was closed June 16, 2015. A total $n = 102$ including the pilot/ feasibility participants was obtained for this study.

Data Analysis

A descriptive study is one that reports characteristics of the phenomenon being studied of at one point in time. This type of study includes descriptive statistics, percentages, demographics, and measurable attributes of a phenomenon (Polit & Beck 2012). Early in the planning phase of this research study the Molloy College Community Research Institute was used for consultative purposes related to the psychometrics of this descriptive study. A meeting took place where the researcher reviewed the topic, purpose, and questions of the study with data experts. Recommended modifications for increased clarity including survey tool logistic changes and minor modifications to the dissertation questions structure were made.

For this study web-based data were captured on a secure server, stored in a Microsoft database and exported to SPSS. Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS), version 22.0. Alpha and power levels were set at the traditional values for social science research (.05; .80) with the goal of

achieving statistical significance and power. The collected data were cleaned to detect, correct, and remove incorrect, inconsistent, and if found, inaccurate values. The data were checked for outliers, wild codes and missing items. Internal consistency was reviewed measuring whether the items that propose to measure the same construct produce similar scores. All of the data were reviewed to identify in-range values and remove inconsistent or out-of-range values. Additionally, the data for this study was analyzed in SPSS where there is a list-wise deletion function that excludes missing data from analysis.

Descriptive analysis was accomplished by aggregating and summarizing the profiles of the survey participants and examining the variables in relation to each research question. Numbers and percentages were used to describe frequency of responses to demographic queries since they best described the perceptions of the survey participants. For the first two research questions' sum scores, percentage of responses to the Likert scale selections, correlations, inter-item correlation matrix, and skewness were calculated. The ranking questions required frequencies and percentages of "most" and "least" important for the first question and "most" and "least" achievable for the fourth question. Sum scores were also used for comparisons. Additionally, inter-item correlation matrix and Cronbach's alpha were used to measure reliability for both importance and achievability. The normal data distribution for the importance and achievability questions was analyzed. Research question 3 related to QI RN's assessment of health literacy using Cronbach's alpha, Inter-item Correlation, Measures of Central Tendency, and Pearson's Correlation and its measure of significance. The final two research questions, #4 and #5, used total importance and total achievability scores, Pearson's Correlation with its test of

significance and relevance, frequency, and percentages for data analysis. These measures are all considered ordinal, however, they are treated as interval level when used in statistical formulae such as correlations. Research by statisticians, as explained by Polit & Beck (2010), shows that the approximation is so close, the number values of these types of scales can be treated as parametric measures (see Appendix G Data Analysis Guide for Research Questions).

Ethical Considerations

Institutional Review Board approval was obtained from Molloy College in compliance with institutional ethical standards and federal regulations designed to protect human subjects (see Appendix E). Explanation and purpose of the research study in the form of an invitation letter was provided to all eligible study participants. Eligibility criteria for participation, the anticipated time required to complete the survey, and study incentives for participants were included. To protect individuals' anonymity and confidentiality of information, all data were numerically coded with a respondent ID number only. No name or identifying information was collected on the survey. If participants wished to be included in the random drawing for an incentive, or if participants desired to receive a summary of the research findings, they were asked to email the researcher separately so their names or identifying information would not be associated with their individual survey data.

All data were entered into Statistical Package for Social Sciences (SPSS) statistical software, Version 22. Participants who elected to participate in the study were given the web link to complete the survey online via Survey Monkey. Printed data reports and completed surveys were kept in a secure, locked location in the researcher's home.

This research was an exempt human subjects research study. This investigator complied with the Federal requirements for human subject research by obtaining CITI certification. Links with identifying information were maintained with this researcher. Access to data was restricted to the researcher, dissertation chair and/or committee members, and sponsoring IRB board if requested.

Limitations of the Study

Due to the nature of this study the results were descriptive in nature and there was no intervention. Selection bias was a potential threat due to data collection tools that were associated with individual perception measures whereby the participants may not have been entirely honest, complete, or accurate in their responses.

For the identification and description of potential relationships between the independent and dependent variables, numerical data was collected through the use of a valid and reliable survey instrument. The subsequent manipulation of numeric data using statistical procedures to describe phenomena and to assess the magnitude and reliability of the relationships among them helped to characterize the methods used within this quantitative analysis. While descriptive correlational research examines relationships among variables, it does not establish causality (Polit & Beck, 2012).

The inclusion criteria for study participation specified that eligible participants would be QI RN's by title, currently working in an acute care hospital, able to read and write in English, and communicate information on a computer. Criteria for exclusion were those registered nurses who could not communicate in English or complete an electronic based survey and whose primary employment was not in an acute care setting or related specifically to quality improvement.

Chapter IV – Presentation of the Findings

Introduction

This was a descriptive study using a hybrid tool created by combining items from the IOM Ten Attributes of Health Literate Health Care Organizations and the AHRQ Health Literacy Universal Precautions Toolkit. This survey collection tool gathered data and provided descriptive findings related to Quality Improvement Registered Nurses' (QI RNs) perceptions regarding the importance and achievability of the Institute of Medicine's (IOM) Ten Attributes of Health Literate Health Care Organizations. QI RNs were requested to use both their current knowledge of health literacy and their present hospital of employment as their reference to complete the survey. The first 6 questions of the survey directly related to the IOM Ten Attributes of Health Literate Healthcare Organizations. Following these 6 IOM Ten Attribute questions, 5 health literacy assessment areas were queried using the AHRQ Health Literacy Universal Precautions Toolkit. There were 22 sub-statement assessments covering 5 health literacy topics which were used as the external criteria to concurrently measure relationships between the IOM Ten Attributes of a Health Literate Organizations and AHRQ Health Literacy Universal Precaution Toolkit assessment. The "Health Literate Care Model" (HLCM) was used in this study as a guiding framework for identifying the importance of integrating health literacy strategies in the workplace and developing partnerships with communities providing resources to help meet patients' needs while improving overall patient outcomes (Koh et al., 2013). Specifically, the central portion of HLCM model entitled, "Strategies for Health Literate Organizations" was the main portion of the model the study focused on (see Appendix B).

A sample of 102 QI RNs participated in the study. Each participant was requested to complete a 24 question survey with several questions having sub-questions. No returned survey necessitated rejection in this study. The 76 QI RN responses plus the 26 QI RN participants who comprised the pilot/feasibility study were combined to yield a total "n" of 102 for overall data analyses.

The findings in this chapter are organized according to the research questions. The first section presents the sample characteristics of participants followed by a table of the data. Appropriate statistics based on the level of measurement were used for each of the items. Several of the data items collected are ordinal therefore frequencies and percentages of responses were reported. The subsequent sections present specific analysis relative to descriptive and assessment questions. In the second section appropriate composite scores were used to identify relationships between participant's responses to their perceived importance and achievability of health literate organizations and their own individual assessment of health literacy in their hospitals of employment. The final section presents inferences from the data analysis.

General Description of Data

Sample Characteristics

Sample characteristics in this study included: age, gender, education level, years of employment, organizational size, type of organization, the state the participant practiced in represented by continental time zones and certification and accreditation of the hospital. The number and percent of responses according to the demographic characteristics follow in Table 3.

Age group. Distribution of the participating QI RNs by age (n = 102) follows.

The mean age of the participants who answered this question was 54 years old with a range 28-78 and median of 56. There were 10.78 % of participants between 40-49; 43.17 % between 50-59; 15.68 % 60 years or older. The age range of 25-30 year olds were represented by 1.9 % and 31-39 represented by 2.94 % the two lowest percentages of participants identified. There were 25.49 % who did not answer this question.

Gender. Females represented 70.59 % of the total participating QI RNs; males represented 8.82 %. Important to note, 20.59 % of survey participants, gender information was not provided.

Education. Educational degrees held by participants who answered this question included a Master's Degree by 34.31 % of respondents and a Bachelor's Degree by 31.37%. Additionally 5.88% indicated they were Associate Degree nurses. Those with a PhD, DNP, or EdD were represented by 1.96 %. Less than 1 % were Diploma RN's at 0.98%. There were 25.49% of respondents who choose to leave this question blank.

Years of Employment. The majority of participants in this study were in their present position within their organization for 0-10 years.

- 53.92 % worked from 0-10 years in their present position in the organization.

- 17.65 % worked 11-20 years in their present position.

- 5.88 % worked 31 years or greater in their present position.

- 1.96 % worked 21-30 years in their present position.

- 20.59% of participants left this question blank.

Size of the Organization. The bed size of the organization was represented by 4 categories.

- 26.47 % of the participants were from hospitals with 101-250 beds.

- 26.47% of the participants were from hospitals with 251-500 beds

- 21.57 % of the participants were from hospitals that had 500 beds or greater.

- 2.94 % of the participants were from hospitals that had less than 100 beds.

- 22.55 % of the participants did not answer this question.

Type of Organization. In the category of "type of organization" the data collected was not discreet. The data demonstrated that of the n=102 participants, 58 or 56.90% identified themselves as being from "not-for-profit" organizations, 25 or 24.50% as being from religious affiliated organizations, 9 or 8.80% as working in "for-profit" institutions, and 5 or 4.90% represented public institutions. This survey question total was not meant to equal 100%.

State of Organization Divided by Continental Time Zones. Participants spanned across the entire United States. The largest percent of participants were from the Eastern Time zone followed by Central, Mountain, and Pacific. A very small percentage of participants were unable to be placed into an individual time zone.

- 52.29 % were in the Eastern Time Zone

- 8.82 % were in the Central Time Zone

- 6.86 % were in the Mountain Time Zone

- 5.88 % were in the Pacific Time Zone

- 22.55 % of participants did not answer this question

- 2.94 % of the responses provided were unable be classified into a single time zone

Certification, Accreditation and Recognition. The majority of the 102 participants, (76.50%) reported that the organizations they worked in were Joint Commission certified. There were 2.00% of participants who indicated their organizations were not Joint Commission certified and 21.60% of participants did not

answer this question. A small number of nurses (3.90%) identified their hospitals as

being Det Norske Veritas (DNV) certified, 40.20% indicated they were not DNV

certified, 33.30% indicated they didn't know if they were DNV certified and 22.50% of

participants did not answer this question. Participants indicated that 26.50% worked in

Magnet recognized hospitals, while 49.00% said they did not work in Magnet recognized

hospitals, 2.90% indicated they did not know if they worked in a Magnet recognized

hospital, and 21.60% did not answer the question.

Table 3. Sample Characteristics

Age Group	Total n = 102 Frequency = n	Percentage
25-30	2	1.96
31-39	3	2.94
40-49	11	10.78
50-59	44	43.14
60+	16	15.69
Missing Values	26	25.49

Gender	Total n = 102 Frequency = n	Percentage
Female	72	70.59
Male	9	8.82
Missing Values	21	20.59

Education	Total n = 102 Frequency = n	Percentage
RN Associates Degree	6	5.88
RN Diploma Degree	1	.98
RN Bachelor's Degree	32	31.37
RN Master's Degree	35	34.31
RN Doctoral Degree(PhD, DNP, EdD)	2	1.96
Missing Values	26	25.49

Years of employment in the Organization	Total n = 102 Frequency = n	Percentage
0-10	55	53.92
11-20	18	17.65
21-30	2	1.96
31 or greater	6	5.88
Missing Values	21	20.59

Size of the Organization	Total n = 102 Frequency = n	Percentage
Less than 100 beds	3	2.94
101-250 beds	27	26.47
251-500 beds	27	26.47
501 beds or greater	22	21.57
Missing Values	23	22.55

State of Organization divided by continental time zones	Total n = 102 Frequency = n	Percentage
Eastern Standard Time Zone	54	52.29
Central Standard Time Zone	9	8.82
Mountain Standard Time Zone	7	6.86
Pacific Standard Time Zone	6	5.88
Unable to determine	3	2.94
Missing Values	23	22.55

Reliability of the Measurement Tools

Tools used for research to measure latent constructs must be evaluated for internal consistency reliability. Tools that yield a Cronbach's alpha greater than .80 are considered to have strength in the construct (Polit & Beck, 2012). However, Cronbach estimates have several important statistical considerations for proper analytic approaches and interpretation (Cronbach, 1951). First, once the number of items in scale or subscale exceed fourteen, the resultant Cronbach's alpha estimate will be a minimum alpha of .70, even if the scale consists of two orthogonal (non-correlated) constructs, and the alpha will be higher if the constructs are correlated (Cortina, 1993). Second, some "scales" are actually indexes-where sub "scales" are in fact complete scales and should not be grouped with other scales in estimation of internal consistency, as none or little internal consistency is expected with an index (Streiner, 2003a). Therefore, inter-item reliability estimates of sub-constructs in addition to a grand inter-item reliability measure are advised (Cronbach & Shavelson, 2004). Estimating the subscale inter-item reliabilities will allow for: 1) a more conservative estimation of reliability, as Cronbach's alpha increase with any additional items (even if additional items are uncorrelated); 2) valid

estimations of non-correlated subscales in index instruments (Nunnally & Bernstein, 1994; Streiner, 2003a; Streiner, 2003b). The Cronbach's alpha value for the research question related to perceived "Importance" of the Ten Attributes of Health Literate Healthcare Organizations was .947, n = 102. The research question related to perceived "Achievability" Cronbach's alpha was .925. Research question #3 used the data gathered from the AHRQ Health Literacy Universal Precautions Assessment Toolkit. The analysis was divided into the five sub-scales. In this sample, the estimated Cronbach's alpha in each sub-scale was as follows:

"Hospital Changes" Cronbach's alpha = .825

"Spoken Communication" Cronbach's alpha = .765

"Written Communication" Cronbach's alpha = .362

"Self-Management and Empowerment" Cronbach's alpha = .614

"Improving Supportive Systems" Cronbach's alpha = .717

The survey instrument used in this study confirmed a Cronbach's alpha from .362 to .825. Of note was the Cronbach's alpha of .362 in the sub-scale of "Written Communication." The researcher determined "Written Communication" an important area to include in this analysis, allowing it to remain with the low Cronbach's alpha. Additionally, all items on both the Total Importance and Total Achievability Inter-Item Correlation Matrix of the IOM Ten Attributes of Health Literate Organizations were positive ranging from .432 - .819 supporting strength in the construct (see Table 4 & Table 17 found on page 110).

Table 4. Inter-Item Correlation Matrix of Total Importance of the Institute of Medicine Ten Attributes of Health Literate Organizations

Institute of Medicine Attribute	#1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10
1. Have leadership that makes health literacy integral to its mission, structure, and operations.	1.0									
2. Integrate health literacy into planning, evaluation measures, patient safety, and quality improvement.	.790	1.0								
3. Prepare the workforce to be health literate and monitor progress.	.819	.768	1.0							
4. Include populations served in the design, implementation, and evaluation of health information and services.	.626	.661	.590	1.0						
5. Meet the needs of populations with a range of health literacy skills while avoiding stigmatization.	.721	.695	.717	.800	1.0					
6. Use health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	.776	.677	.749	.691	.891	1.0				
7. Provide easy access to health information and services and navigation assistance.	.553	.566	.587	.513	.601	.605	1.0			
8. Design and distributes print, audiovisual, and social media content that is easy to understand and act on.	.538	.432	.527	.531	.497	.531	.725	1.0		
9. Address health literacy in high-risk situations, including care transitions and communications about medicines.	.645	.718	.689	.595	.698	.729	.731	.623	1.0	
10. Communicate clearly what health plans cover and what individuals will have to pay for services.	.689	.559	.635	.549	.639	.615	.487	.614	.525	1.0

Answering the Research Questions

This study sought to describe how QI RN's perceived importance and achievability of the IOM's Ten Attributes of Health Literate Healthcare Organizations in the hospitals in which they were employed. This section will present each of the research questions and the analysis used to determine their results.

Question # 1.

What are QI RNs perceived levels of importance of the IOM's ten attributes of Health Literate Organizations?

The first survey question in this study asked participants to indicate how important they perceived each of the IOM Ten Attributes of Health Literate Healthcare Organizations to be on a 5 point Likert scale. The range of participants who answered this question was n = 102. The participant's responses are reflected in Table 5. The majority of responses fell into the categories of "Important" (43%) and "Extremely Important" (25%). Combined these two categories represent a total percentage score of 68% as "Important" or "Extremely Important" related to perceived importance of the ten attributes. In the "Neutral" category 15% of the responses were represented; 13% were in the "Somewhat Important" with 4% selecting "Not Important At All" categories.

Table 5. Importance of each of the Institute of Medicine Ten Attributes of Health Literate Organizations

Institute of Medicine Attribute	Not Important At All	Somewhat Important	Neutral	Important	Extremely Important	Total n	Total Imp Score	SD
1. Has leadership that makes health literacy integral to its mission, structure, and operations.	2.94% 3	15.69% 16	9.8% 10	47.06% 48	24.51% 25	n= 102	382	1.09
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	0.98% 1	12.75% 13	13.73% 14	43.14% 44	29.41% 30	n= 102	395	1.01
3. Prepares the workforce to be health literate and monitors progress.	2.97% 3	18.81% 19	19.80% 20	41.58% 42	16.83% 17	n= 101	354	1.07
4. Includes populations served in the design, implementation, and evaluation of health information and services.	5.88% 6	11.76% 12	17.65% 18	40.20% 41	24.51% 25	n= 102	373	1.15
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.	5.88% 6	12.75% 13	13.73% 14	47.06% 48	20.59% 21	n= 102	371	1.12
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	3.92% 4	13.73% 14	15.69% 16	48.04% 49	18.63% 19	n= 102	371	1.06
7. Provides easy access to health information and services and navigation assistance.	4.90% 4	7.84% 8	9.80% 10	48.04% 49	29.41% 30	n= 102	397	1.07
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	3.92% 4	9.8% 10	9.8% 10	46.08% 47	30.39% 31	n= 102	397	1.07
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.	3.96% 4	8.91% 9	12.87% 13	38.61% 39	35.64% 36	n= 101	397	1.10
10. Communicates clearly what health plans cover and what individuals will have to pay for services.	6.86% 7	11.76% 12	28.43% 29	31.37% 32	21.57% 22	n= 102	356	1.16

Ranking Questions

The second and third survey questions asked the participants to complete ranking questions associated with perceived importance of the IOM ten attributes. In question 2 participants choose their top 3 selected "most important" attributes and in question 3 they chose their top 3 "least important" attributes. These "most" and "least" selections were then compared to "highest" and "lowest" sum scores of the survey question related to perceived importance. The participants top three selected "most important" IOM attributes were:

Attribute #9. (17%) "Addresses health literacy in high-risk situations, including care transitions and communications about medicines."

Attribute #2. (16%) "Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement."

Attribute #1. (12%) "Has leadership that makes health literacy integral to its mission, structure, and operations."

In comparison, the highest total importance sum scores (HTISS) identified the three most important attributes were:

Attribute #7. (HTISS = 397) "Provides easy access to health information and services and navigation assistance."

Attribute #8. (HTISS = 397) "Designs and distributes print, audiovisual, and social media content that is easy to understand and act on."

Attribute #9. (HTISS = 397) "Addresses health literacy in high-risk situations, including care transitions and communications about medicines."

There was one duplicate selection of an attribute identified between both categories of "most important selected attribute" and "highest total importance sum score." This was Attribute # 9 "Addresses health literacy in high-risk situations, including care transitions and communications about medicines." (See Table 6).

Table 6. Ranking Most Important Participant Selected Attributes compared to Highest Total Importance Sum Score

Ranking	1st	2nd	3rd
Most Important Participant Selected Attribute	17% Attribute #9: Addresses health literacy in high-risk situations, including care transitions and communications about medicines.	16% Attribute # 2: Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	12% Attribute # 1: Has leadership that makes health literacy integral to its mission, structure, and operations.
Highest Total Importance Sum Score (HTLSS)	Sum score 397 Attribute # 7: Provides easy access to health information and services and navigation assistance.	Sum score 397 Attribute # 8: Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	Sum score 397 Attribute #9: Addresses health literacy in high-risk situations, including care transitions and communications about medicines.

The second ranking question required participants to select their three top choices for "least important" attributes which were then compared to the three lowest total importance sum scores (LTISS). The data demonstrated the following results:

Attribute #10 (21%) "Communicates clearly what health plans cover and what individuals will have to pay for services."

Attribute #5 (13%) "Meets the needs of populations with a range of health literacy skills while avoiding stigmatization."

Attribute #3 (12%) "Prepares the workforce to be health literate and monitor progress."

These were the three attributes that were the highest ranked selections for "least important" among the IOM Ten Health Literate Healthcare Organizations Attributes. The selections for LTISS of the least important attributes were:

Attribute #7. (LTISS = 354) "Provides easy access to health information and services and navigation assistance."

Attribute #10. (LTISS = 356) "Communicates clearly what health plans cover and what individuals will have to pay for services."

Attribute #5. (LTISS = 371) "Meets the needs of populations with a range of health literacy skills while avoiding stigmatization."

Attribute #6. (LTISS = 371) "Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact."

Attributes #5 and #6 tied for third place for the participant's "least important" selection. There were two duplicate selections between the "participant selected attribute ranking" and the "least total sum score": LTISS Attribute #10, " Communicates clearly what health plans cover and what individuals will have to pay for services" and Attribute #5, "Meets the needs of populations with a range of health literacy skills while avoiding stigmatization" (see Table 7 and Appendix F for Data Summary of Questionnaire Survey Ranking Questions).

**Table 7. Ranking Least Important Participant Selected Attributes Compared to Lowest Total Importance Sum Score**

Ranking	1st	2nd	3rd
Least Important Participant Selected Attribute	21% Attribute # 10: Communicates clearly what health plans cover and what individuals will have to pay for services.	13% Attribute # 5: Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.	12% Attribute #3: Prepares the workforce to be health literate and monitor progress.
Lowest Total Importance Sum Score (LTISS)	LTISS =354 Attribute # 7: Provides easy access to health information and services and navigation assistance.	LTISS= 356 Attribute # 10: Communicates clearly what health plans cover and what individuals will have to pay for services.	LTISS =371 Attribute #5: Meets the needs of populations with a range of health literacy skills while avoiding stigmatization. Attribute #6: Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.

Skewness

Skewness refers to a measure of symmetry. A zero value indicates that the tails on both sides of the mean balance out, which reflects a symmetric distribution. In skewed asymmetrical distributions, the peak is off center and one tail is longer than the other. When the longer tail points to the right, the distribution is said to be positively skewed and when the tail points to the left, the distribution is said to be negatively skewed (Polit & Beck, 2012). The skewness of the query related to "total importance" was not zero. The question of "how much" skew rendered the data non-normal and what can be done was explored. Skewness is important because inferential statistics depend on parametric statistical tests that rely on assumptions of normality. This is important to this study

because the researcher was still able treat the data as normal to make assumptions about

the findings (see Figure 1).

Figure 1. Skewness of Total Importance
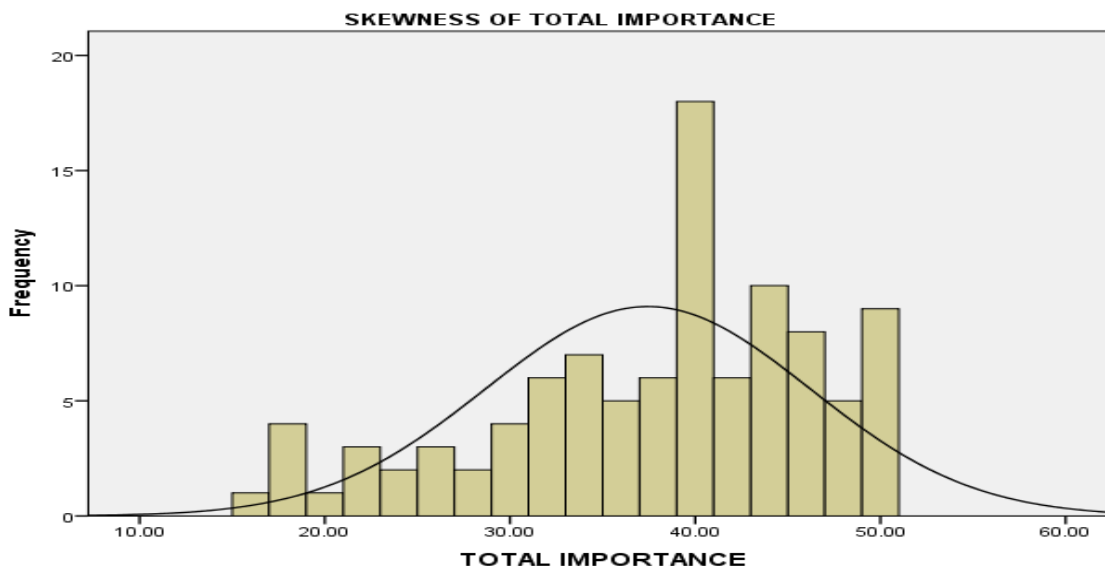
Summary

Participants perceived the IOM Ten Attributes of Health Literate Healthcare

Organizations to be at least important 43% of the time if not extremely important 25% of

the time for a combined percentage of 68 % of the time. The Cronbach's alpha value for

this research question related the construct of health literacy and the perceived

importance of the IOM Ten Attributes of Health Literate Healthcare Organizations was

.947.

The data related to ranking of participants' perceptions of importance

demonstrated one duplicate attribute selection between both categories of highest sum

score and participant selection. It was Attribute # 9 "Addresses health literacy in high-

risk situations, including care transitions and communications about medicines." There

were two duplicate attributes between ranking of participants' perceptions and lowest

total importance scores. They were Attribute #10 "Communicates clearly what health

plans cover and what individuals will have to pay for services" and Attribute #5 "Meets

the needs of populations with a range of health literacy skills while avoiding

stigmatization."

Skewness was important as it relates to this research question because inferential

statistics depend on parametric statistical tests which rely on assumptions of normality.

Even though the data is negatively skewed, it was determined to meet the assumptions of

normality for this study allowing parametric testing to be done.

Question #2.

How likely do QI RNs believe that their organizations can achieve the IOM's

ten attributes of Health Literate Organizations?

The second survey question asked participants to indicate how achievable they

perceived each of the IOM Ten Attributes of Health Literate Healthcare Organizations to

be in their organization. The participant's responses were based on a total n = 88. The

majority of responses fell into the categories of "Likely Achievable" (52%) and

"Completely Achievable" (22%). Combined these two selections represent a total score

of 74% (sum of completely likely and completely achievable) of responses. The

"Neutral" category average score was 12%. Selection in the "Somewhat Achievable" and

"Not Achievable at All" section represented an average of 14% of the responses (see

Table 8).

Table 8. Achievability of each of the Institute of Medicine Ten Attributes of Health Literate Organizations

Institute of Medicine Attribute	Not Achievable At All	Somewhat Achievable	Neutral	Likely Achievable	Completely Achievable	Total	Total Ach Score	SD
1. Has leadership that makes health literacy integral to its mission, structure, and operations.	0.00% 0	15.91% 14	9.09% 8	48.86% 43	26.14% 25	n= 88	339	.99
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	0.00% 0	11.49% 10	8.05% 7	51.72% 45	28.74% 25	n= 87	346	.91
3. Prepares the workforce to be health literate and monitor progress.	1.15% 1	16.09% 14	16.09% 14	50.57% 44	16.09% 14	n= 87	317	.98
4. Includes populations served in the design, implementation, and evaluation of health information and services.	4.60% 4	16.09% 14	12.64% 11	49.43% 43	17.24% 15	n= 87	312	1.09
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.	0.00% 0	14.94% 13	19.54% 17	49.43% 43	16.09% 14	n= 87	319	.92
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	1.15% 1	14.94% 13	12.64% 11	52.87% 46	18.39% 16	n= 87	324	.97
7. Provides easy access to health information and services and navigation assistance.	2.30% 2	9.20% 8	9.80% 10	54.02% 47	25.29% 22	n= 87	340	.96
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	1.15% 1	8.05% 7	6.90% 6	51.72% 45	32.18% 28	n= 87	353	.91
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.	0.00% 4	10.47% 9	8.14% 7	58.14% 50	23.26% 20	n= 86	339	.86
10. Communicates clearly what health plans cover and what individuals will have to pay for services.	3.45% 3	14.94% 12	17.24% 15	49.43% 43	14.94% 13	n= 87	311	1.03

The fifth and sixth survey questions addressed ranking selections related to achievement and selections of "most" and "least" achievable attributes. In question five the top three ranked "participant selected attribute scores" for "most achievable" were compared to the "highest total achievable sum scores" (HTASS). The top three attributes for "most achievable" were:

Attribute #8 (17%) "Designs and distributes print, audiovisual, and social media content that is easy to understand and act on."

Attribute #2 (15%) "Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement."

Attribute #9 (12%) "Addresses health literacy in high-risk situations, including care transitions and communications about medicines."

The attributes with the "highest total achievable sum scores" for "most achievable" were:

Attribute # 8 (HTASS= 353) "Designs and distributes print, audiovisual, and social media content that is easy to understand and act on."

Attribute #2 (HTASS = 346) "Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement."

Attribute #7 (HTASS= 340) "Provides easy access to health information and services and navigation assistance."

There were two duplicate scorings for the "most achievable participant selected attribute" category. These included Attribute # 8 "Designs and distributes print, audiovisual, and social media content that is easy to understand and act on" and Attribute #2 "Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement" (see Table 9).

Table 9. Ranking Most Achievable Attributes Compared to Highest Total Achievability Sum Score Attributes

Ranking	1st	2nd	3rd
Most Achievable Participant Selected Attribute	17% Attribute #8: Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	15% Attribute #2: Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	12% Attribute #9: Addresses health literacy in high-risk situations, including care transitions and communications about medicines.
Highest Total Achievability Sum Score	HTAS = 353 Attribute #8: Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	HTAS = 346 Attribute #2: Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	HTAS = 340 Attribute #7: Provides easy access to health information and services and navigation assistance.

The sixth survey question asked participants to rank their choices for the "least achievable" attributes. Four attributes were identified in the LTASS category. Attributes #10 and #5 tied for first place in the "least achievable" category. The least achievable participant selected attributes were:

Attribute #10 (16%) "Communicates clearly what health plans cover and what individuals will have to pay for services."

Attribute #5 (16%) "Meets the needs of populations with a range of health literacy skills while avoiding stigmatization."

Attribute #4 (15%) "Includes populations served in the design, implementation, and evaluation of health information and services."

Attribute #3 (14%) "Prepares the workforce to be health literate and monitor progress."

The three ranked lowest total achievability sum scores for "least achievable" were:

Attribute #10 (LTASS = 311) "Communicates clearly what health plans cover and what individuals will have to pay for services."

Attribute #4 (LTASS = 312) "Includes populations served in the design, implementation, and evaluation of health information and services."

Attribute #3 (LTASS = 317) "Prepares the workforce to be health literate and monitor progress."

Three attribute selections were duplicated in both the least achievable participant selected ranking and LTASS categories. These included attribute # 10 "Communicates clearly what health plans cover and what individuals will have to pay for services" # 4 "Includes populations served in the design, implementation, and evaluation of health information and services" and finally #3 "Prepares the workforce to be health literate and monitors progress." Table10 provides an overview of the participant selected ranking questions data compared to the LTASS.

Table 10. Ranking Least Achievable Participant Selected Attributes Compared to Lowest Total Achievability Sum Score

Ranking	1st	2nd	3rd
Least Achievable Participant Selected Attribute	16% Attribute #10: Communicates clearly what health plans cover and what individuals will have to pay for services. Attribute #5: Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.	15% Attribute #4: Includes populations served in the design, implementation, and evaluation of health information and services.	14% Attribute #3: Prepares the workforce to be health literate and monitor progress.
Lowest Total Achievability Sum Score	LTASS = 311 Attribute #10: Communicates clearly what health plans cover and what individuals will have to pay for services.	LTASS = 312 Attribute #4: Includes populations served in the design, implementation, and evaluation of health information and services.	LTASS = 317 Attribute #3: Prepares the workforce to be health literate and monitor progress.

Refer to Appendix F for complete ranking details in all categories

Skewness

Skewness refers to a measure of symmetry. A zero value indicates that the tails on both sides of the mean balance out, which reflects a symmetric distribution. In skewed asymmetrical distributions, the peak is off center and one tail is longer than the other. When the longer tail points to the right the distribution is said to be positively skewed and when the tail points to the left the distribution is said to be negatively skewed (Polit & Beck, 2012). The skewness value for question 4 of this health literacy survey related to "achievability" was negative. Skewness must be considered because inferential statistics depend on parametric statistical tests which rely on assumptions of normality. Even though the achievability data is negatively skewed, it has been determined to meet the assumptions of normality for this study (see Figure 2).

Figure 2. Skewness of Total Achievability
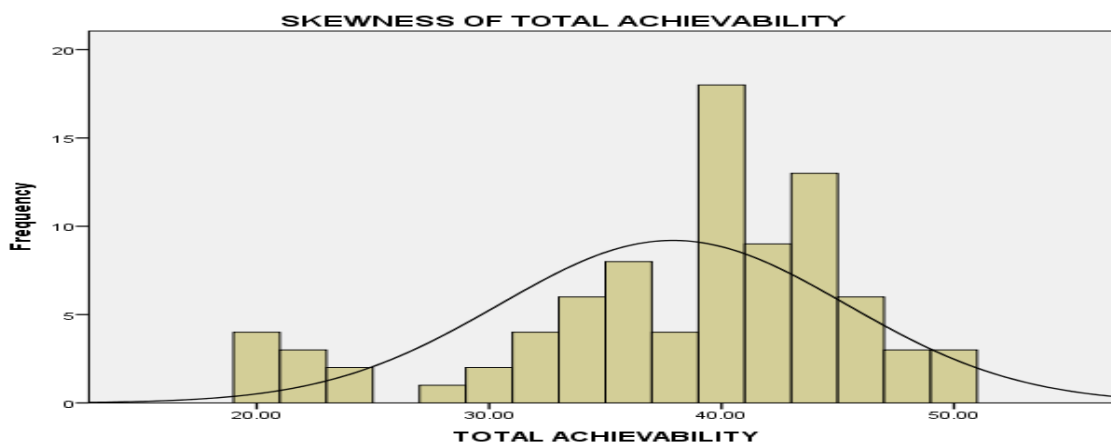
Summary

Participants perceived the IOM Ten Attributes of Health Literate Healthcare

Organizations to be completely achievable 22% of the time and likely achievable 52% of

the time for a combined percentage of 74% achievable. The Cronbach's alpha value for

research Question #2 was .925. Related to the achievability ranking questions there were

two duplicate scorings in the ranking compared to the total scores for "most achievable":

Attribute #8 "Designs and distributes print, audiovisual, and social media content that is

easy to understand and act on" and Attribute #2 "Integrates health literacy into planning,

evaluation measures, patient safety, and quality improvement." Three attribute selections

were duplicated in the least achievable attribute category for both the participant selected

ranking and LTASS. These included attribute # 10 which states, "Communicates clearly

what health plans cover and what individuals will have to pay for services" #4 which

states, "Includes populations served in the design, implementation, and evaluation of

health information and services" and #3 which states, "Prepares the workforce to be

health literate and monitors progress." The skewness value for the "achievability"

question meets the assumptions of this study.

Question #3.

>**How do QI RNs who work in quality care and performance improvement**
>
>**assess their organizations progress with the IOM's ten attributes of Health**
>
>**Literate Organizations?**

Within descriptive studies the researcher is seeking to find items with a high

correlation to the true score of the underlying construct. However, because every scale

has some degree of measurement error one can never determine the scales' true score

(Streiner, 2003b). If we therefore identify each item as a measure of the latent variable,

then the items could correlate with one another (Polit & Beck, 2012). For Question 3 of

this research study, data were gathered and analyzed using the AHRQ Health Literacy

Universal Precautions Toolkit. Five broad assessment sub-scale areas with 22 statements

that AHRQ Health Literacy Universal Precautions Toolkit identified as important for

promoting health literacy were selected for analysis including:

1. Health Literacy and Hospital Changes

   a. Our HL team meets regularly.
   b. Our staff has written HL improvement plan & collects data to see if objectives are met.
   c. Our staff has received HL education.

2. Health Literacy and Spoken Communication

   a. Our staff members speak clearly.
   b. Our staff members listen carefully to patients, without interrupting.
   c. Our staff members assess patients' language preferences and record them in the medical record.

d. Our staff members talk with patients about any educational materials they receive during their hospitalization and emphasize the important information.

e. Our staff members routinely review with patients all the medicines they take, including over the counter medicines and supplements, and ask the patients to demonstrate how to take them.

f. Our staff members routinely provides patients with updated medicine lists that describe in easy to understand language what medicines the patient is to take and how to take them.

g. Our staff members train our patients to use patient portal.

h. Our staffs members offer everyone help regardless of appearance.

3. Health Literacy and Written Communication

a. Our staff's patient education materials are concise, use plain language and are organized and formatted to make them easy to read and understand.

b. Our hospital's lab and test result communications are concise, use plain language, and are organized and formatted to make them easy to read and understand.

c. Hospital signage is written in English and in the primary language of the population being served.

4. Health Literacy and Self-Management and Empowerment

a. Our staff creates an environment that encourages patients to ask questions and get involved with their care.

b. Our staff takes their patients' religion, culture, and ethic customs into consideration when devising treatment options.

c. Our staff writes precise instructions for taking medicine that are easy to understand.

5. Health Literacy and Improving Supportive Systems

a. Our staff assesses patients' ability to pay for medicines.

b. Our staff members ask patients if they have trouble reading or understanding and using numbers.

c. Our staff has an updated list of community resources and refers patients as needed.

d. Our staff shares important referral information directly with other healthcare clinicians.

e. Our staff members offer patients help with referrals, such as making an appointment.

Each of the statements had four possible selections: Doing Well, Needs Improvement, Not Doing, Not Sure /NA. For data analysis purposes statistics were run both including and excluding the "Not Sure/ NA" choice. No reportable differences in the data results were noted. The data reported in this chapter excluded the "Not Sure/NA" due to lack of relevance and for consistency.

The first sub-scale area focused on was Health Literacy and Hospital Changes. Medical care is complicated and many people struggle with understanding medications, self-care, instructions and follow-up plans. By reducing the complexity of medical care, patients may be able to better succeed in the health care environment. In the Health Literacy and Hospital Changes, 3 sub-scale statements were used for measurement. All items on this Inter-Item Correlation Matrix were positive and ranged from .462 to .789. The overall Cronbach's alpha value for this sub-scale was .825 for the 3 sub-scale statements. It should be noted that in the Health Literacy and Hospital Changes sub-scale, statement # 3- Our staff has received HL education, had a Cronbach's alpha's of .888 which is higher than the overall sub-scale Cronbach's alpha of .825. This statement was determined to be important to this research and remained in the sub-scale.

Health Literacy and Spoken Communication was the next sub-scale reviewed. Studies indicate that patients have difficulty understanding health information that is communicated orally during patient provider interactions. Patients understand and retain approximately 50% of information discussed with their practitioners. This can have a tremendous impact on patient safety and adherence to health information (Brega, 2015). The sub-scale Health Literacy and Spoken Communication had 8 sub-scale statements used for measurement. The Cronbach's alpha for Health Literacy and Spoken

Communication was .765. The Inter-Item Correlation Matrix for these sub-scale items demonstrated that 18 items were below .30 leaving 10 items with a range from .317 to .667. These findings suggest a small amount of congruence (those above .317) with these sub-scale items and the construct (Polit & Beck, 2012). Caution needs to be taken by the researcher, however, due to a large number of items on the correlation matrix below .30.

The third area of data collection involved the assessment of Health Literacy and Written Communication. Health care providers rely heavily on printed materials to communicate with patients. Many health-related documents are written at the college level and contain a large amount of text in small print with complex terminology (Brega et al., 2015). A number of studies have shown that those with limited literacy skills have difficulty understanding written information, medication dosage, consent forms and discharge instructions (Yates & Pena, 2006). Health Literacy and Written Communication had 3 sub-scale assessment statements. The Cronbach alpha was .362. All items on the Intra-Item Correlation Matrix were positive, however, their scores ranged from .066 to .233. This data indicates because all scores were below .30 a lack of congruency with the underlying construct is possible. In accordance with the Item Total Statistics, no Cronbach's alpha was higher if the item were deleted. The Cronbach's alpha is below .70, therefore cautious interpretation must be used by the researcher.

The fourth assessment area that data was collected in was Health Literacy and Self-Management and Empowerment. An important area of patient-centered medical care is enabling patients to share responsibility for their health and health care. Ultimately it is the patient who must adopt a healthy lifestyle and manage his or her own personal health (Brega et al., 2015). Health Literacy and Self-Management and Empowerment had 3 sub-

scale assessment statements. The Cronbach's alpha for this sub-scale was .614. All items on the Intra-Item Correlation Matrix were positively correlated however, the range was from .155 and .499. Due to the low range, the researcher needs to be concerned with congruency. In accordance with the Item Total Statistics, statement #3 of this sub-scale had a Cronbach's alpha which if deleted, would result in the overall Cronbach's alpha being higher. Overall Cronbach's alpha was .614, but if item #3 was deleted, it would be .664. However, the researcher determined this data was necessary and it was retained in the sub-scale.

The final area assessed was Health Literacy and Improving Supportive Systems. It is important to recognize that many patients need support once they leave an acute care setting with making healthy choices including those discharged to home. Health literacy can affect a variety of aspects of patients' lives and some patients are not going to achieve their health goals unless someone goes the extra mile to assist them with accessing and obtaining appropriate services (Brega et al., 2015). This sub-scale assessment area had 5 statements. The Cronbach's alpha was .717. All items on the Inter Item Correlation Matrix were positive and ranged from .171 to .534. Due to several of these scores being below .30, cautious interpretation was needed due to concern with congruency with the underlying construct (Polit & Beck, 2012). In accordance with the Item Total Statistics, no Cronbach's alpha is higher if the item is deleted (see Table 11 for the data summary).

Table 11. Agency for Healthcare Research and Quality Health Literacy Universal Precautions Toolkit Statements and Measurement Summary

AHRQ Focus Sub-Scale Health Literacy and:	Cronbach's alpha by focus area	Mean	Total n=	N of Items
1. Hospital Changes	.825	2.91	n= 82	3
2. Spoken Communication	.765	1.87	n = 79-82	8
3. Written Communication	.362	1.71	n= 81	3
4. Self-Management and Empowerment	.614	1.75	n= 81	3
5. Improving Supportive Systems	.717	1.98	n= 80-82	5

The most widely used correlation index is the product-moment correlation co-efficient known as Pearson's r. In Table 12 several relationships at the $p < .05$ and $p < .01$ level can be seen as indicated by the asterisks next to the values. Each of the five subscale topics has at least one significant Pearson's "*r*" correlation.

Table 12. Pearson Correlations of the Agency for Healthcare Research and Quality Health Literacy Tool Kit Questions by Topic

Pearson Correlation Sig (2 tailed) n=	Hospital Changes	Spoken Communication	Written Communication	Self-Management and Empowerment	Improving Supportive Systems
Hospital Changes	1 45				
Spoken Communication	.186 .284 35	1 52			
Written Communication	-.057 .732 39	.481** .001 47	1 68		
Self-Management and Empowerment	.151 .329 44	674** .000 51	.486 ** .000 61	1 72	
Improving Supportive Systems	.341* .039 37	.485** .001 44	.478** .000 51	.571** .000 56	1 57

**Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)

The five broad sub-scale areas are addressed in the Assessment Correlations of Total Importance and Total Achievability data reported in Table 13. Descriptively, these data demonstrate that significant correlations exist between the following items: The Total Importance and Hospital Changes r = .608, p< .01; Total Importance and Written Communication r = .242, p< .05; Total Importance and Self-Management r = .289, p< .05; Total Importance and Improving Supportive Systems r = .274, p< .05; Total Achievability and Hospital Changes r = .370, p< .05; Total Achievability and Spoken Communications r = .283, p< .05; Total Achievability and Written Communication r = .260, p< .05; Total Achievability and Self-Management r = .460, p< .01; Total Achievability and Improving Supportive Systems r = .420, p< .01.

Table 13. Assessment Correlations of Total Importance and Total Achievability with 5 Average Health Literacy Sub-Scales

Pearson Correlation Sig (2 tailed) n=	Total Importance	Total Achievability	Hospital Changes	Spoken Comm	Written Comm	Self Management Empower-ment	Improving Supportive Systems
Total Importance	1 100	.387** .000 84	.608** .000 45	.239 .091 51	.242* .047 68	.289* .014 71	.274* .041 56
Total Achievability	.387** .000 84	1 86	.370* .013 44	.283* .044 51	.260* .033 67	.460** .000 70	.420** .001 55

** Correlation is significant at the 0.01 level (2 tailed).
*Correlation is significant at the 0.05 level (2 tailed).

Summary

Data were gathered and analyzed for research Question # 3 using 22 of the AHRQ Health Literacy Universal Precautions Assessment Tool Kit statements. Five broad health literacy areas were selected for focus. Coefficient alpha was the measure used for internal consistency. Coefficient alphas were computed on each sub-scale and on the entire 5 assessment 22 item sub-scales. The data demonstrated that some of the sub-scale items were not correlated among the health literacy areas of focus, however, the overall Cronbach's alpha demonstrated was .847 (Nunnally & Bernstein, 1994). The focus area of written communication demonstrated the lowest Cronbach's alpha score =.362 indicating that caution is needed when analyzing the data related to this sub-scale. Pearson's r was also performed as a test to measure correlation between these 5 sub-scale categories. Several correlations were noted between Total Importance and Total Achievability and the 5 subscales at both the $p < .05$ and $p < .01$ levels (2 tailed).

Question #4.

> **What are the characteristics associated with QI RNs knowledge (i.e. having been briefed or trained) and perceptions of the importance of the ten attributes of Health Literate Organizations?**

This research question focused on the perceptions of importance of the IOM Ten Attributes of Health Literate Healthcare Organizations and the individual's knowledge of health literacy. In the Table of Importance Correlations Scale for the Ten Institute of Medicine Attributes of Health Literate Organizations, all items were statistically significant at the p< .01 level (2 tailed). The items were moderately to highly correlated suggesting a strong relationship (see Table 14).

Table 14. Importance Correlations Scale for the Ten Institute of Medicine Attributes of a Health Literate Organization

		# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	#10
1. Has leadership that makes health literacy integral to its mission, structure, and operations.	**Pearson's *r*** **Sign**	1 102									
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.		.807** .000 102	1 102								
3. Prepares the workforce to be health literate and monitor progress.		.811** .000 101	.784** .000 101	1 101							
4. Includes populations served in the design, implementation, and evaluation of health information and services.		.667** .000 102	.670** .000 102	.628** .000 101	1 102						
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.		.693** .000 102	.664** .000 102	.691** .000 101	.808** .000 102	1 102					
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.		.778** .000 102	.695** .000 102	.758** .000 101	.694** .000 102	.827** .000 102	1 102				
7. Provides easy access to health information and services and navigation assistance.		.606** .000 102	.627** .000 102	.645** .000 101	.574** .000 102	.609** .000 102	.663** .000 102	1 102			
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.		.606** .000 102	.536** .000 102	.574** .000 101	.598** .000 102	.576** .000 102	.593** .000 102	.750** .000 102	1 102		
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.		.676** .000 101	.713** .000 101	.695** .000 100	.640** .000 101	.686** .000 101	.720** .000 101	.742** .000 101	.663** .000 101	1 101	
10.Communicates clearly what health plans cover and what individuals will have to pay for services.		.643** .000 102	.536** .000 102	.587** .000 101	.605** .000 102	.670** .000 102	.565** .000 102	.490** .000 102	.610** .000 101	.518** .000 101	1 102

** Correlation is significant at the 0.01 level (2 tailed)

This question posed by the researcher sought to gain insight from the participant related to personal characteristics associated with the QI RN and the facilities in which they were employed. This included the QI RN's personal knowledge in the area of health literacy as it relates to perceived importance of health literacy and knowledge of what it means to be a health literate organization. The survey gathered data about the nurse's age in years, nursing degree achieved, time in present position, organizational size and their health literacy knowledge. When the data were analyzed between Total Importance and size, the statistics demonstrated significance at the r = .325, p< .01. For the variables of Total Importance and whether the nurse had been briefed or trained in health literacy, significance was seen at the r = .316, p< .01. A relationship was also noted between the variables of Total Importance and if the participant had health literacy organizational knowledge at the r =.278, p< .05. Factors such as age, nursing degree, and time in present position showed no correlation as seen in the data in Table 15.

Table 15. Correlations of Total Importance and Characteristics

Pearson's r Correlation Significance 2 tailed n=	TI	Age in Years	Nursing Degree	Time in Present Positon	Organization Size	Health Literacy Knowledge Briefed/ Trained	Health Literacy Organization Knowledge
Total Importance	1	-.130	.059	-.195	.325**	.316**	.278*
		.267	.615	.083	.004	.004	.013
	100	75	75	80	78	80	80

**Correlation is significant at the 0.01 level (2 tailed)
*Correlation is significant at the 0.05 level (2 tailed)

The relationship between the IOM Ten Attributes of Health Literate Healthcare Organizations and Total Importance are all significantly correlated at the 0.01 level. They range from r = .738, p< .01 through r = .866, p< .01. The relationship between the ten attributes and the extent to which participants were briefed or trained in health literacy

varied. Three out of 10 items did not have any significant correlations. Six of the items

correlated at the p< .05 level while 1 correlated at the p< .01 level. Attribute #4 "Includes

populations served in the design, implementation, and evaluation of health information

and services" had no correlation with an r = .122 and Attribute #10 "Communicates

clearly what health plans cover and what individuals will have to pay for services" had no

correlation with r = .202 (see Table 16).

Table 16. Ten Attributes Correlation with Pearson's r/Significance and Total Importance and Briefed or Trained in Health Literacy

Institute of Medicine Attribute Pearson's *r* of Significance 2 tailed n=	Total Importance	Extent briefed or trained in Health Literacy
1. Has leadership that makes health literacy integral to its mission, structure, and operations.	865** .000 100	281* .011 81
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	.826** .000 100	306* .005 81
3. Prepares the workforce to be health literate and monitor progress.	.851** .000 100	.349* .001 80
4. Includes populations served in the design, implementation, and evaluation of health information and services.	.820** .000 100	.122 .277 81
5. Meets the needs of populations with a range of health literacy skills while avoiding stigmatization.	.862** .000 100	.266 .016 81
6. Uses health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	.866** .000 100	.284* .010 81
7. Provides easy access to health information and services and navigation assistance.	.788** .000 100	.279* .012 81
8. Designs and distributes print, audiovisual, and social media content that is easy to understand and act on.	.762** .000 100	.240* .031 81
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.	.855** .000 100	.347** .002 81
10. Communicates clearly what health plans cover and what individuals will have to pay for services.	.738** .000 100	.202 .070 81

** Correlation is significant at the 0.01 level (2 tailed)
*Correlation is significant at the 0.05 level (2 tailed)

Summary

The correlation coefficient *r*, which measures the strength and direction of a linear relationship, demonstrated the relatively strong relationship of the importance scale for the IOM Ten Attributes in this research study. All of the Total Importance items correlated with the IOM Ten Attributes at the p< .01 significance level. The variable of

size of an organization and whether the nurse had been briefed or trained in both health literacy and health literate organizations correlated with the total importance. Conversely age, degree/ level of education, and time in present position showed no correlation.

Question #5.

What are the characteristics of the organization associated with QI RNs perceived likelihood (achievability) that their organization can become a Health Literate Organization?

This question allowed the researcher to draw from the QI RN's introspective thinking which reflects more about the culture of the institution in which the nurse was employed. It perhaps stirred consideration regarding thoughts identifying where the QI RN's organization was on their journey toward health literacy. This research question delved further into the unique relationship between the QI RN and their perceived achievability of their organization toward becoming health literate. Exploring the Inter-Item Correlation of Achievability in Table 17, items are seen to be positive, ranging between .482 and .823. This indicates a moderate to high correlation with the latent construct.

Table 17. Inter-Item Correlation Matrix of Achievability of the Ten Attributes of Health Literate Organizations

Institute of Medicine Attribute	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10
1. Have leadership that makes health literacy integral to its mission, structure, and operations.	1.0									
2. Integrate health literacy into planning, evaluation measures, patient safety, and quality improvement.	.787	1.0								
3. Prepare the workforce to be health literate and monitor progress.	.823	.755	1.0							
4. Include populations served in the design, implementation, and evaluation of health information and services.	.620	.649	.570	1.0						
5. Meet the needs of populations with a range of health literacy skills while avoiding stigmatization.	.718	.692	.699	.798	1.0					
6. Use health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	.762	.677	.748	.692	.894	1.0				
7. Provide easy access to health information and services and navigation assistance.	.538	.548	.573	.499	.588	.596	1.0			
8. Design and distributes print, audiovisual, and social media content that is easy to understand and act on.	.516	.421	.528	.525	.495	.510	.737	1.0		
9. Address health literacy in high-risk situations, including care transitions and communications about medicines.	.624	.713	.676	.582	.689	.715	.742	.604	1.0	
10. Communicate clearly what health plans cover and what individuals will have to pay for services.	.714	.550	.639	.536	.660	.647	.482	.617	.527	1.0

Each of the IOM Ten Attributes revolves around aspects of the daily work of

healthcare providers. They coalesce in areas such as leadership, planning, education,

access, navigation, and transitions of care. The Total Achievability and extent you have

been briefed, trained, or educated about health literacy, and extent you have been briefed,

trained, or educated about health literate organizations as seen Table 18 demonstrated

correlations. Significance for Total Achievability and educated about health literacy was

r = .260, p< .05; Total Achievability and educated about HLO's was r = .232, p< .05.

Table 18. Correlation of Total Achievability and Knowledge of Health Literacy and Health Literate Organizations

Pearson's *r* Significance n=	Extent you have been briefed, trained or educated about Health Literacy	Extent you have been briefed, trained or educated about Health Literate Organizations
Total Achievability	.260* .021 79	.232* .040 79

** Correlation is significant at the 0.01 level (2 tailed)
*Correlation is significant at the 0.05 level (2 tailed)

Summary

This research question delved further into the unique relationship between the QI

RN's and their perceived achievability of their organization to become health literate.

Although many characteristics of the organization were reviewed including type of

organization, accreditation status, and Magnet designation, none of these showed

correlations related to achievability.

Chapter Summary

This descriptive study looked at perceived importance and achievability in

relationship to the IOM Ten Attributes of a Health Literate Healthcare Organizations

among a sample of QI RN's across the United States. The importance and achievability

data from the survey questions demonstrated a nonsymmetrical or negatively skewed

distribution. In addition to the IOM Ten Attributes of Health Literate Healthcare

Organizations, the AHRQ Health Literacy Universal Precautions Assessment Toolkit statements were integrated into the survey. Five broad health literacy focus sub-scale areas were selected to concentrate on the AHRQ Health Literacy Universal Precautions Toolkit with the overall Cronbach's alpha level at .847 and all but one of the sub-scales having an acceptable Cronbach's alpha.

Knowledge of health literacy as it related to the importance of the IOM Ten Attributes of Health Literate Healthcare Organizations was included in this research study. Achievability of the IOM Ten Attributes was explored in relation to type of organization, for example, for profit vs not for profit, religious affiliation, certification, Magnet designation, and size.

Chapter V- Discussion and Recommendations

This final chapter presents a summary of the study, a discussion of the research findings, study limitations, and nursing implications based on the study's findings. The chapter closes with recommendations and future research considerations and ends with final conclusions.

Summary of Study

Health literate healthcare organizations facilitate navigation of patients and families within their hospitals (IOM, 2004). They assist to promote understanding and effective use of health information to improve patient care. The ongoing efforts by the IOM's Health Literacy Roundtable provide insight and guidance with their published Ten Attributes of Health Literate Healthcare Organizations for those hospitals seeking to become HLOs. The IOM Ten Attributes of Health Literate Healthcare Organizations focus on addressing health literacy through 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 (Kripalani et al., 2014).

This descriptive study used survey methodology designed to determine perceived importance and achievability of the IOM Ten Attributes of a Health Literate Healthcare Organizations among a sample target population of QI RNs. Participants in this research study were asked to complete a 24 question electronic survey tool. The instrument was designed combining the IOM Ten Attributes of Health Literate Healthcare Organizations and select assessment statements from AHRQ Health Literacy Universal Precautions

Toolkit. The total number survey participants came from acute care hospitals across the United States.

Discussion of the Findings

The purpose of this research study was to describe QI RNs' perceptions of the IOM Ten Attributes of Health Literate Healthcare Organizations in acute care. The study measured QI RN's perceived importance and achievability of the IOM's Ten Attributes of Health Literate Healthcare Organizations specifically in their hospital.

The findings related to the demographic characteristics for this study are as follows: The average age of the QI RN's who participated in this study was 54 years old with a range from 28-78. Of the participants who answered the level of education question, 31.37% of them held a Bachelor's degree and 34.31% held a Master's degree. Over half or 53.90% of the nurse participants worked in their present position from 0-10 years. Although all states in the continental U.S. were represented, the majority, 52.29% of study respondents came from hospitals in the Eastern Standard Time zone of the United States. Joint Commission (JC) certification was represented by 76.50% of participants, 2.00% did not know if they were JC certified and 21.60% did not complete the question. Det Norske Veritas (DNV) certification was indicated by 3.90% stating yes they were, 40.20% stated no they were not, 33.30% did not know if they were DNV certified and 22.50% did not complete this question. Magnet recognition was indicated by 26.50% stating that yes they were recognized as a Magnet Hospital and 49.00% not having this recognition, 2.90% did not know if they were Magnet recognized and 21.60% did not answer this question.

The first research question, What are QI RN's perceived levels of importance of the IOM Ten Attributes of Health Literate Healthcare Organizations, demonstrated that slightly over two thirds of respondents indicated the ten attributes to be " important" or "very important". The link between limited health literacy and poor health outcomes is well documented. In 2004, both the IOM and AHRQ published reports with comprehensive reviews of the literature on health literacy and health outcomes. Both reports concluded that limited health literacy is negatively associated with the use of preventative services and self- reported health. Researchers additionally found a relationship between limited health literacy and an increase in preventable hospital visits and admissions. This is a critical research finding for QI RNs because these nurses are well positioned to assist hospitals toward becoming HLOs, thus increasing patients' understanding of information. Unclear health information can lead to misunderstanding about risks, consequences, necessary care, medication instructions, healthcare plans, and/ or preventative and wellness strategies. The QI RN's health literacy knowledge allows hospitals to recognize these issues and begin to address them prior to the patients' discharge.

The second research question, How likely do QI RNs' believe that their organizations can achieve the IOM's 10 Attributes of Health Literate Healthcare Organizations, indicated slightly under three quarters of respondents selected the attributes to be "likely achievable" or "completely achievable." To prevent or manage disease and promote health, patients need to make sense of the health information they read, hear, see, and gather from all sources. Efforts must be collaborative in nature and mutually supported to achieve measureable improvements in health literacy across all

socioeconomic levels. Health literate organizations must work together to make sure that health information and services are provided in ways that meet the needs and interests of all people. Eliminating barriers and improving the way health care professions communicate health information offers all patients the best opportunity to achieve improved health literacy skills.

Ranking queries were included in the survey requesting each participant to select their top "most" and "least" selected attributes associated with "importance" and "achievability" of HLOs. Sum scores of each of the importance and achievability questions were compared to the participant's selected ranked attribute. There were several overlapping selected attributes between participants ranking and total sum scores. This suggests that a relationship may exist between the participants' perceived ranking selections and total sum scores. Although this could have been coincidental, the researcher postulates this may have occurred because respondents perceptions of the attributes may have been influenced by their previous exposure to the initial survey questions. The respondent could have used previous information to answer questions that followed, such as the ranking question selection of the survey.

In relation to classification of rank, the "most important" and "highest sum score" attribute was Attribute #9 "Addresses health literacy in high-risk situations, including consent, care transitions and communications about medicines." Health literacy expert Cindy Brach discusses how informed consent and communication in high risk situations with patients is notoriously difficult. She offers the suggestion that the basic tenet of informed consent should be included in every discussion of possible treatment with

patients ensuring to cover the risks, harms, and benefits of all options including not doing anything at all (Brach, 2016).

The "least important" and "least achievable" attribute also received the lowest sum scores in total importance and total achievability, attribute # 10 "Communicates clearly what health plans cover and what individuals will have to pay for services." The focus of this attribute is health insurance which is a very tangible fact, but difficult to comprehend for all, even those with high health literacy levels. Health insurance enrollment, benefits, coverage, and out of pocket costs are complicated. Patients often have trouble understanding their insurance coverage and the QI RNs have shown this remains the lowest priority as it relates to the IOM Ten Attributes. However, a growing number of health plans are actively engaged in working to improve health literacy. Nursing staff should be part of this education too. Health plans are expanding their perspective on health literacy, seeing it as a key component in engaging patients in self-management of their chronic diseases, particularly at home. Insurance plans have begun using employee champions to weave concepts of health literacy and plain language into the fabric of their organizations (AHIP, 2012).

In the "most achievable" category the attribute that was selected with both the highest participant ranking percentage and the highest sum score ranking was attribute #8 which states, "Designs and distributes print, audiovisual, and social media content that is easy to understand and act on." The data represents a common practice that QI RNs may see on a daily basis or recognize as easily actionable. With new and innovative tools for nurses to use to effectively teach patients, this attribute could easily be seen as achievable as compared to the other nine. Noting that today there are millions of

Facebook and Twitter users, the question is not whether to use social media for health literacy but rather which social media to target. Healthcare and public organizations cannot afford to ignore social media as a powerful means of reaching out to their stakeholders with content quality and presentation of online health information that matches the needs and health literacy levels of those populations they serve (Boulos, 2011).

In addition to the IOM Ten Attributes of Health Literate Healthcare Organizations, the AHRQ Health Literacy Universal Precautions Toolkit was used to assist the researcher to identify relationships that may or may not exist between health literacy and the hospital in which the quality improvement registered nurse participating in this study was employed. The study section of the AHRQ Toolkit used five health literacy sub-scales: hospital changes, spoken communication, written communication, self-management and empowerment, and improving supportive systems. The overall Cronbach's alpha was .847. It was noted that four of the five sub-scales had individual Cronbach's alpha coefficients ranging from .614 - .825. The statements selected in the sub-scale of "written communication" were noted to have less strength with a Cronbach's alpha coefficient of .362. The focus of these specific statements evaluated health literacy and use of plain language, laboratory test results, and signage postings in patient's primary language. These three items, when reviewed, represent important yet disparate areas, allowing the researcher to better understand the possible rationale for the weaker relationship between those statements.

It was determined that characteristics such as age, gender, degree, and time in present position showed no correlation to health literacy. What did show a significant

correlation was the size of the organization as it relates to being briefed or trained in health literacy in both areas of importance and achievability. The descriptive data gathered from this study demonstrates to the researcher perceived total importance and size and knowledge of health literacy as potential important characteristics of HLOs. When analyzed, those hospitals with over 100 beds and less than 500 beds demonstrated knowledge related to health literacy.

The final question this researcher asked related to the characteristics of the hospital associated with QI RNs' perceived likelihood (achievability) that their organization can become a health literate organization (HLO)? The QI RN's experience with the everyday working culture of their organization may have influenced how this question was approached. The type of organization, accreditation status, magnet recognition, and size was compared to the total achievability. It was noted that a positive correlation was demonstrated with regard to having been briefed, trained, or educated about health literate organizations (correlation significant at the p< .05 level 2 tailed). The researcher also gathered demographic information related to Magnet recognition status of the hospitals in which the participants were employed. Magnet recognition is the most prestigious distinction a healthcare organization can receive for nursing excellence and quality patient outcomes. Organizations that achieve Magnet recognition are part of an esteemed group that demonstrates superior nursing practices and outcomes. Only 26.50% of the participants in this study identified themselves as working in Magnet recognized institutions. The fact that Magnet recognition was not significant in any of the data may be related to the percentage of participants who worked in hospitals that had received this status.

Study Limitations

Although this study included limitations, the results and conclusions can still provide useful information for all hospitals but especially acute care hospitals seeking to become more organizationally health literate.

In total, 102 surveys were returned. Missing data can pose limitations but in this study, although some of the survey-requested information was left blank, its potential limitations were minimal. The survey questions 1-13 which focused on importance and achievability of health literate organizations were complete 93% of the time while survey questions 14-24 contained the demographic data requests and these were complete 78% of the time. A majority of the surveys were completed electronically 75% (n= 76) a small percentage 25% (n= 26 those used for the feasibility study) were completed via paper copy and then electronically entered into the data base by the researcher. Ritter, in 2004, found in a study of 16 survey instruments that the instruments administered via the internet appeared to be reliable, and to be answered similarly to the way they were answered when administered via traditional paper questionnaires. The survey took approximately 15 minutes to complete and consisted of 24 questions which could have influenced the time taken to carefully consider one's answers and may have contributed to some of the missing data, however, overall the researcher is not concerned with missing data due to the high percent compliance with those questions that were completed (Ritter, P., Lorig, K., Laurent, D., & Matthews, K., 2004).

The study design allowed the researcher to explore if variables were related, but causality cannot be inferred. Results from this study are descriptive in nature as variables could not be controlled and there was no intervention. Validity of the tool was strong.

Participants in this study sample represented wide geographical variability from across the United States which strengthens generalizability. The researcher, however, recognizes that generalizability is limited and may or may not be useful in populations other than those studied.

Nursing Implications

The results of this study offer support to the evolving field of health literacy which has clearly advanced since the 2004 IOM publication of *Health Literacy, A Prescription to End Confusion*. Conceptual and empirical in nature, the progress and development identifies a significant opportunity for important future research related to developing an increase focus not only in improving patients' health literacy skills but also improving hospitals abilities to become Health Literate Organizations.

This study examined, by using the IOM's published Ten Attributes of Health Literacy, nurses' perceptions of hospitals' support toward importance, adoption, implementation, and achievability of these attributes. As federal and state rules change, health literacy awareness is becoming more of a healthcare focus. The climate is right for those organizations who are striving to become HLOs to ensure they possess innovative methodology to actively work toward achievement of these IOM Ten Attributes of Health Literate Healthcare Organizations (IOM, 2013). With the focus of healthcare rapidly moving from volume to value, the quality improvement impact of the IOM Ten Attributes of Health Literate Organizations could become an important quality initiative for all hospitals in the future (Berenson, 2010).

This study contributes to the knowledge base of research reported from QI RN's perspective as it relates to Health Literate Organizations. It highlights the challenge and

importance of continued research to gain greater and deeper understanding of the current

critical nature of organizational health literacy. This dissertation was a first step toward

better understanding of QI RNs' impact on organizational health literacy and the impact

that this population of nurses can have on quality improvement and measureable hospital

outcomes.

A recommendation as a result of this study involves implementation of a hospital

quality improvement initiative. Those hospitals seeking to become health literate

organizations must consider adopting quality improvement strategies to measure their

current state as a baseline to assist to determine their future state as a HLO.

Those organizations interested in becoming HLOs are beginning to seek to

measure the penetration of the IOM Ten Attributes of Health Literate Healthcare

Organizations within their institutions. Newly developed tools have been dispersed across

the United States which hold promise. Future work needs to be done on advancing the

validity of these new measures and identifying optimal means for their uses in various

contexts including accountability, quality improvement, and research (Kripalani et al.,

2014).

The Health Literate Care Model presents a new facet to health literacy research

calling on healthcare organizations to forge partnerships with their communities to

provide resources to help meet patients' needs. Koh and colleagues proposed that

healthcare organization leadership is central to the evolving HLCM. They stated that

leaders create a culture and operational mechanisms that promote safe, high quality care

with the ultimate goal of improved outcomes for patients (Koh et al., 2013). As the field

of health literacy and HLO's expand, more needs to be known about the connections

between education and health, the role of literacy, and the discrete contribution of health literacy to health and well-being of patients being cared for by healthcare organizations (IOM, 2012).

This study contributes to nursing research in the area of health literacy and health literate organizations. Because of nurses' regular, close proximity to patients as highly trusted members of the healthcare team and their scientific understanding of care processes across the continuum, they are able to act as partners to lead in the health literacy improvement of the healthcare organizations (IOM, 2011). QI RNs who were the targeted population for this study were uniquely positioned to make meaningful contributions to this HLO research. These nurses understand how systems operate and because of their unique position within their organization had the opportunity to identify potential health literacy needs of the organization which when implemented could ultimately improve quality care and patient outcomes.

Future Research Considerations

The landscape for research in health literacy and areas related to Health Literate Organizations is vast and open. The IOM Ten Attributes of Health Literate Organizations and AHRQ Health Literacy Universal Precautions Toolkit provide two of the many available tools to explore, test, and refine healthcare's approach to health literacy. It is important to recognize that the healthcare climate is ripe for research and investigation specifically as it relates to quality care, experience and cost. The Institute for Healthcare Improvement (IHI) has its Triple Aim program to help healthcare organizations improve patients care, experience and cost (Berwick, D., Nolan, T., & Whittington, J., 2008). Health reform legislation has offered the promise of dramatically altering the way

providers are paid, shifting from paying for volume to paying for value (Berenson, 2010).

All of these dramatic healthcare changes provide excellent opportunities for those

organizations on their health literacy journey to explore topics such as:

- Leveraging Health Literate Organizations to help decrease the cost of patient harm.
- Developing Health Literate Organizations innovations focused on health literacy redesign/restructure of hospital services involving patient advocates.
- Using change management theory to assist with transforming care coordination to better meet the needs of the patients served in Health Literate Organizations.

This study focused on QI RNs by job description. This study was limited to QI

RNs who work specifically in quality as a distinct sub-population of all nurses. Because

this study focused only on QI RN's generalizability or the ability to ensure the instrument

measured what it is claimed to measure across other populations maybe limited, however,

it does provide opportunities for future research with other study groups. The researcher

did receive feedback from other healthcare providers such as medical technologists and

nurse educators that they would have liked to be able to participate in the survey process.

Perspective from other healthcare practitioners would be helpful to provide additional

feedback that may not be considered from the QI RN's perspective.

Final Conclusions

There is no better time than the present to merge the health literacy skills of

patients with the health literacy promoting attributes of healthcare organizations.

Enactment of the Patient Protection and Affordable Care Act provides opportunities for

patients to improve their experience of care and their health outcomes through insurance

reform. Maximizing this opportunity will require that healthcare organizations pay

attention to the communication needs of the populations they serve. HLO's health

literacy success will depend on their amount of stewardship and commitment (IOM, 2012). Healthcare organizations must seek to develop strategies that enable patients and families to access services offered while assuring successfully effective interactions (IOM, 2012).

A foundational principle of health literate healthcare organizations is the need for clear and effective patient communication across all levels of the organization. Organizations with committed aspirations to become a HLO must focus on the following: Health literacy as a foundational element of patient-centered care; Health literacy and organizational commitment and leadership; Preparing and fostering a health literate workforce; Developing measures of what it means to be a health literate organization (Parker & Hernandez, 2012). Becoming a HLO is an evolving process and using the IOM Ten Attributes of Health Literate Healthcare Organizations will assist to move organizations along a continuum closer toward achieving the goal (IOM, 2012).

This study has been able to shed light on health literacy related to the perceived value in becoming a health literate organization. Several broad areas of focus can be attributed to this study such as:

- Being a Health Literate Organization is perceived as both important and achievable in a majority of the sample population of QI RNs studied.
- The IOM Ten Attributes of a Health Literate Healthcare Organization, when ranked as most important and most achievable, provide insight and can be used to obtain staff buy-in and commitment for those hospitals on their health literacy journey.
- The Health Literacy Care Model supports the use of the IOM Ten Attributes of Health Literate Organizations and provides an effective outline for guidance and improved patient outcomes by engaging patients as partners in care and improvements.

Those organizations who have committed to improving and re-engineering themselves and are successful in establishing the IOM ten attributes will be described as "health literate organizations" (IOM, 2012). HLOs' success will be evidenced by their abilities to make clear and effective patient communication a priority across all levels of the organization with improvement in many areas, including patient outcomes, patient satisfaction, and decreased readmissions.

Now is the time that organizations must recognize the need for the balance of individual patient health literacy skills and the critically important health literacy demands of the health care system. Health literacy plays a vital role in assisting with improvements in healthcare quality and outcomes (Baur, 2011). Healthcare organizations seeking to become HLOs must recognize and work towards eliminating barriers, developing clear communication, and providing useable, actionable health information and services in order to improve the quality of healthcare while providing the best possible outcomes for all patients.

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APPENDIX A

Ten Attributes of Health Literate Health Care Organizations

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.

APPENDIX B

Health Literate Care Model

Health Literate Care Model

A Universal Precautions Approach

Community Partners
Resources and Policies

Health Literate Systems
Organization of Health Care

Delivery System Design

Health Information Systems

Self-Management Support

Shared Decision-making

Apply Improvement methods

Improve written communication

Link to supportive systems

Improve verbal interaction

Engage patients as partners in care and improvement efforts

Strategies for Health Literate Organizations

Informed, Health Literate, Activated Patient and Family

Productive Interactions

Prepared, Proactive, Health Literate Health Care Team

Improved Outcomes

See: Koh, H.; Brach, C.; Harris, L.M.; and Parchman, M.L. (2013) "A Proposed 'Health Literate Care Model' Would Constitute A Systems Approach to Improving Patients' Engagement in Care." *Health Affairs*. No. 2 (357-367).

APPENDIX C

Sample Paper Survey Letter
Sample Email Survey Letter
Sample Email Survey

Sample Paper Survey Letter

Dear Nurse Pilot Participant,

You are invited to participate in a study that will focus on exploring the importance and achievability of health literate health care organizations. We are hoping you will agree this type of study is vital for hospitals striving for high quality patient centered care.

The purpose of this study is to explore and describe nurse's perceived importance and achievability of the Institute of Medicine (IOM) ten attributes of health literacy in health care organizations. This study focuses on your responses to a questionnaire listing the IOM 10 attributes of health literacy.

To be part of the study, you will be asked for agreement to participate. By completing and returning this paper survey you will confirm your agreement for participation. Returning the survey indicates your consent to participate.

Your participation is voluntary and your answers are confidential. Your name will not be associated with the research findings in anyway and codes will be used. There are no risks or discomfort associated with this study. We will be happy to share the findings with you after the research is completed upon your request. Do not hesitate to ask questions about the study either before or during your participation by contacting the principle investigator at 516 818 5355 or atennapel@lions.molloy.edu. As a token of appreciation participants may send their email address to the principle investigator to be entered into a drawing where a randomly selected participant will receive a gift card for participation in this study.

The expected benefits associated with your participation are to gain insight into your perception of the importance and achievability of the IOM's 10 attributes of health literate health care organizations.

Upon completion of the survey please provide any comments to assist in determining the feasibility of this survey tool.

Are the questions easily understood?

Was important information omitted? No_____Yes_____ If yes, please indicate what you feel should be included:

Additional comments:

Sample Email Survey Letter

Dear Nurse Participant,

You are invited to participate in a study that will focus on exploring the importance and achievability of health literate health care organizations. We are hoping you will agree this type of study is vital for hospitals striving for high quality patient centered care.

The purpose of this study is to explore and describe nurse's perceived importance and achievability of the Institute of Medicine (IOM) ten attributes of health literacy in health care organizations. This study focuses on your responses to a questionnaire listing the IOM 10 attributes of health literacy.

To be part of the study, you will be asked for agreement to participate. By completing and returning this survey you will confirm your agreement for participation. You will be asked to complete an online survey.

Your participation is voluntary and your answers are confidential. Your name will not be associated with the research findings in anyway and codes will be used. There are no risks or discomfort associated with this study. We will be happy to share the findings with you after the research is completed upon your request. Do not hesitate to ask questions about the study either before or during your participation by contacting the principle investigator at 516 818 5355 or atennapel@lions.molloy.edu. As a token of appreciation participants may send their email address to the principle investigator to be entered into a drawing where a randomly selected participant will receive a $100 gift card for participation in this study.

The expected benefits associated with your participation are to gain insight into your perception of the importance and achievability of the IOM's 10 attributes of health literate health care organizations. Returning the survey indicates your consent to participate.

Sample Email Survey

Definitions for Health Literacy

Health literacy is the capacity of an individual to obtain process and understand basic health information to make appropriate health decisions as defined by the Institute of Medicine.

Please answer the following questions related to your organization.

1. IMPORTANCE: Please indicate how important each item is in your organization.

It is important to my organization to:

	Not Important at All	Somewhat Important	Neutral	Important	Extremely Important
1. Have leadership that makes health literacy integral to its mission, structure, and operations.	○	○	○	○	○
2. Integrate health literacy into planning, evaluation measures, patient safety, and quality improvement.	○	○	○	○	○
3. Prepare the workforce to be health literate and monitors progress.	○	○	○	○	○
4. Include populations served in the design, implementation, and evaluation of health information and services.	○	○	○	○	○
5. Meet the needs of populations with a range of health literacy skills while avoiding stigmatization.	○	○	○	○	○
6. Use health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	○	○	○	○	○
7. Provide easy access to health information and services and navigation assistance.	○	○	○	○	○

	Not Important at All	Somewhat Important	Neutral	Important	Extremely Important
8. Design 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. Communicate clearly what health plans cover and what individuals will have to pay for services.	○	○	○	○	○

2. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the most important?

Choice 1 [ ]

Choice 2 [ ]

Choice 3 [ ]

3. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the least important?

Choice 1 [ ]

Choice 2 [ ]

Choice 3 [ ]

Definitions for Health Literate Organizations

Health literate organizations are those organizations that make it easier for patients to navigate, understand and use information and services to take care of their health.

Please answer the following questions related to your organization.

4. ACHIEVABILITY: Please indicate how achievable you perceive that your organization can accomplish each item.

I believe that it is potentially achievable for my organization to:

	Not Achievable at All	Somewhat Achievable	Neutral	Likely Achievable	Completely Achievable
1. Have leadership that makes health literacy integral to its mission, structure, and operations.	○	○	○	○	○
2. Integrate health literacy into planning, evaluation measures, patient safety, and quality improvement.	○	○	○	○	○
3. Prepare the workforce to be health literate and monitors progress.	○	○	○	○	○
4. Include populations served in the design, implementation, and evaluation of health information and services.	○	○	○	○	○
5. Meet the needs of populations with a range of health literacy skills while avoiding stigmatization.	○	○	○	○	○
6. Use health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	○	○	○	○	○
7. Provide easy access to health information and services and navigation assistance.	○	○	○	○	○

	Not Achievable at All	Somewhat Achievable	Neutral	Likely Achievable	Completely Achievable
8. Design 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. Communicate clearly what health plans cover and what individuals will have to pay for services.	○	○	○	○	○

5. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the most achievable?

Choice 1	
Choice 2	
Choice 3	

6. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the least achievable?

Choice 1	
Choice 2	
Choice 3	

Health Literacy Assessment in Your Institution

The following are statements related to elements of health literacy identified in the Agency for Healthcare Research and Quality (AHRQ) Health Literacy Toolkit. Please use them to assess your organization to the best of your knowledge. Responses are:

Doing Well = Our staff is doing this well.
Needs Improvement = Our staff is doing this but could do it better.
Not Doing = Our staff is not doing this.
Not Sure = I don't know the answer to this question.
N/A = This is not applicable to our staff.

7. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND HOSPITAL CHANGES

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
1. Our Health Literacy team meets regularly.	○	○	○	○
2. Our Staff has a written Health Literacy Improvement Plan and collects data to see if objectives are being met.	○	○	○	○
3. Our Staff have received Health Literacy education.	○	○	○	○

8. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND SPOKEN COMMUNICATION

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
1. Our Staff members speak clearly (e.g., use plain everyday words, and speak at a moderate pace).	○	○	○	○
2. Our Staff members listen carefully to patients, without interrupting.	○	○	○	○
3. Our Staff members assess patients' language preferences and record them in the medical record.	○	○	○	○

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
4. Our Staff members talk with patients about any educational materials they receive during their hospitalization and emphasize the important information.	○	○	○	○
5. Our Staff members routinely review with patients all the medicines they take, including over the counter medicines and supplements, and ask the patients to demonstrate how to take them.	○	○	○	○
6. Our Staff members routinely provides patients with updated medicine lists that describe in easy-to-understand language what medicines the patient is to take and how to take them.	○	○	○	○
7. Our Staff members train our patients to use our patient portal.	○	○	○	○
8. Our Staff members offer everyone help regardless of appearance (e.g., filling out forms, using the patient portal).	○	○	○	○

9. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND WRITTEN COMMUNICATION

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
1. Our Staff's patient education materials are concise, use plain language, and are organized and formatted to make them easy to read and understand.	○	○	○	○
2. Our hospital's Lab and test result communications are concise, use plain language, and are organized and formatted to make them easy to read and understand (e.g., avoid the use of "positive" or "negative" results).	○	○	○	○
3. Hospital signage is written in English and in the primary language of the population being served (e.g., if most people speak English or Spanish, signs are written in English and Spanish).	○	○	○	○

10. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND SELF-MANAGEMENT AND EMPOWERMENT

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
1. Our Staff creates an environment that encourages patients to ask questions (e.g., asking "What questions do you have? instead of "Do you have any questions?") and get involved with their care.	○	○	○	○
2. Our Staff take their patients' religion, culture, and ethnic customs into consideration when devising treatment options.	○	○	○	○
3. Our Staff write precise instructions for taking medicine that are easy - to- understand (e.g., "take 1 pill at bedtime" instead of "take twice daily").	○	○	○	○

11. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND IMPROVING SUPPORTIVE SYSTEMS

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A
1. Our Staff assesses patients ability to pay for medicines.	○	○	○	○
2. Our Staff members ask patients if they have trouble reading or understanding and using numbers.	○	○	○	○
3. Our Staff has an updated list of community resources and refers patients as needed.	○	○	○	○
4. Our Staff shares important referral information, (e.g., reason for referral, pertinent medical history, test results) directly with other health care clinicians.	○	○	○	○
5. Our Staff members offer patients help with referrals, such as making an appointment.	○	○	○	○

Brief Nurse Demographics

Directions: For each item, please choose the answer that applies to you in your institution.

12. To what extent have you been briefed, trained or educated about health literacy?

◯ Not at All

◯ Somewhat

◯ Adequately

◯ More than Adequately

◯ Extensively

Please explain

[ ]

13. To what extent have you been briefed, trained or educated about health literate organizations (HLOs)?

◯ Not at All

◯ Somewhat

◯ Adequately

◯ More than Adequately

◯ Extensively

Please explain

[ ]

14. Select the area from the following which best applies to your area of work:

◯ Quality Improvement Nurse

◯ Clinical Nurse/Staff Nurse

◯ Nurse Manager

◯ Other Nurse Specialty or Title (please specify)

[ ]

15. Select the type of organization you work in. (Check all that apply).

- [ ] Profit
- [ ] Not for Profit
- [ ] Public
- [ ] Private
- [ ] Religious Affiliated
- [ ] Other (please specify)

[   ]

16. What is the size of your organization?

- ( ) Less than 100 beds
- ( ) 101 to 250 beds
- ( ) 251 to 500 beds
- ( ) More than 500 beds

17. Write the state where your institution is located (e.g. NY, NJ, CT)

[   ]

18. Is your organization accredited by the Joint Commission?

- ( ) Yes
- ( ) No
- ( ) Don't Know

19. Is your organization DNV (Det Norske Veritas) certified?

- ( ) Yes
- ( ) No
- ( ) Don't know

20. Does your organization currently hold Magnet designation?

- ( ) Yes
- ( ) No
- ( ) Don't know

21. What is your age?

Age in years

22. What is your gender?

◯ Male

◯ Female

23. What is your nursing degree and highest level of education achieved?

◯ RN Diploma School

◯ RN Associate's Degree

◯ RN Bachelor's Degree

◯ RN Master's Degree

◯ RN Practice Doctoral Degree (DNP)

◯ RN Doctoral Degree (PhD, DNS, EdD)

Other (please specify)

24. How long have you worked in your present position?

◯ 0 - 10 years

◯ 11 - 20 years

◯ 21 - 30 years

◯ 31 - 40 years

◯ More than 40 years

APPENDIX D

**Crosswalk of Health Literacy Attributes to Pyramid Framework & AHRQ
Universal Health Literacy Toolkit Assessment**

Ten Attributes of Organizational Health Literacy	**Pyramid Framework Descriptor** • **Organizational commitment** • **Accessible Educational technology infrastructure** • **Augmented workforce** • **Embedded policies and practices** • **Effective bidirectional communication**	**AHRQ Health Literacy Universal Toolkit Assessment** **Question that directly or indirectly supports the individual IOM Attribute**
Attribute #1 Leadership makes health literacy integral to its mission, structure, and operations	**Pyramid Framework Descriptor** • Organizational commitment • Effective bidirectional communication **AHRQ Health Literacy Universal Toolkit Assessment Question** • Our Health Literacy team meets regularly.	
Attribute #2 Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement	**Pyramid Framework Descriptor** • Accessible Educational technology infrastructure • Embedded policies and practices • Effective bidirectional communication **AHRQ Health Literacy Universal Toolkit Assessment Question** • Our Staff has a written Health Literacy Improvement Plan and collects data to see if objectives are being met.	
Attribute #3 Prepare the workforce to be health literate and monitors progress.	**Pyramid Framework Descriptor** • Accessible Educational technology infrastructure • Augmented workforce • Effective bidirectional communication	

|	
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members have received health literacy education.
Attribute #4 Include populations served in the design, implementation, and evaluation of health information and services.	**Pyramid Framework Descriptor** • Accessible Educational technology infrastructure • Augmented workforce • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members take their patients' religion, culture, and ethnic customs into consideration when devising treatment options.
Attribute #5 Meet the needs of populations with a range of health literacy skills while avoiding stigmatization.	**Pyramid Framework Descriptor** • Augmented workforce • Embedded policies and practice • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members listen carefully to patients without interrupting. • Our staff members offer everyone help regardless of appearance e.g. filling out forms, using the patient portal. • Staff members ask patients if they have trouble reading or understanding and using numbers.

Attribute #6 Use health literacy strategies in interpersonal communications and confirms understanding at all points of contact.	**Pyramid Framework Descriptor** • Augmented workforce • Embedded policies and practices • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members speak clearly (e.g., use plain everyday words, and speak at moderate pace). • Our staff members talk with patients about any educational materials they receive during their hospitalization and emphasize the important information. • Our staff members assess patients' language preferences and record them in the medical record. • Our staff members create an environment that encourages our patients to ask questions (e.g.. asking "What questions do you have?" instead of "Do you have any questions?") and get involved with their care.
Attribute #7 Provide easy access to health information and services and navigation assistance.	**Pyramid Framework Descriptor** • Accessible Educational technology infrastructure • Augmented workforce • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members train patients how to use the patient portal of their electronic health record. • Our staff maintains an up to date list of community resources and refers patients as needed.
Attribute #8 Design and distributes print, audiovisual, and social media content that is easy to understand and act on.	**Pyramid Framework Descriptor** • Accessible Educational technology infrastructure • Effective bidirectional communication

	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff's patient education material are concise, use plain language, and are organized and formatted to make them easy to read and understand. • Our staff provides lab and test results that are concise, use plain language, and are organized and formatted to make them easy to read and understand (e.g. avoid use of "positive" or "negative" results). • Hospital signs are written in English and in the primary language of the populations being served (e.g., if most of the patients speak English or Spanish, signs are written in English or Spanish).
Attribute #9 Address health literacy in high-risk situations, including care transitions and communications about medicines.	**Pyramid Framework Descriptor** • Augmented workforce • Embedded policies and practices • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members routinely review with patients all the medicines they take including over the counter medicines and supplements, and ask the patients to demonstrate how to take them. • Our staff members provide patients with updated medicine lists that describe in easy-to-understand language what medicines the patient is to take and how to take them. • Our staff members write precise instructions for taking medicine that are easy to understand (e.g., "take 1 pill in the morning and 1 pill at bedtime" instead of "take twice daily"). • Our staff members share important information, (e.g. reason for referral, pertinent medical history, test results) directly with other health care clinicians. • Staff members offer patients help with making referrals, such as making an appointment.

Attribute #10 Communicate clearly what health plans cover and what individuals will have to pay for services.	**Pyramid Framework Descriptor** • Augmented workforce • Embedded policies and practices • Effective bidirectional communication
	AHRQ Health Literacy Universal Toolkit Assessment Question • Our staff members assess patient's ability to pay for medicines.

APPENDIX E

IRB Letter of Approval for Study
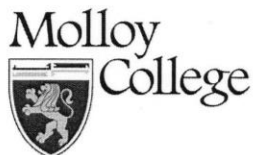
Molloy College

1000 Hempstead Avenue
Rockville Centre, NY 11571
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Tel. 516.323.3653
Tel. 516.323.3801

Date: December 9, 2014
To: Anna tenNapel
From: Kathleen Maurer Smith, PhD
             Co-Chair, Molloy College Institutional Review Board
             Veronica D. Feeg, PhD, RN, FAAN
             Co-Chair, Molloy College Institutional Review Board

SUBJECT: MOLLOY IRB REVIEW AND DETERMINATION OF EXEMPT STATUS
Study Title: Nurses' Perceptions of Importance and Achievability of the Ten Attributes of Health
             Literate Healthcare Organizations in Their Institutions: A Descriptive Study

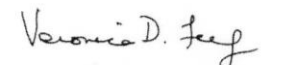Approved: **December 9, 2014**

Dear Anna tenNapel:

The Institutional Review Board (IRB) of Molloy College has reviewed the above-mentioned research proposal and determined that this proposal is approved by the committee. It is EXEMPT from the requirements of Department of Health and Human Services (DHHS) regulations for the protection of human subjects as defined in 45CFR46.101(b).

You may proceed with your research. Please submit a report to the committee at the conclusion of your project.

Changes to the Research: It is the responsibility of the Principal Investigator to inform the Molloy College IRB of any changes to this research. A change in the research may disqualify the project from exempt status.

Sincerely,

Kathleen Maurer Smith

Kathleen Maurer Smith, PhD

Veronica D. Feeg

Veronica D. Feeg, PhD, RN, FAAN

APPENDIX F

Data Summary of Questionnaire Survey Ranking Questions

Data Summary of Questionnaire Survey Ranking Questions #2 & #3 and #5 & #6

IOM Health Literacy Attribute **Key** 1st place ranking 2nd place ranking 3rd place ranking *tie for ranking	Distribution of attributes participants top 3 choices for **Question #2 MOST IMPORTANT Attributes** N=102 Total possible selections = 306. Of the N=102, three of the participants chose to skip this question resulting in a total possible N=99. This created 297 possible selections. Of the 297 possible selections, 2 blank boxes were noted for a total of 295 selections made.	Distribution of attributes participants top 3 choices for **Question #3 LEAST IMPORTANT Attributes** N=102 Total possible selections = 306. Of the N =102, twelve of the participants chose to skip this question resulting in a total possible N= 90. This created 270 possible selections. Of the 270 possible selections, 26 blank boxes were noted for a total of 244 selections made.	Distribution of attributes participants top 3 choices for **Question #5 MOST ACHIEVABLE Attributes** N=102 Total possible selections = 306. Of the N = 102, seventeen of the participants chose to skip this question resulting in a total possible N =85. This created 255 possible selections. Of the 255 possible selections, 30 blank boxes were noted for a total of 225 selections made.	Distribution of attributes participants top 3 choices for **Question #6 LEAST ACHIEVABLE Attributes** N=102 Total possible selections = 306. Of the N = 102, eighteen participants chose to skip this question resulting in a total possible N= 84. This created 252 possible selections. Of the 252 possible selections, 33 blank boxes were noted for a total of 219 selections made.
1. Has leadership that makes health literacy integral to its mission, structure, and operations.	3rd place ranking 12%			
2. Integrates health literacy into planning, evaluation measures, patient safety, and quality improvement.	2nd place ranking 16%		2nd place ranking 15%	
3. Prepares the workforce to be health literate and monitors progress.		3rd place ranking 12%		3rd place ranking 14%
4. Includes populations served in the design, implementation, and evaluation of health information and services.				2nd place ranking 15%
5. Meets needs of populations with a range of health literacy skills while avoiding stigmatization.		2nd place ranking 13%		*1st place ranking 16%
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.			1st place ranking 17%	
9. Addresses health literacy in high-risk situations, including care transitions and communications about medicines.	1st place ranking 17%		3rd place ranking 12%	
10. Communicates clearly what health plans cover and what individuals will have to pay for services.		1st place ranking 21%		*1st place ranking 16%

APPENDIX G

Data Analysis Guide for Research Questions

Dissertation Question Number	Survey Question Number	Data analysis used
1. What are QI registered nurses (RNs) perceived levels of importance of the IOM's ten attributes of health literate organizations (HLOs)?	1. IMPORTANCE: Please indicate how important each item is in your organization.	Sum score Percentages Correlations Inter-item Correlation Matrix Skewness Cronbach's alpha
	2. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the **<u>most</u>** important?	Sum score highest Percentages of top 3 selected items
	3. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the **<u>least</u>** important?	Sum score lowest Percentages of top 3 selected items
2. How likely do QI registered nurses (RNs) believe that their organizations can achieve the IOM's ten attributes of health literate organizations (HLOs)?	4. ACHIEVABILITY: Please indicate how achievable you perceive that your organization can accomplish each item	Sum score Percentages Correlations Inter-item Correlation Skewness Cronbach's alpha
	5. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the most achievable?	Sum score highest Percentages of top 3 selected items
	6. Of the above listed 10 attributes, which three attributes (identify by number) do you consider the least achievable? 7.	Sum score lowest Percentages of top 3 selected items

4. How do QI registered nurses (RNs) assess their organizations progress with the IOM's ten attributes of health literate organizations (HLOs)?	7.Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND HOSPITAL CHANGES **(3 statements)** 1. Our HL Team meets regularly. 2. Our staff has a written HL improvement plan and collects data to see if objectives are being met. 3. Our staff has received HL education.	Cronbach's alpha Inter-item Correlation Measures of Central Tendency Pearson's Correlation
	8.Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND SPOKEN COMMUNICATION (8 statements) 1. Our staff members speak clearly. 2. Our staff members listen carefully to patients, without interrupting. 3. Our staff members assess patients' language preferences and record them in the medical record. 4. Our staff members talk with patients about any educational materials they receive during their hospitalization and emphasize the important information. 5. Our Staff members routinely review with patients all the medicines they take, including over the counter medicines and supplements, and ask the patients to demonstrate how to take them. 6. Our staff members routinely provide patients with updated medicine lists that describe in easy to understand language what medicines the patient is to take and how to take them. 7. Our staff members train our patients to use our patient portal.	

	8. Our staff members offer everyone help regardless of appearance	
	9. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND WRITTEN COMMUNICATION (3 statements) 1. Our staff's patient education materials are concise, use plain language, and are organized and formatted to make them easy to read and understand. 2. Our hospitals Lab and test result communications are concise, use plain language, and are organized and formatted to make them easy to read and understand. 3. Hospital signage is written in English and in primary language of the population being served.	
	10. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND SELF-MANAGEMENT AND EMPOWERMENT (3 statements) 1. Our staff creates and environment that encourages patients to ask questions and get involved with their care. 2. Our staffs take their patients religion, culture, and ethnic customs into consideration when devising treatment options. 3. Our staffs write precise instructions for taking medicine that are easy to understand.	

	11. Please select one answer that most accurately describes your organization related to: HEALTH LITERACY AND IMPROVING SUPPORTIVE SYSTEMS (5 statements) 1. Our staff assesses patients' ability to pay for medicines. 2. Our staff members ask patients if they have trouble reading or understanding numbers. 3. Our staff has an updated list of community resources and refers patients as needed. 4. Our staff shares important referral information directly with other health care clinicians. 5. Our staffs members offer patients help with referrals, such as making an appointment.	
4. What are the characteristics associated with QI registered nurses' (RNs) knowledge and perceptions of the ten attributes of health literate organizations (HLOs)?	12. To what extent have you been briefed, trained or educated about health literacy?	Total Importance Score Correlation Pearson's Correlation with its test of Significance Frequency = n Percentage
	13. To what extent have you been briefed, trained or educated about health literate organizations (HLOs)?	Frequency = n Percentage
	14. Select the area from the following which best applies to your area of work	Frequency = n Percentage
	15. Select the type of organization you work in. (Check all that apply).	Frequency = n Percentage
	17. Write the state where your institution is located (e.g. NY,NJ,)	Frequency = n Percentage

	21. What is your age?	Frequency = n Percentage Median
	22. What is your gender?	Frequency = n Percentage
	23. What is your nursing degree and highest level of education achieved?	Frequency = n Percentage
	24. How long have you worked in your present position?	Frequency = n Percentage
5. What are the characteristics of the organization associated with QI registered nurses' (RNs) perceived likelihood that their organization can become a health literate organization (HLO)?	16. What is the size of your organization?	Total Achievability Score Correlation Pearson's Correlation with its test of significance Frequency = n Percentage
	18. Is your organization accredited by the Joint Commission?	Frequency = n Percentage
	19. Is your organization DNV (Det Norske Veritas) certified?	Frequency = n Percentage
	20. Does your organization currently hold Magnet designation?	Frequency = n Percentage