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Health Literacy Universal Precautions: A Quality Improvement Project to Promote Effective Use of Clear, Plain Language Communication Within Primary Care

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**HEALTH LITERACY UNIVERSAL PRECAUTIONS**

**Table of Contents**

Abstract .................................................................................................................................4

Introduction ............................................................................................................................5

  Background .......................................................................................................................7

  Problem Statement .........................................................................................................9

  Organizational “Gap” Analysis of Project Site .............................................................10

Review of the Literature .....................................................................................................10

  Addressing Low Health Literacy ................................................................................11

  Health Literacy Universal Precautions Practice Guideline ........................................14

  Evidence-Based Practice: Verification of Chosen Option ............................................17

Theoretical Framework/Evidence Based Practice Model ...............................................18

Goals, Objectives & Expected Outcomes .........................................................................20

Project Design ....................................................................................................................21

Ethical Considerations/Protection of Human Subjects ..................................................21

Methods .............................................................................................................................22

  Project Site and Population ..........................................................................................22

  Implementation .............................................................................................................23

  Measurement Instrument(s) ........................................................................................26

  Data Collection Procedure .........................................................................................27

  Data Analysis ..............................................................................................................28

Results ...............................................................................................................................28

Interpretation/Discussion .................................................................................................33

  Project Facilitators and Barriers ................................................................................36
Abstract

Background/Purpose: Understanding the dynamics involved for patients to truly comprehend their health care needs for optimal self-care management are complex. The ways patients interact within the healthcare system can be stressful, overwhelming, and confusing. Failing to grasp even basic instructions can make patients prone to poor health outcomes. Evidence indicates that 36% of adults in the United States have basic or below basic health literacy levels and only 12% of adults are considered health literate. The purpose of this project was to implement clear, plain language communications, or health literacy universal precautions, within a primary care office.

Methods: The DNP student used The Health Literacy Universal Precautions Toolkit, designed by The Agency for Healthcare Research and Quality (AHRQ) in conjunction with Lewin’s Theory of Planned Change, to implement: 1) a one-hour health literacy education session for healthcare staff and 2) a health literacy readability assessment and replacement of current patient forms and education materials to achieve the desired fifth to sixth grade literacy level.

Results/Interpretation: Education session results revealed an average score increase from 76.2% on the pre-quiz to 97.6% on the post-quiz. The readability of office forms increased from only 12.5% of forms being at a fifth to sixth grade reading level initially to 50% of the forms meeting this criterion at the conclusion of the readability intervention. The results highlighted that the AHRQ Toolkit was beneficial in increasing healthcare staff knowledge of health literacy and improving the readability of office forms being provided to patients. Discussion/Conclusion: This quality improvement project provided an opportunity for the healthcare staff to become more aware of, and align their efforts in support of, health literacy universal precautions, which has the potential to impact positive change in patient care outcomes.

Keywords: health literacy, screening tools, universal precautions
Health Literacy Universal Precautions: A Quality Improvement Project to Promote Effective Use of Clear, Plain Language Communication Within Primary Care

**Introduction**

Limited health literacy is a silent epidemic existing all throughout healthcare, with the problem only intensifying due to patient populations continuing to become more culturally and linguistically diverse within a healthcare system that does not prioritize clear, plain language communication (Warde et al., 2018). Health literacy is an essential component of providing patient care that is both equitable and free of disparities; however, health literacy interventions are commonly overlooked throughout healthcare. The complex nature of health care can be stressful for patients, even for those with high health literacy skills. For patients with limited health literacy abilities, the complexity can be overwhelming, confusing, and even detrimental to their health. This issue is compounded by the fact that healthcare professionals have difficulty relaying basic health information in clear, plain language that can be understood by all patients. The following quality improvement (QI) project was designed to implement health literacy universal precautions within a primary care office. The focuses of this QI project were on ensuring that patients received health information that met the qualifications of being universally understood by all, regardless of literacy levels, while also educating the healthcare staff (primary care providers and registered nurses) about the importance of using clear, plain language during all patient interactions.

The Patient Protection and Affordable Care Act of 2010, Title V, defines health literacy as “the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions” (CDC, 2016). Health literacy goes beyond just reading skills; it includes the abilities to write and speak,
use numerical skills, and apply conceptual knowledge within the context of health. Plain language is a necessary component of promoting health literacy and is defined as “clear, concise, well-organized communication that the reader can understand the first time they read it” and assists the reader with utilizing the information he or she needs (Shaw, 2015, p. 5). Scholars within the National Institutes of Health (2017) advise that plain language is not a method of “dumbing down” the information or “talking down” to those receiving the communication. Based on the concept of plain language communication, researchers at the Agency for Healthcare Research and Quality (AHRQ) developed the concept known as health literacy universal precautions. Analogous to universal precautions for blood and body fluid safety, health literacy universal precautions recommend that healthcare staff operate under the assumption that every patient may have limited health literacy and difficulty with comprehending health information (Killian & Coletti, 2017). These precautions work at the level of primary prevention, with the expected outcome being the prevention of poor health consequences due to a patient not understanding the health information that is being provided to him or her. Ensuring patients are understanding the information being provided by healthcare staff is imperative because low health literacy skills are associated with higher mortality rates, worse overall health status, health disparities, and increased healthcare costs (Hersh, Salzman, & Synderman, 2015; Rowlands et al., 2015).

In an effort to improve health equity and outcomes in the United States, a greater emphasis must be placed on the importance of health literacy and, especially, the ways in which low health literacy negatively impacts patient health. There is currently a disconnect between healthcare staff being able to clearly and plainly communicate health-related information to patients and patients’ abilities to comprehend and act on this information. An important objective
must be to ensure that the information being presented by healthcare staff is accessible to patients of all health literacy levels. Therefore, utilizing a universal precautions approach to health literacy is recommended because this approach utilizes clear, plain language communication and information that is easy to understand for patients of all literacy levels (Cifuentes et al., 2015). Implementing health literacy universal precautions involves the following: simplifying communication and confirming comprehension in order to reduce the risk of misunderstanding; making the office environment easier to navigate; and supporting patients’ efforts to improve their health (Brega et al., 2015). Health literacy universal precautions require healthcare staff to assume that, regardless of health literacy level, all patients are at risk of having trouble understanding and using health information (Mabachi et al., 2016). Decreasing the complexity of health information being provided to patients, both written and orally, to ensure the information was able to be understood by patients of all health literacy levels was the focus of this QI project.

**Background**

The 2003 U.S. Department of Education National Assessment of Adult Literacy survey found that 36% of the adults in the United States population (approximately 87 million individuals) have basic or below basic health literacy levels and only 12% of adults are considered health literate (U.S. Department of Health and Human Services, 2008). Below basic health literacy is defined as being able to locate only straightforward pieces of information in short, simple texts or documents, whereas basic health literacy is defined as being able to find more complex information in short texts and simple documents that are somewhat longer and more complex than those at the below basic level (Hersh et al., 2015). Low health literacy spans individuals of all ages, races, incomes, and education levels. However, low health literacy
Health literacy disproportionately affects the elderly, low socioeconomic individuals, and minority groups (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2010; Weiss, 2014). Low health literacy is more prevalent in Hispanic (66%), Black (58%), and American Indian (48%) populations, as well as those 65 years of age and older (59%; Hersh et al., 2015).

The National Network of Libraries of Medicine reports that an individual’s reading ability is most often three to five grade levels below the last year of school completed, which means that an individual with a high school diploma will typically read at a seventh or eighth grade reading level (Shaw, 2015). On average, United States adults read at an eighth-grade level; however, more than 75% of patient education is written at a high school or college reading level (Hersh et al., 2015; Stossel, Segar, Gilatto, Fallar, & Karani, 2012). Therefore, the majority of written information being provided to patients is not comprehensible and not beneficial to improving patient understanding of disease management or health outcomes. Several organizations, including The Joint Commission, American Medical Association, and U.S. Department of Health and Human Services, have guidelines stating that the information being provided to patients should be written at no higher than a fifth to sixth grade reading level (The Joint Commission, 2010; Kher, Johnson, & Griffith, 2017).

The financial impacts of low health literacy are significant, with an annual estimate of $106 billion to $238 billion in the United States, equating to approximately seven to 17 percent of all personal health care expenditures (Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). Inadequate health literacy skills are associated with increased hospitalizations, greater emergency care use, lower use of mammography, lower receipt of the influenza vaccine, decreased ability in demonstrating the taking of medications appropriately, poor ability to
interpret labels and health messages, and, among elderly patients, decreased overall health status and higher mortality (Berkman et al., 2011). Navarro-Rubio and colleagues (2016) reported that low health literacy has also been shown to relate to poor understanding of health-related concepts, less use of preventative services, poor medication and treatment adherence, and increased hospital readmissions. Additionally, low health literacy levels are a significant risk factor in the acquisition of noncommunicable diseases, riskier health choices (e.g., higher smoking rates, increased alcohol consumption, etc.), and worse management of chronic disease (Kones & Rumana, 2017; Abel et al., 2013).

Patient-provider communication is a key component in addressing health literacy and improving poor health outcomes related to limited health literacy; however, the education and training received by healthcare staff does not routinely address how to communicate with patients using clear, plain language (Coleman & Fromer, 2015; Warde et al., 2018). Healthcare staff exacerbate the problem through the dangerous assumption that a patient is able to understand more of what is being discussed and asked of him or her than is actually the case (Warde et al., 2018). A focus must be placed on training and educating members of the healthcare team on how to utilize a health literacy universal precautions approach in order to learn to communicate in ways that are beneficial to and encourage patient understanding.

**Problem Statement**

The health information being supplied to patients is, on average, at or above a high school reading level, which makes the information difficult or impossible to comprehend for many patients. The literacy level of health information, both written and oral, being received by and communicated to patients by healthcare staff in primary care offices is not provided in clear, plain language or at a level that is understood by individuals regardless of health literacy levels.
Additionally, health literacy universal precautions are not being routinely or effectively implemented within primary care offices, which leaves patients vulnerable to misunderstandings and poor health outcomes. This lack of understanding can affect patients’ abilities to fill out health forms, share personal health information with providers, manage chronic diseases, engage in self-care, and seek future care (CDC, 2009).

Organizational “Gap” Analysis of Project Site

A DNP student performed a gap analysis at the project site and found that health literacy universal precautions were not being utilized. A health literacy education presentation or health literacy training of any kind to better inform the healthcare staff about the importance of providing clear, plain language communication in all patient interactions had never been performed. Additionally, no assessment of the literacy level of the educational materials and office forms being provided to patients had ever been conducted. A gap existed within the primary care office between the current practice of health literacy not being addressed and the current research recommending the use of health literacy universal precautions.

Review of the Literature

A comprehensive search of the literature included the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL) Complete, Google Scholar, ScienceDirect, and PubMed. Information was also gathered from the Agency for Healthcare Research and Quality (AHRQ) website and National Library of Medicine to verify current practice guidelines. The following MeSH terms were used: health literacy, universal precautions, screening tools, and healthcare staff education. Inclusion criteria included: peer-reviewed articles, articles within the last seven years (to provide the most up to date information), and English language, with no population age focus. Additionally, this literature
review had a primary focus on including articles with high levels of evidence and grading based on the recommendations from the National Guideline Clearinghouse (Shekelle, Woolf, Eccles & Grimshaw, 1999). Exclusion criteria consisted of articles in a foreign language and articles where the effects of the interventions were inconclusive. The MeSH terms resulted in a total of 1,462 articles through the various searches, with eight articles that met the inclusion criteria.

A total of eight articles met the inclusion criteria for assessing the validity of using health literacy screening tools/instruments, health literacy universal precautions, and healthcare staff education benefits. Four articles are systematic reviews, the highest level of evidence (Level I) per the National Guideline Clearinghouse, three articles are literature reviews, and one is a pre/post intervention study.

**Addressing Low Health Literacy**

Addressing low health literacy is imperative because patients that are able to fully understand what they are being asked to do are better informed about their own health, are able to take part in making decisions that affect their health, and are more compliant with medication and treatment regimens (Miller, 2017). There are currently two major themes in the literature for addressing literacy within healthcare – 1) individual patient screening via health literacy screening tools to determine health literacy level and then developing patient-specific interventions, and 2) the utilization of health literacy universal precautions by healthcare staff to ensure there are interventions in place to assist all patients with understanding the information being presented to them, with a concentrated focus on educating healthcare staff about the importance of health literacy and how to integrate universal precautions. Individual patient screening is thought to identify patients in need of tailored interventions to make the health information more easily understandable, whereas the purpose of health literacy universal
precautions is to provide information and communication that is comprehensible to individuals of all literacy levels, with the understanding that there are no screening tools that are 100% effective. A health literacy universal precautions approach provides all patients with health information that is free of medical jargon and presented in clear, plain language.

Collins and colleagues (2012) conducted a systematic review of health literacy screening instruments and asserted that screening individual patients did not decrease patient satisfaction; however, ease of use, time to administer, low specificity, and lack of interventions to address the results remain barriers for implementation of this type of screening into the clinical setting. Duelle and fellow researchers (2015), as well as Shum et al. (2017), conducted two separate systematic reviews of the currently available health literacy screening instruments, with both research groups declaring that most of the tools failed to measure all of the elements of the health literacy definition – consisting of functional, critical, and communicative domains; in addition to failing to acknowledge that health literacy requires not only comprehension of health information, but also the ability to communicate health information. McKinney and Rikard (2011) observed the following barriers of screening instruments: most are not designed to test or advance an underpinning theory of health literacy; there is limited ability in fully evaluating the patient’s skills (e.g., overreliance on the cloze procedure, while others evaluate only word recognition and not understanding); lack cultural sensitivity and may exhibit bias toward certain populations; do not consider health literacy as a public health issue; do not adequately distinguish between people at very low and very high levels of health literacy; and are not directly useful for informing or evaluating health promotion and communication interventions. Health literacy screening tools are overwhelmingly used solely in research, and while evidence demonstrates that patients are accepting of screening without causing feelings of shame or
mistrust, at this time, no evidence exists that confirms individual health literacy screening
improves patient outcomes in the practice setting and, therefore, screening is not a recommended
intervention (Hersh et al., 2015).

Multiple health literacy screening instruments currently exist (see Appendix A for list),
with the most popular tools including the Test of Functional Health Literacy in Adults
(TOFHLA), the Rapid Estimate of Adult Literacy in Medicine (REALM), the US Health
Literacy Scale (HALES), Health Literacy Questionnaire (HLQ), Newest Vital Sign (NVS), and
short-forms of both the REALM and TOFHLA; however, there is no current consensus regarding
which instrument, if any, is the best for assessing health literacy in the outpatient setting (Ylitalo
et al., 2017). The Institute of Medicine and the Agency for Healthcare Research and Quality both
conducted comprehensive reviews of the literature and concluded that the REALM and
TOFHLA only assess reading ability, and consequently, are not adequate measures of health
literacy (U.S. Department of Health and Human Services, 2011).

Individual clinical screening for health literacy remains a controversial topic, with most
experts and organizations advocating for a universal precautions approach versus individual
screening (Hasnain-Wynia & Wolf, 2010). DeWalt and colleagues (2011) asserted that the
following important reasons demonstrate why health literacy universal precautions are beneficial
over individual screening: a) even people with high literacy skills can have trouble understanding
medical information; b) screening instruments cannot advise if individuals will understand the
information they need to know; and c) interventions designed for people with low health literacy
skills are also helpful for those with higher literacy skills.

Coleman and Fromer (2015) performed a pre-/post-intervention of a training session for
healthcare staff and discovered in the post-assessment there was improvement of self-perceived
knowledge of health literacy; identification of beneficial skills to utilize when communicating with patients of all health literacy levels; and improvement in intended behaviors, such as paying attention to whether a patient is understanding him or her and creating a shame-free environment. Liang and Brach (2017) conducted a systematic analysis of health literacy practices and determined that healthcare staff educated in the following strategies had improved outcomes in patients stating that they had received easy to understand instructions: 1) giving instructions about what to do about a specific illness or health condition that are easy to understand; 2) asking patients to describe how they were going to follow these instructions (the first step of the Teach-Back method); and 3) offering help in filling out forms. The education of healthcare staff is an imperative step in the implementation of health literacy universal precautions as these are the individuals providing the majority of disease management and treatment information to patients.

Health Literacy Universal Precautions Practice Guideline

The implementation of easy-to-read materials with a focus on health literacy universal precautions is supported by numerous government agencies and research institutes, as detailed below. These agencies and institutes all provide information regarding how to support the implementation of health literacy universal precautions through plain language initiatives geared to help consumers comprehend health and self-care information, and its relationship to health outcomes, so they can engage in optimal self-care management and prevent problems from occurring due to lack of understanding (U.S. National Library of Medicine, 2015). These agencies and institutes provide a great deal of information on how to train and educate healthcare staff on the importance of utilizing a clear, plain language approach during all patient interactions.

Based on the need for healthcare staff to be more aware of the disconnect between what
was being said to patients during a healthcare encounter and what was actually being heard and retained by patients, the Agency for Healthcare Research and Quality (AHRQ) developed the Health Literacy Universal Precautions Toolkit. This Toolkit was developed over a two-year period, with a focus on including the most up-to-date evidence-based knowledge and resources in health literacy, with pilot testing completed to ensure the feasibility of implementation and ease of use among practices (DeWalt et al., 2011). Health literacy universal precautions encourage providers to assume that all patients, regardless of years of school completed, may have difficulty comprehending health information and, therefore, communication should be relayed in ways that anyone can understand (AHRQ, 2015). This Toolkit encompasses 21 tools that are effective for improving verbal and written communication, self-management, empowerment, and support systems. Tools 1 through 3 detail how to start on the path to health literacy improvement; Tools 4 through 10 were designed to assist with improving spoken communication; Tools 11 through 13 assist with improving written communication; Tools 14 through 17 provide ways to improve self-management and empowerment; and Tools 18 through 21 assist with improving support systems within the environment (AHRQ, 2015). Analogous to having personal protective equipment available, this Toolkit arms the healthcare staff with the “equipment” necessary to ensure that all patients are able to understand the health information that is being provided to them.

Similar to what the AHRQ Toolkit has done, the following agencies and institutions have numerous resource that support the implementation of health literacy universal precautions strategies within the healthcare setting. The National Institutes of Health (NIH, 2017) supplies information on specific health literacy interaction goals that healthcare staff should focus on, including offering clear communication and information during office visits, as well as
information for how health care organizations can address limited health literacy within their practices. Additionally, the NIH funds studies that focus on clear communication, plain language, and visual communication, as well as provides numerous health literacy workshops and activities to both communities and healthcare providers. The U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2010) created the National Action Plan to Improve Health Literacy, which focuses on goals and strategies to improve health literacy in the United States, including: improving health communication, information, and informed decision making; developing and disseminating health information that is accurate, accessible, and actionable; and increasing the dissemination and use of evidence-based health literacy practices and interventions. The National Network of Libraries of Medicine (n.d.) promotes awareness of health literacy among healthcare providers by creating clearinghouses of health literacy information, sponsoring health literacy seminars, and encouraging multi-organizational collaborations. The Office of Disease Prevention and Health Promotion (2018) has created numerous tools and resources to assist healthcare organizations, providers, and other staff to effectively communicate with health consumers, as well as developed the following resources: a quick guide to assist with health literacy and the older adult; health literacy online, which assists in the creation of health websites that are accessible to those with limited literacy skills; and the creation of a health literacy workgroup that focuses on educating individuals on the importance of health literacy and making information accessible to all consumers. The Centers for Disease Control and Prevention (CDC, 2016) developed the Clear Communication Index, which is a research-based tool that assists with identifying factors that increase clarity and aid understanding of public materials and messages. The Centers for Medicare & Medicaid Services (2012) created the Toolkit for Making Written Material Clear and Effective, which
consists of 11 detailed and comprehensive tools that assist organizations with making written materials easier for people to read, understand, and use. The Plain Language Action and Information Network (PLAIN, 2011) published Federal plain language guidelines that assist organizations with writing clearly and with satisfying the following goals: the users can find what they need, understand what they find, and apply what they find to meet their needs. These agencies and institutions all work to produce and disseminate evidence-based information that highlights the importance of clear communication that is accessible, understandable, and actionable for individuals of all literacy levels, which was the foundation of this QI project.

**Evidence-Based Practice: Verification of Chosen Option**

The AHRQ is the Federal agency with a focus on improving the safety and quality of the healthcare system, and has a long history of developing the knowledge, tools, and data needed to improve healthcare systems within the United States. The use of the AHRQ Health Literacy Universal Precautions Toolkit has been shown to be advantageous with implementing health literacy universal precautions within various patient care settings and is considered the best practice form of delivery as with any set of universal precautions designed to reach people and prevent problems (Brega et al., 2015; Callahan et al., 2013). Agencies and entities that have benefitted from the implementation of the Toolkit include the New Zealand Ministry of Health, Tasmania Department of Health and Human Services, Johns Hopkins HealthCare, University of Arkansas for Medical Sciences, Novant Health, Southern Kentucky Area Health Education Center, Mayo Clinic Transplant Center, Edward M. Kennedy Community Health Center, among several others. The Toolkit is well supported in the literature as being the best strategy in which to implement health literacy universal precautions. Since 88% of adults were found to not have the necessary health literacy skills to manage the demands of the current health care system,
implementing strategies to improve patient understanding and comprehension is imperative (AHRQ, 2015). The DNP student chose the AHRQ Health Literacy Universal Precautions Toolkit due to the fact that the evidence has deemed it to be the best strategy and because numerous health institutes have had improved patient outcomes post-implementation.

Theoretical Framework/Evidence-Based Practice Model

The theoretical framework that was used to guide the implementation of this QI project was Lewin’s Theory of Planned Change (Lewin, 1947). This theory was developed based on the framework of force field analysis, which assists in identifying if forces are driving (i.e., helping forces) or restraining (i.e., hindering forces) movements towards a desired goal (Hussain et al., 2018; Shirey, 2013). The elements of Lewin’s Theory of Planned Change model include the three following phases: unfreezing, moving or transitioning, and refreezing.

The first stage, unfreezing, involves preparing for a change to occur (Hussain et al., 2018; Shirey, 2013). A problem needs to be identified for change, typically through a gap analysis, which will highlight desired versus current practices in an organization. This stage requires the creation of a sense of urgency, development of a solution for the identified problem, and identification of the helping and hindering forces. Unfreezing requires preparation for moving away from the current equilibrium and into a state of change (Hussain et al., 2018; Shirey, 2013).

The second stage, moving or transitioning, requires change to be viewed as a process that is ongoing instead of a one-time occurrence (Hussain et al., 2018; Shirey, 2013). A detailed plan must be created, and all involved individuals need to be engaged to promote the change. Typically, this stage generates uncertainty and fear in individuals due to abandonment of the current reality and comforts. Coaching is required to overcome the fears and uncertainties, to ensure clear communication, and to avoid losing focus of the desired project outcomes (Hussain
et al., 2018; Shirey, 2013). The third stage, refreezing, requires stabilizing the change and having it become embedded into the existing practices, policies, and/or systems (Hussain et al., 2018; Shirey, 2013). The strengths of the change should continue to be accentuated and the restraining forces should be counteracted. This stage is important because the change must become the new equilibrium in order to institutionalize the change, in addition to creating future sustainability (Hussain et al., 2018; Shirey, 2013).

The unfreezing stage of this project consisted of identifying a problem within the primary care office, which was determined to be the lack of health literacy universal precautions. The gap analysis found that the office never previously had, and did not currently have, interventions in place to address health literacy or the use of written information that is understandable to all health literacy levels, which is contrary to the current best practice of using health literacy universal precautions and plain language. Based on the identified problem and the gap analysis, the proposed solution to be implemented is the AHRQ’s Health Literacy Toolkit, which will ideally align the health literacy practices of the office with the current best practice recommendations. During this stage, the DNP student prepared the implementation of the various project interventions, determined a timeline, and researched the necessary resources for a smooth transition to implementation.

The moving or transitioning stage involved the use of a health literacy education session to help the healthcare staff understand the importance of transitioning to a practice that uses health literacy universal precautions. This session helped the individuals at the office comprehend how the changes would occur and how to ensure that the change is ongoing and did not end when the project was completed. To assist the healthcare staff with becoming more comfortable with the changes, there was time allotted for questions and reflection after the
implemented education session to discuss how each member could contribute to making the office a more health literacy friendly environment. The *moving or transitioning* stage was important because at this stage the healthcare staff needed to embrace the health literacy changes and begin recognizing the implemented changes as the new normal.

The *refreezing* stage was undertaken at the completion of the project with a final presentation to the healthcare staff, which reinforced the expected benefits and the results of the implemented changes. The expectation was that the healthcare staff would have an appreciation for the importance of health literacy universal precautions and ensure that the goals and education obtained during the quality improvement project would become the new equilibrium and sustained into the future.

**Goals, Objectives and Expected Outcomes**

The primary goals of this QI project were developed based on the two phases of the implementation process, which consisted of an educational component with healthcare staff and an assessment of office forms for readability and literacy level. The goal of the educational component was to recruit interested healthcare staff at the primary care office who were willing to participate in a one-hour health literacy education session in an attempt to improve health literacy knowledge and awareness. The goal of assessing the readability of office forms was to perform readability assessments on the majority of the forms being handed out to patients in the primary care practice. The overall goal of this QI project was to take measurable steps towards implementing health literacy universal precautions within the primary care office by using specific tools within the AHRQ Toolkit.

The main objective of this QI project was to implement three tools from the AHRQ Health Literacy Universal Precautions Toolkit: Tool 3 – Raise Awareness; Tool 4 –
Communicate Clearly; and Tool 11 – Assess, Select, and Create Easy-to-Understand Materials. The healthcare staff participated in an education session which required the administration of a pre- and post-education knowledge assessment quiz to assess knowledge gains acquired through participation in the education session. Additionally, specific aspects of the toolkit were utilized to assess the readability and literacy level of written materials and education being provided to patients in an effort to update any forms that did not meet the fifth to sixth grade reading level recommended in practices utilizing health literacy universal precautions.

The following were the expected outcomes of this project: a) 75% of the participants were expected to have improved scores on the post-education versus pre-education knowledge assessment quiz, and b) to improve the readability of at least 30% of the patient education materials and office documents to a fifth to sixth grade reading level or less.

**Project Design**

A quality improvement (QI) project framework (Health Resources and Services Administration, 2011) incorporating an educational design following the theoretical framework of Lewin’s Theory of Planned Change, was used to implement an intervention to improve patient care by focusing on the introduction of health literacy universal precautions within a primary care office. The focuses included educating the healthcare staff on how to utilize clear, plain language communication during all patient interactions, as well as an assessment of office forms to ensure compliance with a fifth to sixth grade reading level. The project was designed to collect both quantitative and qualitative data, as well as utilize descriptive statistics for assessment.

**Ethical Considerations/Protection of Human Subjects**

The University of Massachusetts, Amherst Internal Review Board (IRB) Determination Form was submitted and was deemed to not meet the definition of human subject research under
federal regulations (see Appendix B). This QI project was an educational intervention with primary care providers and registered nurses and was conducted in accordance with the ethical principles outlined in the Belmont Report: respect for persons, beneficence, and justice. All participants provided verbal informed consent to the DNP student prior to taking part in the education session. There was no utilization of any identifying or demographic information for the participants, except each participant was asked to indicate his or her professional role, either nurse or provider, on the quizzes. Additionally, the assessment of the office forms and materials did not require any patient identification or personal demographic information. The Health Insurance Portability and Accountability Act did not apply since there was no patient contact or patient information used.

**Methods**

**Project Site and Population**

The project site was a family primary care practice located in New England. The patient population is between the ages of one day old and 108 years old. The family practice has over 6,700 patients, with approximately two to three new patients being seen each week. The practice sees an average of 50 to 60 patients daily. As of the 2018 census, patient age demographics included: 767 patients between one day old and 17 years of age; 4,854 patients between 18-64 years of age; and 1,083 patients 65 years of age and older. There were 3,490 female patients and 3,214 male patients in the practice. At the time of the census, the office’s electronic health record did not have the ability to collect data on individuals identifying as transgender, other, or non-gendered. The identifying ethnicities of patients at the practice included: four American Indian, 51 Asian, 32 Black, 23 Hispanic, one Other Pacific Islander, 279 Other Race, 6,235 White, and 79 unreported/refused to report. The following were the classifications of the insurances: 4,230
private/commercial insurance; 965 Medicaid; 1,090 Medicare; 86 TRICARE; 88 self-pay; and there was no insurance data on 245 patients. The employment statuses of the patients were the following: 2,399 employed full-time; 130 employed part-time; 1,406 not employed; 475 self-employed; 716 retired; 1 active military duty; and 1,130 declined to report.

The practice has seven primary care providers: one doctor of osteopath, four medical doctors, and two nurse practitioners – all with a family medicine specialty. There are three nurses: two registered nurses, one licensed practical nurse; as well as one licensed nurse assistant. The front office staff consists of five full-time individuals. There is also an office manager that oversees the entire office.

Implementation

The implementation focus of this QI project was on increasing healthcare staff awareness and knowledge of health literacy, as well as improving written and oral communication to ensure the information being provided was understandable to patients regardless of health literacy level. The implementation of the following three tools from the AHRQ Health Literacy Universal Precautions Toolkit Second Edition was completed: Tool 3 – Raise Awareness; Tool 4 – Communicate Clearly; and Tool 11 - Assess, Select, and Create Easy-to-Understand Materials (Brega et al., 2015). These tools were developed to improve health literacy awareness (Tool 3), verbal communication (Tool 4), and written communication (Tool 11) within primary care offices. For successful implementation, and to maintain change, the Toolkit recommends tackling only a few deficient areas within the primary care practice at one time, which is why the three above-stated tools, out of 21 total tools, were chosen for this QI project. Additionally, these three particular tools were selected in an effort to educate the healthcare staff on the importance of health literacy universal precautions (Tool 3) and strategies to improve the ways in which they
verbally communicate with patients (Tool 4) because this would help the healthcare staff to better understand and appreciate the detriments associated with low health literacy and lack of comprehension during patient encounters. The improvement of written communication (Tool 11) was selected as there was an immediate need to improve office forms that had been used for years, yet patients were frequently requiring a lot of staff assistance to complete them due to the complexity.

This QI project had two distinct implementation segments in order to reach the outcome of improved health literacy universal precautions within the primary care office. The implementation of the education session consisted of watching a brief six-minute video – the American College of Physician’s Health Literacy Video, followed by a 45-minute presentation using the Health Literacy: Barriers and Strategies, which consisted of 30 slides plus speaker notes guide (see Appendix C for presentation outline). The education session recruitment was concentrated on the primary care providers and nurses because these individuals provide the majority of the verbal and written health communication to the patients. The healthcare staff was recruited via face-to-face and e-mail communication beginning in August 2019 and continued into early September 2019, with the proposed date of the education session being October 18, 2019. The education session was facilitated by the DNP student. The resources for the education session were available through the AHRQ Health Literacy Universal Precautions Toolkit Second Edition, at no cost, and were designed to provide important health literacy education and awareness for healthcare staff. The entire education session lasted approximately one hour, including the time at the end of the video and presentation, which was used for questions and discussion.

The implementation of the readability improvement stage of this project took place in
three phases. The first phase consisted of the DNP student collecting and assessing the readability of eight different office forms, as well as collecting the patient education materials being provided to patients. During the first phase assessment of the educational materials being handed out to patients, the DNP student determined that educational materials were inconsistently being provided to patients by the healthcare staff, with the providers reporting that they often handwrote information for their patients. This discovery led to a necessary adjustment in the collection process of the educational forms. Therefore, after a discussion with the healthcare staff, there was an agreement made that the most beneficial change would be to provide the healthcare staff with resources that they could quickly and easily utilize to find a wide variety of patient education that complied with the recommended fifth to sixth grade reading level.

The eight office forms that were collected during the first phase consisted of the forms that were most frequently distributed and seen, at a minimum of one time, by every patient in the practice. The forms consisted of the following: Adult Authorization to Verbally Release Patient Health Information, Adult Physical Health Update, Authorization to Obtain Patient Health Information, Facility Fee Explanation, New Patient Agreement, Patient Authorization and Consent for Treatment, and Pediatric Verbal Release of Information. Office forms that were rarely used by the practice and not routinely seen by the majority of the patients were omitted for this particular project. Collecting the office forms and assessing their readability took four and a half weeks.

The second phase included reviewing the findings of the readability of the selected forms with the office manager, nursing supervisor, and medical director to determine which forms the office was amenable to changing. The following three forms were selected for replacement:
Adult Authorization to Verbally Release Patient Health Information, Authorization to Obtain Patient Health Information, and Patient Authorization and Consent for Treatment. These three office forms were chosen because the office manager noted that patients most frequently had questions with and difficulty completing these specific forms. The remaining forms were deferred as the office manager, nursing supervisor, and medical director wanted to observe how the transition with the three selected office forms would work out. This phase took two weeks to complete due to the varying availabilities of the three individuals.

The third phase took four weeks to complete and consisted of improving the readability of the three selected office forms. During this phase the DNP student determined the forms would need to be completely replaced, instead of being adjusted, in order to guarantee that the forms met the readability recommendations of a fifth to sixth grade level. Therefore, the DNP student completely redesigned the three office forms.

**Measurement Instruments**

In order to measure the outcomes of this QI project the following instruments were used: Text Readability Consensus Calculator (see Appendix D), the AHRQ Health Literacy Brief Assessment Quiz (see Appendix E), and a Health Literacy Universal Precautions Education Training Evaluation form (see Appendix F).

The text readability consensus calculator generates literacy levels of a document by using a combination of the seven most popular and reliable readability formulas – Flesch Reading Ease score, Gunning Fog, Flesch-Kincaid Grade Level, The Coleman-Liau Index, The SMOG Index, Automated Readability Index, and Linsear Write Formula. The benefit of this consensus calculator is that it generates information pertaining to all the following: average grade level, reading age, and reading difficulty of a text sample. The purpose of using multiple different
readability calculators was to reduce bias and generate a good overall picture of the readability of each document. This calculator was recommended by the AHRQ Toolkit.

Additionally, the Health Literacy Brief Assessment Quiz was designed by the AHRQ to assess the knowledge and understanding that individuals have about health literacy. This quiz assisted in determining baseline knowledge that the healthcare staff had regarding health literacy, which was then reassessed upon completion of the education session. Along with this, a post-training evaluation was administered to determine the participants’ views on the effectiveness of various aspects of the training session, including the effectiveness of the DNP student presenter.

Data Collection Procedures

The data collection for this QI project was conducted in its entirety by the DNP student. The first phase of data collection was for the education session and the data was collected using the Health Literacy Brief Assessment Quiz and the post-education session evaluation form. The participants completed the Assessment Quiz prior to participating in the education session, which took approximately four to five minutes, followed by taking the same assessment quiz again immediately after the education session. The nine questions were tallied, and a comparison was made between the pre-quiz and post-quiz scores. There was also one short-answer question on the quiz that required participants to write-in an answer, for which the responses were recorded for accuracy. The post-education evaluation form was also completed by the participants at the conclusion of the education session. The five-point Likert scale responses were similarly tallied, the three qualitative open-ended questions were compiled, and the data was evaluated to determine the effectiveness of the training session and DNP student presenter.

In the second phase of data collection, the total number of office forms and materials that were reviewed were recorded and their literacy levels were determined. Subsequently, the total
number of office forms that passed the phase two review with the nursing supervising, office manager, and medical director were recorded. Lastly, the number of office forms that underwent readability changes, with the objective of between a fifth to sixth grade reading level, were totaled.

**Data Analysis**

The pre-quiz and post-quiz data from the Health Literacy Brief Assessment Quiz, the post-assessment evaluation form, and readability assessment were all analyzed using descriptive statistics, specifically averages and percentages. The calculated information was used to illustrate the expected results, which was that the education session would be a valuable tool in improving healthcare staffs’ knowledge about health literacy and that the readability assessment would better align the office forms with health literacy universal precautions recommendations. Descriptive statistics were utilized due to the small number of participants in the education session (six individuals) and modest number of forms reviewed (eight forms). Additionally, qualitative data was also collected through the use of open-ended questions about the education session that required participants to discuss what they liked and what needed improvement.

**Results**

This QI project was implemented in a family primary care office during the Fall of 2019. The participants included both primary care providers and registered nurses working within the primary care office. Nine willing participants were initially recruited; however, due to unexpected commitments that arose (e.g., meetings, continuing education conference), the final number of participants was six (n=6). Of the six participants, four were female and two were male. The participants included two registered nurses, one nurse practitioner, and three physicians, with an average number of years practiced within healthcare of 18.3 years.
The participants were given the Health Literacy Brief Assessment Quiz (see Appendix E) prior to the education training session and again immediately after the session to evaluate knowledge acquisition from the training, with the goal being for improvement in quiz scores from the pre-quiz to the post-quiz. Table 1 contains the results of the pre-education quiz scores as compared to the post-education quiz scores for each participant, the average scores for all participants, and lastly, the scores separated based on professional role.

Table 1

<table>
<thead>
<tr>
<th>Healthcare Participants</th>
<th>Pre-Education Session Quiz Scores (%)</th>
<th>Post-Education Session Quiz Scores (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>71.4%</td>
<td>92.9%</td>
</tr>
<tr>
<td>Participant 2</td>
<td>71.4%</td>
<td>92.9%</td>
</tr>
<tr>
<td>Participant 3</td>
<td>57.1%</td>
<td>100%</td>
</tr>
<tr>
<td>Participant 4</td>
<td>71.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Participant 5</td>
<td>92.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Participant 6</td>
<td>92.9%</td>
<td>100%</td>
</tr>
<tr>
<td>All Participants</td>
<td>76.2%</td>
<td>97.6%</td>
</tr>
<tr>
<td>Primary Care Providers (only)</td>
<td>78.6%</td>
<td>98.2%</td>
</tr>
<tr>
<td>Registered Nurses (only)</td>
<td>71.4%</td>
<td>96.4%</td>
</tr>
</tbody>
</table>

Table 1 illustrates that all participating individuals improved their scores from the pre-test to the post-test, with an average increase of 21.4% for the group between the two tests. Additionally, on the open-ended question, “What strategies could all of us adopt to minimize barriers and misunderstandings for patients?” five of the six participants were able to contribute between one to three good strategies on the post-quiz versus only one participant on the pre-quiz.
All healthcare staff participants completed a Health Literacy Universal Precautions Education Training Evaluation form (see Appendix F) at the completion of the education session, which had nine questions rated on a five-point Likert scale from strongly disagree (1) to strongly agree (5) and three open-ended questions to share thoughts on what the participants liked, what could be improved, and any additional comments they had related to the training. Figure 2 depicts the level of agreement of the healthcare staff (n=6) to each of the statements on the education training evaluation form.

![Health Literacy Universal Precautions Education Training Evaluation](image_url)

**Figure 1: Health Literacy Universal Precautions Education Training Statement Evaluation**

Figure 1 illustrates that the participants were all unanimously strongly in agreement with seven of the nine statements that were presented to them regarding the effectiveness of the education session and DNP student trainer. Only two statements identified levels of agreement that were less than strongly agreed upon by all the participants – “The information was new to me” and “This training experience will be helpful in my work.” In assessment of the qualitative data, four of the six healthcare staff participants responded to the open-ended question that queried what
they liked most about the training: “Clear, logical presentation,” “Good reminder of this
important fact,” “What wasn’t new to me was a good reminder,” and “Good, solid data to back
things up.” Two of the six participants answered the open-ended question regarding what aspects
of the training could be improved: “More examples we can actually use in our practice,” and
“More updated video.” None of the participants responded to the open-ended question: “Please
share other comments or expand on previous responses here.”

The second phase of the QI project consisted of gathering office forms that were being
delivered to patients to determine if the forms complied with the health literacy universal
precautions recommendation of between a fifth to sixth grade literacy level. A total of eight
office forms that were being delivered to patients were collected and the literacy level of each
of the forms was determined. Table 2 contains the results of the assessment of the readability of
the office forms.

Table 2

<table>
<thead>
<tr>
<th>Form Name</th>
<th>Grade Level</th>
<th>Reading Level</th>
<th>Reader’s Age/Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Authorization to Verbally Release Patient Health Information</td>
<td>15</td>
<td>Very difficult to read</td>
<td>College graduate</td>
</tr>
<tr>
<td>Adult Physical Health Update</td>
<td>6</td>
<td>Fairly easy to read</td>
<td>10-11 years old (5th - 6th graders)</td>
</tr>
<tr>
<td>Authorization to Obtain Patient Health Information</td>
<td>15</td>
<td>Very difficult to read</td>
<td>College graduate</td>
</tr>
<tr>
<td>Facility Fee Explanation</td>
<td>13</td>
<td>Difficult to read</td>
<td>18-19 years old (college level entry)</td>
</tr>
</tbody>
</table>
Table 2 illustrates that of the eight forms that were being handed out to patients in the primary care office, only one form met the health literacy universal precautions recommendation of being at a fifth to sixth grade literacy level. Eighty-eight percent (seven out of eight) of the office forms being handed out to patients at the office were determined to be written at a high school or higher reading level, with 75% (six out of eight) of the forms being written at a college reading level or higher. Three of these forms: Adult Authorization to Verbally Release Patient Health Information, Authorization to Obtain Patient Health Information, and Patient Authorization and Consent for Treatment, underwent alteration, with the assistance of the AHRQ Toolkit, to comply with the recommended fifth to sixth grade reading level (see Appendix G for one example). Therefore, at the conclusion of the readability intervention, 50% of the office forms (four out of eight), an increase from only 12.5% (one out of eight) at the start, were compliant with the fifth to sixth grading reading level recommended by the Toolkit.

In addition, since no specific evaluation was completed of the educational material, the DNP student provided the healthcare staff with 15 online resources which were developed to assist with complying with the health literacy universal precautions of a fifth to sixth grade reading level and contain a wide variety of easy-to-find patient educational materials. These resources were included in a two-page summarization of beneficial health literacy information.
and tips given to the providers and nurses two months after the health literacy presentation (see Appendix H). Therefore, if the healthcare staff comply with the recommendations provided, 100% of the office educational materials being handed out to patients will be written in clear, plain language at a fifth to sixth grade reading level.

**Interpretation/Discussion**

The theoretical framework, Lewin’s Theory of Planned Change, focuses on the process of change and establishes the changes made as the new equilibrium so that the changes are sustained into the future. In this QI project, the change was the implementation of health literacy universal precautions through the processes of a health literacy education session and replacement of office forms that did not comply with the recommendation of a fifth to sixth grade reading level. This theoretical framework allowed a step-by-step approach to the change process and ensured a smooth transition and thorough understanding by the healthcare staff as to the purpose of maintaining the changes established during the QI project, even after the conclusion of the project. This proved to be a feasible framework in which to implement change, specifically health literacy universal precautions, and was well-received by the healthcare staff.

The education session phase of the QI project was able to demonstrate that attending a one-hour education session on health literacy was a valuable tool in improving healthcare staffs’ knowledge about health literacy. The objectives of implementing specific tools from the AHRQ Toolkit were met. The implementation was successful and met with no resistance from the healthcare staff. The educational component of the QI project was able to meet the expected outcome of at least 75% of participants improving his or her score from the pre-quiz to the post-quiz, as all six participants (100%) were able to improve their post-quiz scores. Additionally, knowledge gains were also reflected, as five participants were able to provide appropriate health
literacy strategies in the post-quiz compared to only one participant on the pre-quiz. The scattered results on the question, “This information was new to me,” was not unexpected, as the hope is that most individuals working within healthcare are at least somewhat familiar with health literacy and the important role that it plays within patient care. The purpose of implementing this Toolkit was to re-emphasize the importance of health literacy and to re-focus the efforts of the office to align with health literacy universal precautions, as well as focus on how healthcare staff can improve their abilities to provide clear, plain language communication. Even with the information not being new to all participants, in the discussion portion of the education session, all participants voiced appreciation for the additional education and focus on this topic as they felt the session provided key information and strategies for interacting with patients of all literacy levels and helped provide them all with a new skillset in approaching patient interactions utilizing the clear, plain language communication style. Additionally, the two-page health literacy information summarization handout given to all of the providers and nurses, whether they attended the education session or not, will be a beneficial resource that the healthcare staff can utilize going forward in their practices as it provides examples of how to easily implement health literacy universal precautions into one’s current practice. This summarization handout was developed due to feedback from the participants requesting more examples of how to implement health literacy universal precautions into their current practices. The purpose of this handout was to help the healthcare staff continue to provide a focus on integrating health literacy universal precautions into their practices, even after the conclusion of the QI project.

The results obtained from the health literacy calculation of the forms aligned with what the literature states, in that more than 75% of patient materials being handed out within
healthcare offices are written at a high school or higher reading level (Hersh et al., 2015; Stossel, Segar, Gilatto, Fallar, & Karani, 2012). In the case of this family practice, 88% of the assessed office forms that were being distributed to patients were written at a high school or higher reading level, with 75% of the forms being written at a college reading level or higher. Therefore, this QI project was able to meet the expected outcome of improving the reading level of 30% of the evaluated office forms to a fifth to sixth grade reading level, with an improvement of 42% (three out of seven forms). The newly created forms will be more readily understood by all patients in the practice as they replaced forms that were written at a high school reading level or higher. With the implementation of office forms that are more aligned with health literacy universal precautions, a wider range of patients will be able to understand the information being delivered to them, and therefore, these patients will be more informed of their health and their own responsibilities when it comes to managing their acute and chronic diseases or injuries. Additionally, with the healthcare staff agreeing to utilize the patient education resources that were developed to comply with health literacy universal precautions, any educational materials being handed out to patients at this office will now be more understandable and accessible to patients of all literacy levels.

The healthcare staff came to appreciate that the purpose of health literacy universal precautions is to provide information and communication that is comprehensible and accessible to individuals of all literacy levels, with the understanding that there are no screening tools that are 100% effective. The participants were also able to recognize the fact that even people with high literacy skills can have trouble understanding medical information, and education level in school does not necessarily correspond with understanding health information (DeWalt et al., 2011). One participant initially wrote “know your patient’s health literacy level” as a suggested
strategy on the pre-quiz assessment; however, during the follow-up discussion this participant was able to voice why this was not necessarily of the greatest importance if the information being presented to patients is provided in a way that would be understood by individuals with even limited health literacy. The literature states that health literacy screening forms do not adequately distinguish between people at very low and very high levels of health literacy and are not directly useful for informing or evaluating health promotion and communication interventions (McKinney & Rikard, 2011). Therefore, one of the objectives of this project was to demonstrate the ease at which health literacy universal precautions can be utilized during all patient interactions. This objective was met, as evidenced by the positive acknowledgement by the healthcare staff as to how each of them could implement these health literacy precautions into their current practices without adding additional work or additional time to office visits.

**Project Facilitators and Barriers**

A setting facilitator that helped with the QI project implementation and acceptance was the good relationship that the DNP student had with all of the members at the primary care office, as this assisted with the healthcare staff feeling more personally involved, as opposed to an unfamiliar person coming in from the outside and dictating change. An important focus of this QI project was to minimize any disruption to the staff within the primary care practice and demonstrate the ease at which health literacy universal precautions can be implemented into the primary care setting. Additionally, cost was a facilitator to this project as all the information used was free through the AHRQ Toolkit. Also, the cost for providing the printed handouts for the education session was nominal, which supports implementation in outpatient clinics that do not have the financial means to implement expensive projects.

Opposition to changing office forms and written information was the largest potential
barrier due to requiring the rewriting or complete replacement of forms that the primary care practice was currently using, and had been using, for a long period of time. However, this opposition was minimized because the new office forms created were focused on meeting health literacy universal precautions, and therefore, were beneficial to patient care and outcomes, which was well received by the healthcare staff.

A second potential barrier was the requirement of the time allotment for the providers and nurses to be present at the education session. However, the educational benefits of the session alleviated opposition to taking up valuable provider and nurse time and all participants voiced that the time devoted to the education session was well spent. Six of 11 members of the healthcare staff were in attendance as busy healthcare staff schedules impeded the availability of the other five participants for the education session. Similar future projects should attempt to schedule multiple education sessions to better accommodate the busy schedules of healthcare staff. Since not all healthcare staff at the office were being provided with the same information and education, making uniform change was more difficult to achieve. To correct for this, the two-page health literacy summarization information handout was provided to all eleven of the healthcare staff two months later to help bridge the gap and make all of the healthcare staff aware of health literacy universal precautions, how to adapt these into current practice, and provide helpful resources that further reinforce the use of health literacy universal precautions.

Lastly, an important aspect to consider for the overall future success of this QI project is that the family practice where this project was implemented is one of more than twenty outpatient practices within a larger organization. Therefore, in order to ensure long-term success, the organization as a whole will need to implement health literacy universal precautions. The changes made in a single outpatient office within the organization are unlikely to last if this is
not a change supported throughout. Therefore, future QI projects should include implementing
the AHRQ Health Literacy Universal Precautions Toolkit throughout the entire organization.

**Conclusion**

Due to a significant percentage of United States adults having below basic or basic health
literacy skills, the need to address health literacy within primary care is paramount to ensuring
that patients are receiving and comprehending information to prevent health problems before
they occur. With all the resources currently available, healthcare staff have no valid justifications
to not align their communication styles to promote understanding by all patients. The utilization
of health literacy universal precautions ensures that all patients, regardless of health literacy
level, are receiving health information that is delivered through a clear, plain language approach.

The DNP student, through this QI project, was able to improve the knowledge of the
healthcare staff regarding clear, plain language communication with patients, as well as
improved the readability of the written information being provided to patients. The DNP student
was able to guide the healthcare staff through the utilization of the following tools in the AHRQ
Health Literacy Universal Precautions Toolkit: Tool 3 – Raise Awareness; Tool 4 –
Communicate Clearly; and Tool 11 - Assess, Select, and Create Easy-to-Understand Materials;
while also demonstrating the ease at which health literacy universal precautions can be
implemented within primary care. By utilizing this Toolkit, the DNP student was able to
accomplish the goals, objectives, and expected outcomes of improving healthcare staff
knowledge about the importance of, and the implementation of, health literacy universal
precautions within a primary care office.

A critical need exists within healthcare to ensure that healthcare staff are utilizing clear,
plain language communication strategies in all patient interactions. Being able to present
information to patients that is respectful, clear, and understandable, while not “talking down” to the patient or “dumbing down” the information, is an essential component of providing comprehensive patient care. This project provided the opportunity for the healthcare staff within this primary care office to become more aware of, and align their efforts in support of, health literacy universal precautions. The healthcare staff is now in a better position to impact positive change in patient care and improve patient outcomes as they are equipped with the tools and resources to provide health information that is understandable and usable to all patients, regardless of literacy level. Focusing on health literacy can reduce health care costs; improve the accessibility, quality, and safety of health care; and, most importantly, improve the health and quality of life for all individuals in the United States.
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69-72. doi:10.1097/NNA.0b013e31827f20a9


Appendix A

Current health literacy screening instruments (Pleasant, 2014).

<table>
<thead>
<tr>
<th>Screener or measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Estimate of Adult Literacy in Medicine (a variety of versions exist)</td>
</tr>
<tr>
<td>Test of Functional Health Literacy in Adults (a variety of versions exist)</td>
</tr>
<tr>
<td>Medical Terminology Achievement Reading Test</td>
</tr>
<tr>
<td>Literacy Assessment for Diabetes</td>
</tr>
<tr>
<td>Items from the 2003 National Assessment of Adult Literacy</td>
</tr>
<tr>
<td>Health Activities Literacy Scale</td>
</tr>
<tr>
<td>Chew single item screener - 1</td>
</tr>
<tr>
<td>Newest Vital Sign</td>
</tr>
<tr>
<td>Wallace single item screener</td>
</tr>
<tr>
<td>The Spoken Knowledge in Low Literacy in Diabetes scale</td>
</tr>
<tr>
<td>Stuekent Informal Reading Assessment of Cancer Test</td>
</tr>
<tr>
<td>Short Assessment of Health Literacy for Spanish-speaking Adults</td>
</tr>
<tr>
<td>Single item literacy screener</td>
</tr>
<tr>
<td>Hebrew version of the short form of the Test of Functional Health Literacy in Adults</td>
</tr>
<tr>
<td>Nutrition Literacy Scale</td>
</tr>
<tr>
<td>eHEALS: The eHealth literacy scale</td>
</tr>
<tr>
<td>Chew single item screener - 2</td>
</tr>
<tr>
<td>Diabetes Numeracy Test (a variety of versions exist)</td>
</tr>
<tr>
<td>Population based predictive models</td>
</tr>
<tr>
<td>Health Literacy Assessment Using Talking Touchscreen Technology</td>
</tr>
<tr>
<td>Demographic Assessment of Health Literacy</td>
</tr>
<tr>
<td>An instrument targeting Canadian adolescents</td>
</tr>
<tr>
<td>Health Literacy Skills Instrument</td>
</tr>
<tr>
<td>Comprehensive Measure of Oral Health Knowledge</td>
</tr>
<tr>
<td>Mandarin Health Literacy Scale</td>
</tr>
<tr>
<td>An adaptive testing algorithm for shortening health literacy assessments</td>
</tr>
<tr>
<td>Media Health Literacy</td>
</tr>
<tr>
<td>Health Literacy Test for Singapore (an adapted short form of the Test of Functional Health Literacy in Adults)</td>
</tr>
<tr>
<td>A Canadian exploratory study to define a measure of health literacy</td>
</tr>
<tr>
<td>The Health Literacy Management Scale: A measure of an individual's capacity to seek, understand, and utilize health information within the health care setting</td>
</tr>
<tr>
<td>The Health Literacy Questionnaire</td>
</tr>
<tr>
<td>European Health Literacy Survey Questionnaire</td>
</tr>
<tr>
<td>Fostering Literacy for Good Health Today and the related Spanish project named Vive Desarrollando Amplia Salud</td>
</tr>
</tbody>
</table>
Memorandum of Human Subjects Research Determination

Date: October 15, 2019

To: Brittany Canfield, Nursing

Project Title: Health Literacy Universal Precautions: A Quality Improvement Project to Promote Health Literacy in a Primary Care Practice in Central Vermont

IRB Determination Number: 19-154

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination based on the information provided to our office:

☐ The proposed project does not involve research that obtains information about living individuals [45 CFR 46.102(f)].

☐ The proposed project does not involve intervention or interaction with individuals OR does not use identifiable private information [45 CFR 46.102(f)(1), (2)].

☒ The proposed project does not meet the definition of human subject research under federal regulations [45 CFR 46.102(d)].

Submission of an Application to UMass Amherst IRB is not required.

Note: This determination applies only to the activities described in the submission. If there are changes to the activities described in this submission, please submit a new determination form to the HRPO prior to initiating any changes.

A project determined as “Not Human Subjects Research” must still be conducted in accordance with the ethical principles outlined in the Belmont Report: respect for persons, beneficence, and justice. Researchers must also comply with all applicable federal, state and local regulations as well as UMass Amherst Policies and procedures which may include obtaining approval of your activities from other institutions or entities.

Please do not hesitate to call us at 413-545-3428 or email humansubjects@ora.umass.edu if you have any questions.

Iris L. Jenkins
Assistant Director
Human Research Protection Office
Appendix C

Health Literacy PowerPoint Outline

- **Health Literacy: Hidden Barriers and Practical Strategies**
- **Hidden Barriers to Communicating with Patients**

**Clients/Patients:**
- Education/Literacy/Language

**Health Literacy:** The capacity to
- Obtain, process, understand basic health information and services
- Make appropriate health care decisions (act on information)
- Access/navigate health care system

- Using a Health Literacy Universal Precautions Approach
- Structuring the delivery of care as if everyone may have limited health literacy
  - You cannot tell by looking
  - Higher literacy skills ≠ understanding
  - Anxiety can reduce ability to manage health information
  - Everyone benefits from clear communications

- **National Assessment of Adult Literacy**
  - National assessment of health literacy skills of US adults
  - Assessed both reading and math skills
  - Focused on health-related materials and tasks
  - 36% of adults were identified as having serious limitations in health literacy skills

- **IOM Report on Health Literacy**
  - Health information is unnecessarily complex
  - Clinicians need health literacy training

**Healthy People 2020:** Improve health communication/health literacy

**Joint Commission (1993)**
- Patients must be given information they understand

- **Red Flags for Low Literacy**
  - Frequently missed appointments
  - Incomplete registration forms
  - Non-compliance with medication
  - Unable to name medications, explain purpose or dosing
  - Identifies pills by looking at them, not reading label
  - Unable to give coherent, sequential history
  - Ask fewer questions
  - Lack of follow-through on tests or referrals

- **Our Expectations of Patients are Increasing...**
And the Process is Becoming More Complex
“Show Me How Many Pills You Would Take in 1 Day”
Rates of Correct Understanding vs. Demonstration “Take Two Tablets by Mouth Twice Daily”
Rates of Correct Understanding
“Take Two Tablets by Mouth Twice Daily” vs “Take one tablet in the morning and one at 5pm”
Lessons Learned From Patients
Strategies to Improve Patient Understanding
- Focus on “need-to-know” & “need-to-do”
- Use Teach-Back Method
- Demonstrate/draw pictures
- Use clearly written education materials
Focus on “Need-to-know” & “Need-to-do”
What do patients need to know/do…?
- When they leave the exam room
- When they check out
- What do they need to know about?
Taking medicines
Self-care
Referrals and follow-ups
Filling out forms
Teach-Back Method
- Ensuring agreement and understanding about the care plan is essential to achieving adherence
- “I want to make sure I explained it correctly. Can you tell me in your words how you understand the plan?”
- Some evidence that use of teach-back is associated with better diabetes control
Teach-Back Improves Outcomes Diabetic Patients with Low Literacy
Confirm patient understanding
“Tell me what you’ve understood.”
“I want to make sure I explained your medicine clearly. Can you tell me how you will take your medicine?”
Patient Education: What We Know
- Written materials, when used alone, will not adequately inform.
- Patients prefer receiving key messages from their clinician with accompanying pamphlets.
- Focus needs to be “need-to-know” & “need-to do”
- Patients with low literacy tend to ask fewer questions.
• Bring a family member and medication to appointments.

✓ **7 Tips for Clinicians**
  √ Use plain language
  √ Limit information (3-5 key points)
  √ Be specific and concrete, not general
  √ Demonstrate, draw pictures, use models
  √ Repeat/summarize
  √ Teach-Back (confirm understanding)
  √ Be positive, hopeful, empowering

✓ **Use Plain Language**

✓ **Examples of Plain Language**
  ▪ Annually
  ▪ Arthritis
  ▪ Cardiovascular
  ▪ Dermatologist
  ▪ Diabetes
  ▪ Hypertension

✓ Is your Clinic/ Site Patient-Centered?
  What is the “tone,” 1st impression?
  ■ A welcoming, calm environment
  ■ An attitude of helpfulness by all staff
  ■ Patients treated as if your family
  ■ Patient-centered check-in & scheduling
  ■ Easy-to-follow instructions/ directions
  ■ Patient-centered handouts
  ■ Brief telephone follow-up

✓ Case management

✓ Discussion Questions

✓ Looking back, have there been instances when you suspected, or now suspect, that a patient might have low literacy? What were the signs?

✓ Do we do things in our practice that make it easier for patients with low literacy to understand services and information?
  ■ Consider the entire process of patient visits, from scheduling an appointment to check-out
  ■ What strategies could all of us adopt to minimize barriers and misunderstanding for low literacy patients?
Appendix D

Sample of information received from the Text Readability Consensus Calculator

Text Readability Consensus Calculator

**Purpose:** Our Text Readability Consensus Calculator uses 7 popular readability formulas to calculate the average grade level, reading age, and text difficulty of your sample text.

**Your Results:**

Your text: Health literacy plays a critical role in comprehe... *(show text)*

**Flesch Reading Ease score:** 39.6 (text scale)
Flesch Reading Ease scored your text: difficult to read.

**Gunning Fog:** 13.5 (text scale)
Gunning Fog scored your text: hard to read.

**Flesch-Kincaid Grade Level:** 12.4
Grade level: *Twelfth Grade*.

**The Coleman-Liau Index:** 12
Grade level: *Twelfth Grade*.

**The SMOG Index:** 11.5
Grade level: *Twelfth Grade*.

**Automated Readability Index:** 12.1
Grade level: 17-18 yrs. old (Twelfth graders).

**Linier Write Formula:** 13.4
Grade level: *College*.

---

**Readability Consensus**

Based on 8 readability formulas, we have scored your text:

Grade Level: 12
Reading Level: difficult to read.
Reader's Age: 17-18 yrs. old (Twelfth graders).
Appendix E

AHRQ Health Literacy Brief Assessment Quiz

1. Limited health literacy is associated with:
   ___ A. Higher mortality rates
   ___ B. Lower levels of health knowledge
   ___ C. Greater use of inpatient and emergency department care
   ___ D. Poor Medicine adherence
   ___ E. B and D
   ___ F. All of the above

2. You can tell how health literate a person is by knowing what grade he or she completed in school.
   ___ A. True
   ___ B. False

3. Which of the following skills are considered to be components of health literacy?
   ___ A. Ability to understand and use numbers
   ___ B. Reading skills
   ___ C. Speaking skills
   ___ D. Ability to understand what is said
   ___ E. Writing skills
   ___ F. All the above

4. Being anxious affects a person's ability to absorb, recall, and use health information effectively.
   ___ A. True
   ___ B. False

5. What is the average reading level of U.S. adults?
   ___ A. 4–5th grade
   ___ B. 6–7th grade
   ___ C. 8–9th grade
   ___ D. 10–11th grade
   ___ E. 12th grade

6. What is the grade level at which health-related information (like a Diabetes brochure) is typically written?
   ___ A. 4–5th grade
   ___ B. 6–7th grade
   ___ C. 8–9th grade
   ___ D. 10+ grade or higher
   ___ E. 11+ grade or higher
   ___ F. 12+ grade or higher
   ___ G. college level
7. What is the best reading level for written materials used with patients?
   ___ A. 3rd-4th grade
   ___ B. 5th-6th grade
   ___ C. 7th-8th grade
   ___ D. 9th-10th grade
   ___ E. 11th-12th grade

8. To use good health literacy practices, staff and clinicians should use which of the following words/phrases when talking to or writing instructions for a patient or family member?

   Circle the word/phase in either Option 1 or 2 in each row

<table>
<thead>
<tr>
<th>Option 1</th>
<th>OR</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Bad</td>
<td>OR</td>
<td>Adverse</td>
</tr>
<tr>
<td>b. Hypertension</td>
<td>OR</td>
<td>high blood pressure</td>
</tr>
<tr>
<td>c. blood glucose</td>
<td>OR</td>
<td>blood sugar</td>
</tr>
<tr>
<td>d. You have the flu.</td>
<td>OR</td>
<td>Your flu test was positive.</td>
</tr>
<tr>
<td>e. The cardiologist is Dr. Brown.</td>
<td>OR</td>
<td>The heart doctor is Dr. Brown.</td>
</tr>
<tr>
<td>f. Your appointment is at 11:00 AM. Check in 20 minutes early.</td>
<td>OR</td>
<td>Arrive at 10:40 AM to check in.</td>
</tr>
</tbody>
</table>

9. It is a good health literacy practice to assume that each patient you communicate with has limited health literacy.
   ___ A. True
   ___ B. False

10. What strategies could all of us adopt to minimize barriers and misunderstanding for patients?

    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________
Appendix F

Health Literacy Universal Precautions Education Training Evaluation Form

Date: __________________
Your Role (circle one):  Provider  Healthcare Staff

<table>
<thead>
<tr>
<th>Instructions: Please circle your level of agreement with the statements listed below.</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The objectives of the training were clearly defined.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The topics covered were relevant to my practice.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. The content was organized and easy to follow.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. This training experience will be helpful in my work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. The trainer was knowledgeable about the training topic.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. This information was new to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. The trainer was well prepared.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. The training objectives were met.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. The time allotted for the training was adequate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

10. What did you like most about this training?

11. What aspects of the training could be improved?

12. Please share other comments or expand on previous responses here:
Appendix G

Health Literacy Universal Precautions Compliant Office Form

Release of Medical Information

Permission to verbally release patient health information

I, ________________________, with a date of birth ____________________, give my permission ________________________, give my permission
(patient name) (patient’s DOB)

to give my patient medical information (for example: test results, office visit information, radiology reports, pathology reports, messages from my doctor/nurse practitioner/provider, other identifiable health information) to the following people, so that he/she/they can better understand
my condition and help me.

<table>
<thead>
<tr>
<th>Person(s) Name and Phone Number</th>
<th>Relationship to Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Permission to get sensitive information

By putting my initials by each item below, I understand that I allow verbal release of the below
to the people listed above:

_________ my mental health,

_________ a disease I may have that others could get from me, like HIV/AIDS,

_________ genetic records, and/or

_________ drug and alcohol records.

I understand that:

- I do not have to share these records.
- If I want to take away the permission for verbal release of my records, I need to talk to
  my doctor/nurse practitioner/provider or a staff person and sign a paper.
- This form is only good for 1 (one) year from the date I sign it.

Patient’s Signature ______________________________ Date ____________

Authorized Representative’s Signature ____________________________ Date ____________

Relationship of Authorized Representative ____________________________

Consent for release of medical records for ____________________________
(patient name)

Date: ____________________________
Appendix H
Health Literacy Information and Resource Handout

Limited Health Literacy Affects People’s Ability to:
- Understand instructions on prescription drug bottles and nutrition labels
- Act on health-related news and announcements (e.g., severe weather alerts)
- Share personal and health information with providers
- Manage chronic health conditions
- Understand and act on concepts like preparedness and risks associated with unhealthy behaviors and environmental issues (e.g., vote on an environmental issue like smoking bans)
- Understand how to locate and access affordable health care for themselves and their children
- Recognize bias in health information reported by the media (e.g., pharmaceutical sponsors)

Poor Understanding by Patients Often Comes From:
- Use of technical and medical terminology in public communications (e.g., use of cardiovascular disease instead of heart disease; and use of the term sodium instead of salt)
- Inclusion of statistics or terms that audiences find confusing to explain risk (e.g., high prevalence of stroke among older adults instead of a large number of older adults have had a stroke).
- Relying on an inappropriate mode of communication (e.g., print materials for persons with limited reading skills).
- Focusing on awareness and information rather than action and behavior (e.g., explaining consequences of uncontrolled glucose vs. steps to take to control uncontrolled glucose)
- Limited targeting of information and interventions to diverse cultural preferences and practices (e.g., healthy eating tips would differ for African American and Hispanic groups due to cultural preferences).

Clues Indicating Low Health Literacy Skills
- Patients often make excuses when asked to read or fill out forms. Examples include: “I don’t have my glasses,” “I’m too tired to read,” and “I’ll read this when I get home.”
- Poor readers often lift text closer to their eyes or point to the text with a finger while reading. Many times, their eyes wander over the page without finding a central focus.
- Patients may provide an incomplete medical history or check items as “no” to avoid follow-up questions.
- Poor readers often miss appointments and/or make errors regarding their medication.
- Patients with low health literacy become skilled at listening and they often take instructions literally to avoid mistakes. To identify their medications, they look at the pills for color, size, and shape, since they can’t read the labels.
- Patients often show signs of nervousness, confusion, frustration, and even indifference. They may withdraw or avoid situations where complex learning is required.
- Patients often give incorrect answers when questioned about what they have read.

Tips for Utilizing Health Literacy Universal Precautions:
- Health literacy is more than testing readability levels. Assessing whether your patient can actually apply and use your information is the important part. Your patient should be able to demonstrate the skills or explain in their own words (teach-back) what you are asking him/her to do.
  - “Please tell me in your own words what we have discussed.”
• “What might you tell your family or a friend about your condition?”
  • Limit use of jargon, technical, or scientific language.
    - Example: Say: high blood pressure, Not: hypertension. Say: birth control, Not: contraception
  • Avoid unnecessary abbreviations and acronyms and limit use of statistics and use general words like most, many, half.
  • Present patients with no more than 3 or 4 main messages. Give specific actions in clear language and recommendations.
    - Example: Give specific steps for keeping foods safe. Detailed descriptions of bacteria that cause food-borne illness is typically not necessary.
  • To increase retention, speak slowly and limit the amount of advice given to patients, focusing the content of the message on a patient’s actions or behaviors that will result in the desired health outcome, rather than on detailed facts.
  • When making comparisons, use references that your patient will recognize.
    - Example: Say: Feel for lumps about the size of a pea. Do not say: Feel for lumps about 5 to 6 millimeters in diameter.
  • Verbal instruction should be reinforced with printed instructional materials that are easy-to-read and visual materials, including models and illustrations. Provide a list of resources for those who may want to learn more.
  • Offer all patients help in completing forms.

Helpful Resources:
  • MedlinePlus – government-created site with excellent information on health topics, easy-to-read education, videos, and more: https://medlineplus.gov/
  • National Institute on Aging – provides health information on a variety of topics in easy-to-read/understand formats: https://www.nia.nih.gov/health/topics
  • UpToDate – patient education that can be printed at levels of “The Basics” and “Beyond the Basics” depending on the patient’s comprehension level: https://www.uptodate.com/contents/table-of-contents/patient-education
  • Choosing Wisely Canada – plain language and patient-friendly materials meant to help patients learn about the tests and treatments in question, when they are necessary and when they are not, and what patients can do to improve their health: https://choosingwiselycanada.org/patient-pamphlets
  • American Heart Association – interactive tools, educational materials, and other resources from the American Heart Association and American Stroke Association: https://www.heart.org/en/health-topics/consumer-healthcare/patient-education-resources-for-healthcare-providers
  • Additional resources that have health literacy friendly resources for patients: Cleveland Clinic, Familydoctor.org, Mayo Clinic, American Diabetes Association, National Institutes of Health, CDC, Drugs.com, MedicineNet, KidsHealth, EverydayHealth

References