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**Utilizing Health Literacy Universal Precautions and the Teach Back Method to Improve  
Hospitalized Patients' Experience with Medication Education: A Quality Improvement  
Project**

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Date of Submission: April 23, 2024

## **Abstract**

**BACKGROUND:** Patients, especially the elderly, are at high risk for post hospital complications related to poor medication adherence. Addressing health and medication literacy limitations during their inpatient encounter closes critical gaps in a patient's understanding of their medication regimen. The project goal was to improve the patient experience related to communication about medicines during their inpatient encounter. The intervention implemented was the introduction of health literacy universal precaution concepts and teach-back methodology for medication education.

**METHODS:** Interdisciplinary educational sessions were created and implemented for nurses, hospitalists, and respiratory therapists. Additionally, at the elbow support was provided throughout the implementation phase to increase compliance and confidence of staff. On the day of discharge, patient responses to three patient experience questions associated with medication education were collected.

**RESULTS:** Following an interdisciplinary staff education effort, all three patient experience questions related to medication were improved. The greatest change was in the question "Before giving you any new medicine, how often did hospital staff describe possible side effects in a way that you could understand?" increasing from 48% of patients responding "Always" to 68%.

**CONCLUSIONS:** Both increasing staff knowledge of the prevalence of poor health literacy and its impact on medication adherence has made a difference in the patient experience scores collected at discharge. This quality improvement project focused on the verbal communication aspect of medication education in the inpatient setting. Future work will encompass other learning methods through the lens of health literacy universal precautions.

*Keywords: health literacy universal precautions, teach-back, medication education*

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# **Utilizing Health Literacy Universal Precautions and the Teach Back Method to Improve Hospitalized Patients' Experience with Medication Education: A Quality Improvement Project**

## **Introduction**

Improving health literacy is a global priority. The United States, Canada, Australia, China, and The European Union have identified health literacy initiatives to improve health outcomes and lower healthcare costs (Liu, 2020). The World Health Organization (WHO) recognized health literacy as a social determinant of health in 2016 (The Lancet, 2022). In the United States, approximately 59% of those 65 years of age and older can be categorized at a basic or below basic level of health literacy (Lopez et al., 2022). It is estimated that poor health literacy can cost an individual up to \$7,798 per year in additional health care costs and estimated \$238 billion per year nationally (Lopez et al., 2022). About 1 million hospital visits per year could be avoided with improved health literacy (CDC, 2021).

The concept of health literacy can be traced back to the 1970s in health education (Parnell, 2019). The National Adult Literacy Survey popularized the notion of health literacy in 1992 and the Institute of Medicine further promoted the concept in 2004 through their report "Health literacy: A prescription to end confusion" (DeWalt et al. 2016). In 2020, as part of the U.S. government's *Healthy People 2030* the definition was updated to state "health literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others." As healthcare continues to evolve, so should the concepts of health literacy. Parnell et al. (2019) recommends a definition that addresses the dynamic nature of health literacy and one that includes a collaborative approach to health knowledge.

It has become evident that general literacy is not an accurate predictor of health literacy. A person with advanced education will still struggle with foreign medical terminology and have difficulty assimilating knowledge during times of stress such as hospitalization (AHRQ, 2024, CDC, 2023, Horvat, 2020). Navigating the complex health care system can be overwhelming. Adding poor health literacy skills on top of substantial amounts of confusing medical jargon presented during a patient's admission can lead to adverse outcomes. Considering that most people will engage in the health care system in their lifetime as either a patient or caregiver, improving health literacy has become a national priority (AHRQ, 2024, Health.gov, n.d.). The Agency for Healthcare Research and Quality (AHRQ) has set forth guidelines for organizations to improve communication with patients in the Health Literacy Universal Precautions (HLUP) Toolkit, 2<sup>nd</sup> edition (AHRQ, 2020). The universal precautions component of health literacy is based in assuming all patients have limited health literacy (AHRQ, 2020, Parnell, 2019). Therefore, all health information should be communicated with minimal use of medical jargon and abbreviations, in a safe environment that encourages questions and makes certain the patient understands. Mitigating health literacy barriers requires that the clinician is responsible for not only the dissemination of instructions, but that it is presented in ways the patient can retain and apply. Health information is delivered in various formats. Printed materials require reading and writing skills, verbal instructions rely on listening and speaking skills, and often we rely on a patient's efficacy with numbers to report laboratory results or discuss medication dosage (Liu, 2020).

Appreciating health literacy is crucial to affecting a change in the more specific concept of medication literacy. Clinicians must be aware of the ubiquity of poor health and medication literacy to communicate effectively with patients. The evidence-based practice of teach-back is a

successful style of education that ensures patients understand the essentials of their medications. This paper will describe a quality improvement project that addresses clinician's application of HLUP concepts and the implementation of teach-back for medication education.

### **Problem Description**

Approximately 80 million adults in the United States have limited or low health literacy (Hickey, 2018). Older adults and those with less education and lower income are linked with lower levels of health literacy (Schonfeld, 2021). In 2002, AHRQ and the Centers for Medicare & Medicaid Services (CMS) created a survey tool to evaluate the patient's healthcare experience following an encounter (Pajaro, 2022). This survey became the Hospital Consumers Assessment of Health Providers and Systems (HCAHPS) and is a significant tool used in organizations to gauge the success of quality improvement initiatives. One domain of the HCAHPS survey is dedicated to the patient's perception of medication communication while hospitalized. This is a useful tool to understand if clinicians are failing to meet the educational needs of the patients they serve. HCAHPS surveys have revealed that our organization has suboptimal scores in medication education, which puts our patient population at risk. In the 2023 calendar year, the acute medical/surgical unit ranks in the 39<sup>th</sup> percentile in survey questions in the domain of communication about medicines.

Medication literacy uses the tenants of health literacy as applied to pharmacological interventions. Taking medications for optimal treatment requires knowledge of what the medication is called, what it is meant to treat, expected side effects, drug or food interactions, how to take the medication, dosing information, storage instructions, and when to omit a dose (Neiva et al., 2021). One of the functional, or most basic, components of medication literacy is knowing the name of the medication. For example, those with low levels of medication literacy



will rely on the packaging, color, or size of the pill (Gentizon, 2022). When the patient returns home the medication filled from the pharmacy may look different which will cause confusion for those that rely on visual cues rather than printed materials. A moderate level of medication literacy is the social skills needed to discuss expected versus unwanted side effects and therapeutic goals. A patient with high medication literacy would be able to fully engage in medication self-management and be proactive in health decisions (Gentizon, 2022).

When medication teaching does not confirm the patient's understanding the patient is at risk of poor health outcomes and adverse events. The most common form of all post discharge adverse events post is related to medications (Prochnow, 2018). Medication safety means that a patient's prescription is administered at the correct interval, at the right dose, for the desired response and under the right conditions (Gentizon, 2022). For example, a medication that should only be taken as needed, may be over or under used if the indications are not clear. An unintended overuse of benzodiazepines in the elderly can have an accumulative effect and result in falls with injuries. Medications may need to be taken on a full or empty stomach to prevent adverse reactions or optimize effectiveness. Older adults are at higher risk of poor medication literacy due to typical physical and cognitive impairments in this population. Reduced visual acuity and a diminishing working memory are common (Gentizon, 2022). Cognitive decline occurs in 67% of the elderly population (Randhawa & Varghese, 2023) and approximately 33% experience hearing loss (National Institute on Aging, 2023). It is common for patients to mask their deficits as they age, which in turn makes medication literacy deficits difficult to identify. Polypharmacy and acute changes to their health status also contribute to the volume of information an elderly patient may receive while hospitalized. When a patient is discharged without a clear understanding of how to manage their medications, the chance of re-admission

and increased healthcare utilization increases (Gentizon, 2022). Clinicians must be aware of the importance of HLUP and how to implement the evidenced based practice of teach-back during medication education. Patient centered education in the form of the teach-back method has demonstrated success in addressing the pervasive issue of low health literacy (Marks, 20220, Pajaro, 2022, Prochnow, 2018, Yen & Leasure, 2019).

### **Available Knowledge**

A literature search was conducted utilizing the key words “health literacy,” “medication literacy,” “teach-back” or “teach-back experience” or “teach-back communication,” “patient education,” “patient medication knowledge” and “patient experience.” A title and abstract search focused on articles that described concept analysis, geriatric populations, nurse-led interventions, and the inpatient setting. Databases searched include PubMed, CINHALL, and Medline.

Additional information was obtained from the Centers for Disease Control (CDC), AHRQ, and Press Ganey. Inclusion criteria were articles written in English and availability of full text.

There is much research in health literacy, ranging from concept analyses to specific subsets like medication or digital health literacy. Early research was focused on identifying who was at risk and how to assess individuals for deficits. Over 200 health literacy assessment tools have been created over the years to assess individual health literacy. The assessments may be used to determine an individual’s risk in a clinical setting or to describe how pervasive health literacy deficits are in various populations.

What makes up a patient’s overall health literacy status can be divided into functional, communicative, and critical (Lopez et al., 2022, Horvat, 2020). The functional level is the ability to read, write and perform basic numeracy skills. Functional health literacy has been shown to be predictably lower with increasing age (Shan et al., 2023). Communicative literacy requires more

complex skills like social skills and the ability to translate meaning from information. Critical health literacy addresses the analysis and synthesis of information. While there are continued efforts to create and validate assessment tools, a vast amount of work is pointed toward how to mitigate this prevalent problem. This shift is due to the dynamic nature of health literacy (Parnell, 2019). A patient may have adequate health literacy during an outpatient visit to comprehend and apply knowledge received regarding a new diagnosis of hypertension. However, that same patient may have reduced health literacy during an inpatient encounter when learning about a complicated medication regimen. Therefore, context is essential when evaluating a patient's capability. Practicing a health literacy informed communication style is recommended to promote self-management following discharge (Glick et al., 2023). The Joint Commission has taken the stance that a disregard for health literacy concerns poses a threat to patient safety (Glick et al., 2023).

### **Health Literacy Assessments**

Functional literacy refers to the most basic skills of reading, writing and numeracy. Patients who have difficulty with general literacy will have difficulty reading instructions and medication labels. Having written instructions to refer to after a face-to-face interaction helps reinforce learning. However, if the material is written such that the patient cannot comprehend, it is of little use. The most common functional health literacy assessments are the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Test of Functional Health Literacy for Adults (TOFHLA). Both assessments concentrate on reading comprehension and recognition of commonly used medical terms (AHRQ, 2022 & Houston et al., 2018)

Written materials are also assessed for their readability. The Flesch-Kincaid Index, The Gunnihg-Fog Index, the Simple Measure of Gobbledygook and Coleman-Liau index (Szabo,

2021) evaluate written text for sentence length and structure and number of syllables to create an objective reading comprehension level. To meet the needs of most of the population, the recommended reading level for patient education materials (PEMs) is between 6<sup>th</sup> and 8<sup>th</sup> grade (Szabo, 2021). Software like Microsoft Word can report a document's readability in terms of the Flesch-Kincaid grade level. Medication education leaflets accessed within the Electronic Medical Record (EMR) for commonly administered medications, acetaminophen and insulin, received a grade level of 9 and 9.3 respectively when entered Microsoft Word. The customary practice of providing handouts may not be useful for many patients.

### **Communicative Literacy**

Communicative literacy is also referred to interactive literacy (Nutbeam et al., 2021). A patient with high communicative literacy can use the foundational skills of functional literacy and apply them to other forms of communication like patient portals, websites, or verbal exchanges with clinicians (Nutbeam et al., 2021). The importance of clear interpersonal communication between clinicians and patients cannot be understated. A patient with high levels of communicative literacy is an active participant in their care both in understanding risks during decision-making and providing accurate health history information (Bahrambeygi et al., 2023). The All Aspects of Health Literacy Scale (AAHLS) is one scale that has elements to assess both communicative and critical health literacy (Shan et al., 2023). Questions related to communicative health literacy in the AAHLS concentrate on verbal communication with clinicians like “When you talk to a physician or nurse, do you ask the questions you need to ask?”

Critical literacy is the most sophisticated form of health literacy. For a patient to achieve a high level of critical health literacy that a patient must be able to analyze information and apply knowledge to changes in their health status (Nutbeam et al., 2021). This capacity to integrate

health information increases the efficacy in which they can self-manage chronic diseases and have informed discussions with their providers (Shan et al., 2023). Skills in this classification are advanced and go beyond episodic patient care and into societal and economic activities (Nutbeam et al., 2021). by asking questions like “Do you think that there are plenty of ways to have a say in what government does about health?” and “How often do you think carefully about whether health information makes sense in your particular situation?” (Shan et al., 2023). The AAHLS has been used in research settings to describe an association between complex care, such as deprescribing, and patient’s depth of involvement in the decision-making process (Gillespie, 2023).

While assessments of functional, communicative, and critical literacy aim to gauge a patient’s ability to interpret and utilize health information, they are not necessarily useful in a clinical setting (Lopez et al., 2022, Schonfeld, 2021). Researchers recommend a shift from the notion that a patient’s health literacy is static by assigning a score (Gillespie et al., 2023). Additionally, assessments evaluate an individual’s comprehension of written and verbal communication can create a stigma if categorized with low health literacy. Even the term assessments can create an environment where the patient feels they are being tested, which has the opposite effect of creating a non-judgmental space. There is, however, controversy in the notion of stigma related to health literacy assessment. It has been shown in some studies that patients appreciate the value this information brings to their healthcare team (Hadden & Kripalani, 2019). The literature in the last six years focuses on how health care systems must respond to the established problem of poor health literacy, not continued development of individual assessments. Nutbeam et al. (2021) describes health literacy as a social determinant of health that is dynamic in nature and can be modified.

## **Health Literacy Universal Precautions**

The concept of HLUP was a response to the pervasive problem of low health literacy in the United States (Cutilli, 2020, DeWalt et al., 2011, Hirsh et al., 2020). In 2010, the AHRQ called for the development of a toolkit for outpatient practitioners. This was a structured approach to addressing poor health literacy in daily practice (Mabachi et al., 2106). The U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (2010) set forth seven specific goals “to engage organizations, professionals, policymakers, communities, individuals and families in a linked, multi-sector effort to improve health literacy” (Health.gov, 2021). The seventh goal calls for increased awareness and use of evidence-based practices and interventions that combat poor health literacy (U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2010).

The toolkit has since been adapted and implemented in a wide range of settings to address a variety of circumstances that are affected by low health literacy (Hirsh et al., 2020, Nwanaji-Enwerem et al., 2023, Yen & Leasure, 2019). The implementation of HLUP principles is concentrated on three main concepts. The first is using simple communication, like plain language, to increase a patient’s comprehension, the second is reducing the complexity of the healthcare system, and finally providing support for self-management of health (AHRQ, 2020).

## **Teach-Back**

An overwhelming amount of literature identifies teach-back style of education as best practice (AHRQ, 2023, Cutilli, 2020, DeWalt et al, 2023, Glick et al., 2023, IHI, n.d., Lopez, Kim & Sacks, 2022, Marks et al., 2022, Mashhadi et al., 2021, Pajaro et al., 2022, Prochnow et al., 2018, and Talevski et al., 2020). Healthcare providers often overestimate their efficacy in communicating with patients. Put simply, a teach-back style of communication entails the

clinician asking the patient to use their own words to explain what has just been taught. This practice provides real-time feedback on the effectiveness of the clinician's communication. If a patient is not able to recall or misunderstands the information, the clinician can clarify or re-teach in the moment. During an outpatient encounter not only may a patient not remember 40-80% of the information given, but almost half of what they remember is incorrect (AHRQ, 2020). The Institute for Healthcare Improvement's (IHI) Always Use Teach-Back! Toolkit (n.d.) includes a list of ten elements for effectively using this method:

1. Use a caring tone of voice and attitude.
2. Display comfortable body language and make eye contact.
3. Use plain language.
4. Ask the patient to explain back, using their own words
5. Use non-shaming, open-ended questions.
6. Avoid asking questions that can be answered with a simple yes or no.
7. Emphasize that the responsibility to explain clearly is on you, the (clinician).
8. If the patient is not able to teach back correctly, explain again and re-check.
9. Use reader-friendly print materials to support learning.
10. Document use of and patient response to teach-back.

Reduction of preventable 30-day readmission is a positive outcome of implementing teach-back (Mashhadi et al., 2021). Despite ample research and available tools, clinicians are often not trained in teach-back and health literacy awareness and as a result, they are not widespread practice (Prochnow, 2018). Hadden & Kripalani (2019) propose a hybrid approach to implementing HLUP concepts, individual patient screening and interventions such as teach-back.

Recognizing the difficulty in applying all activities to all patients, targeted screenings and interventions may be more effective in larger organizations.

### **Rationale**

The frameworks applied to this project were Health Literacy Universal Precautions (HLUP) and Always Use Teach Back! from AHRQ and the Institute for Healthcare Improvement, respectively. These concepts are interconnected as teach-back is a recommended strategy in the HLUP toolkit. As discussed earlier, health literacy may be masked and a patient's capacity may change depending on circumstance, so it is reasonable to approach any patient teaching with the assumption of low health literacy. This is the essence of HLUP. An interdisciplinary method was used to develop and validate the HLUP toolkit that included implementation guidance (DeWalt et al., 2016). While the initial toolkit was developed for primary care practices, the fundamental concepts can be applied to any practice setting. Growing evidence suggests that HLUP should be implemented in favor of placing attention on assessment of individuals (Nutbeam & Lloyd, 2021).

There are several recommended interventions outlined in the HLUP toolkit including raising awareness, using teach-back, addressing language barriers, and revising printed materials. The focus of this project was to raise awareness of medication literacy and teach-back for medication education. HCAHP scores in the domain of communication about medicines and the importance of medication adherence post discharge informed the decision to concentrate on these two areas. Teach-back is widely accepted as the preferred method to validate a patient's understanding of education, though it is not widely used at this facility.

Implementation of this project drew on the foundations of Kolb's adult learning theory. Kolb's experiential learning cycle relies on four phases to integrate new skills into practice:



concrete experience, reflective observation, abstract conceptualization, and active experimentation (Morris, 2020). Additionally, Kolb recognizes individuals have preferred learning styles which fall into the categories of accommodating (feeling and doing), diverging (feeling and watching), assimilating (thinking and watching), and converging (thinking and doing) (Mcleod, 2024). Educational sessions were developed to present the immediate need for practice change through case scenarios (thinking, watching, and feeling), current state of patient experience scores (thinking), and allowed learners to participate (thinking and doing). Clinicians all have concrete experience of medication teaching and were encouraged to reflect on their current practice. During the educational sessions clinicians were challenged to determine how newly presented information should influence a change in their practice and experiment with applying new skills and concepts.

Project implementation used the Lean Six Sigma (LSS) framework for process improvement that includes the following five phases; define, measure, analyze, improve, and control which collectively is called DMAIC. The LSS DMAIC process is a scientific and structured approach to quality improvement (American Society for Quality, n.d.). The define phase identifies the problem by eliciting feedback from stakeholders, reviewing the current state of medication education processes, and determining the business case to make a change. In the measure phase, the gap between desired patient experience scores and actual scores was identified and metrics that will demonstrate improvement were established. During the analyze phase, the team evaluated potential causes for performance deficits such as medication teaching style and ineffective written materials related to health literacy. The improvement phase concentrated on implementation of education to clinicians and use of teach-back style of communication. During improvement, data was collected and analyzed to measure effectiveness.

This was an iterative process and when there was a decrease in the weekly scores, support from the project lead, unit manager and charge nurses was increased. Additional scripting for teach-back was posted and discussions alongside statistics.

### **Specific Aims**

The aim of this project was to implement a teach-back style of medication education to improve patient experience scores related to the domain communication of medicines. The intervention was meant to be implemented in the medical/surgical department and acute inpatient rehabilitation, as there is some crossover in nursing coverage for these departments. However, it was decided to concentrate on the medical/surgical unit as there was no pre-intervention data available for the acute inpatient rehabilitation unit. Since the concept of health literacy universal precautions is the accepted standard, the intervention was applied to all patients with an inpatient status.

### **Methods**

#### **Context**

Mt. Ascutney Hospital is a critical access hospital in rural Windsor, Vermont. According to the United States Census Bureau, 25.7% of Windsor County's population is 65 years and over which is 7.8% higher than the national population percentage. Educational attainment in this county is higher for both high school completion and bachelor's degree or higher (94.9% and 40.8%) than the national percentage (91.1% and 37.9%). Median household income for Windsor County is \$69,492 compared to \$74,580 nationally. (US Census Bureau, 2023). This information is included since literacy risk factors include older population, low income and reduced educational attainment. The acute medical/surgical unit consists of 25 licensed beds for patient stays classified as acute, observation and swing. There is also a distinct part ten bed inpatient

acute rehabilitation unit certified by the Commission on Accreditation of Rehabilitation Facilities (CARF). Both units are included in this project to create consistency in nursing practice throughout the organization though the demographics are distinct and therefore reported separately. The medical/surgical unit's average daily census for the 2023 fiscal year was 19. In 2023 the average length of stay was 10.2 days. The average age was 73 years old and 76% of admitted patients were older than 65. An average of 60 discharges occurs per month. The inpatient rehabilitation unit had an average patient census of 8 in the fiscal year 2023. The 2023 calendar year demographics are as follows: average age was 68 years, 66% of patients were 65 years or older, the average length of stay was 13.6 days, and the average number of discharges per month was 18. There are no pediatric inpatient services available, so all bedded patients are over the age of 18 years old. The medical/surgical unit is staffed with a 5:1 maximum patient to nurse ratio on days and 6:1 on nights. Each shift has a charge nurse that optimally has no patients or a light assignment, if necessary, two licensed nursing assistants (LNA) and usually one patient care attendant. The inpatient rehab unit's staffing consists of a 5:1 patient to nurse ratio on both days and nights and one LNA.

CMS requires all patients with an acute patient status to receive an HCAHP survey following discharge. Additionally, MAH sends surveys to a random sampling of discharged swing patients if they have not received a survey from our organization within the last 60 days. Inpatient acute rehabilitation patients receive a unique survey to capture required reporting for CARF certification but is not required by CMS. Our organization's HCAHPS surveys are sent to patient's homes or electronically within two weeks of discharge. The method of data collection must be approved by CMS which at MAH is through the vendor Press Ganey (CMS, 2023). HCAHP surveys have been endorsed by several groups including the Hospital Quality Alliance

and the National Quality Forum (CMS, 2023). Healthcare organization’s scores are publicly available, although only surveys required are reported. Swing and inpatient acute rehabilitation surveys are not included in public reporting. The total responses received in 2023 was 222 which translates to a 38.5% response rate.

The top box scores and percentile rank were compared nationally to other CAHs. Three questions on the HCAHP scores relay patient’s feedback regarding education about new medications while hospitalized. “Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?” “Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?” Both questions use a four response Likert scale (1 = Never, 2 = Sometimes, 3 = Usually, 4 = Always). The third question is “When I left the hospital, I clearly understood the purpose of taking each of my medicines.” Again, a four response Likert scale is used for this question (1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree). See Figure 1 for our organization’s top box scores over the last three calendar years. The Dartmouth Health system threshold is 80% for top box scores.

**Figure 1**

**HCAHP Scores 2021-2023 Top Box Scores**

Medication Communication and Care Transition HCAHP Questions	2021	2022	2023
Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	61%	61%	52%
Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	68%	81%	75%
When I left the hospital, I clearly understood the purpose of taking each of my medicines.	44%	55%	47%

**Less than 70%**      **Between 70-80%**      **80% and up**

Only one of the two units assessed in this project uses an evaluation for health literacy. The inpatient acute rehabilitation unit uses The Single Item Literacy Screener (SILS) which is imbedded in the admission assessment documentation. The SILS asks, “How often does the patient need to have someone help them read instructions, pamphlets, or other written material from their doctor or pharmacy?” Possible answers are never, rarely, sometimes, always, patient declines to respond, and patient unable to respond. SILS was developed in 2006 to streamline assessment with a single question (Morris et al., 2006). This question is not part of the admission assessment in the medical/surgical unit due to limitations of the electronic health record (EHR). The EHR at MAHHC is Cerner CommunityWorks. This EHR is on a multitenant platform which means there is one software build that is shared across many disparate hospitals. The limitation in multitenancy we are unable to customize assessments.

There is dedicated support from senior leadership and unit managers to improve medication education based on HCAHP scores. The Chief Medical Officer (CMO) and medical/surgical nurse manager were aware of deficiencies in patient satisfaction scores prior to project proposal and were actively seeking an action plan. Initially the stakeholder group included two nurse managers, the CMO, the director of nursing and a nurse informaticist. This was expanded to include a nurse educator and lead pharmacist. The Chief Nursing Officer (CNO) is the executive sponsor. The practice assessment evaluated current and ongoing nurse education requirements and the project timing was selected so that staff would not have competing priorities.

## **Intervention**

The intervention was the implementation of teach-back method for medication teaching using HLUP communication style. In the initial planning meeting for this project, the

stakeholders recommended an interdisciplinary approach. Registered nurses, licensed practical nurses, physicians, advanced practice providers, respiratory therapists and pharmacists were included in the educational sessions. The selected group of clinicians may have direct interaction with patients about medications and should be prepared to communicate using HLUP and teach-back. Individual interviews were conducted with a sampling of nurses, respiratory therapists, providers, and pharmacists to determine current workflows of medication education and teach-back strategies (Appendix A). Responses were collected through informal face-to-face interviews both individually and in small groups. A 30-40 minute in-person education session was presented to the above clinical cohort. The education sessions included a PowerPoint presentation, interactive discussions, and an open-ended question test (Appendix B). The PowerPoint presentation incorporated information from Health Literacy: Hidden Barriers and Practical Strategies from AHRQ (2020), modified to the inpatient setting, and the Always Use Teach Back! Toolkit from the Institute for Healthcare Improvement (n.d.). A video was shown to demonstrate the use of HLUP and teach-back techniques in the setting of medication administration and discharge teaching. The test objective was to ensure comprehension of session content and to identify principles that needed re-enforcement during the implementation phase.

The emphasis of clinician education sessions was to explain the background of health literacy and teach-back skills for medication education, create a sense of urgency for project implementation and give specific strategies that can be used immediately in practice. Clinicians also learned common signs of low health literacy so that they may adapt their approach to medication teaching. This author conducted all educational sessions to provide consistency. Sessions were offered during the clinicians' working hours and were coordinated with unit

managers to allow time away from regular duties to attend. In person sessions were chosen over independent online learning to increase fidelity and continuity.

After educational sessions, the start date was set to begin teach-back style of medication education on the medical/surgical unit. Reminders to use the intervention were relayed during daily unit huddles and reminders posted throughout the unit. Managers, the project leader, nurse educators or charge nurses rounded each shift to provide support. All new medications required teach-back on the topics of medication name, treatment indication and common side effects during medication administration. For patients with dementia, cognitive impairments or others that do not manage their own medication regimen, teach-back was performed with caregivers during their stay and at discharge. Nurses documented teach-back intervention for new medication administration in the EHR. The documentation captures if a caregiver was present and if additional education or re-enforcement was needed. Teach-back was employed again during discharge teaching.

### **Study of Intervention**

The primary measure of intervention impact is HCAHP patient experience scores as they indicate patient safety and quality of care (Kim & Oh, 2020). HCAHP surveys are administered nationally and allow for benchmarking by region or by type of organization. HCAHP data was compared to national CAH data. The communication about medicine domain questions provides feedback on how well the organization is performing regarding the essential components of medication teaching. The usual cadence of survey distribution is two weeks following discharge and survey results may not be returned or posted for another one to two months. For this project we used real-time data collection on the day of discharge rather than waiting for survey results. Nursing managers or their designee used a script (Appendix C) to ask the same questions as the

HCAHP survey. Data collected this way increased the number of respondents and more accurately correlated survey responses to intervention time.

### **Ethical Considerations**

As this project had no patient or employee information being reported, an institutional review board (IRB) oversight was not required. The UNH Department of Nursing Quality Review committee approved the proposal as a quality improvement project and affirmed there were no financial, professional, or institutional conflicts of interest. Clinician interview results were compiled and documented anonymously. Data gathered from patients at the time of discharge contained no patient identifiers. There are no risks to patient safety posed by the implementation of the intervention.

### **Results**

Informal interviews of nurses and hospitalists revealed common themes of the importance of medication education during a patient's admission. Staff self-reported they almost always discuss the purpose for taking medication at the time of administration. The main reason for omission was related to the cognitive abilities of the patient. Discussing side effects of medications occurred primarily when effects were consequential. While both nurses and providers utilize teach-back regularly, many did not actively use this methodology for medication education. Prior to the intervention, there was a lack of clear comprehension regarding the concept of health literacy and its practical application in daily routines. The information gathered during the informal interviews was used to develop educational content.

Over the course of eight sessions, 27 employees attended in-person educational sessions and an additional 25 received a power point with audio (Appendix B). Full-time nurses were



prioritized for in-person sessions as they provide most of the bedside education. See Table 1 for a summary of the education of staff by role.

**Table 1**

<b>Health Literacy and Teach-Back Education</b>			
	Count	Percent In person	Percent received education (in person or digital)
Full Time RNs	19	84%	89%
Per Diem RNs	4	50%	100%
Travel RNs	7	0%	100%
Respiratory Therapists	13	46%	100%
Hospitalists	6	33%	67%
Pharmacists	3	67%	100%
<b>Total</b>	<b>52</b>	<b>54%</b>	<b>92%</b>

In the spirit of teach-back methodology, the education session evaluation/test was presented as open-ended questions allowing the participants to use their own words to express what they learned. An affinity diagram was created to capture themes reported by staff in response to test questions (Figure 2). Of note was the new information pertaining to statistics about the prevalence of poor health literacy and the concept of HLUP. One staff member stated, “I never thought that [the patient] not wanting to discuss meds meant that they might not understand.” While another said, “I never thought about how well people can read” regarding medication education.

**Figure 2**

	General Health Literacy Concepts	Medication Compliance	Reading Level	Teach-Back Concepts
Comments from Education Evaluation/Test	How prevalent (poor) health literacy is	Percentage of people who do not use their meds properly	I never thought about how well people can read	Have a better idea if patient understands (multiple)
	You can identify signs, but you should teach as if they have low literacy regardless	How big the deficit is with patient's understanding of meds		Avoid yes/no questions (multiple)
	Assum everyone has low health literacy (universal Precautions)	Literacy percentages (8)	I was suprised to learn people read at 5th grade realing level	Commit to: Teach-back, especially using phrases like "I want to make sure I explained it clearly", de-emphasizing the issue being the patient
	New - the different ways to tell if a person has low health literacy, I never thought that them not wanting to discuss meds meant that they might not understand	How low compliance levels are		Better health outcomes
	Using plain language	80% of people don't take meds appropriately		May help reduce readmissions
		Percentage of non-compliance (10)		Specific examples of teach-back were helpful

At the end of the educational sessions, staff were encouraged to immediately start using HLUP concepts and teach-back with medication education. Patients who were not cognitively intact or unable to actively participate in education were excluded. New medications were the focus for describing side effects during the patient’s admission. The expectation was that all home medications would be reviewed before discharge. The unit nurse manager, or a designee, met with the patient on the day of discharge to complete a questionnaire. Scripting was provided using plain language to introduce the questionnaire. The questions were read aloud to the patients and the staff members recorded their Likert scale response for the three HCAHP questions. Information about the patient’s admission status, length of stay and age were also noted (see Appendix C). Paper questionnaires were returned to the author for data analysis. Data was collected for five weeks. Surveys were not collected on patients who were not cognitively intact. Based on the historical average monthly discharge statistics, about 60 surveys would be conducted, but due to unanticipated issues, 23 surveys were successfully conducted. Obstacles

that prevented survey completion included rapid discharge, insufficient staffing and patients not receiving new medications during their stay. Daily rounding to reinforce implementation of HLUP and teach-back was performed by project leader, unit nurse manager and charge nurses. Weekly statistics were posted in central areas for nurses, hospitalists, and respiratory therapists to view. Additional recommended scripting for teach-back was also distributed during the five-week project.

JMP statistical software, a SAS Institute product, was used to analyze data and create visual representations of results. In collaboration with the UNH statistical counseling team pre and post intervention data was merged and translated into a comparative bar chart for relative frequencies. This method was chosen due to the significant difference in sample sizes for pre and post intervention data. Pre-intervention data n = 99 while post intervention data n = 23. Pre-intervention data varied from initial top box HCAHP results as data was cleaned to include only surveys where all three questions were answered. Pre-intervention data survey sizes were initially different for each question since a response for every question is not required. Regarding the descriptive statistics of the pre and post intervention populations, there was significant heterogeneity. The post intervention group skewed toward shorter length of stays, younger subjects, and primarily acute patient status (Table 2).

**Table 2**

Length of Stay Range	Stage	
	Post	Pre
1 day	21.7%	7.1%
2-5 days	56.5%	40.4%
6-10 days	13.0%	24.2%
11- 15 days	4.3%	16.2%
16- 20 days	0.0%	7.1%
Over 21 days	4.3%	5.1%

**Patient Status**

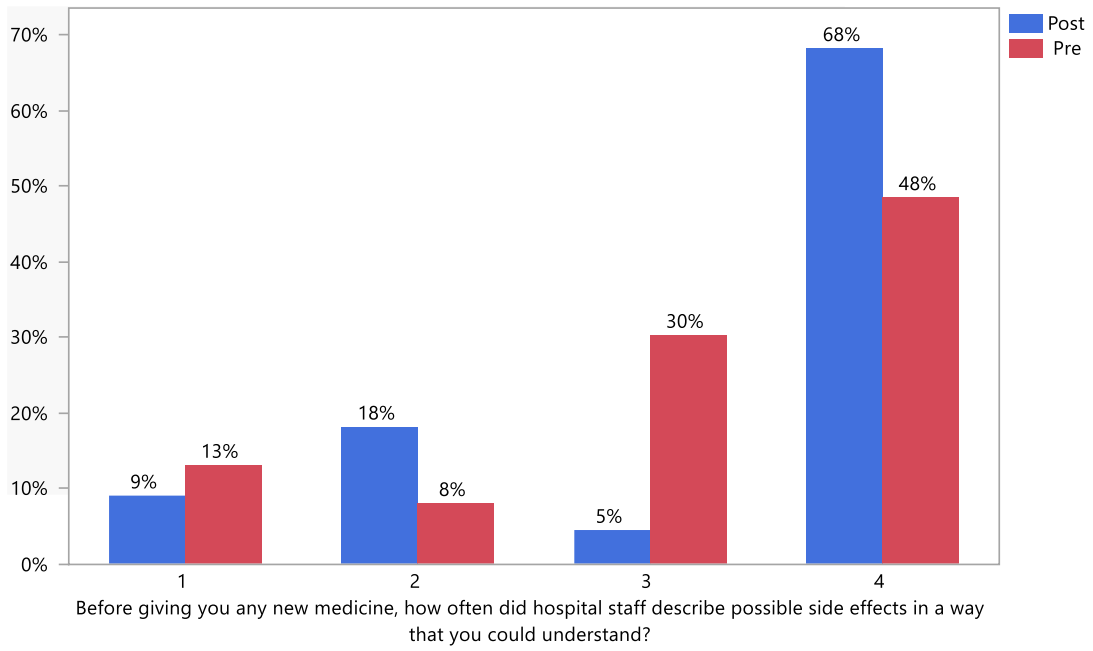
Acute	52.2%	25.3%
Obs	26.1%	11.1%
Swing	21.7%	63.6%

**Patient Age Range**

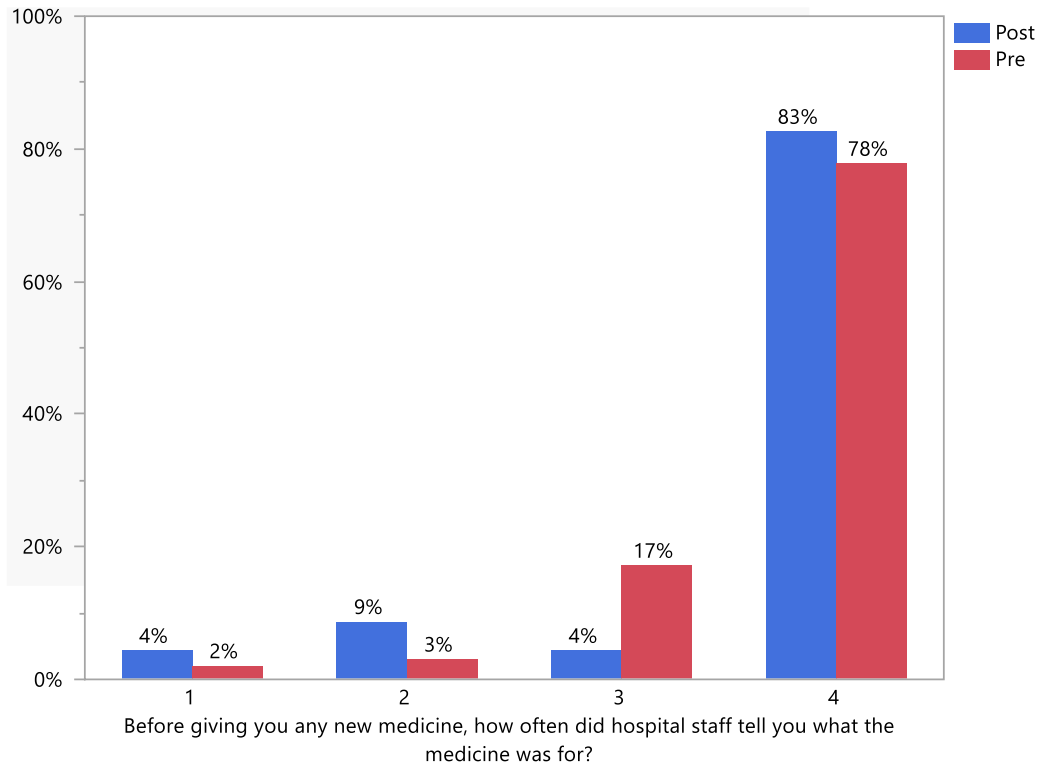
45 and under	17.4%	1.0%
46-55	8.7%	1.0%
56-65	17.4%	11.1%
66-75	21.7%	22.2%
76-85	21.7%	44.4%
86 and over	13.0%	20.2%

All three questions demonstrated an improvement in the top box score of “Always” or “Strongly Agree”. For the question “Before giving you any new medicine, how often did hospital staff describe possible side effects in a way that you could understand?” top box scores increased from 48% pre to 68% post (Figure 3). “Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?” scores increased from 78% pre to 83% post (Figure 4). Finally, “When I left the hospital, I clearly understood the purpose of taking each of my medicines” improved from 54% pre to 68% post (Figure 5).

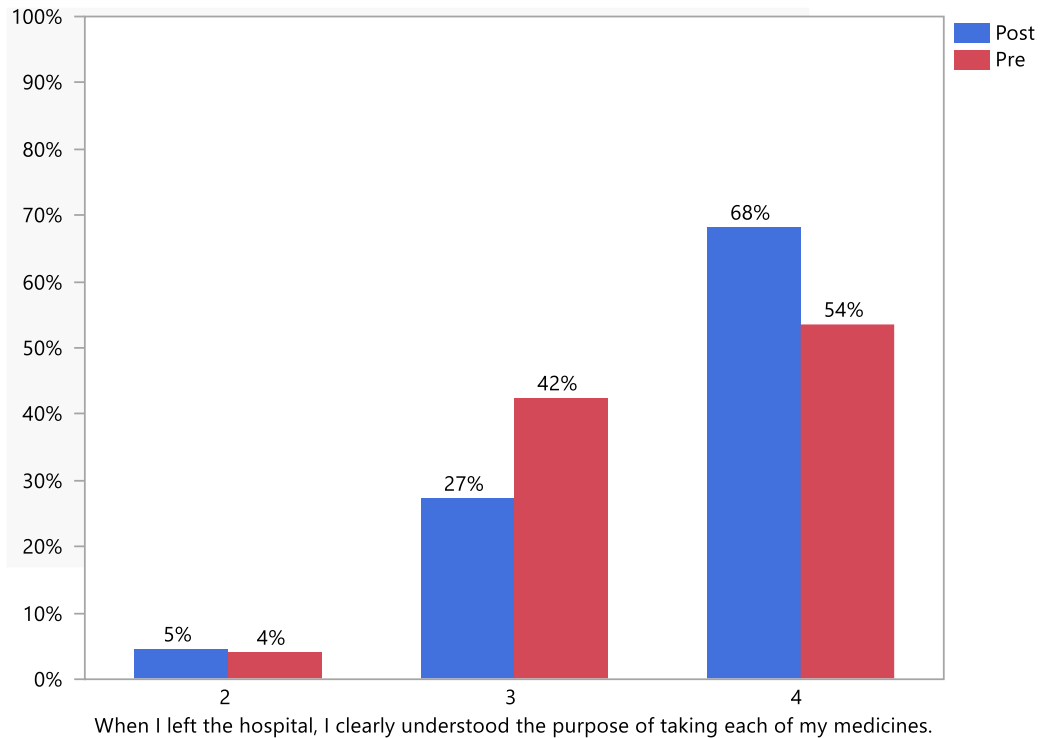
**Figure 3**



**Figure 4**



**Figure 5**



## **Discussion**

### **Summary**

The specific aim of this quality improvement project was to increase the patient experience scores utilizing HLUP concepts and implementing teach-back techniques during inpatient medication education. Of the four primary recommendations of the HLUP toolkit, two were directly addressed in this project. The first was increasing awareness of the impact on patient outcomes of low health literacy, especially in our vulnerable population. The second was using the evidence-based practice of teach-back as the core principle in medication education. The strengths of this project were its simplicity and ease of implementation. 92% of clinicians working on the acute unit received training. Staff responded positively during the educational sessions on how medication education was a cornerstone of improved patient outcomes post

discharge and how low health literacy statistics applied to the patients they cared for everyday. Often times clinicians are inundated with performance metrics of the organization, but do not see immediate results. By capturing responses on the day of discharge, we were able to demonstrate weekly progress and course correct in real time.

As the success of the project relied on the engagement of the bedside staff, regular reminders and support were necessary. The transition from knowledge to practice requires nurturing and the support of unit leaders. The remaining recommendations of the HLUP toolkit were not implemented given the timeframe allotted but will part of future work. While the DH benchmark of 80% was not achieved, all three questions improved by 5-20 percentage points.

### **Interpretation**

Pre-intervention data indicated a deficit in how our organization was approaching patient medication education. These results are the feedback given by our patients on how well they understood the purpose of their medication regimen and if clinicians explained side effects in a way that was clear. When employing teach-back principles if the patient does not understand the content the onus is on the clinician to adapt. The education deployed to the staff emphasized this principle and set the expectation to integrate this into their daily practice around medication teaching. The education evaluation/test demonstrated clinicians had a deeper appreciation of how HLUP and teach-back could effectively improve patient outcomes. The intervention was designed for ease of implementation without additional burden on the clinician's current workflow. Nurses were instructed to document teach-back of new medications in the flow chart, however compliance on documentation was not achieved. Lack of documentation is likely due to a required change in workflow. Cerner CommunityWorks did not allow for documentation to

occur with the medication administration record (MAR). Instead, nurses had to go into a separate flowsheet. This change in workflow was not intuitive and cumbersome leading to omission.

Post-intervention results suggest that increased awareness of HLUP and specific examples of teach-back made a positive impact on the patient experience. HCAHPS is a highly reliable and valid tool to assess quality metrics in healthcare organizations. An increase in patient experience scores can be interpreted as an increase in quality for this domain. Similar results of improved HCAHPS scores using the teach-back method were seen in studies by Pajaro, Keldo, & Viray (2022) and Prochnow, Meiers, & Scheckel, M. M. (2019).

### **Limitations**

It is important to consider the limitations of the project and whether the results can be generalized to other populations. Firstly, the overall sample size of the post intervention group was smaller than expected. Competing priorities and ongoing staff shortages contributed to missed survey capture. Traveler mix may contribute to suboptimal levels of compliance with unit based initiatives since they do not have the same level of buy in for organizational change compared to permanent staff. This resulted in a survey completion rate of 38.3% which was comparable to the 2022 and 2023 Press Ganey survey completion rate of 38.5%. Real time and in person survey completion may have been a confounding factor as the surveys lacked the anonymity of a paper survey sent to the patient's home. As such, results received through Press Ganey may reveal different outcomes.

Two of the HCAHP questions specifically refer to the administration of new medications. Due to limitations in EMR data extraction, it was not possible to identify patients that had new medications administered during their admission. Further, patients in a swing status are transferred from from an acute care setting where new medications may have been started prior



to their arrival at our facility. Even if we were able to report who received new medications during their admission at MAHHC, the patient may have considered the medication started at the previous facility “new”.

Scope and timing limitations only allowed for data on patient responses to survey questions. While HCAHP scores are used broadly as an indicator of quality of care, the true measure of effectiveness would have been to track changes in medication adherence post discharge and readmissions related medication complications.

## **Conclusions**

The worldwide healthcare community has identified low health literacy as a prevalent problem and particularly damaging to health outcomes. It is broadly accepted that using evidence-based techniques such as teach-back and concepts of HLUP can help mitigate the risks associated with this often invisible barrier to optimal health. Medications are a vital component of disease treatment and when compliance is compromised, so is the patient's health. The confirmation of a patient's understanding of the purpose and side effects of their medications is a fundamental step in the medication education process. Heightening the awareness of the impact of low health literacy through education is an important initial phase to reducing medication related post discharge complications. The concept of HLUP and teach-back can be applied to a variety of clinical situations to improve health outcomes.

Recommendations for next steps include reviewing printed medication education materials and making modifications to improve readability for the those with low reading skills or visual impairments. A standard nursing practice is to assess a patient's preferred learning style therefore addressing both verbal and written communication is valuable. Work is underway to collaborate with the system-wide Patient Education Advisory Council (PEAC). This council

engages with patient and family advisor to ensure educational content uses plain language and is sensitive to low health literacy. This quality improvement project has shone a light on an opportunity for improvement in our organization. The interdisciplinary team is motivated to continue with this initiative of HLUP which upholds our mission statement “To improve the lives of those we serve.”

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## Appendix A

### Interview questions for development of medication education

(Nurses, Providers, Respiratory Therapists, Pharmacists)

Name: \_\_\_\_\_ Dept: \_\_\_\_\_ Shift:  
\_\_\_\_\_

How many years have you been a nurse/provider: \_\_\_\_\_ Role: \_\_\_\_\_

1. When is the best time for medication teaching?

During admission/ Med admin/ Discharge/ Specific teaching time/ Other:

\_\_\_\_\_

2. What information do you cover?

Brand name/Generic name/ Reason/ Side effects (always)/Side effects (only high risk)/

Other: \_\_\_\_\_

3. Do you currently use teach back for medication teaching? Yes No Sometimes

4. Rate your confidence in med education:

Very confident                  Somewhat confident                  Less confident                  Not confident

5. Other than time, what are the barriers to medication teaching?

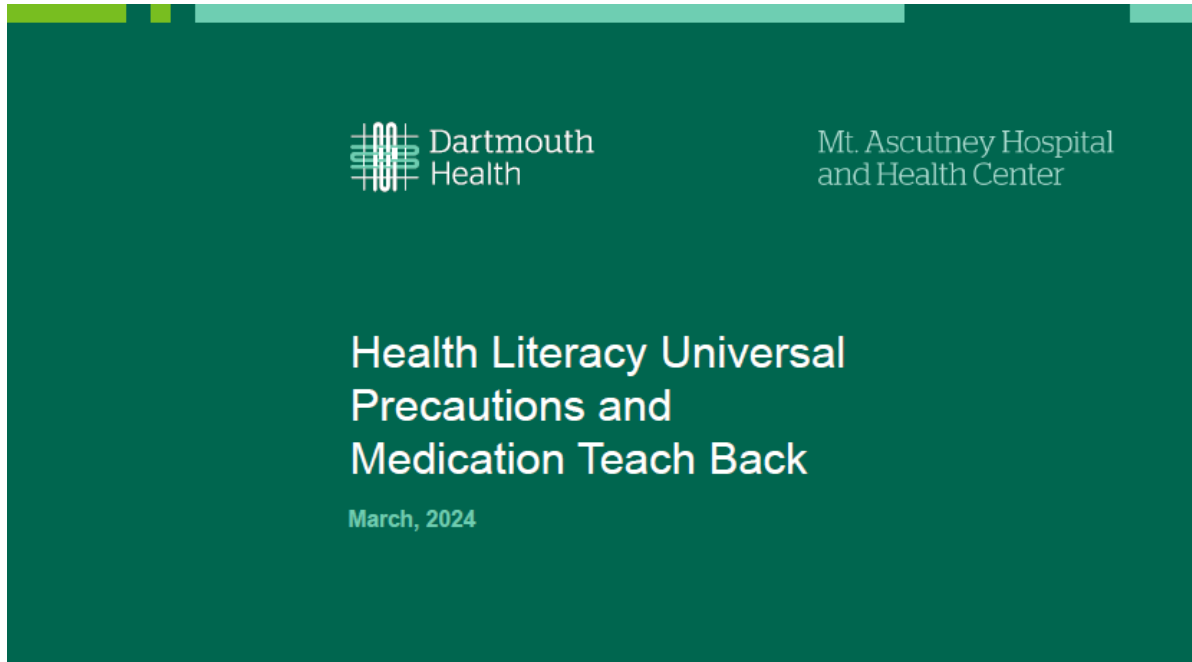
Generic Names                  Brand Names                  Side Effects                  Reason for med

6. What does health literacy mean to you and how do you address it in daily practice?

Other comments:



## Appendix B



The slide features a dark green background with a decorative header bar at the top consisting of several colored segments (light green, dark green, teal, and lime green). The Dartmouth Health logo is positioned on the left, and the text 'Mt. Ascutney Hospital and Health Center' is on the right. The main title is centered in white, and the date 'March, 2024' is centered below it.

Dartmouth Health

Mt. Ascutney Hospital and Health Center

# Health Literacy Universal Precautions and Medication Teach Back

March, 2024

### Objectives

- **The learner will be able to:**
  - Recall the need to use Health Literacy Universal Precautions at Mt. Ascutney
  - Describe interactions with patients that indicate an increased need for medication education
  - Identify concepts that both promote and suppress a safe learning environment
  - Demonstrate open ended questions related to medication education

### Health and Medication Literacy

- How well a patient can find, understand and use health information
  - Medication literacy requires reading skills, numeracy skills and social skills
- Approximately **59%** of adults 65 y/o and older have limitations in health literacy
- Elderly are at higher risk due to aging process
  - Vision/Hearing
  - Reduced working memory
  - Increased reliance on electronic resources for information
- Masking to hide low literacy
  - Unable to name pills – use color and shape to identify
  - Asks few questions
  - Responding to yes/no questions

### HCAHP Scores 2021-2023 Top Box Scores

Medication Communication and Care Transition HCAHP Questions	2021	2022	2023
Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?	<b>61%</b>	<b>61%</b>	<b>52%</b>
Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	<b>68%</b>	<b>81%</b>	<b>75%</b>
When I left the hospital, I clearly understood the purpose of taking each of my medicines.	<b>44%</b>	<b>55%</b>	<b>47%</b>

**Less than 70%**

**Between 70-80%**

**80% and up**

## Hidden Barriers to Communicating with Patients

- **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 general literacy skills does not equate to understanding
  - Anxiety can reduce ability to understand health information
  - Everyone benefits from clear communication
    - Example – our transition to plain language codes

## Interventions

- **Health Literacy Universal Precautions**
  - SIMPLIFY – keep talking points brief and emphasize the most important concepts
  - Use plain, non-medical language
  - Maintain a safe and non-judgmental environment
  - Encourage self-management/empowerment
  - Giving medication information in their primary language
- **Teach-Back**
  - [What the Heck is Teach-Back?](#)

## Teach-Back Principles

- **The responsibility of patient understanding is on the clinician!**
  - Allows for real-time correction of misunderstood information
  - “I want to make sure I explained your medicine clearly. Can you tell me what side effects you may have with this medicine?”
- **Limit the amount of information given at a time (3-5 key points)**
- **Yes/No question are off limits**
  - Avoid “Do you understand?” and “Do you have any questions?”
- **Positive, non-judgmental environment for learning**
- **Use plain language**

## Plain Language- How Would Change These?

- **Hypertension** High Blood Pressure
- **Prevention** Avoid
- **Annually** Every Year
- **Cardiovascular** Heart
- **Syncope** Passing Out
- **Contraindication** Reason not to use
- **Controlled Substance** Drug that is closely monitored
- **Narcotic** Very strong painkiller
- **Dose** Amount or strength
- **Prophylaxis** Medicine that prevents
- **Edema** Swelling
- **Prescription** Pills or Medicine
- **Brand name** Name the drug company has given the medicine

## Interventions

- **Teach-Back Method for Medication Education**

- Focus on 3 aspects
  - Name of medication
  - What the medication is meant to treat
  - Common side effects
- When?
  - At medication administration
  - During discharge teaching
  - Providers – when you order a new medication

## Documentation - Nurses

The screenshot shows a software interface for nursing documentation. On the left is a menu with 'Adult Education' highlighted. The main area displays a form for 'First Dose Medication Education' with fields for 'First Dose Drug Educated', 'Teaching Method', 'Responsible Learner Present for Session', and 'Medication Instructions'. Two dropdown menus are open: 'Teaching Method' with 'Teach-back' selected, and 'Medication Instructions' with 'Needs further teaching' selected. Red arrows indicate the flow from the menu to the form and from the form to the dropdowns.

Learning Assessment			
General Education			
Activities of Daily Living Education			
Diabetes Education			
Discharge Planning Education			
Falls Education			
<b>First Dose Medication Education</b>	<b>First Dose Drug Educated</b>	<b>Name of Med</b>	
Fluid Volume Education			
Heart Failure Education			
Medication Education			
Nutrition Counseling Comprehensive			
Nutrition Education			
Pain Education			
Pre and Post Procedure Education			
Respiratory Education			
Safety Education			
Skin and Wounds Education			
Social Habits Education			
Stroke Education			
VTE Education			

**Teaching Method** ✕

Demonstration

Electronic

Explanation

Printed materials

Teach-back

Video/Educational TV

Web-Based

Other

**Medication Instructions** ✕

Verbalizes understanding

Demonstrates

Needs further teaching

Needs practice/supervision

## Discussion

- 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 now that make it easier for patients with low literacy to understand medications?

## What's next?

- Start using Universal Precautions Health Literacy techniques in medication education
- Nurses – document teach-back in I-view
- Managers (or designee) will conduct survey around the time of discharge asking 3 HCAHP questions
- Data will be collected for 4-6 weeks to see if there is effect
- Updates will be provided to staff throughout the trial
- Written materials will be evaluated and updated

## Health Literacy Universal Precautions and Teach-Back Evaluation

1. What information is new to you following this presentation?
2. What is one thing you will commit to doing differently when providing medication education to patients?
3. How can you tell if a person has low health literacy?
4. How will teach-back help with medication adherence?

## Appendix C

### Day of Discharge Questionnaire

For the last few weeks, our unit has started a new medication teaching program. Our goal is to give you information about your medicines in a way that you understand and can use after you leave. We are always looking for ways to get better and I would like to get your honest opinion.

Is it ok if I ask you three questions about this program so we can understand how we are doing?

1. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?

1 = Never                      2 = Sometimes                      3 = Usually                      4 = Always

2. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?

1 = Never                      2 = Sometimes                      3 = Usually                      4 = Always

3. When I leave the hospital, I clearly understand the purpose of taking each of my medicines.

1 = Strongly disagree                      2 = Disagree                      3 = Agree                      4 = Strongly Agree

Status:            Acute            Obs            Swing            Rehab

Length of stay: \_\_\_\_\_ days

Date of survey: \_\_\_\_\_

Patient age: \_\_\_\_\_