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Ashley Newman

University of Kentucky, ajluom2@uky.edu

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DNP Final Project Report
Health Literacy in a Primary Care Setting
Ashley Newman

University of Kentucky
College of Nursing
Spring 2018

Lynne Jensen PhD, APRN-BC – Committee Chair/Faculty Advisor

Judi Dunn DNP, RN – Clinical Mentor

Karen Butler DNP, RN – Committee Member

HEALTH LITERACY IN PRIMARY CARE

Dedication

I would like to dedicate this project to my husband, Zack, my parents, sisters, grandparents, aunts, uncles, and fellow colleagues. Without their support, I would not have been able to make it through the last three years. Also, a special thank you to my dogs, Nikki and Gracie, who are the best companions I could ever ask for. Thank you to my husband who knows I am capable of anything and is never surprised by my success. Thank you to my parents and sisters who love me unconditionally and always encourage me to be my best. A special dedication goes to my grandmother. Her strength, knowledge, love, and advice keep pushing me to do great things.

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I would also like to thank Amanda Wiggins, the University of Kentucky College of Nursing's Statistician for her help. Thank you for working quickly and efficiently to help me analyze my data, you are wonderful at your job.

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Abstract

BACKGROUND: Low health literacy is prevalent in the United States. As a result, the Agency for Healthcare Research and Quality (AHRQ) developed universal health literacy precautions to improve patient understanding of health information. Using universal precautions and specific tools, such as teach-back, has been shown to decrease morbidity and improve patient outcomes.

PURPOSE: The purpose of this quality improvement project is to assess provider knowledge of health literacy in a primary care setting. A secondary purpose is to assess the use of patient education material for patients with diabetes, hypertension, and hyperlipidemia that meet universal precautions.

METHODS: This study was a single-center, cross-sectional quality improvement study on the use and understanding of health literacy. This project was a one group pre- and post- intervention design to evaluate the perceptions and knowledge of providers regarding health literacy before and after an in-service. The focus of the in-service was on universal health literacy precautions and the teach-back method. The sample consisted of 22 primary care providers for the pre-survey and 18 primary care providers for the post-survey.

RESULTS: The percentage of providers that reported doing well at providing patients with a list of their medications and clear instructions on how to take them increased from 27.3% to 72.2%. While not statistically significant, there was an increase from 36.4% to 66.7% of providers who follow up with patients to determine if action goals were met. Providers identified diabetes education materials to be used routinely in clinic.

CONCLUSION: Provider understanding and use of the AHRQ's universal health precautions is essential to improving patient outcomes and satisfaction. The teach-back method is a simple and easy tool for providers to use during patient interactions that can improve patient knowledge and

adherence to treatment regimens. To improve overall patient health, patient experience, and quality of life, providers must ensure universal health literacy precautions are delivered to all patients.

Health Literacy in a Primary Care Setting

Introduction

The understanding of health information is crucial in patient self-management of health promotion and disease prevention. Health literacy is considered an essential element to healthcare practice (Office of Disease Prevention and Health Promotion [ODPHP], 2010). In 2010, the United States Department of Health and Human Services' (HHS) Office of Disease Prevention and Health Promotion developed a national action plan to improve health literacy. The action plan focused on two guiding principles: all people have the right to health information that helps them make informed decisions, and health services should be delivered in ways that are easy to understand and that improve health, longevity, and quality of life (HHS, 2010). This final project report seeks to assess provider knowledge of health literacy in a primary care setting, provide education regarding health literacy, and reassess provider knowledge.

Background

Health Literacy

Health literacy is an essential component of the overall patient experience in all healthcare settings. The need for patients to understand their individual health education is essential in disease prevention as well as acute and chronic disease management. The definition of individual health literacy is “the skills, knowledge, motivation and capacity of a person to access, understand, appraise, and apply information to make effective decisions about health and health care and take appropriate action” (Johnson, 2016, p. 21). Healthcare providers must be cognizant of patient health literacy levels and assure that education provided meets standards that are conducive to patient understanding. This is demonstrated by research that has been collected for over two decades that indicates health information isn't presented in a way that is usable by

most Americans (U.S. Department of Health and Human Services, 2010). Nearly 9 out of 10 adults have difficulty using everyday health information that is routinely available in healthcare facilities, retail outlets, media, and communities (U.S. Department of Health and Human Services, 2010, p. 2.3). These findings emphasize how important it is to provide appropriate health literate information that is conducive to patient comprehension.

The healthcare field as a whole has continually overestimated the level of health literacy for the majority of the patient population (Johnson, 2016, p. 21). Based on national data, more than one-third of the population has a low health literacy (Hersh, Salzman, & Snyderman, 2015, p. 118). Low health literacy is defined as basic or below basic health literacy skills or a third grade reading level (Kutner, Greenberg, Jin, & Paulsen, 2006, p. v). According to a national health literacy survey conducted in 2003 by the American Institutes for Research, only about 12% of Americans are proficient in successfully navigating the health system and acting on health information (Kutner, Greenberg, Jin, & Paulsen, 2006, p. v). Low health literacy affects many different populations within the United States. Those with the most risk for low health literacy and resulting worse health outcomes include those with lower socioeconomic status or education, the elderly, low English proficiency and/or non-native English speaking, and those who are receiving publicly-financed health coverage or other socio-economic assistance (Center for Health Care Strategies, 2013, p.5). It is important for the provider not to assume a person's level of education as being related to their level of health literacy. Even those with higher levels of education such as a college degree may not understand the health information provided to them (Institute of Medicine, 2004).

The consequences of low health literacy affect not only the individual, but also communities, health care delivery systems, employers, insurers, costs, and the government

(Center for Health Care Strategies, 2013, p. 1). Consequences for individuals with low health literacy can result in medication errors, low rates of treatment compliance, reduced use of preventive services, unnecessary emergency room visits, longer hospital stays, and higher mortality (Center for Health Care Strategies, 2013, p. 2). In addition, the Partnership for Clear Health Communication at the National Patient Safety Foundation has found that compared to those with proficient health literacy, adults with low health literacy experience four times higher health costs, six percent more hospital visits, and two-day longer hospital stays (Center for Health Care Strategies, 2013, p. 2).

Universal Precautions

Health literacy rates vary between patients and assumptions about one's health literacy level should never be made (Agency for Healthcare Research and Quality [AHRQ], 2017). One's educational level may be insignificant when it comes to navigating and understanding healthcare information (AHRQ, 2017). With prevalent rates of low health literacy in the healthcare environment, research has indicated that rather than assessing individual health literacy, healthcare providers should use universal health literacy precautions (Hersh, Salzman, & Snyderman, 2015). In order to begin to bridge the gap between health literacy and improving health outcomes, the Agency for Healthcare Research and Quality (AHRQ) has developed a Health Literacy Universal Precautions Toolkit. This toolkit contains multiple tools that have been validated for use in providing health literate information and education to patients.

Health literacy universal precautions are the steps that providers/practices take by assuming that all patients have difficulty comprehending health information and accessing health services (AHRQ, 2017). These precautions aim to simplify communication, confirm comprehension for all patients, minimize the risk of miscommunication, simplify healthcare

system navigation, and supporting patients' efforts to improve their health (AHRQ, 2017). Only 12% of United States adults have the health literacy skills needed to manage the demands of our complex health system (AHRQ, 2017). The average adult reads at the 8th or 9th grade level and 20% read at the 5th grade level or below (Brega et al., 2015, p. 35). Brega et al. (2015) suggests that educational materials provided to patients should be written at the 5th grade or 6th grade reading level (p. 35). Components that should be considered when choosing patient educational material include: limit information so that patients can make informed decisions, use numbers and simple graphics, and plain language (Brega et al., 2015, p. 92). Most importantly, educational materials should be continually evaluated and discussed with patients to determine clarity and effectiveness (Brega et al., 2015, p. 35).

Teach-Back Method

The use of the teach-back method has been proven to be effective in educating patients with chronic disease to improve their understanding of the disease, promote knowledge, increase adherence, confidence, and self-care skills (Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016, p. 3). This method consists of asking patients to state in their own words the information that has been given to them during their visit. This allows the healthcare provider to confirm that patients have correctly understood the information (Brega et al., 2015, p. 19). The goal of the teach-back method is to increase people's understanding of disease information being communicated in a health education session by asking them to repeat back key points of the instruction (Dinh et al., 2016, p. 5). When using this tool with patients, it is also referred to as "show me" or "closing the loop" (Dinh et al., 2016, p. 5). This method assists the provider in understanding what information the patient has gained from the session (Dinh, 2016, p. 5). When using the teach-back method, the provider is not testing a person's knowledge, but assessing how well the

information has been understood and what needs to be clarified or reviewed (Dinh, 2016, p. 5). This tool is useful because studies have shown that 40-80% of the medical information patients are given is forgotten and/or incorrect (Brega et al., 2015, p. 18). Research shows that healthcare providers who use the teach-back method have better patient outcomes (Weiss, 2014, p. 17).

A meta-analysis of health literacy tools applied to patient self-management of Diabetes found that the best health outcomes, such as reducing hemoglobin A1c, were achieved when utilizing spoken communication strategies such as the teach-back method (Kim & Lee, 2016, p. 329). The teach-back method has proven its worth in multiple areas within healthcare. For instance, using the teach-back method when obtaining informed consent for surgical procedures has been shown to increase patient comprehension of the procedure and associated risks (Tamariz, Palacio, Robert, & Marcus, 2013, p. 125). One randomized control trial assessed the effectiveness of using the teach-back method when discussing discharge instructions in over 400 patients and found a higher comprehension level in those who received information using the teach-back method (Griffey et al., 2016)

By teaching providers how to use the teach-back method using standardized patient education information handouts, providers can begin to incorporate health literacy universal precautions into their current practice. Providers often overestimate the health literacy of their patients and assume that instructions and information provided have been understood (Hersh, Salzman, & Snyderman, 2015, p. 118). Research has shown that when providing patient education, it is best to include written and verbal modes of information to the patient (Marcus, 2014). By being cognizant of health literacy and using appropriate health education, patients will benefit by better understanding healthcare instructions which will lead to less errors in disease

management regimens. This in turn can lead to better health outcomes and improved patient satisfaction.

Confidence and Conviction Scale

The Iowa Health System created the confidence and conviction scale to assess clinician use of the teach-back method (AHRQ, 2017). This tool consists of four questions regarding provider use of teach-back. The tool is meant to encourage providers to consider how they feel about the use of the teach-back method and assess how well they are performing this task (AHRQ, 2017). The first question asks, “on a scale of one to ten, how convinced are you that it is important to use teach-back?” (AHRQ, 2017). The second question asks, “on a scale of one to ten, how confident are you in your ability to use teach-back?” (AHRQ, 2017). The third question asks how often providers ask patients to teach-back educational/care instructions and the fourth question asks providers to choose from a list all the elements of teach-back that they have used more than half the time in the last work week (AHRQ, 2017).

Health Literate Educational Material

As mentioned previously, health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (HHS, 2015, p. iii). Components of adequate health literacy that are essential to the process of comprehension include basic numeracy skills and knowledge of health topics (HHS, 2015, p. 5). Those with limited health literacy may lack knowledge or have misinformation regarding health and disease management (HHS, 2015, p. 9). It is important to note that literacy and numeracy levels may be adequate, but understanding of information related to health may not be understood (HHS, 2015, p. 11). For health education materials to be considered appropriate for all levels of health literacy, plain language must be used (HHS, 2015,

p. 23). The definition of plain language is: “communication that users can understand the first time they read or hear it”. (HHS, 2015). Regarding written health education, a document using plain language must be easily understood so that one can find what they need, understand what they find, and act on that understanding (HHS, 2015).

Key elements of plain language include:

Organization of material so that the most important information is first

Simple language that all levels of educated learners can understand

Use of the active voice

Simplifying complex information into clearly understood points

(Plain Language Action and Information Network, 2010; HHS, 2015).

By using plain language in both written and verbal health education, patient comprehension and management of disease processes and health are improved. In addition to the use of plain language, educational material should be culturally sensitive, suitable, and consider diversity (Centers for Medicaid and Medicare Services, 2012). All people should be able to read the material and the purpose should be immediately clear (Centers for Medicaid and Medicare Services, 2012). Information should be direct, and the most important facts should be presented first and emphasized. All information should be up to date and accurate. Education provided should be limited, avoiding information overload. Sentences should be short, direct, and indicate specific implications for the reader. Technical terms and acronyms should only be used when the reader needs to know them (Centers for Medicaid and Medicare Services, 2012).

MACRA and MIPS

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) promises to change the way the United States evaluates and pays for healthcare (Network for Regional

Healthcare Improvement, 2016). MACRA establishes new ways to pay healthcare providers for caring for Medicare beneficiaries by basing pay on the quality and effectiveness of care they provide (Network for Regional Healthcare Improvement, 2016). Payment will be based on value defined by a measures performance of quality and efficiency rather than volume (Network for Regional Healthcare Improvement, 2016). The Merit Based Incentive Payments System (MIPS) is one reimbursement structure that MACRA's value-based payment program is based on. MIPS requires eligible professionals' care to be measured and paid based on quality, resource use, clinical practice improvement, and meaningful use of certified electronic health record (EHR) technology (Network for Regional Healthcare Improvement, 2016).

Based on the MIPS composite performance scores that are determined by performance measures, reimbursement adjustments will be positive, negative, or neutral to the base rate of Medicare Part B payment (Network for Regional Healthcare Improvement, 2016). This means that providers will be paid based on the outcomes of their care. While MACRA only applies to Medicare Part B payments, this drives change for all patients and outcome reviews are available to the public (Network for Regional Healthcare Improvement, 2016). An important MIPS measurement is consumer assessment of healthcare providers and systems (CAHPS) for MIPS clinician/group survey [quality ID number 321] (Quality Payment Program, 2017).

This measure includes the following:

Timely care, appointments, and information, how well providers communicate, patient's rating of provider, access to specialists, health promotion and education, shared decision making, health status/functional status, courteous and helpful office staff, care coordination, between visit communication, helping taking medication as directed, and stewardship of patient resources (Quality Payment Program, 2017).

The Quality Payment Plan was developed by the Centers for Medicare and Medicaid Services (CMS). CMS released a quality strategy in which one of the foundational principles is to eliminate health disparities by ensuring that health information is culturally and linguistically appropriate and empowerment is encouraged through the provision of health literate healthcare information and education (CMS, 2016). Based on MACRA and MIPS, the importance of providing and improving health literacy within a primary care based clinic is evident.

Patient-Centered Medical Home Designation and Significance

To improve healthcare in the United States, the Patient-Centered Medical Home (PCMH) was developed. PCMH is a care delivery model whereby patient treatment is coordinated through their primary care provider to ensure they receive the necessary care when and where they need it, in a manner they can understand (American College of Physicians, 2017). PCMH creates a centralized setting for consistent, valuable care for patients and families while creating a patient-based healthcare partnership with providers (American College of Physicians, 2017). Research has demonstrated that PCMH improves quality, patient experience, staff satisfaction, and reduced healthcare costs (National Committee for Quality Assurance, 2017a). Medicare acknowledged the benefits of PCMH by developing incentives for PCMH recognition under MACRA (National Committee for Quality Assurance, 2017b).

The Joint Commission has standards for PCMH accreditation that directly addresses the importance of health literacy in the primary care setting. Health literacy related provision of care (PC) standard elements of performance (EP) that should be met as part of PCMH designation are as follows: the interdisciplinary team identifies the patient's health literacy needs (PC .02 .02 .01 EP 24) and the primary care clinician and the interdisciplinary team incorporate the patient's health literacy needs into the patient's education [(PC .02 .02 .01 EP 25)] (2018). By developing

these requirements, the Joint commission has set the standards for improving health literacy and in turn, patient outcomes and satisfaction.

Purpose

The purpose of this quality improvement project is to assess provider knowledge of health literacy in a primary care setting. A secondary purpose is to assess the use of patient education material for patients with diabetes, hypertension, and hyperlipidemia that meet universal precautions.

Health literacy education will then be provided to improve or reinforce current knowledge. This quality improvement project helps to serve as a component of required education as part of the PCMH designation granted to the Internal Medicine clinics at an urban Kentucky hospital. After the initial assessment of provider knowledge regarding health literacy and the following education session, knowledge was re-assessed within 2 months. The difference between the survey answers pre- and post-education session will be discussed.

Study Objectives

Aim #1: Assess the provider's current knowledge about patient health literacy levels and universal health literacy precautions.

Aim #2: Provide in-service for providers in a primary care practice regarding health literacy education and teach-back.

Aim #3: Provide three standardized education brochures that meet universal precautions that should be given to patients over the next 2 months.

Aim #4: Administer a follow up survey after the in-service and use of educational materials to re-assess provider knowledge regarding health literacy.

Methods

This study was a single-center, cross-sectional quality improvement study on the use and understanding of health literacy in a primary care setting. This project was a one group pre- and post- intervention design to evaluate the perceptions and knowledge of providers regarding health literacy before and after the in-service teaching on health literacy and the teach-back method. This study utilized an educational in-service on health literacy that was presented to internal medicine providers. Health-literate patient education pamphlets were provided on three topics: diabetes, hypertension, and hyperlipidemia. All education was classified as appropriate for all health literacy levels. A pre- and post-survey was given to providers regarding their understanding and use of health literacy appropriate care and the teach-back method. Providers were also asked for feedback regarding the helpfulness of the specified educational materials.

The specific objectives for this clinical project are as follows:

- a. Administer the initial survey regarding provider knowledge, confidence, and use of health literacy techniques during the Internal Medicine Provider monthly meeting.
- b. Following the survey, provide an in-service using an adaptation of the AHRQ's Universal Precautions Toolkit power-point.
- c. Discuss health literate patient education materials that will be provided to clinics for patients. Instruct providers to use materials while applying AHRQ's universal precautions, specifically the teach-back method.
- d. Deliver appropriate health literate patient education materials on diabetes, hyperlipidemia, and hypertension to the Internal Medicine clinics for providers to attempt to use with their patients in their practice.

- e. Re-administer survey after providers have been given an opportunity to use educational materials and attempt health literacy precautions.
- f. Determine if improvements were made in provider use of health literacy universal precautions by comparing pre- and post-survey data.

Setting

This study took place at an academic medical center's internal medicine clinic in central Kentucky. This clinic provides services to patients from central Kentucky as well as surrounding areas. This clinic provides primary care to patients of all ages.

Sample

This research project consisted of a single sample of primary care providers in an urban medical center. Inclusion criteria for participants consisted of any healthcare provider who works in the division of Internal Medicine and provides primary care. Participants were volunteers based on those present at the Internal Medicine group's monthly meeting in November 2017. Characteristics of subject population included healthcare providers within the urban Kentucky hospital's Internal Medicine group who directly provide primary care. There were 22 participants for the pre-test and 18 participants for the post test.

Subject Recruitment Methods and Privacy

No active recruitment of participants was performed. Providers who attended the Internal Medicine Group regularly scheduled monthly research meeting in November 2017 were asked to participate in the in-service and pre-survey. Providers were also asked to use educational materials provided to them while working with patients. In January 2018, providers were asked to complete a post-survey regarding health literacy and the educational materials used. No personal identifiers or protected health identifiers were obtained or used. Surveys were submitted

anonymously to a table at the back of the meeting room. All data was collected and analyzed in aggregate with no personal health identifiers.

Data Collection

Approval from the Institutional Review Board (IRB) was obtained prior to the implementation of this in-service and collection of data. This study was based on answers to survey questions created by modifying the AHRQ's Primary Care Health Literacy Assessment as found in the health literacy universal precautions toolkit, 2nd edition (Figure 1). The AHRQ's Confidence and Conviction scale regarding teach-back was also used as part of the survey (Figure 2). The modified primary care health literacy assessment consisted of seventeen questions regarding key components of applying health literacy components into one's practice. Participants provided answers by checking one of the following for each question: doing well, needs improvement, not doing, or not sure/not applicable. The confidence and conviction scale consisted of four questions. The first two questions were answered on a Likert scale of one to ten. Questions three and four were check all that apply.

Data Analysis

Inferential statistics were used to analyze the data provided by the pre- and post-survey. To test for differences in health literacy performance before and after the in-service, the chi-square test of association or Fisher's exact test was used. The mean, standard deviation, and Levene's test for equality of variances were used to compare scores for the confidence and conviction scale. The Whitney Mann-U test was used to analyze question 3 of the confidence and conviction scale and question 4 was analyzed via the chi-square test off association (see Figure1). All data was evaluated using SPSS version 22 and a level of 0.05 was used for statistical significance.

Results

Modified Primary Care Health Literacy Assessment

The questionnaire provided included 17 questions regarding using health literate techniques when working with patients. The chi-square test of association or Fisher's exact test was used (See Table 1 for results). The only result from this survey that was statistically significant was provider responses to survey item number 7 (see Figure 1). This question addresses if providers are ensuring patients have lists of their medications and clear instructions on how to take them. Pre-intervention, 27.3% of providers (N=22) reported doing well at this. Post-intervention, 72.2% of providers reported doing well (N=18). The statistical significance was $p=0.005$. Another result that is worth mentioning is provider response to item 14 on the survey regarding follow up with patients to determine if their action plan goals have been met. 36.4% of providers reported doing well pre-intervention, while 66.7% of providers reported doing well post-intervention. With a p-value of 0.057, this is considered marginally significant as the results were approaching significance.

There was also an increase in providers who reported doing well at speaking clearly to patients, from 68.2% pre-intervention (N= 22) to 83.3% post intervention (N=18). While this did increase, it was not statistically significant ($p = 0.46$). In addition, the number of providers who reported doing well at establishing goals with their patients also increased, but was not statistically significant. Pre-intervention, 40.9% were doing well at establishing patient goals (N=22). Post-intervention, 66.7% reported doing well at establishing patient goals (N= 18).

Questions from the survey in which the resulting difference was not statistically significant include: providers listening carefully, limiting self to 3-5 key points and emphasizing those, reviewing educational material given, assessing patient's understanding of information,

review of patient's medication and demonstration of how to take them, patient portal training, language preference assessment, use of language services, encourage patients to ask questions, health goal establishment, consideration of religion, ethnicity, and culture, follow up to determine if goals have been met, precise instructions for taking medication, discuss methods to remember to take medications, and asking patients if they have trouble reading or using numbers.

Confidence and Conviction Scale

An independent t-test and Levene's test for equality of variances was performed regarding the confidence and conviction scale. For question one and two (see Figure 2), there was no difference over time in the scores, but it is important to note that providers thought teach-back was important both pre- and post- intervention. For the confidence scale, $p=1.77$ while for the conviction scale, $p=0.470$. (See Table 2). For the responses regarding how long providers had been using teach-back, the Mann-Whitney U test was used and there was no significant difference (see Table 3). Pre-survey results showed that 76.2% of providers had been using teach-back elements for at least 2-6 months or more, 19.1% were planning to start, and 4.8% did not use teach-back and did not plan to (see Figure 3). For the post-intervention survey, 88.2% of providers reported using teach-back elements, and 11.8% of providers were planning to start using teach-back in the next month and 0% were not planning on using teach-back (see Figure 4). This was a positive change as the results indicate that during the post-survey, all of the providers were planning to use teach-back or currently using teach-back with patients.

For the assessment of teach-back elements that providers were using pre- and post-survey, none of the results were statistically significant. However, the majority of provider feedback regarding elements increased in reported use (see Table 4). One of the most notable pieces of information from the results was that there is a low percentage of providers both pre-

and post-survey who are documenting using teach-back and patient's response. In addition, only 47-52% of providers (pre- and post-survey) claimed to use printed educational materials.

No statistical data was obtained for provider response to health literate educational materials provided to the Internal Medicine Clinic. Verbal provider feedback was given and the conclusion was that providers liked the diabetes educational handout/workbook for patient use. Providers believed that the hypertension and hyperlipidemia material was not as beneficial as the diabetes education.

Discussion

The purpose of this quality improvement project was to assess provider knowledge and use of health literacy and implement patient education materials for diabetes, hypertension, and hyperlipidemia that meet universal precautions.

The use of health literacy universal precautions has increased in the U.S. since the implementation of the AHRQ's guidelines (Liang & Brach, 2017, p. 223). In 2014, 70% of the population reported providers giving easy to understand instructions, but only 29% were asked to teach-back (Liang & Brach, 2017, p. 218). Based on this information, teach-back is still underutilized in the healthcare setting. While educational materials are helpful, the use of spoken communication is extremely valuable (Brach, 2017, p. 212). Therefore, using teach-back to confirm understanding is of crucial to patient education. The best way to improve organizational use of universal health literacy precautions is by increasing awareness and providing direct training (Brach, 2017).

The majority of the results of this study were not statistically significant given the small sample size, but almost all post-survey responses to assessment of health literacy and the teach-back method improved from the pre-survey (see Table 1). Reviewing patient medications and

demonstration of how to take medications increased almost 20%. Providing updated medication lists and information on how to take medications increased by over 40%. Training patients to use the patient portal went from 16.7% to 13.3%; however, it is important to note that this is not clearly defined as a provider responsibility in this clinic. Asking patients if they are having trouble understanding, reading, or using numbers remained low pre- and post-, but did increase from 9.5% to 11.1%. If providers use universal precautions with every patient, there may not be much significance in assessing a patient's health literacy level—as it is best to assume that every patient has a low health literacy level (AHRQ, 2017). However, if patients cannot read or write, then alternative forms of education or assistance with education may be necessary.

The implementation of this quality improvement project went well overall. The providers that attended the meetings all gave responses to the pre-survey and many of them also responded to the post-survey. Provider feedback indicated that the diabetes educational material was well liked and easy for patients to use. This education was a workbook style that had plenty of pictures and less written information. Providers did not like the hypertension and hyperlipidemia material as well because it had more writing and was not as easy for patients to understand. Based on this feedback, the diabetes teaching material is to be used routinely in the Internal Medicine clinics.

Key Findings

From the results of this quality improvement project, it is clear that providers improved upon ensuring patients had accurate information regarding what medications they take and clear instructions regarding how to take them. The pre- and post-survey results as discussed in the results section indicate that the health literacy in-service may have been helpful in addressing this component of patient care. Providers improved in this area from 27.3% to 72.2%, which was

statistically significant. In addition, providers are not routinely using written educational material or documenting and assessing patient's response to the teach-back method.

The most significant finding was an increase in providers ensuring patients had lists of their medications and clear instructions on how to take them. Medication education is essential to management of chronic disease. The results indicate that providers improved upon medication education in their practice. While no other results were statistically significant, assessing patient goals and plans to manage health increased almost 30%. Personal patient goals are essential to educating on how to manage disease. There is limited research regarding provider use of teach-back method and ways to make improvements. The majority of research focuses on patient responses rather than the provider or how to implement the AHRQ's universal health precautions.

Limitations of the Study

Sample Size. This study utilized a small sample size from one group of internal medicine providers. There were 22 pre-survey responses and 18 post-survey responses. The responses to the survey were voluntary and providers had to be present at the monthly meeting to be able to participate. A larger sample size could help show more statistical significance and help determine if the in-service was effective in improving provider practices regarding health literacy and teach-back use.

Demographics. This study only used one group of internal medicine providers. This is a limitation as it limits the amount of participants and data was only collected from one establishment. This limits the generalization of the study. Aggregate data was collected, so no information regarding whether a provider was a physician or advanced practice provider, male or female, age, and race were not collected. To make further detailed conclusions, it would be

helpful to know this information. Information was not compared between individual pre- and post-tests, which also does not directly show improvements from before and after the in-service.

Responder Bias. Respondents may not have felt comfortable providing true answers because they are afraid what other providers may think. They may feel afraid to respond truthfully because of their desire to appear professional.

Organizational Recommendations for Change

Teach-Back Competency. Incorporating the AHRQ's Universal Precautions Toolkit into a yearly, mandatory educational session that assesses provider knowledge of health literacy would be beneficial for several reasons. Provider and patient satisfaction would increase and could begin to impact patient understanding of treatment plans and educational material. By requiring providers to review the AHRQ's toolkit yearly, this would enhance understanding of how to use teach-back and other methods to improve patient outcomes. Gaining more information about styles of educational materials providers prefer will be useful in the future in order to obtain educational materials that providers will use in their personal practice. Future recommendations to improve the use of universal health precautions would be to provide role-play or interactive meetings so that providers can experience how to use the AHRQ's toolkit.

Patient Satisfaction. Appropriate health literate educational material should be routinely provided to patients. Questions regarding the education should be routinely assessed, to ensure understanding of information. If patients are given educational materials that they can easily understand, patient satisfaction will increase and patient outcomes may improve.

Use of Written Educational Material. Only about half of provider responses claimed to use written educational materials for patients which indicates patients may not be getting enough supplemental information regarding their health. When appropriate health literate materials are

used, it has been proven that patients become more engaged in learning about their disease. Providers should utilize appropriate materials and begin ensuring patients get accurate, easy to read health literature.

Conclusion

Provider understanding and use of the AHRQ's Universal Health Precautions is essential to improving patient outcomes and satisfaction. The teach-back method in particular is a simple and easy tool for providers to use during patient interactions that can improve patient knowledge and adherence to treatment regimens. This quality improvement project sought to explore how providers feel about universal health literacy precautions, health literacy importance, and the teach-back method. The results were that providers do feel that health literacy and the use of universal precautions are important. Future studies should focus on further universal health precautions education, how well providers are using these elements, and patient response. In order to continue to improve overall patient health, experience, and quality of life, providers must continue to put forth their greatest efforts in providing simple—yet valuable patient education. Only when this is accomplished, will patients truly be able to have the tools necessary to manage and prevent disease.

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Tables**Table 1.** Comparison of Provider Health Literacy Items Pre- and Post- Intervention

	Pre (n=22) % doing well	Post (n=18) % doing well	<i>p</i>
I listen carefully to patients without interrupting	77.3%	77.8%	>0.99
I speak clearly	68.2%	83.3%	0.46
I limit myself to 3-5 key points and reinforce those	50.0%	66.6%	0.289
I talk about educational materials given	27.3%	38.9%	0.435
Assess patient's understanding of information	22.7%	38.9%	0.267
Review patient medication and demonstrate	33.3%	52.9%	0.224
Provide updates medication lists, how to take medication	27.3%	72.2%	0.005
Train patients to use patient portal	16.7%	13.3%	>0.99
Assess and record language preference	62.5%	66.7%	0.809
Use appropriate language services	63.6%	72.2%	0.564
Environment that encourages asking questions	81.8%	88.9%	0.673
Help choose patient health improvement goals and planning	40.9%	66.7%	0.1705
Consider religious, culture and ethnic customs	59.1%	72.2%	0.386
Follow up with patients to determine if goals have been met	36.4%	66.7%	0.057
Write precise instructions for taking medication that are easy to understand	19%	33.3%	0.465
Discuss different methods for remembering to take medications correctly	52.4%	66.7%	0.366
Ask patients if they are having trouble understanding or reading/using numbers	9.5%	11.1%	>0.99

Table 2. *Levene's Test for Equality of Variances for the Confidence and Conviction Scale*

		Levene's Test for Equality of Variances					
		F	Sig.	t	df	Sig. (2-tailed)	Upper
convinced_teachback	Equal variances assumed	1.107	.300	.730	37	.470	1.378
	Equal variances not assumed			.716	31.885	.479	1.404
confident_teachback	Equal variances assumed	.117	.734	-1.376	37	.177	.262
	Equal variances not assumed			-1.378	36.244	.177	.262

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
Mean Difference	Std. Error Difference	Lower	
.365	.500	-.648	
.365	.510	-.674	
-.556	.404	-1.374	
-.556	.403	-1.373	

Table 3. *Time Teach-Back has been Used*

teachback_frequency * redcap_event_name Crosstabulation

		redcap_event_name		Total	
		1	2		
teachback_frequency	1	Count	14	12	26
		% within redcap_event_name	66.7%	70.6%	68.4%
	2	Count	2	3	5
		% within redcap_event_name	9.5%	17.6%	13.2%
	3	Count	3	2	5
		% within redcap_event_name	14.3%	11.8%	13.2%
	4	Count	1	0	1
		% within redcap_event_name	4.8%	0.0%	2.6%
	5	Count	1	0	1
		% within redcap_event_name	4.8%	0.0%	2.6%
	Total	Count	21	17	38
		% within redcap_event_name	100.0%	100.0%	100.0%
		redcap_event_name			

Test Statistics^a

	teachback_frequ ency
Mann-Whitney U	164.000
Wilcoxon W	317.000
Z	-.518
Asymp. Sig. (2-tailed)	.605
Exact Sig. [2*(1-tailed Sig.)]	.685 ^b

a. Grouping Variable: redcap_event_name

b. Not corrected for ties.

Table 4. *Changes in Use of Elements of Teach-Back*

Teach-Back Element	Pre-Survey Percentage (%)	Post-Survey Percentage (%)
Use a caring tone of voice and attitude	86.4	100
Display a comfortable body language, make eye contact, and sit down	90.9	100
Use plain language	95.5	100
Ask the patient to explain, in their own words, what that were told	68.2	72.2
Use non-shaming, open-ended questions	81.8	83.3
Avoid asking questions that can be answered with a yes or no	31.8	50
Take responsibility for making sure you were clear	63.6	66.7
Explain and check again if the patient is unable to teach-back	58.8	41.2
Use reader-friendly print materials to support learning	52.9	47.1
Document use of and patient's response to teach-back.	13.6	11.1
Use reader-friendly print materials to support learning	86.4	94.4
Include family members/caregivers if they were present	90.9	100

Figures

Figure 1. *Modified Primary Care Health Literacy Assessment*

Modified Primary Care Health Literacy Assessment

(Adapted from the Agency for Health Research and Quality)

Doing Well

Needs Improvement

Not Doing

Not Sure or N/A

	Doing Well	Needs Improvement	Not Doing	Not Sure or N/A	Tools to Help
1. I speak clearly (e.g., use plain, everyday words and speak at a moderate pace).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4-Commun. Clearly
2. I listen carefully to patients without interrupting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4-Commun. Clearly
3. I limit myself to 3-5 key points and repeat those points for reinforcement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4-Commun. Clearly
4. I talk with patients about any educational materials they receive during the visit and emphasize the important information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12-Use Health Ed. Material Effectively
5. I ask patients to state key points in their own words (i.e., use the teach-back method) to assess patients' understanding of information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5-Teach-Back Method
6. I routinely review with patients all the medicines they take, including over-the-counter medicines and supplements, and ask patients to demonstrate how to take them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5-Teach-Back Method 8-Brown Bag Review

7. I routinely provide patients with updated medicine lists that describe in easy-to-understand language what medicines the patient is to take and how to take them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8-Brown Bag Review
8. Our practice trains patients to use our patient portal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12-Use Health Ed. Material Effectively
9. Staff members assess patients' language preferences and record them in the medical record.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-Language Differences 13-Welcome Patients
10. I always use appropriate language services (e.g., trained medical interpreters, trained bilingual clinicians, materials in other languages) with patients who do not speak English very well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-Language Differences
11. I create an environment that encourages our patients to ask questions (e.g., asking "What questions do you have?" instead of "Do you have any questions?") and get involved with their care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13-Welcome Patients 14-Enc. Questions 15-Make Action Plans
12. I help patients choose health improvement goals and develop action plan to take manageable steps toward goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15-Make Action Plans
13. I consider their patients' religion, culture, and ethnic customs when devising treatment options.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10- Consider Culture
14. I follow up with patients to determine if their action plan goals have been met.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6-Follow up 15-Make Action Plans
15. I write precise instructions for taking medicine that are easy-to-understand (e.g., "take 1 pill in the morning and 1 pill at bedtime" instead of "take twice daily").	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16-Help Patients with Medicine
16. I discuss different methods for remembering to take medicines correctly and offer patients assistance setting up a system (e.g., pill box, medicine chart).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16- Help Patients with Medicine

17. I ask patients if they have trouble reading or understanding and using numbers.	<input type="checkbox"/>	20-Literacy and Math Resources				
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Figure 2. *Confidence and Conviction Scale*

Confidence and Conviction Scale:

1. On a scale from 1 to 10, how convinced are you that it is important to use teach-back (ask patients to explain key information back in their own words)?

Not at all important	Very Important
1 2 3 4 5 6 7 8	9 10

2. On a scale from 1 to 10, how confident are you in your ability to use teach-back (ask patients to explain key information back in their own words)?

Not at all confident	Very Confident
1 2 3 4 5 6 7 8	9 10

3. How often do you ask patients to explain back, in their own words, what they need to know or do to take care of themselves?

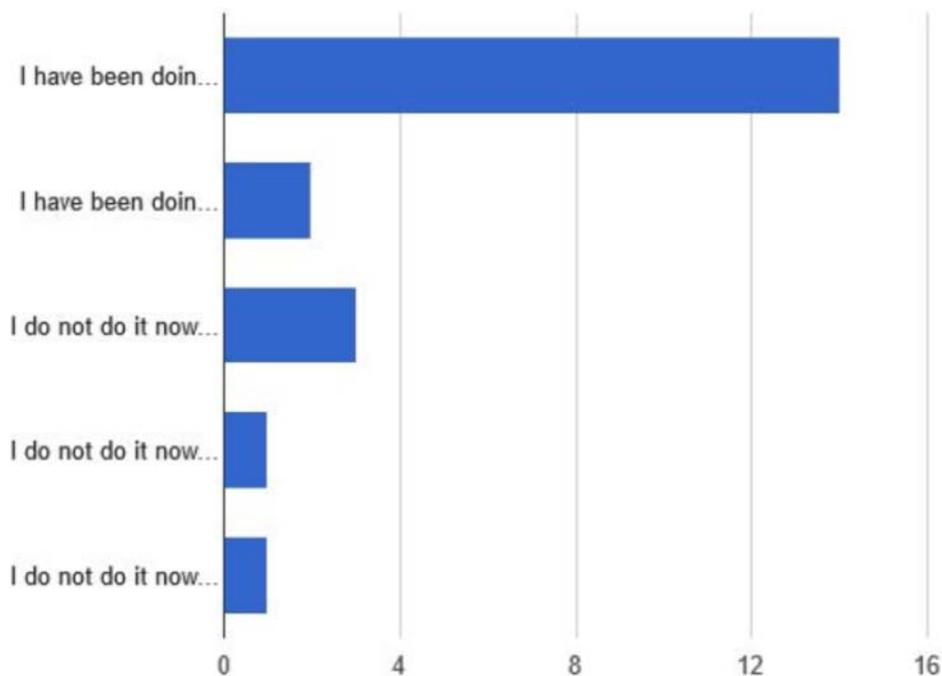
- I have been doing this for 6 months or more.
- I have been doing this for less than 6 months.
- I do not do it now, but plan to do this in the next month.
- I do not do it now, but plan to do this in the next 2 to 6 months.
- I do not do it now and do not plan to do this.

4. Check all the elements of effective teach-back you have used more than half the time in the past work week.

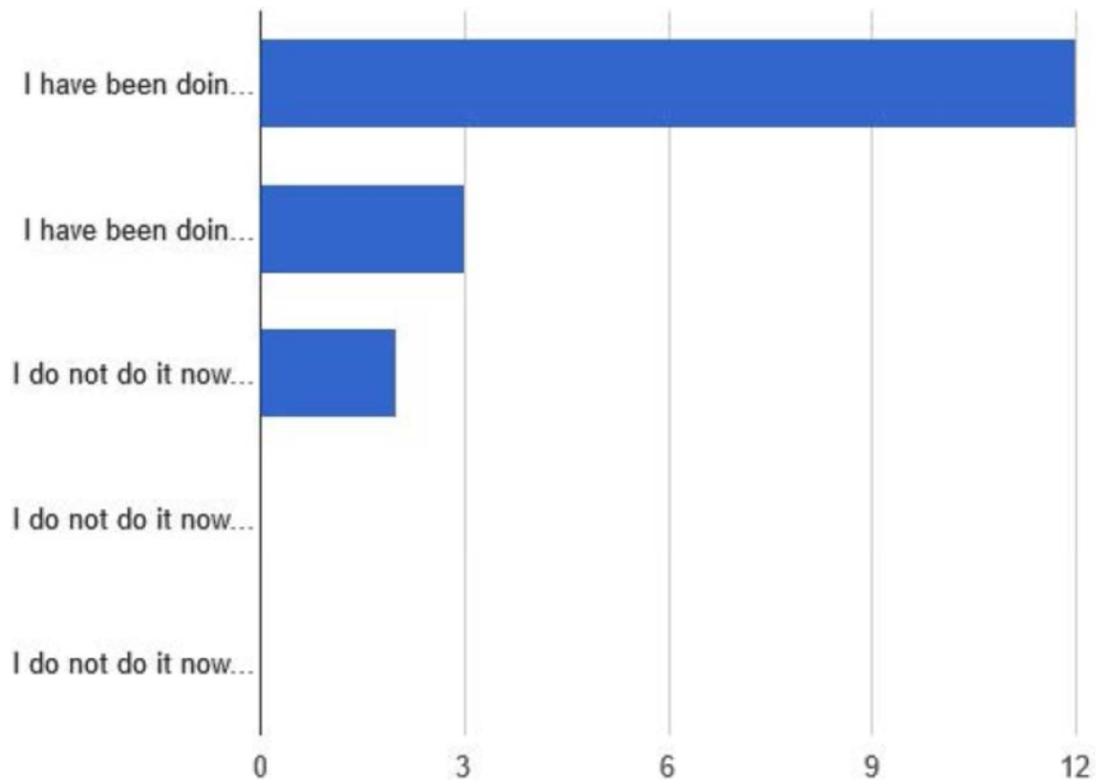
- Use a caring tone of voice and attitude.
- Display comfortable body language, make eye contact, and sit down.
- Use plain language.
- Ask the patient to explain, in their own words, what they were told.
- Use non-shaming, open-ended questions.
- Avoid asking questions that can be answered with a yes or no.

- Take responsibility for making sure you were clear.
- Explain and check again if the patient is unable to teach-back.
- Use reader-friendly print materials to support learning.
- Document use of and patient's response to teach-back.
- Include family members/caregivers if they were present.

Figure 3. *Pre-Survey Frequency of Teach-Back*



Counts/frequency: I have been doing this for 6 months or more. (14, 66.7%), I have been doing this for less than 6 months. (2, 9.5%), I do not do it now, but plan to do this in the next month. (3, 14.3%), I do not do it now, but plan to do this in the next 2-6 months. (1, 4.8%), I do not do it now and do not plan to do this. (1, 4.8%)

Figure 4. *Post-Survey Frequency of Teach-Back*

Counts/frequency: I have been doing this for 6 months or more. (12, 70.6%), I have been doing this for less than 6 months. (3, 17.6%), I do not do it now, but plan to do this in the next month. (2, 11.8%), I do not do it now, but plan to do this in the next 2-6 months. (0, 0.0%), I do not do it now and do not plan to do this. (0, 0.0%)