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Communication: A Key to Optimizing Medication Adherence and Cardiac Outcomes

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COMMUNICATION: A KEY TO OPTIMIZING MEDICATION ADHERENCE AND
CARDIAC OUTCOMES

A Project Presented

By

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ABSTRACT

The purpose of this project was to improve how clinicians communicate to patients about cardiovascular medications to the end of improving adherence and optimizing cardiac outcomes. In this project, clinician knowledge and communication confidence with regard to patient education and medication adherence was assessed using a pre-survey. An educational module to increase awareness and improve clinician-patient communication using the teach-back method was provided to inpatient cardiology clinicians consisting of registered nurses and physicians. The goal of the module and communication tool was to improve patient understanding of cardio-protective medications and increase the motivation to adhere to a chronic illness medication regimen. Knowledge and confidence were re-evaluated following the educational session using a post-survey.

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CHAPTER I: INTRODUCTION

"Drugs don't work in patients that don't take them" - C. Everett Koop, MD

Heart disease is the leading cause of death in the United States. More specifically, coronary heart disease is the most common type of heart disease. Someone has a myocardial infarction (MI) every 43 seconds and dies from a MI every minute (CDC, n.d.). Adherence to a core set of cardiovascular medications is the foundation for coronary heart disease prevention and management (Anderson et al., 2013). Nonadherence to the core medications used for secondary prevention is extremely prevalent and is associated with an increased risk of morbidity and mortality. Interventions to improve medication adherence have been called the next frontier in quality improvement (Ho, Bryson, & Rumsfeld, 2009).

Adherence is the ability to carry out a health behavior and is an important predictor of health outcomes. Adherence to medications is defined as taking a medication as prescribed over the period of time for which it is prescribed (AHRQ, 2011). Studies have consistently demonstrated that roughly 1 in 4 patients treated for acute myocardial infarction fail to fill their discharge prescriptions by 1 week. Of those that do fill their prescriptions, less than half will adhere to the prescribed regimen by 2 years of their hospitalization (Ho et al., 2009).

The causes of nonadherence are multifactorial. The reasons can be broadly grouped into 3 categories: communication barriers, motivation, and socioeconomic (figure 1). These categories often overlap in areas such as complex medication regimens

and instructional requirements (Baroletti & Dell'Orfano, 2010). The fact that there is

significant overlap within the causes of nonadherence creates an opportunity for targeted

effective communication between clinicians and patients to overcome some of these

barriers.
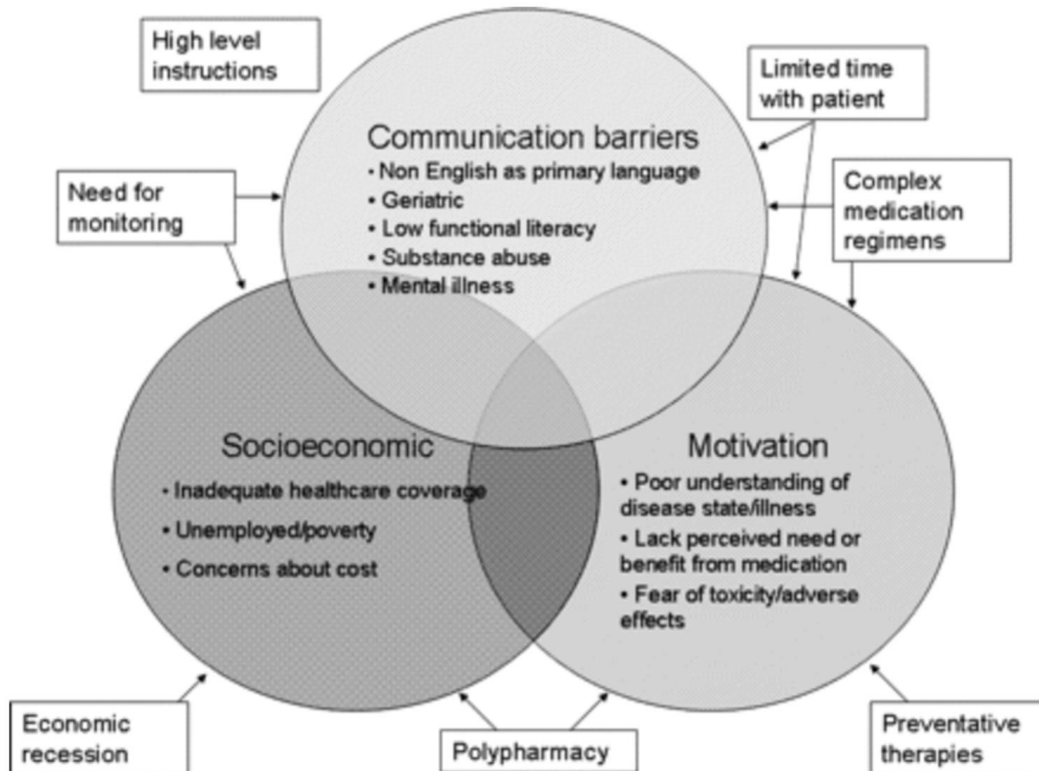
Figure 1. Causes of medication nonadherence (Baroletti & Dell'Orfano, 2010)

Purpose of the Project

The purpose of this project is to improve how clinicians communicate and educate

about cardiovascular medications to the end of improving adherence in patients

hospitalized for coronary artery disease. To improve clinician-patient communication, a

quality improvement education module directed at inpatient hospital clinicians who

initiate medications to patients treated for cardiovascular disease was implemented. The

educational module instructed clinicians in the teach-back method, an evidence based

health literacy intervention that improves patient-provider communication and is proven

to improve medication adherence (Dinh, Bonner, Clark, Ramsbotham, & Hines, 2016;

Petrilla, Benner, Battleman, Tierce, & Hazard, 2005).

Theoretical Framework

The theoretical framework in designing and implementing this project was based

on the tenets of andragogy. Andragogy is a theoretical model of adult learning promoted

by Malcolm Knowles. This adult learning theory provides a model to identify how adults

learn, compared to how children learn or pedagogy (Knowles, 1984). The principles

captured by Knowles' theory not only offers the opportunity to improve the teaching of

the in-service module to clinicians, but it also allows for the incorporation of principles

within the content of the educational material to facilitate the learning of the end target

audience, the patients. In other words, the principles of andragogy facilitate the goal of

teaching the teachers.

Knowles' theory of andragogy incorporates five tenets of adult learning: readiness

to learn, motivation to learn, the learning experience, self-concept regarding learning, and

the orientation to learning. These five assumptions form a framework for educational

content and delivery development by creating awareness that adult learners are ready and

motivated to learn when knowledge can be internalized and applicable to real life

problems identified within their developmental and changing social roles. Adult learners

have a need to know why they need new knowledge and learn best when real life

experiences can be incorporated into the learning through self-discovery (Knowles, 1984).

The tenets of andragogy are relevant to teaching clinicians in methods to communicate and educate patients because the adult learner approaches learning as problem solving. Knowledge is adopted when the content being conveyed is of immediate value. By incorporating role-playing, self-evaluation, simulations, and case studies into the instruction of this project, adult learners are better positioned to take ownership of the material while promoting autonomy.

Core Competencies of Advanced Practice Nursing

The National Organization of Nurse Practitioner Faculties (NONPF) establishes the nurse practitioner core competencies. The NONPF core competencies this project incorporates include leadership, practice inquiry, scientific foundation, health delivery system, and quality (Thomas et al., 2012).

This project synthesized the current research regarding nonadherence to cardiovascular medications and interventions to address the problem. In developing the project, research was critically analyzed to gain a better understanding of the reasons for nonadherence and to identify non-complex, cost-effective evidence-based interventions. The research was then rendered into a clinically relevant project developed to improve clinician-patient communication. A clinical practice quality improvement educational module was developed and implemented as an in-service to empower a group of inter-professional clinicians to educate patients more effectively. Knowledge, skills, and

confidence regarding nonadherence and medication education were quantified with the

support of a pre-and post survey.

The development and implementation of this project provided the opportunity to

cultivate professional and clinical leadership consistent with the NONPF core

competencies. Leadership competencies regarding collaboration, cost effective quality

improvement, and practice advancement were integral to the project. By engaging and

educating clinicians about the importance and prevalence of nonadherence and

disseminating evidence based communication skills to improve patient and health system

outcomes, the core competencies outlined by NONPF are clearly reflected.

CHAPTER II: LITERATURE REVIEW

Searches were conducted in PubMed, CINAHL, MEDLINE, Cochrane library, and Google Scholar databases. Search terms were combined by AND or OR and included but were not limited to: medication, adherence, compliance, observance, coronary, heart, disease, intervention, education, teach-back, communication, acute, myocardial, infarction, mortality, morbidity, health, literacy. Reference lists of included articles were also searched for further potential references.

Adherence to a core set of cardiovascular medications is the foundation for coronary heart disease prevention and management. The evidence based guidelines from the American Heart Association and the American College of Cardiology Foundation for the management of post acute myocardial infarction (MI) emphasizes the importance of medical therapy to reduce the risk of subsequent ischemic events and mortality. Specifically, aspirin (ASA), beta blockers (BB), and hydroxymethyl glutaryl-coenzyme A reductase inhibitors (statins) should be continued indefinitely. Depending on patient specific disease characteristics and interventions, two other medications, a P2T12 receptor inhibitor (ex. clopidogrel, ticagrelor, prasugrel), and angiotensin-converting enzyme inhibitors (ACEI) are also considered to be integral components of core therapy to reduce morbidity and mortality, level of evidence A or B (Anderson et al., 2013).

In a study by Ford et al. (2007) to determine the causes for the decrease in deaths from coronary disease between 1980 and 2000, cardiovascular medications alone were estimated to account for half of the 50% reduction in mortality over this time period (Ford et al., 2007).

The Problem of Core Therapy Nonadherence

The prevalence of medication nonadherence is extensive and well documented. Jackevicius et al. (2008) conducted a population-based cohort study that included over 4500 post acute MI patients. Their analysis demonstrated that approximately 25% of acute MI patients fail to fill their discharge prescriptions by 120 days. Primary nonadherence, not filling prescriptions, was associated with increased 1-year mortality rate.

Of those that do fill their prescriptions, 50% of the patients will discontinue their antihypertensive medications within 6 to 12 months, and only approximately 40% will continue their statin medication by 2 years (figure 2). Long-term and short-term surveys that assessed self-adherence to cardiovascular medications for secondary prevention revealed less than 40% of respondents adhering to the combination of ASA, BB, and statin. Of note, there is a particularly progressive decline in the adherence to BB and statins (Ho P, Spertus JA, Masoudi FA, & et al, 2006; Newby et al., 2006).
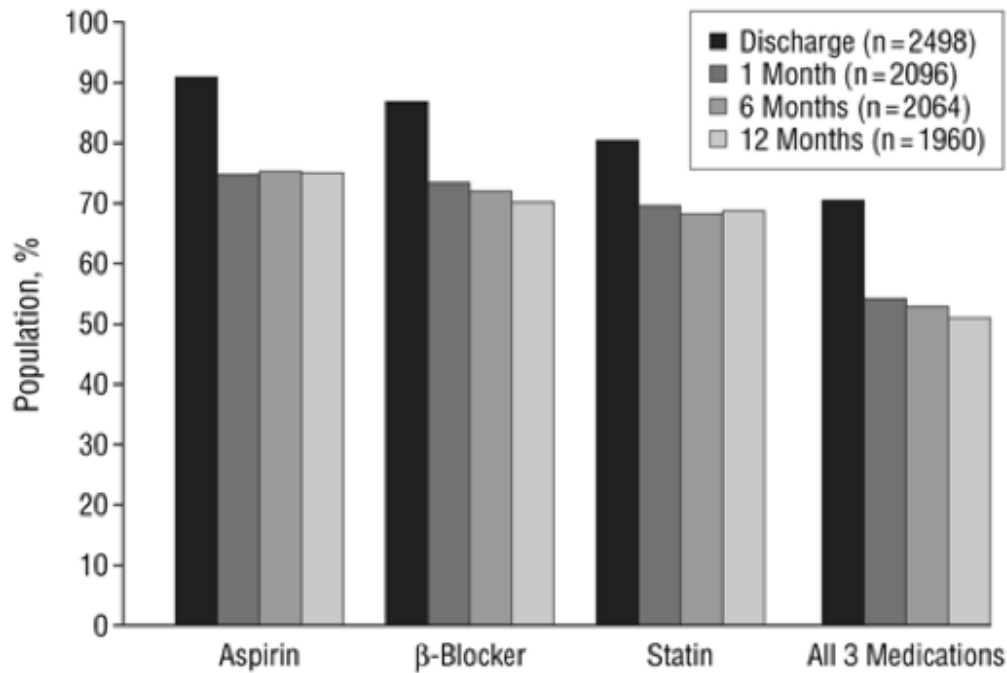
Figure 2. Adherence to Cardiovascular Medications. (Ho P et al., 2006)

Choudhry et al. (2014) performed a secondary analysis of the MI FREEE trial, a

randomized policy study evaluating adherence improvement, to quantify the relationship

between medication adherence and adverse coronary events. Their results revealed that

patients randomized to full prescription medications had significantly better event-free

survival compared to patients with moderate levels of adherence who demonstrated no

protective benefit. Additionally, their study supported the fact that all guideline-

recommended therapies are necessary and confers substantial benefit, with better

adherence to each drug being associated with reduced risk (Choudhry et al., 2014).

The observational longitudinal study of 31,455 MI survivors over 4 years

performed by Rasmussen et al. (2007) highlights the relationship between adherence and

long-term mortality post acute MI with respect to statins and BBs. The study divided

patient adherence into categories based on proportion of days covered as determined by

prescription data. Risk of mortality was greatest for low statin adherers compared to

high-adherence subgroup (deaths 261/1071 (24%) vs 2310/14,345 (16%). Adherence to

BBs revealed a similar adherence-mortality-association, however the dose response was

less pronounced as compared to statin therapy (Rasmussen JN et al., 2007). Gehi et al.

(2007) prospectively evaluated the risk of cardiovascular events associated with self-

reported medication nonadherence in patients with established CVD. Their results

demonstrated a greater than 2-fold increased rate of cardiovascular events in those

patients self-reporting nonadherence (Gehi AK, Ali S, Na B, & Whooley MA, 2007)

A review by Ho, Bryson, & Rumsfeld (2009) provides insight into the issue of

medication adherence not only as a concern with regard to adverse outcomes and

mortality, but also with regard for the healthcare system and stakeholders. Not initially

filling post MI discharge prescriptions consistently reveals a significant increase in the 1-

year mortality rate. Estimates are that 33% to 69% of mediation related hospital

admissions are due to non-adherence (Osterberg & Blaschke, 2005). Failing to follow

medication instructions or continue medications increases mortality, new ischemic

events, hospitalizations, and healthcare costs. Nonadherence may be associated with

higher costs of care even when comparing prescription costs to non-prescription medical

costs (Roebuck, Liberman, Gemmill-Toyama, & Brennan, 2011). Additionally,

adherence implications are incorporated into performance measures that reward

longitudinal therapeutic quality care targets and outcomes that require a long-term

clinician-patient partnership (Ho et al., 2009).

Interventions to Promote Adherence

Although the problem of adherence has been well known and studied for decades, investigations into interventions that address the educational, behavioral, and motivational components of adherence have been lacking. A common theme among the studies that investigate adherence problems for both secondary prevention and primary prevention is that many of these medications produce no noticeable benefit while exposing the patient the side effects, costs, and burden of taking medications.

Baroletti & Dell'Orfano (2010) offer insight into solutions that mutually address communication related and motivational causes of nonadherence. Specifically, they underscore the opportunity for intensive education at the time of hospitalization due to the ability to relate the medications to the disease and the availability of clinicians to sustain a dialogue regarding the medications. They also point out the ability to address adherence risk factors such as a lack of understanding regarding side effects and adverse outcomes if discontinued, especially during the crucial post-hospitalization time period (Baroletti & Dell'Orfano, 2010)

Glynn & Fahey (2011) conducted a systematic review that included 39 studies that investigated the effects of interventions to improve adherence to long-term cardiovascular disease medications. Their results identified three core areas that statistically demonstrated a positive effect on adherence: simplified dosing regimens, prompting mechanisms, and patient health education. With regard to patient health education, the authors acknowledge that traditional education methods often fail due to the complexity of patient adherence behavior. They contend that emphasis on methods that recognize the patient's preferences and beliefs need to be incorporated into

adherence enhancing interventions. Evidence from multiple studies supports the use of

patient-centered approaches to improving adherence, such as using motivational

interviewing. Patient centered education interventions facilitate the ability to understand

the factors affecting mediation adherence such as knowledge level, health beliefs,

perception of risk, and memory (Glynn & Fahey, 2011).

A multifactorial intervention by Lambert-Kerzner et al. (2012) is one of the few

recent studies that have addressed the poor adherence to cardioprotective medication

regimens (BB, ACEi, and Statin). This randomized clinical trial of 253 patients admitted

with acute coronary syndrome (ACS) compared usual care prior to discharge to an

intervention arm that comprised of 4 components: pharmacist-led medical reconciliation

and tailoring, patient education, collaborative care between pharmacists and the primary

care clinician and/or cardiologist, and voice messaging regarding education and

medication refill reminders. The intervention arm of the study produced an 89.3%

adherence rate at 1 year compared to 73.9% adherence in the control group. Although

such complex interventions may not be easily replicated across practice settings, it does

demonstrate the potential for in-hospital interprofessional and provider-patient

partnership in addressing adherence (Lambert-Kerzner et al., 2012).

Santo et al. (2016) performed a systematic review and meta-analysis of

randomized controlled trials (RCT) to assess interventions to improve medication

adherence in coronary disease patients. In their pooled analysis of 10, 706 patients, they

demonstrated that the delivery of an intervention, regardless of its type, improved

medication adherence (OR 1.52; 95% CI 1.25-1.86; $p < 0.001$). Additionally, their

analysis demonstrated that there were similar results regarding adherence regardless if the

intervention was complex and multi-component or simple interventions with only one

component (Santo et al., 2016).

      The teach-back method, also referred as the ask-tell-ask method, is a health care

related education delivery model that has gained prominence as a method to assess and

reinforce education. The method allows for the assessment of patient recall and

comprehension of new concepts. This creates the opportunity for the clinician to address

the patient's misunderstandings, and lets the clinician target the learning needs of the

individual, (Figure 3) (Kornburger, Gibson, Sadowski, Maletta, & Klingbeil, 2013;

Schillinger et al., 2003). An important aspect of the teach-back method is that it places

the burden of understanding on the clinician to have explained the information clearly.

This is achieved by using statements such as "I always ask my patients to repeat things

back to me to make sure I have explained them clearly" (Kripalani & Weiss, 2006) . This

patient centered communication technique can have a significant clinical impact when

discharging patients that may be emotionally and physically fatigued at the time of

education.

Figure 3. teach-back: Closing the Loop (Schillinger et al., 2003).
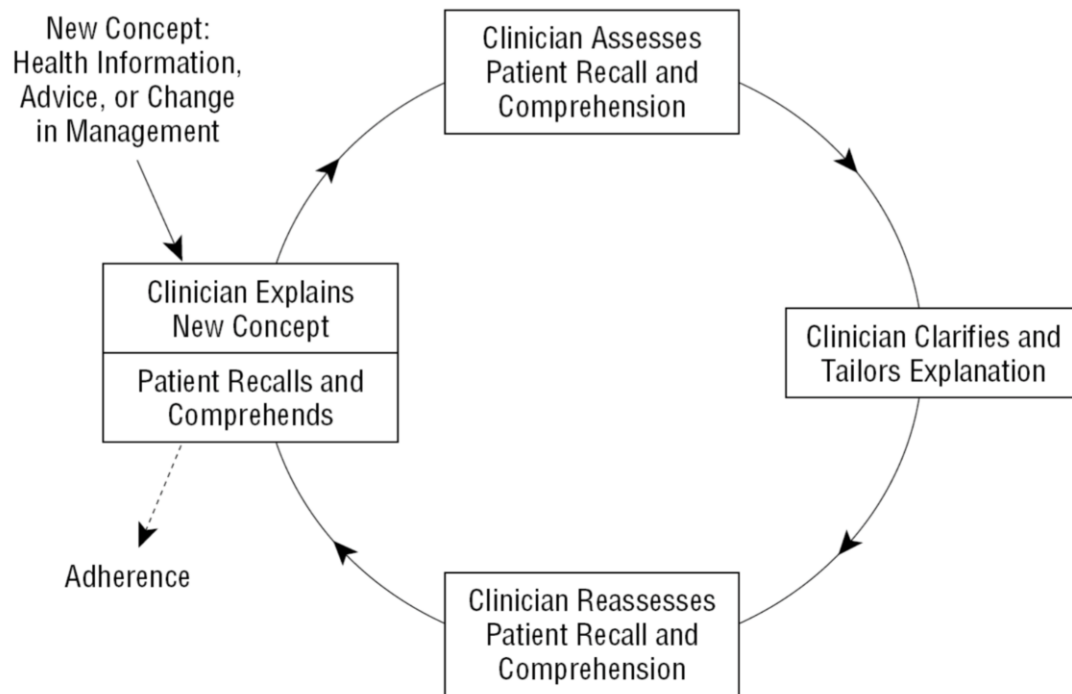
The teach-back method has demonstrated the ability to improve a variety of health

outcomes, including the discharge process and medication adherence. Patients who have

a good understanding of their discharge transition plan, including knowledge about their

medications and follow-up requirements, are significantly less likely to be readmitted

(Jack et al., 2009). A systematic review published in 2016 investigated the evidence on

using the teach-back method in health education programs for improving adherence and

self-management of people with chronic disease. The systematic analysis included 12

studies that met the inclusion criteria. The analysis demonstrated that the teach-back

method had positive effects on a wide range of health care outcomes including

medication adherence, hospital readmission rates, disease-specific knowledge, and

adherence to diet recommendations (Dinh et al., 2016).

       The literature review of current interventions consistently produces evidence that

support patient-provider partnerships, education, and technology to promote medication

adherence for the prevention of cardiovascular events. Patient education regarding the

purpose of the medications in the context of the disease, the possible side effects, and the

cost of nonadherence have the potential to impact the burden of cardiovascular events on

the patient and the healthcare system. Education based interventions offer the added

benefit of being reproducible and cost effective. The teach-back method in particular

offers the ability to improve both the education outcomes and the clinician-patient

relationship. The teach-back method places emphasis on the patient becoming a

knowledgeable stakeholder in their disease management.

CHAPTER III: METHODS

Development of Project Material and Implementation

The project provided an educational module, also referred to as an in-service, for nurses, resident physicians, nurse practitioners, nursing students, and medical students that have patient encounters. The in-service was delivered on 4 different days to capture as many participants as possible. A total of twenty-five nurses and residents participated. The educational module introduced the clinicians to the problem of medication nonadherence, the concept of teach-back, and strategies to improve adherence. Content for the module was sourced from Always-use-teach-back training toolkit available from teachbacktraining.org, the American Heart Association, peer-reviewed evidence based guidelines, and from consultation from expert cardiology clinicians vested in improving nonadherence. The educational modules were delivered by use of a PowerPoint presentation, informational handouts, and role-playing exercises, followed by group discussion.

Anonymous pre and post participation surveys in Likert-type format were administered to evaluate the efficacy of the intervention in enhancing knowledge regarding the delivery of health information to patients, the medication nonadherence problem, and the overall quality of the presentation. The survey consisted of ten questions with total scores ranges from ten to forty. The ten questions assessed the clinicians understanding of health literacy issues, and their confidence and perceived ability to communicate with patients regarding the barriers and solutions to address medication adherence.

Upon completions of the four educational sessions, the pre and post surveys were analyzed using descriptive statistics to assess the impact of the educational module on the clinicians understanding and confidence in addressing the problem of medication adherence.

Enhancements and Inhibitors to Meeting the Project Objectives

The implementation of this project coincided with the hospital wide goal of improving the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores regarding medication education. Additionally, the project was relevant to the institutional goals of reducing readmission rates for myocardial infarctions, with financial incentives related to the readmission reduction program (HRRP) established by the Affordable Care Act (Medicare, 2016). These two institutional wide goals assisted in gaining buy-in from administrative and clinical education coordinators.

The practice council on the cardiology unit where the project was implemented also initiated a medication information patient handout and an "Always Ask" project within the same time period that this project was implemented. The "Always Ask" project involves prompting patients via the use of in-room posters to ask about the purpose of new medications and their possible side effects. These concerted efforts complemented the concepts of the teach-back method and the health literacy goals of the project.

Inhibitors to implementing the project objectives included the variability and availability of participants for the presentation due to the nature of the workflow and staffing levels on any given day. Residents and interns also rotate through the cardiology

service therefore presenting a challenge to maintain a level of consistency regarding the

manner in which medication education is delivered. To reduce these inhibitory factors, a

poster and a permanent TV screen PowerPoint will offer the ability to display the core

principals of the teach-back method and educate new staff on the problem of medication

adherence. Finally, knowledge alone does not guarantee behavior change; attitudes and

beliefs need to change as well to increase the likelihood of shifting behavior.

CHAPTER IV: RESULTS

Evaluation

The anonymous pre and post survey in Likert style administered during the presentations consisted of ten questions with four possible responses. Scores from 1 to 4 were assigned to each possible response with a score of 1 corresponding to strongly disagree, 2 with disagree, 3 with agree, and 4 with strongly agree. Therefore, total individual survey scores could range from 10 to 40. To allow for accurate global survey conclusions, scores on four of the questions were reversed to allow for accurate comparisons. Table 1 lists the individual questions, their associated range, means pre and post-survey, difference in means, and the total means. Questions 1, 2, 4, and 10 listed in table 1 are reverse scored, therefore a trend toward increased numbers on any of the questions represents an increase in understanding or confidence.

A total of 25 pre and post surveys were completed following the four presentations. Of the total participants, 21 were staff nurses representing approximately 25% of the eligible staff nurses, and 4 were resident internal medicine physicians that were currently rotating through the inpatient cardiology service. The mean score for all questions on the pre-survey, including the reverse-scored items, was 29.6. The mean score of all post-survey questions was 33. All ten questions demonstrated an improvement as measured by the post-survey. Although the sample size is too small to conclude any statistical significance between the pre and post-test survey scores, the clinician knowledge and confidence scores for this sample improved following the educational presentation and accompanied discussion.

Table 1: Range and Mean of Scored Questionnaires

Survey Questions	Range Pre-Survey	Mean Score Pre-Survey	Range Post-Survey	Mean Score Post-Survey	Difference in Means
1. I am uncomfortable talking to patients about barriers to medication adherence. *REVERSE SCORED*	1 - 4	2.7	2 - 4	3.0	0.3
2. Most hospitalized patients understand why they need to take their new medications. *REVERSE SCORED*	2 - 4	3.0	3 - 4	3.3	0.3
3. I am confident in my ability to assess my patients understanding of their disease and medications.	1 - 4	2.4	3 - 4	3.2	0.8
4. Patients face few barriers to being able to take their medications as directed. *REVERSE SCORED*	1 - 4	2.8	2 - 4	3.4	0.6
5. I understand the value of teach-back in patient education.	3 - 4	3.4	3 - 4	3.6	0.2
6. I feel confident in my ability to use teach-back during patient education.	2 - 4	3.1	2 - 4	3.3	0.2
7. I feel confident in my ability to use plain language instead of medical terms.	2 - 4	3.1	2 - 4	3.3	0.2
8. I feel confident in my ability to discuss the purpose of the common cardiovascular medications with individuals with heart disease.	2 - 4	3.1	3 - 4	3.4	0.3
9 I feel confident in my ability to assist patients with common medication adherence barriers.	1 - 3	2.7	2 - 4	2.9	0.2
10. Patients tend to remember and understand most of the information presented to them during an encounter. *REVERSE SCORED*	2 - 4	3.3	3 - 4	3.6	0.3
Totals		**29.6**		**33.0**	

Discussion

The survey results highlighted some of the foundational barriers to medication

adherence while also demonstrating that brief educational sessions may impact

communication related to improving adherence. The results of this project support the

existing literature and the widespread understanding that patient health literacy remains a

significant barrier to health outcomes (Bosworth et al., 2011). Question 2 asks: Most

hospitalized patients understand why they need to take their new medications. Question

10 asked: Patients tend to remember and understand most of the information presented to

them during an encounter. Mean pre and post survey scores for both questions

aggregated between the "disagree" and "strongly disagree" responses, indicating that

most clinicians are aware of the health literacy problems encountered by most patients.

The communication related difficulties are likely exacerbated by the necessity to educate

and motivate patients about complex cardioprotective medication regimens in a relatively

short time period. Additionally, patients experiencing great stress and denial with regard

to their acute cardiovascular event may also inhibit inpatient education effectiveness and

efficiency. However, the need to provide education regarding discharge medications and

treatment plans is imperative, especially in the immediate period following discharge for

a cardiovascular related event (Ho P, Lambert-Kerzner A, Carey EP, & et al, 2014) .

The results also demonstrate that education about medication nonadherence

awareness and training related to developing clinician-patient communication techniques

can increase knowledge and confidence useful in addressing adherence. As Glynn &

Fahey, (2011) demonstrated in their systematic analysis of adherence interventions,

patient health education is known to have a positive effect on adherence. Survey

questions inquiring about the clinician's confidence in assessing patient knowledge and

the clinicians own understanding of medication nonadherence as demonstrated in

questions 1, 3, and 4 demonstrated some of the greatest ranges in results. This range is

consistent with the literature on the subject regarding the lack of commonplace adherence

assessments or awareness of the extent of the problem. The results of the survey and

presentations also revealed an inconsistent and common misunderstanding of the

medication's role for cardioprotection (Ho et al., 2009). Question 3 specifically asks: I

am confident in my ability to assess my patients understanding of their disease and

medications. The pre and post survey results for this question demonstrated the greatest

increase in score of all questions, with a pre-survey score of 2.4 increasing to a post-

survey score of 3.2. This question correlates well with the overall objective of the

presentation and the inclusiveness of the teach-back tool in providing an evidenced based

method for delivering and assessing patient education. Question 8, which asked: I feel

confident in my ability to discuss the purpose of the common cardiovascular medications

with individuals with heart disease, scored favorably on both the pre and post surveys,

however scores did improve after the presentation. This slight increase correlates with the

discussions that ensued after the presentations that demonstrated an incomplete

understanding of the evidence for and mechanism of action of each of the core

cardiovascular medications. These findings support the notion that clinician comfort and

knowledge regarding the purpose of the common cardiovascular medications benefit

from periodic education (Santo et al., 2016).

Implications for Practice, Education, and Research

Understanding the continued need for clinician education to improve patient

encounters and advance patient health literacy has implications for research, education,

and clinical practice. Interventions such as clinician oriented education support the

published research regarding interventions that are proven to improve medication

adherence. Strategies to optimize educational content and delivery are needed to

maximize clinician contact time and the incorporation of new knowledge into practice.

Educational delivery models that account for limited educational opportunities, influxes

of new clinicians, and content adaptability are needed to sustain awareness and skills.

Nonadherence is a problem that is extensive yet rarely assessed or addressed.

Incorporating standardized medication adherence assessments and increasing the

awareness of the problem is needed. Opportunities exist to research, develop, and

incorporate adherence assessment mechanisms into routine practice through micro and

macro scale campaigns, common intake assessment tools, electronic health records, and

core educational content.

Nonadherence is not unique to cardiovascular settings. Medications are the

primary instrument used to prevent and manage chronic disease, yet despite their known

benefit and importance, adherence remains a challenge to clinicians and patients. The

information presented in this project and the knowledge gained can be translated to

settings beyond the inpatient cardiology specialty. Any setting that not only provides care

to patients prescribed chronic medications, but also understands the value of making the

patient a knowledgeable and active partner in their health will benefit from the

information garnered from this project.

Limitations

Limitations of this project included a relatively small homogenous sample size consisting primarily of female inpatient registered nurses. Delivery of the educational module was limited by the clinician availability and inability to disengage from patient care or work related distractions due to the presentation timing occurring during scheduled shifts on the unit itself. The project occurred at a single point in time with limited ability to measure content retention and application. Post-assessments of the content at a later point in time would have provided a better understanding about whether the presentation reformed clinician practice.

Conclusion

This project has demonstrated the potential benefits that an education based intervention can have on increasing the knowledge, confidence, and skills needed to impact medication nonadherence and optimize cardiac outcomes. The research and current state of understanding reveals that medication nonadherence to each and all guideline-recommended post myocardial infarction prevention medications is associated with an increased risk of future cardiovascular events and mortality. Although medications are the cornerstone of heart disease management and prevention, nonadherence is widespread yet poorly understood or addressed. The review of the literature has demonstrated that interventions to improve medication adherence, whether complex multi-factorial in design, or simple one-component interventions, all have the potential to improve adherence. The results of this project suggest that educational based

interventions to increase awareness of the nonadherence problem while also

incorporating simple low cost solutions such as the teach-back method may be an

effective approach to improve adherence and outcomes related to cardiac events and

other chronic illnesses. Efforts to improve the health literacy of all patients while striving

to make them engaged partners in their health care may be one of the most important

goals to advance individual health outcomes as well as global health systems

improvement.

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Appendix A

Anonymous Medication Adherence Questionnaire

Question #	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I am uncomfortable talking to patients about barriers to medication adherence.				
2. Most hospitalized patients understand why they need to take their new medications.				
3. I am confident in my ability to assess my patients understanding of their disease and medications.				
4. Patients face few barriers to being able to take their medications as directed.				
5. I understand the value of teach-back in patient education.				
6. I feel confident in my ability to use teach-back during patient education.				
7. I feel confident in my ability to use plain language instead of medical terms.				
8. I feel confident in my ability to discuss the purpose of the common cardiovascular medications with individuals with heart disease.				
9 I feel confident in my ability to assist patients with common medication adherence barriers.				
10. Patients tend to remember and understand most of the information presented to them during an encounter.				