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Staff Education Program on Medication Reconciliation

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2025

Abstract

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by

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MS, Walden University, 2018

BS, Xavier University, 1996

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

A minimum of one medication error occurs daily in the life of a hospitalized patient, which confirms the research that medication errors constitute the most significant patient safety issue and that about 20% of these errors result in patient harm. Many errors could have been averted if an accurate medication reconciliation process had been practiced. Medication reconciliation is a formal process whereby the patient's current medication list is compared to the patient's record or medication orders whenever the patient's level of care changes. Framed within the analysis, design, development, implementation, and evaluation (ADDIE) model of instructional design, the purpose of this Doctor of Nursing practice staff education project was to plan, implement, and evaluate a staff education program on a standardized evidence-based process on medication reconciliation (SEPMR). The education was presented to 15 home health nurses in the home health agency with a pretest/posttest accompanying the education. Analysis of the pretest/posttest data was conducted using descriptive statistics. The pretest mean was 6.9 with the posttest mean being 9.5 resulting in a percent change of knowledge of 2.5 (38%). Using a separate evaluation the learners were asked if the four education learning objectives had been met. The participants all agreed that the education provided met the stated learning objectives. The participants recommended that the SEPMR be part of the new nurses' orientation packet and be added to the annual mandatory education required for nurses. The social change impact on the nurses' improved knowledge on medication reconciliation positively affected patient safety thus improving the human condition.

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Dedication

To the memory of my beloved and wonderful parents - HRH Igwe Michael Nweze and HRH Regina Nweze. The motivation, guidance and inspiration you gave me will be cherished forever. To my caring and affectionate husband, Chief/Dr Benjamin U. Muoghalu, and my dear children, Dr. Benjamin C. Muoghalu, Mr. Dominick Muoghalu, Mr. Christopher Muoghalu, Ms. Princess Tiffany Muoghalu, and Ms. Alexis Muoghalu. I cannot begin to express my appreciation and love for the support and sacrifice you afforded me during this doctoral program journey. You were there for me with love and prayers and because of that, I was able to complete the program.

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I would start by thanking all those who supported and encouraged me throughout this academic journey. I especially owe a debt of gratitude to my project supervisors, especially Dr. Joan Moon and my clinical preceptor Mr. Oluseuen Osinowo. I will employ the knowledge I acquired during my encounter with them to affect mankind. To that end, I would be remiss if I did not acknowledge my husband, Chief/Dr. Ben Muoghalu and children, for their sacrifice and support during my academic experience.

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Section 1: Nature of the Project

Introduction

Medical errors account for an estimated incident of about 250,000 annually making it the third leading cause of death in the United States (Johns Hopkins, 2016). The lack of accurate and complete information about patients' medications when care is transferred between healthcare settings or when there is a change in the patient's level of care is a common cause of medical errors (Stuijt et al., 2022, Tunc et al., 2020).

Even though healthcare facilities around the United States implemented quality improvement initiatives, medication errors still occur (Krivanek et al., 2019). One of the major health problems that affect most of the home health care patients is the lack of a standardized medication reconciliation process. Usually when a patient's level of care changes, their medication changes. Often, these medication changes are not carried out due to lack of medication reconciliation. A quality improvement initiative that has demonstrated effectiveness in mitigating medication errors is medication reconciliation (MedRec). MedRec is the process of matching a patient's medication orders to all the medications that the patient is taking including over-the-counter medications (Stuijt et al., 2022). MedRec is a tool that is recognized nationally and if implemented correctly would mitigate medication errors, and improve patient safety (PSNet, 2019).

Approximately 66% of the patients in the home health agency (HHA), in which this Doctor of Nursing Practice (DNP) took place experienced medication errors when the nurses did not notice the discrepancies between the patient's current medications and what was ordered when a change occurred to the patient's level of care. The agency lacks a standardized MedRec process at admission or whenever the patient's level of care changes, and the staff nurses lack the education which would enable them to facilitate the MedRec program in the facility. This DNP project can create positive social change by spanning the gap between theoretical knowledge and evidence-based research and practicing nurse professionals. The project highlighted the importance of nursing education as a cornerstone of safety and well-being of patients.

Problem Statement

The problem that I identified for this DNP project was the requisite for a MedRec program and nurse education program on MedRec in the HHA for which I designed the project. One of the major healthcare problems in the United States that affects millions of home health care patients annually is the lack of a standardized medication reconciliation process (van Sluisveld et al., 2012). This need exists because two-thirds of the patients in the HHA experienced a medication error due to lack of MedRec, especially when the patient's level of care changes. In the United States, unintended adverse drug events resulting from preventable medication errors cause millions of unnecessary patient emergency room visits. This also results in about 10,000 preventable patient deaths per year costing about $40 billion annually (Choi et al., 2016). In the HHA where this project took place, there was a need for standardized evidence-based MedRec process that should have been implemented upon transition or when the patient's level of care changes or medication changes. A quality review of the treatment plan of these patients upon discharge showed an error rate of 8%, which impacted the agency's patient health outcome data negatively resulting in increased cost and decrease in the HHA's star rating (Teshale et al., 2021).

Purpose Statement

The purpose of this staff education project (SEP) was to plan, implement, and evaluate a staff education program on a standardized evidenced-based process on medication reconciliation (SEPMR).

The guiding practice-focused questions for the SEP were:

- Does the literature provide evidence that MedRec is successful in decreasing errors in patient medication care?
- How will the participants evaluate the SEPMR related to the objectives and curriculum on MedRec?
- Will the SEPMR result in improved knowledge of the staff nurse participants on medication reconciliation as demonstrated by a pretest/posttest?

The gap in practice that I addressed in this project was the absence of a MedRec program in the facility and the deficit in knowledge by the nurses on MedRec. The SEPMR will upgrade the knowledge of the nursing staff as it relates to MedRec. Nurses will then be able to provide safe medication administration thus filling the gap in practice due to lack of knowledge and implementation of MedRec in the facility. The practice focused questions were addressed via the review and synthesis of the literature, and the SEPMR with staff evaluation of the program and the pretest/posttest results in change in knowledge.

Nature of the Doctoral Project

Evidence to Support the Project

I completed a comprehensive review of the literature to identify scholarly articles which are peer reviewed including EBSCOhost, Medline, Cochrane, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The following key terms were used to retrieve the relevant publications: *Medication reconciliation, nurses, nursing,* and *medication errors.* Years searched were 2016-2023.

Approach

Following the steps in the Walden University Manual for Staff Education (WUMSE), I used the ADDIE model to frame this SEP.

Planning

According to Leedy and Ormrod (2020), the ADDIE phases are outlined as follows: The analysis phase involves describing the issue/problem to be addressed. The design phase is the goal specification phase incorporating assumptions and hypotheses. According to Efron and Ravid (2018), the design phase includes consideration of the literature review that was used in designing the most suitable hypothesis for the project. In the development phase, a plan was developed to speak to the main issue or problem which the project is supposed to address. The next phase is implementation. In the implementation phase, the evidence-based project was implemented in such a way as to get the best results. The last step of the ADDIE model is evaluation. During this phase, the data collected were interpreted relevant to the main issue/problem identified and the evidence is prepared and disseminated.

In the analysis phase of the planning step, a review on medication errors in our HHA by the Quality Improvement Department showed a 66% medication error rate due to lack of MedRec. I noted that there was no MedRec program in place and a knowledge gap of the nurses with regards to MedRec to avert medication errors. The design phase includes the literature review which will assist the project and hopefully provide an evidence-based curriculum and pretest/posttest for the project (Efron & Ravid, 2018). Because no curriculum or tests were found, the literature supported the evidence-based content for the curriculum and tests I developed. The next phase in the ADDIE model is the development phase. During this phase, materials were developed to address the main issue or problem which my project was supposed to address (Kurt, 2020; AB Latif & Mat Nor, 2020) and I developed the SEPMR curriculum. During this phase, I checked the content of my lecture/interactive session and the flow of the program and developed the pretest and posttest.

Implementation

This step follows the analysis, design, and development of the ADDIE model after the curriculum has been evaluated and pretest/posttest has been validated by the CEs. During this phase the SEPMR is implemented, which involves putting together the materials developed during the planning phase to use for the staff education, developing a timetable for the SEPMR and scheduling the education session. At the session, the participants completed the pretest. The SEPMR was presented, and the posttest was given. Impact evaluations during this phase included the evaluation of the educational program by the nurse participants and the change in knowledge from pretest to posttest by the nurse participants.

Evaluation

The evaluation phase of the ADDIE model corresponds with the evaluation step of the WUMSE. During this phase, data were collected, including the formative and impact evaluations as described above. During this phase, the collected data were interpreted relevant to the practice questions. After the results were compiled, the evidence produced by the SEP was ready for dissemination. Upon completion of the project, a summative evaluation was completed by the content experts (CEs) relative to the project, process, and my leadership.

Significance

This SEP impacted several stakeholders including the nurses, HHA administration, and patients and families. The improvement that resulted from the SEPMR improved the quality of care of the patients by reducing the possibility of medication errors. With SEPMR, the nursing staff were able to improve the care they rendered to the patients by consistently performing MedRec, thereby reducing medication errors (Dubovi et al., 2017). The SEPMR impacted the HHA administration because medication errors decreased due to the SEPMR and this positively impacted the agency's patient health outcome data and caused a decrease in healthcare costs and an increase in HHA's star rating (Teshale et al., 2021). The necessity of SEPMR revealed that DNPs can be catalysts of change that can inspire education and knowledge-sharing among RNs and their teams. The results of this project showed that the process of learning and systematic education (including organization-led interventions and self-learning) are germane to the nursing practice at any point of their career not only at the beginning, but also at later stages as experienced RNs. This project demonstrated the importance of education as a cornerstone of patient safety which is a significant component of nurse practice. My project significantly enhanced the level of patient safety by educating the nurses to employ an evidenced based MedRec process during admission to home health and when the patient's level of care changes. Walden University promotes positive social change through the development of principled, knowledgeable, and ethical scholar-practitioners, who become civic and professional role models by advancing the betterment of society. This project demonstrated that the combination of individual increase in knowledge base and institutional efforts can improve the nurse's ability to utilize evidence based MedRec to mitigate the risks of medication errors thus improving the human condition.

Summary

In the facility where this SEP took place, there was a lack of MedRec practice especially when the patient's level of care changes. This was because of the gap in nursing knowledge about MedRec. As a result, we did experience some medication errors. The DNP project provided the staff an education on MedRec which aided the nurses in medication error reduction thus supporting optimal care for our patients.

In this section, I discussed the significance of medication errors on patient care and health care costs. I also discussed the problem that was identified and the impact of SEPMR on medication errors. I also discussed the purpose for the project, looking at evidence to support the project, and the significance of the project. The significance of the project delved into the impact on the stakeholders. In Section 2, I discussed the purpose of the project, looking at the ADDIE model that I used for the project. I also discussed the relevance of the project to nursing practice and discussed my project in relation to state and federal contexts. Also, I discussed the professional context and my relationship to the doctoral project and concluded by discussing the role of the CEs in section 2.

Section 2: Background and Context

Introduction

For this project, the problem I identified was the need for medication reconciliation and a concurrent staff education on MedRec in the HHA for which it is intended. The purpose of this SEP was to plan, implement, and evaluate an SEPMR. The guiding practice-focused questions for the SEP included: (a) Does the literature provide evidence that MedRec is successful in decreasing errors in patient medication care? (b) How will the participants evaluate the SEPMR related to the objectives and curriculum on MedRec? (c) Will the SEPMR result in a change in knowledge of the staff nurse participants on medication reconciliation as demonstrated by a pretest/posttest?

The identified gap in practice for this project was the lack of a standardized evidence-based MedRec program and the lack of MedRec knowledge by our nurses. At the end of the SEPMR, the nurses were availed the knowledge on MedRec which enabled them to bridge the gap in practice due to knowledge deficit and implemented MedRec in the HHA. The practice focused questions were addressed via an exhaustive literature review and the SEPMR addressed the gap in knowledge which was evidenced by the staff evaluation of the program and the change in knowledge shown in pretest/posttest results.

Analysis, Design, Development, Implementation, and Evaluation (ADDIE) Model of Instructional Design

The ADDIE model was developed in the 1970s by Florida State University at the center for educational technology (see Appendix A). The model was originally developed as part of a military training by the U.S. armed forces. When initially developed, the intent was for each step to be completed before embarking on the next step but was later modified enabling the model to be interdependent. In the mid 1980's, the version of ADDIE used today emerged (Branson et al., 1975). Even though the ADDIE model has been around for a long time, the model remains the learning methodology of choice (Molenda, 2015).

A review of the literature shed light on how the ADDIE model has been used in nursing education. Robinson and Dearmon (2013) detailed the use of the ADDIE model of instructional design to improve clinical performance of new graduate nurses by using simulation nursing education. The authors concluded that the use of simulation nursing education provides a safe and controlled environment for clinical experiential learning. Koroma (2023) discussed the practice gap among forensic nurses with regards to workplace violence and prevention. The author employed the ADDIE model and used staff education to bridge the practice gap. Miok and Ha (2020) developed a simulation-based education on postpartum hemorrhage for nursing students using the ADDIE model. The results of the study showed that simulation-based postpartum education programs in the study patients were effective in improving the competency of nursing students in the postpartum arena.

Relevance to Nursing Practice

Medication Errors

In my methodical literature review and meta-analysis of medication errors and harm, I discovered that 11% of elderly patients experienced medication harm, although medication errors occur much more frequently than medication harm, since most errors rarely lead to negative health outcomes (Hodkinson et al., 2020). Bethishou et al. (2020) reported that 67% of hospital patients reported unintended medication discrepancies. A significant number of Medicare beneficiaries, about 17 million who were discharged between 2010 and 2016, 39% were discharged to home health while 61% were sent to a SNF.

A new federal mandate was enacted establishing the Hospital Readmissions Reduction Program (Anderson & Ferguson, 2020) because of the problem associated with the rate and expense of hospital readmission. To comply with federal mandates, SNFs were mandated to partner with referring hospitals to reduce hospital readmissions (Anderson & Ferguson, 2020). The hospital readmission problem is not only associated with increased health care costs but also significant morbidity and fragmentation of care to the vulnerable geriatric population (Anderson & Ferguson, 2020).

Stuijt et al. (2022) stated the third leading cause of death in the United States is medical errors. The authors stated that a common cause of medical errors is the lack of accurate and complete information about the patient’s medications, especially when the patient’s level of care changes. Approximately 66% of patients experience medication errors because the nurses did not perform accurate medication reconciliation, which is comparing the patient’s current medications to what was ordered when the patient’s level of care changed. Thirty percent of these patients experienced harm resulting in unintended adverse drug events and millions of unnecessary emergency room visits (Stuijt et al., 2022). Other authors stated that lack of medication reconciliation results in approximately 10,000 preventable patient deaths per year at a cost of about $40 billion annually to the U.S. medical system (Feldhacker et al., 2022, Tariq et al., 2021).

Krivanek et al. (2019) stated that despite quality improvement initiatives that have been implemented by healthcare facilities around the country, medication errors still occur. The lack of standardized medication reconciliation process is a major health problem in the U.S. which affects millions of home health patients annually.

Medication Reconciliation

Usually when a patient's level of care changes, their medication changes but at our home health care facility, these changes are not carried out due to lack of medication reconciliation. One of the quality improvement initiatives that has been shown to be effective in preventing these types of medication errors is MedRec. MedRec is a process that compares the patient's medication orders to all the medications that the patient is currently on, taking into consideration over-the-counter medications (Stuijt et al., 2022). MedRec is a nationally recognized tool, if correctly implemented and administered, can decrease medication errors, and improve patient safety (PSNet, 2019).

Stofferahn et al. (2023) stated that medication errors represent a significant percentage of preventable patient harm at various levels of care. The authors stated that despite the various disciplines involved in medication management, medication errors remain a problem in healthcare. To prevent medication errors, the authors pointed out that some of the strategies that have been employed includes but are not limited to nursing education on MedRec and teaching on medication safety.

Nurses Role in Medication Reconciliation

Lim and Honey (2015) stated that nurses have a critical role in the administration and management of medications and that nurses are strategically positioned to effectuate accurate and effective medication management. The authors stated that for nurses to perform their duties successfully, they must have a strong knowledge of the scientific knowledge of medication management including MedRec.

Härkänen et al. (2017) looked at other strategies and practices that have been used to manage the gap in practice regarding nursing knowledge deficit and MedRec. The authors stated that medication errors are a common place in healthcare and nurses are vital in stemming these errors. Some of the strategies that have been employed in the past were retroactive strategies as opposed to proactive strategies like MedRec. One of such retroactive strategies described by the authors was the use of incident reports. This strategy involves the nursing staff completing an incident report after the error occurred. This report is forwarded to the management staff and after review, education follows. This education usually takes the form of posters and sometimes leaflets that are distributed to the nursing staff.

Another strategy that has been employed to bridge the knowledge deficit gap in nursing is the use of simulation strategies to improve clinical competence thereby improving safe medication administration. Craig et al. (2021) stated that medication errors often occur because of knowledge deficit and the inability to apply fundamental safe medication administration practices. The authors concluded that educators should simulate strategies to improve medication administration practices.

Robinson et al. (2023) stated that medication errors for the most part are preventable, and they found that 1 in 30 patients will experience a preventable medication error of which 25% of these errors are considered severe or life threatening. To improve the safety of medication administration, the authors explored the development of behavioral change strategies. With this strategy, the authors looked at the impact of the attitude of nurses on patient outcomes with regards to medication errors. The authors found that there was a significant relationship between nurses' safety attitude and medication errors. In this study the nurses identified four areas of concern for accurate medication administration. Using change management methodologies, the nurses were able to develop actionable behavioral change strategies to mitigate and improve medication errors.

My project positively impacted nursing practice at the HHA by bridging the clinical gap because the evidence-based educational program developed will instruct the nurses on what and how of MedRec. The material that was covered was based on evidence gathered from the literature and our HHA. Because the curriculum and pretest/posttest were developed from the literature review, the increased knowledge from the project empowered the nurses to start doing MedRec thus medication errors were mitigated.

Medication Errors

In my in-depth review of the literature and meta-analysis of medication errors and harm, I found that in elderly patients, about 11% experienced medication harm. Although medication errors occur more frequently than medication harm, it was reported that most errors do not lead to negative health outcomes (Hodkinson et al., 2020; Glickman et al., 2016).

Bethishou et al. (2020) reported that 67% of hospital patients suffered unintended medication discrepancies. They also reported that of Medicare beneficiaries, about 17 million, who were discharged between 2010 and 2016, about 39% were discharged to home health while 61% were sent to a SNF.

A new federal mandate was proclaimed establishing the Hospital Readmissions Reduction Program because of the ongoing problem with the rate and expense of hospital readmissions (Anderson & Ferguson, 2020). To comply with these federal mandates, SNFs had to partner with referring hospitals to reduce hospital readmissions (Anderson & Ferguson, 2020). The hospital readmission problem is not only characterized by increased health care costs but also significant morbidity and fragmentation of care to the geriatric population who are very vulnerable. (Anderson & Ferguson, 2020).

Medication Reconciliation

In an article in PSNet (2019), the author discussed National Patient Safety Goal #3 stating that MedRec was part of it as it deals with improving the safety of medications. Per the author, this national patient safety goal decrees that hospitals must verify the medications that have been ordered for the patient, comparing them to what the patients were taking before admission, identifying and resolving any discrepancies noted. MedRec is a formal process which is used by healthcare professionals to convey an accurate and comprehensive list of a patient’s medications, also known as the best possible medication history (Stuijt et al., 2022). MedRec is a complex process that transpires during hospitalization at admission, transfer, and discharge by likening the patient's current medication list to the patient's orders and diagnosis and composing an updated, accurate, single medication treatment plan document. The MedRec process involves validating medication treatment plans to prevent medication omissions, duplications, drug interactions, and dosage errors thus reducing medication error rates (Anazi, 2021). Given the fact that elderly patients are very susceptible to morbidity and mortality, many of them would benefit from an accurate and safe MedRec process when admitted to the HHA or when their level of care changes. With any change of care, the reconciled medication list is employed to resolve any medication discrepancies that were identified (Stuijt et al., 2022). The MedRec process is usually facility specific and undergoes constant refinement as needed. In an article in (*Home Health Star Ratings | CMS*, n.d.), the author discussed HHA star ratings. The author stated that the Centers for Medicare & Medicaid Services (CMS) ratings come about because of stakeholder input and continuous data analysis. The author stated that there are two types of star ratings: Quality of patient care (QoPC) star rating and Patient survey (PS) star rating. The QoPC is based on Outcome and Assessment Information Set (OASIS) assessment and Medicare claims data whereas the PS star rating is based on the Home Health Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey.

Nurse Knowledge and Use of Medication Reconciliation

Although MedRec educational programs are conducted in nursing, these programs must be administered on a consistent basis to keep the nurses refreshed with the knowledge of medication reconciliation (Blignaut et al., 2017). The authors stated medication errors and patient safety are a consequence of the patient's setting. In this study, the authors discovered that medication errors are due to omission. Errors by omission is the second most reported medication error. The lack of knowledge of MedRec results mostly to omission errors. As the education programs are provided, the understanding of the nursing staff must be documented. (Blignaut et al., 2017). Blignaut et al.'s (2017) objectives were to determine the incidence of medication administration errors and deviations from safe medication practices that resulted in medication errors in the Gauteng Province Hospital of South Africa. Some recommendations that came out of the study suggest that improved communication between health care professionals about the patient's medication and review of the patient's profile can mitigate medication errors.

Medication Reconciliation is an indispensable tool in promoting patient safety by reducing medication discrepancies. A well-designed MedRec process informed by developments in information technology can enhance quality, efficiency, and medication processes safety.

In the article by Anazi, (2021), the author stated that MedRec is a process aimed at improving patient safety. The method used for this study was a validated survey and the results showed that MedRec is a mandatory process that is necessary in improving patient safety by mitigating medication discrepancies. MedRec is an indispensable tool in promoting patient safety by reducing medication discrepancies. The study concluded that a well-designed MedRec process can improve the quality and efficiency of the medication administration process. Overall, identification of discrepancies was minimized, and accuracy of nurse-documented medication histories improved after nursing an education by the pharmacist. Even though documentation significantly improved, a clinically significant number of discrepancies continued despite education (Anazi, 2021). These findings implied that additional barriers exist for nurses in collecting medication histories. Discussion with nurses disclosed that patient load and additional responsibilities limited the time and priority that nurses were able to place on medication history collection. Familiarity with dose ranges of less commonly prescribed medications limited nurses' screening ability of the accuracy of the caregiver's report (Anazi, 2021).

According to Dubovi et al. (2017), the purpose of the study was to evaluate the effectiveness of virtual reality simulations with regards to medication administration procedures. The authors stated that human error does not emerge due to individual mistakes made by nurses, but that human error is often the result of an organization-wide failure to ensure safety and knowledge-based work culture to reduce incidents of those human errors. In this study, the authors discussed the findings of the study that suggest that virtual simulations can be beneficial in alerting the nurses to potential errors before they encounter them. In another study by Farha et al., (2020), the authors stated that virtual simulations can bridge the gap between didactic and practical training and that virtual simulation can be affordable and practical in improving the skills of nurses.

Local Background and Context

This SEP will take place in an HHA located in a Midwestern U.S. state which provides skilled nursing care for an average of 200 patients. Our HHA admits patients from hospitals and other health care facilities who are to complete their care in a home setting. Our nurses visit the patients at home to assist with their care. The patient base is mixed including Whites, African Americans, Asians, Africans, and Hispanics. The mission of our HHA is to provide excellent care to our patients. MedRec is a tool that has been shown to be effective in medication error reduction. In an article by Härkänen et al., (2017), the authors stated that MedRec is a proactive medication error reduction strategy that has been employed with success as opposed to retroactive strategies like medication error incident reports. A recent chart review at our HHA showed that two thirds of the patients experienced a medication error due to lack of MedRec. Several of the medication errors were severe resulting in a change of status of the patients involved. Delving into the causes of these medication errors, it was noted that among other reasons, lack of knowledge of MedRec was a significant reason why these errors occurred. Most of the nurses at this practice site have been practicing for many years and may not have been educated or brought up to speed on evidence-based practice strategies for medication error reduction including MedRec during their education. After consulting with my preceptor and the chair of the Capstone Project highlighting the results of the chart review, my project, the development of an evidenced based education program on medication reconciliation for the nurses was approved.

State and Federal Contexts Applicable to the Problem

The home health market has been increasing and is expected to reach 364 million dollars in 2022, increasing by almost 9% from 2017. This growth is due to the aging population with chronic diseases. With the advent of the Affordable Care Act, healthcare facilities including the HHA have been incentivized to adhere to some minimum healthcare standards including patient safety standards (PR Newswire, 2017). In an article by Härkänen et al., (2020), the authors stated that medication errors occur differently. They could result from deviation from the physician's orders, deviation from policies and procedures or best practices. The authors stated that these medication errors are preventable but could lead to patient harm if they occur. As a result, an evidenced based education program on MedRec will serve as an important tool to reduce medication errors and thus patient harm.

My Role

I have been an RN for over 25 years working in various health care settings including acute care (orthopedics), hospice, and home health. In the acute care setting, I worked as a staff nurse but progressed to a leadership role in hospice. In the hospital, I was exposed to the negative impact of lack of MedRec which led to numerous medication errors.

My charge at my HHA was to develop an evidenced based staff education program that will aid the nurses in administering MedRec to reduce medication errors and improve patient safety. I will be seeing the project to a logical conclusion by educating the nurses, administering a pretest and a posttest, and implementing the findings. Finally, I will be submitting my project report to Walden University.

I decided to embark on this project because having been a nurse for a long time, I have witnessed the deleterious effect of medications errors on patients. Medications that the patients are supposed to take but neglect to take or the one they are supposed to have stopped but continue to take them. The need for this project came to light when one of patients was readmitted to the hospital after she was supposed to have discontinued her Coumadin prescription but continued to take it because after her hospitalization no MedRec was done, and the nurses did not know that the coumadin should have been discontinued. This situation necessitated an investigation which revealed that no medication reconciliation was being done at our HHA.

Professional Context and Relationship to the Doctoral Project

According to the American Association of Colleges of Nursing, my role as an advanced practice nurse focuses on the development and application of new evidenced based findings in the field of nursing (AACN, 2017). As a DNP student, I am to use my advanced knowledge and skills to promote and forward evidenced based practice to improve patient care. My project was to develop and implement an evidence-based staff education program on MedRec. The goal was to educate nurses on the importance of MedRec to reduce medication errors and improve patient safety. Given the fact that MedRec involves the nurses, patients, and physicians, nurses must have the knowledge to educate their patients to be involved in the process. The patients should know to advise the healthcare professionals about any new addition or deletions to their medication list thus my project of impacting MedRec knowledge to the nurses in my HHA.

Potential Biases

In an article by Flyvbjerg (2021), the author discussed behavioral biases in project management. Given the projected outcome of my project which was to educate and implement an agency-wide MedRec program, my enthusiasm and optimism may interfere with the outcome of my project. Flyvbjerg, (2021) described this as optimism bias. Optimism bias was described by the author as a cognitive bias which leads project managers to be overly confident about their potential outcomes and no negative event can happen to them. One of the strategies I will employ to mitigate optimism bias is to think rationally, understanding that things will not always work the way I expect or want them to be.

Role of the Content Experts

The CEs were selected based on their familiarity and expertise with the subject matter, the facility and its functionalities, and leadership expertise and experience. The first CE's requirement included his educational background which is his training as a medical doctor, although not practicing in the U.S.A., his expertise is as an HHA proprietor for over 20 years and now an HHA administrator. The next CEs background included her background as a Catholic Nun and a foreign trained nurse who have been practicing nursing in the U.S.A. for over 25 years with 20 years of experience in home health. She is currently a DON at an HHA and has been in her current role for 15 years. The last CE's background included her training as a foreign graduate nurse who has been practicing in the U.S.A. for 20 years with 10 years of experience in home health. She is currently the intake coordinator. These CEs are not employed or have any affiliation with our HHA which was the project site. The CEs were responsible for evaluating the curriculum with regards to the literature review matrix and the objectives of the project. Validated the pretest and posttest in relation to the curriculum and objectives. At the conclusion of the SEPMR, the CEs also completed the summary evaluations of the program, the process, and my leadership skills. These CEs, wherever necessary, offered recommendations and suggestions for improvement in the future.

Summary

Härkänen et al., (2020), discussed the genesis of medication errors, and pointed out that errors could be the result of nurses deviating from physician's orders, deviating from policies and procedures or best practices. My project, SEPMR, harnessed relevant concepts and models which were used to address the practice focused questions discussed earlier. These concepts and models were employed to develop an SEPMR to address medication errors and increase patient safety. The ADDIE model was employed as the guiding model for this SEPMR, and the relevance of my project was exhaustively addressed. In Section 3, I discussed the evidence to support the SEP, the evidence that was produced by the SEP, procedures, participants, protection, and analysis, and synthesis of my project.

Section 3: Collection and Analysis of Evidence

Introduction

Hale and Marshall (2023) stated that medication errors have been reported to affect patient safety thus impacting the patients' quality of life and risk for injuries. The authors stated that MedRec is a valuable tool in managing patient safety by making sure the medications that patients are on matches what is ordered by the physicians.

The problem identified for this DNP project was the need for a MedRec program and nursing staff education on MedRec in the HHA for which the project was intended. There was no educational program or procedure to do MedRec at our HHA. The knowledge deficit of the nurses with regards to MedRec affected the incidence of medication errors and patient safety. The purpose of this SEP was to plan, implement, and evaluate an SEPMR. In this section, the sources of the evidence were presented relative to the practice-focused questions, and I also described the procedures employed in data collection, tracking, and analysis of collected data.

Practice-Focused Questions

The practice gap was the lack of MedRec by the nurses whenever a patient is admitted or the patient's level of care changes even though the literature shows the employment of an SEPMR reduces medication errors and improves patient safety (Al Anazi, 2021).

The guiding practice-focused questions for this SEP were:

1. Does the literature support the evidence that MedRec is successful in reducing medication errors with regards to patient safety?

2. How will the participants evaluate the SEPMR with regards to the objectives and curriculum of MedRec?
3. Will the SEPMR show improved knowledge of the staff nurses on medication reconciliation as evidenced by a pretest/posttest?

At the conclusion of the SEPMR, the nurses gained the necessary knowledge to conduct MedRec during admission and whenever a patient changes their level of care. The practice focused questions were addressed via an exhaustive literature review and the SEPMR addressed the gap in knowledge which was evidenced by the staff evaluation of the program and the change in knowledge shown in pretest/posttest results. In this section, I discussed who were included as participants, the procedures that were employed, protection of participants and their information, and analysis and synthesis of data collected.

Sources of Evidence

Evidence to Support Doing the Project

I used relevant up-to-date peer reviewed articles with dates ranging from 2016 to 2023 to support the guiding practice focused questions. I completed a comprehensive literature review of relevant articles to identify scholarly peer reviewed articles using various databases including EBSCOhost, Medline, Cochrane, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). The following key search terms were used to retrieve the relevant publications: *Medication reconciliation, medication errors, nurses, and nursing educational programs.* According to Hale and Marshall (2023), MedRec should be conducted every time the patient’s level of care changes. This includes hospitalization and admission to the HHA. The authors stated that medications that should be reconciled include but not limited to medications prescribed to the patient, over the counter medications, herbal, and dietary supplements. The product of the SEPMR was that the nurses will conduct a MedRec every time the patient's level of care changes including hospitalization and admission to the HHA.

An extensive review of the available literature showed that most medication errors are preventable. Chiewchantanakit et al. (2020) looked at the effectiveness of MedRec in the prevention of medication errors. The authors did an exhaustive literature review that looked at the impact of MedRec in hospitals in Thailand. From the results of the systematic review, the authors deduced that the probability of patients experiencing a medication error was reduced when MedRec was conducted during admission or at discharge. The authors concluded by stating that current evidence shows that when MedRec is employed, medication errors can be reduced whenever a patient's level of care changes. They also stated that for the MedRec program to be implemented appropriately and successfully, a specific strategy must be adopted.

In my project, SEPMR was the strategy used to reduce errors. Medication errors have been reported to occur whenever there is a change in the level of care of the patient. Koprivnik et al. (2020) described a prospective study where pharmacists looked at medication errors resulting from medication reconciliation by pharmacists as patients transition through various levels of care. This study was performed in Spain looking at five nursing homes and healthcare facilities as patients transitioned through the facilities including admission to the healthcare facilities and return to the nursing homes. The results showed that at least one medication error was noted in 16% of the 2123 care transitions that were studied. The authors concluded that with pharmacists assisted medication reconciliation across the healthcare spectrum in Spain, they were able to reduce medication errors in the fragile patient population.

Numerous studies have concluded that medication related errors are quite common and usually result from lack of medication reconciliation when the patient's level of care changes. In an article by Tunc et al. (2020), the authors looked at medication errors at the Cleveland Clinic Children's Hospital, which showed a 12% error rate. The authors stated that their goal was to reduce the error rate by 50%. They implemented some strategies to reduce the medication errors including standardized MedRec at discharge. The authors stated that post implementation of the strategies, the error rate reduces to a mean of 2.4%. The authors concluded that the implementation of strategies including MedRec and interprofessional collaboration, medication errors were reduced which in turn positively influenced patient safety and healthcare delivery.

Studies have shown that nurses are vital in the medication management process and giving nurses the tools and knowledge is an effective strategy in mitigating medication errors (Berdot et al., 2016). Park and Han (2023) studied the knowledge structure necessary in nursing education to manage medication errors. The results of the study showed that even though medication safety is encouraged worldwide as a patient safety measure, hospitals have not implemented MedRec in combination with education as expected. The authors also concluded that as an education measure, a standardized curriculum needs to be developed to help reinforce the nurse's medication safety competency. This dovetails with my project which is the SEPMR.

Evidence Produced by the Project

The evidence produced by this project was the change in knowledge of the participants as evidenced by the results of the pretest and posttest and the evaluation of the SEPMR by the participants relative to the educational objectives.

Participants

The SEP included two sets of participants, the CEs and the SEP participants. The CES were selected based on their expertise with medication reconciliation. The first CE's requirements included his educational background which was his training as a medical doctor, although not practicing in the United States, his expertise as an HHA proprietor for over 20 years and now an HHA administrator. The next CEs background included her background as Catholic Nun and a foreign trained nurse who have been practicing nursing in the United States for over 25 years with 20 years of experience in home health. She is currently a DON at an HHA and has been in her current role for 15 years. The last CE's background included her training as a foreign graduate nurse who have been practicing in the United States for 20 years with 10 years of experience in home health. She is currently the intake coordinator. These CEs are not employed or have any affiliation with our HHA which is the project site. The CEs were responsible for evaluating the curriculum with regards to the literature review matrix and the objectives of the project. As soon as the proposal was approved, I sent an email to the CEs requesting their participation.

The second group of participants were the participants who attended and evaluated the education program. Because the nurses are the ones who admit patients to our HHA and transfer patients when their level of care changes, all the nurses including the DON attended this education program.

Procedures

According to Dubovi et al. (2017), the assessment of nurses' knowledge and competence about medication administration is vital to the educational intervention with the goal of the medication error rate. Schnipper et al. (2018) concluded that the implementation of a multifaceted medication reconciliation program reduced a significant number of medication errors.

The SEP included a PowerPoint presentation, pretest and posttest. There were templates that were used for the collection of information for the project which were developed by my chair for consistency to assist with organization of the work. There was no need for reliability and validity of these templates as they were used only for organizational purposes, and they were not tools or instruments. The Melnyk et al. literature matrix for critical appraisal of evidence was developed by experts thus is not subject to validity and reliability testing.

Content Validity Index Tool

The Content Validity Index (CVI) tool is a tool used in determining the relevance of the test items as scored by the CEs. CVI is the most widely used index in quantitative evaluation. The CEs validated each test item using a 4-point Likert scale which measured the relevance of the material covered when compared to the curriculum content using the responses 1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *very relevant* (see Appendix F). The item-level content validity index (I-CVI) was calculated using the number of experts rating of 1 or 2 on each item, which gets a 0 on the form. An expert rating of 3 or 4 will get a 1 on the form, then the scores of each CE was added horizontally and divided by the number of CEs. This I-CVI was put in the Total Item Rating column for that item. The Scale CVI (S-CVI) was calculated by adding all the item ratings vertically and divided by the number of test items and the S-CVI should have a score between 0 and 1. Each item has an individual I-CVI with an acceptable validity score of 0.78 to 1, otherwise all items that were poorly rated (I-CVI of <0.78) were revisited (Polit & Beck, 2006). The results were analyzed using the CVI tool.

Content Experts Packet

Each CE received an anonymous packet with an alphabet letter to assure confidentiality. Each packet contained a Content Expert Letter (see Appendix J) in which I introduced myself and the SEPMR, and instructions on how to manage the information contained within the packet. The packet also contained the Literature Review Matrix (see Appendix B), the Curriculum Plan (see Appendix C), the Curriculum Plan Evaluation by Content Experts (see Appendix D), the Pretest/Posttest (see Appendix E), and the Pretest/Posttest Content Validation by Content Experts (see Appendix F).

Pretest/Posttest

The pretest/posttest were developed taking into consideration the curriculum objectives and curriculum. This test was used to assess the participant's knowledge before and after completing the SEPMR. At the beginning of the program each participant was given a pair of random numbers. A volunteer passed out the pretest and asked the participants to affix one of the numbers to their test. At the end, the volunteer collected the pretest and placed them in an envelope marked “Pretest”. The presentation was given by me and at the end, I left the room. The volunteer came back in and administered the posttest asking the participant to affix the remaining random number they received to their test. After the participants completed the test, the volunteer collected the tests and placed them in an envelope marked “Posttest”. The volunteer delivered the envelopes to me. I was not in the room when the pretest and the posttest were being completed.

Staff Education Program

A PowerPoint presentation was developed based on the curriculum and was presented after the pretest (See Appendix H).

Evaluation of the Staff Education Program by Participants

The SEPMR was presented to the staff via a PowerPoint presentation. The Evaluation of the Staff Education Program by Participants (see Appendix I) was completed relative to the objectives of the SEPMR. To ensure that the participants were protected, as soon as the education program was completed, I excused myself so the participants would be confident in completing the evaluation. Before I excused myself, I requested that the participants complete the evaluation and wait for my volunteer to collect them. The volunteer collected and placed the evaluations in a neutral envelope and delivered them to me. When I received the evaluations, I analyzed and presented them.

Evaluation of the Staff Education Project, Process, and My Leadership by Content Experts

The Evaluation of the Staff Education Project, Process, and My Leadership by Content Experts (see Appendix K) was accomplished by asking the CEs to complete their evaluation as soon as the SEPMR was completed. Because the CEs were assigned random lettering, anonymity was maintained. The CE packets were delivered by a volunteer and were asked to return the packet to the volunteer who delivered them to me. As soon as I received the evaluations, I analyzed and discussed them in the subsequent section.

Protection

For this project, I made sure that I followed and complied with the HHA policies and Form A was completed and provided to the Institutional Review Board (IRB) after the proposal was approved by my chair. Given the fact that all the nurses will be engaged in MedRec post education, all the nurses were required to go through the program including the DON. The process for final approval was followed as set forth by the IRB. Because of the nature of my SEP which does not involve any patient contact, the ethical considerations dealt with was mainly protecting the anonymity of participants and CEs. This DNP project was approved by the internal Walden University Review Board to ascertain the anonymity of participants. Within the scope of the project, the following ethical issues were implemented which included protection for the nurses and the CEs. To ensure staff nurse’s anonymity, random pair numbers were assigned to each nurse, one to be affixed to the pretest and the other to the posttest. The pretest and the posttest were administered and collected by my assistant and returned to me in envelopes marked “Pretest” and “Posttest”. The CE packets were individually prepared to include the pretest, the presentation, posttest, and program evaluation. There was no coding or identification on the pretest, posttest, education program evaluation to maintain anonymity. The anonymity of the CEs was assured by using assigned lettering (A,B,C) on all the written evaluation material. My assistant delivered and picked up the CE packets blinded to me. The project protocol also ensured that the nurses were aware of their right to withdraw from the project at any time. To ensure that all collected data was safe, I stored all the obtained information in a locked drawer for 5 years and shredded and safely disposed of them after that.

Analysis and Synthesis

The analysis and synthesis section included the Curriculum Plan Evaluation by Content Experts Summary, the Pretest/Posttest Content Experts Validity Index Scale Analysis, the Summary Evaluation of the Staff Education Program by Participants, the Pretest/Posttest Change in Knowledge Results by Participants, and the Summary Evaluation of the Staff Education Project by Content Experts.

Curriculum Plan Evaluation by Content Experts Summary

The CEs were responsible for completing curriculum evaluation with regards to the evidence that will be gained from the literature review (see Appendix L). The CEs used the dichotomous scale which is a type of survey response scale that provides two opposing options with “met” = 1 and “not met” = 2 with room for additional comments. Given the number of CEs the data was calculated by hand and descriptive statistics was used to report the results and findings were reported in the next chapter with defined statistics.

Pretest/Posttest Content Experts Validity Index (CVI) Scale Analysis

The Pretest/Posttest Content Experts Validity Index Scale Analysis (see Appendix N) were completed using the Likert scale. A 4-point Likert scale was used to measure the relevance of the material covered when compared to the curriculum content using the responses 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = very relevant. The I-CVI was calculated by using the number of experts rating of 1 or 2 on each item, which gets a 0 on the form. An expert rating of 3 or 4 will get a 1 on the form, then the scores of each CE was added horizontally and divided by the number of CEs. This I-CVI was put in the Total Item Rating column for that item. The Scale CVI (S-CVI) was calculated by adding all the item ratings vertically and divided by the number of test items and the S-CVI should have a score between 0 and 1. Each item has an individual I-CVI with an acceptable validity score of 0.78 to 1, otherwise all items that are poorly rated (I-CVI of <0.78) were revisited (Polit & Beck, 2006).

Summary Evaluation of the Staff Education Program by Participants

The Summary Evaluation of the Staff Education Program by Participants (see Appendix N) was used to ascertain recommendations for modifications and improvements of the SEPMR. To do this a dichotomous scale was used to evaluate if the objectives of the education program were 1=met or 2=not met with regards to the curriculum and each objective was rated individually. The data was calculated by hand and the results were analyzed and reported using descriptive statistics.

Pretest/Posttest Change in Knowledge Results by Participants

The Pretest/Posttest results were analyzed using descriptive statistics to determine participants' change in knowledge about medication reconciliation. Individual scores for the pretest were compared with the scores for the posttest. The range and mean of pretest scores for all participants were given and a group mean compared with the range and mean of posttest scores. The overall change in knowledge mean was determined (see Appendix G).

Summary Evaluation of the Staff Education Project by Content Experts

Summary Evaluation of the SEPMR by Content Experts (see Appendix P) was evaluated using open ended questions. This format enabled the CEs to objectively offer recommendations at the conclusion of the project. The answers to these open-ended questions were analyzed using a thematic approach.

Summary

In this section, the evidence to support doing the project and the evidence obtained from the project were discussed. The procedures for completing the policy were provided as well as a discussion for the protection of the participants. Collecting and analyzing the evidence completed the section. In Section 4, the findings and implications of analysis, recommendations from the CEs and the strengths and limitations of the SEPMR were presented.

Section 4: Findings and Recommendations

Introduction

Hale and Marshall (2023) stated that medication errors have been reported to impact patient safety, which in turn affects patients' quality of life. The authors also stated that if MedRec was implemented appropriately, the program would serve as an important tool in managing patient safety by ensuring that the medications patients were on coincided with the physicians' orders.

The problem identified for this DNP project was the need for a MedRec program and nursing staff education on MedRec in the HHA for which the project was intended. Our HHA did not have an educational program or procedures to conduct MedRec. The knowledge deficit among the nurses impacted their ability to conduct MedRec, which in turn affected the incidence of medication errors and patient safety.

The guiding practice-focused questions for this SEP were:

- Does the literature provide evidence that MedRec is successful in decreasing errors in patient medication care?
- How will the participants evaluate the SEPMR related to the objectives and curriculum on MedRec?
- Will the SEPMR result in improved knowledge of the staff nurse participants on medication reconciliation as demonstrated by a pretest/posttest?

The purpose of this DNP project was to plan, implement, and evaluate a SEP on medication reconciliation. The practice gap identified for this project was the lack of MedRec by the nurses whenever a patient was admitted or the patient's level of care changed. The literature showed that the employment of an SEPMR reduced medication errors and improved patient safety (Al Anazi, A., 2021). The evidence generated by the project was obtained from the Curriculum Plan, the Pretest/Posttest, the Curriculum Plan Evaluation by CEs, Pretest/Posttest Content Expert Validation by CEs, and Pretest/Posttest Change in Knowledge by Participants.

In this section, the findings and implications of the analysis and synthesis of SEPMR on medication errors are presented, including the Curriculum Plan Evaluation by CEs Summary (see Appendix L), the Pretest/Posttest Content Expert Validation by CEs (see Appendix N), Pretest/Posttest Change in Knowledge by Participants (see Appendix G), Summary Evaluation of the Staff Education Program by Participants (see Appendix N)**,** the contribution of the CEs, the strengths and limitations of the project, and the summary

Findings and Implications

The information obtained from evidence-based literature supported the need for this SEPMR at our HHA, in addition to the anecdotal lack of knowledge of MedRec among the staff, which led to medication errors. The implementation of the SEPMR resulted in a change in knowledge by participants on the topic.

Curriculum Plan Evaluation by Content Experts Summary

The CEs completed the curriculum evaluation based on their knowledge, expertise, and experience, taking into consideration the evidence produced by the literature review (see Appendix L). The CEs used a dichotomous scale, which is a type of survey response scale that provides two opposing options, with *met* = 1 and *not met* = 2.

Content Experts A, B, and C felt that all the learning objectives were met, generating a mean score of 1. Content Expert A was very complimentary about how the questions aligned with the PowerPoint presentation. Content Expert B recommended making the SEPMR a part of the new employee orientation packet. Content Expert C recommended including more references in the PowerPoint presentation.

Pretest/Posttest by Content Experts Validity Scale Analysis

The Pretest/Posttest Content Experts Validity Index Scale Analysis was completed using the Likert scale. A 4-point Likert scale was used to measure the relevance of the material covered when compared to the curriculum content using the responses 1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *very relevant*. Two of the three CEs evaluated two items with a score of 1 = *not relevant* or 2 = *somewhat relevant,* reflecting a score of 0. One of the CEs evaluated one of the items as 1 = *not relevant* or 2 = *somewhat relevant,* giving a score of 0. The other eight items received a score of 3 = *quite relevant* or 4 = *very relevant,* reflecting a score of 1. Two CEs rated another item as 1= *not relevant* or 2= *somewhat relevant* which resulted in an I-CVR of 0.33, eight items resulted in an I-CVI of 1, and one item resulted in an I-CVI of 0.66. The S-CVI resulted in a score of 0.9. The calculated S-CVI/UA was 0.8. An S-CVI/Ave of =>0.9 and a S-CVI/UA of =>0.8 shows excellent content validity and showed that each pretest/posttest item was valid to the program objectives and curriculum (Polit & Beck, 2006; see Appendix N).

Summary Evaluation of the Staff Education Program by Participants

The Evaluation of the Staff Education Program by Participants (see Appendix M) was used to evaluate the program relative to the curriculum and objectives and seek recommendations for modifications and improvements of the SEPMR (see Appendix I). A dichotomous scale (1=*met* or 2=*not met*) was used to evaluate the objectives of the education program relative to the curriculum. In evaluating the program, the 15 nurse participants scored the four learning objectives as *met*, resulting in a mean of 1. The comments made by the participants were all positive, ranging from “great program” to “excellent program.” There were also comments such as “should be an annual program” and “should be incorporated into the new hire orientation program” (see Appendix N).

Pretest/Posttest Change in Knowledge by Participants

The Pretest/Posttest results were analyzed using descriptive statistics to determine participants' change in compared with the scores for the posttest (see Appendix G). The pretest/posttest consisted of ten multiple-choice questions. The pretest scores ranged from 4 to 9 with the pretest raw mean score of 6.9 which is 69%. The posttest scores ranged from 8 to 10 with a mean score of 9.5 which was 95%. The overall mean score for change in knowledge was 2.5, which translated to 38%. All the nurses exhibited a positive change in knowledge, as evidenced by the change in posttest scores compared to the pretest. There were no questions that were challenging for all the participants, which meant that the questions were congruent with the learning objectives and presentation.

Summary Evaluation of the Staff Education Project by Content Experts

The Evaluation of the SEPMR by Content Experts was evaluated using open-ended questions (see Appendix O). Based on their responses, the conclusion was that all three CEs concurred with the effectiveness of the project, reaching the conclusion that the project had a positive impact on increasing the knowledge base of the participants. They agreed that the project was successful in educating the nurses on when to conduct MedRec. Content Expert A was very complimentary about how the questions aligned with the PowerPoint presentation.

Feedback from the CEs revealed that they were extremely excited and honored to be a part of this project and were also very complimentary about how I used my knowledge and leadership skills to facilitate this project. All the CEs expressed gratitude for being selected to be CEs, given their vast knowledge and experience in the home health field. They provided feedback, and one of the CEs commented that the SEPMR was well thought out and that the presentation and the pretest/posttest were coordinated. The CE recommended that the SEPMR be part of the orientation for new employees and an annual re-education for existing nurses. All the CEs were very complimentary about the packet that was provided to them. They commented on how clearly their expectations were spelled out in the content letter and, more importantly, the fact that they were given adequate time to complete their assignments. Overall, the CEs pointed out that the SEPMR was excellent in bridging the knowledge gap of nurses concerning MedRec.

Recommendations

With the completion of the SEPMR, the recommendation was made that the SEPMR be incorporated into the new hire orientation. I also recommend that the SEPMR be part of the mandatory annual education for all the nurses in the HHA. These recommendations were made because the pretest/posttest demonstrated an increase in the nurses’ knowledge regarding the impact of MedRec and when and how to complete a MedRec.

Contribution of the Content Experts

The CEs evaluated the curriculum. They validated the pretest/posttest and evaluated the project, process, and my leadership using a thematic approach.

Strengths and Limitations of the Project

Strengths

One of the pronounced strengths of this project was the relevance of MedRec in mitigating medication errors and thus improving patient safety, as noted in the literature review. All the nurses who participated in the SEPMR appreciated the fact that MedRec was an important piece in preventing medication errors. In the analysis phase of the ADDIE model, the Quality Improvement department at our HHA noted a 66% rate of medication errors due to the lack of MedRec, reinforcing the need for this project. Another strength of this project was that at the end of the SEPMR, the pretest/posttest noted an increase in the participants' knowledge. Finally, one of the strengths of this project was the recommendation to add the SEPMR to the orientation packet of new employees and to the annual education curriculum.

Limitations

The timeliness of getting through this project was time demanding for me because I have 2 teenage daughters who needed my guidance and attention in addition to working full time and this limited the time I had to dedicate to the project.

It was also challenging to get the nurses together. Given the nurses' schedule, it was difficult getting all 15 nurses together. After a series of meetings with administration, they agreed to pay some of the nurses to come in on their day off for the presentation.

Summary

Section 4 included a presentation of the findings and implications of the project (SEPMR), recommendations, contributions of the content experts, and the strengths and limitations of the project. The evidence from the project was evaluated, and the findings answered the guiding practice-focused questions. In Section 5, I discussed the dissemination of the project and provided an evaluation of myself as a practitioner, scholar, and project manager.

Section 5: Dissemination Plan

Based on the evidence from the literature review, the pretest and posttest, this project, the SEPMR will benefit institutions who are experiencing the same problems of increased medication errors due to MedRec not being practiced. The dissemination of this project to other facilities will not only lower medication errors at these institutions but improve patient safety. The plan will be to do a poster presentation at a state or national conference where nurses from homecare and hospice will gather. Two of such conferences include the Illinois Home Care & Hospice Council annual conference and the Home Care Association of America National Conference. A poster presentation at these annual conferences will not only raise awareness for the need of MedRec but will give HHA's that are struggling with MedRec issues a roadmap on how to tackle the problem. The results of the pretest and posttest showed that the SEPMR did bridge the knowledge gap with regards to MedRec and raised awareness of how important MedRec is. This project has the potential to be a regional or national roadmap for HHA struggling with MedRec issues.

Analysis of Self

Practitioner

As a master's prepared nurse in the rapidly evolving field of home health care, keeping up with the current trends and regulations was vital to my role as a nurse. Given my area of expertise and the fact that most of my patients are usually transitioning from another level of care, I must treat them with compassion, empathy and ascertain that they receive optimal care. The SEPMR has raised my awareness with regards to the importance of MedRec and the consequences of not practicing MedRec which could result in medication errors thus impacting patient safety.

Scholar

Obtaining the DNP has been a feat that I have longed for over the years. The DNP journey has been exhilarating and filled with scholarly experiences. As I navigated the program as a scholar, I have had to evaluate the literature, extract pertinent information, and use evidence-based and theoretical information to guide and create plans and interventions thus taking evidence to practice. As a scholar, I have over the years developed my scholarly writing skills. The SEPMR enabled me to gain new knowledge as a scholar on the importance of MedRec in mitigating medication errors which in turn impacts patient safety. As a scholar I am ready to impact my acquired knowledge to other nurses via poster presentations and possibly a journal publication to create change not only at my institution but at other institutions where medication errors due to lack of MedRec is a problem.

Project Manager

As the project manager for the SEPMR, I had to first ask and get approval from my HHA to pursue the project at my HHA. I subsequently had to select, guide, and work with the CEs. I conducted a literature review to determine the viability of the evidenced based practice-focused questions and created the curriculum. I subsequently put together the SEPMR PowerPoint presentation, pretest, posttest, and evaluation forms. After the pretest, presentation, posttest, and collection of feedback forms from nurse participants and CEs, I analyzed the results. Given the feedback from the CEs and the participants, I realized that I have good organizational and communication skills but could have done better with time management as a project manager.

Challenges, Solutions, and Insights Gained

My DNP journey was impacted by challenges but also solutions and insights. One of the challenges was effective time management. Given the fact I was working full time and a mother of five children, albeit adult children, my adult girls always needed me for one thing or another. As a result, I never could find a stretch of time to dedicate to my project. But keeping in touch with my program chair, Dr. Moon always seemed to correct me and put me back on track. Another challenge I had was putting together the SEPMR PowerPoint presentation-because I have not done a PowerPoint presentation in a long time but again, I was able to navigate this challenge. I came to see how having a good coach in the person of my program chair Dr Moon can ease demanding situations. Overall, I am overly excited that this journey is coming to an end even though I know I could have been done sooner given better time management. I am also excited with the dissemination plan for my project because my project may serve as a roadmap for other institutions experiencing medication errors due to MedRec issues.

Summary

My project was born because two-thirds of the patients in our HHA experienced a medication error due to lack of MedRec, especially when the level of care of the patient changes. In the United States, preventable medication errors result in unintended adverse drug events, millions of unnecessary patient emergency room visits, 10,000 preventable patient deaths per year, and costs the U.S. medical system about $40 billion annually

(Choi et al., 2016). Nurses at my HHA were not practicing MedRec thus the medication errors. The SEPMR was an opportunity to bridge the knowledge gap of the nurses with regards to MedRec thus mitigating medication errors and positively affecting patient care and safety.

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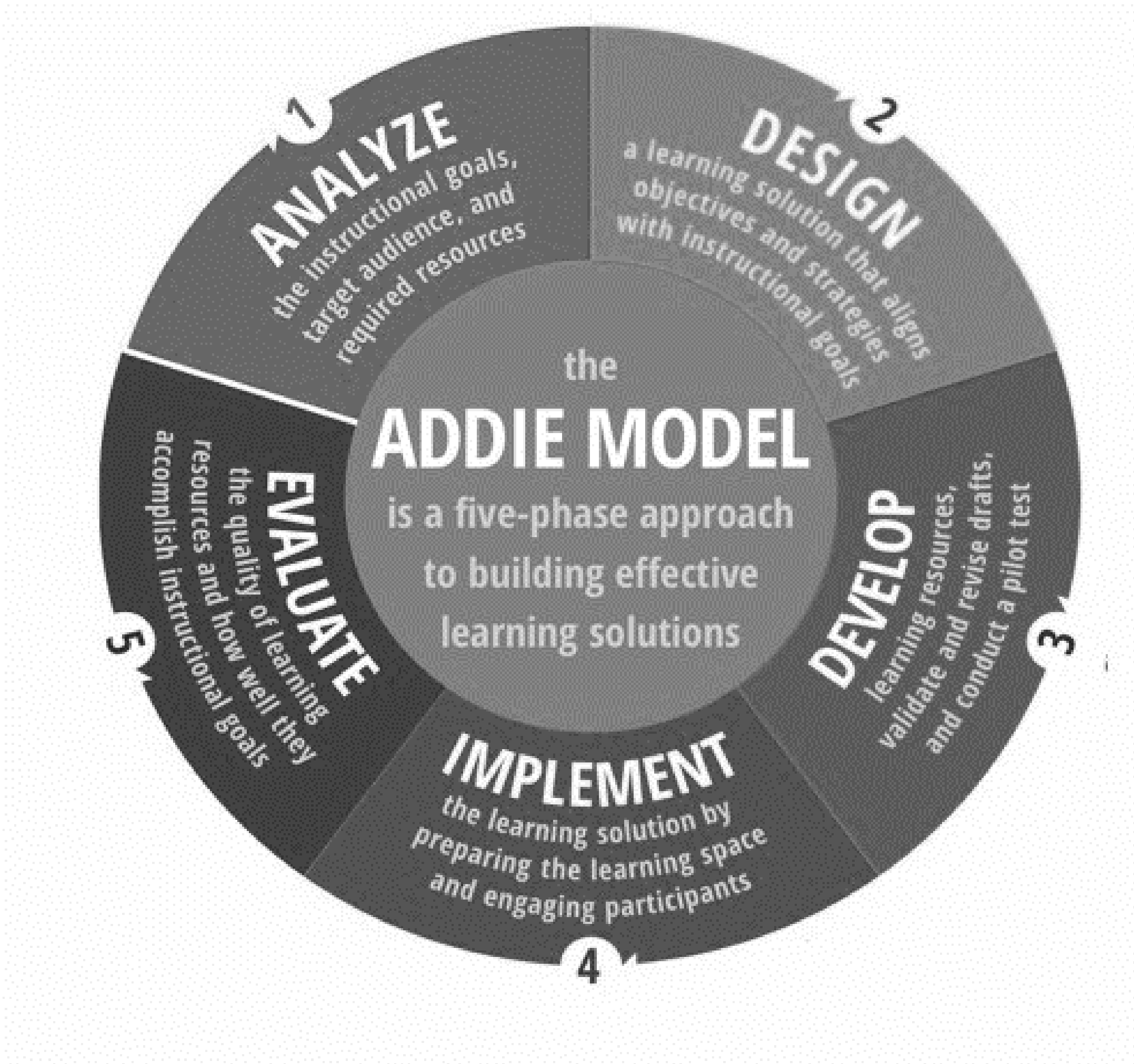
Appendix A: Assessment, Design, Development, Implementation, and Evaluation

(ADDIE) Model of Instructional Design



Source: The ADDIE Model-The L&D project (2020). Https://soundcloud.com/teresa-1563/the-addie-model

Appendix B: Literature Review Matrix

Melnyk, Bernadette Mazurek, and Ellen Fineout-Overholt's tool, Used with Permission

Reference	Theoretical or Conceptual Framework	Research Question(s) Hypothesis	Research Methodology	Analysis & Results	Conclusions	Grading the evidence
Adhikari, R., Tocher, J., Smith, P., Corcoran, J., & MacArthur, J. (2014). A multi-disciplinary approach to medication safety and the implication for nursing education and practice. Nurse Education Today, 34(2), 185–190. https://doi.org/10.1016/j.nedt.2013.10.008	Communication/Teamwork	Does communication and teamwork impact medication safety?	Observational study	The results showed that teamwork with regards to a multidisciplinary approach will positively impact medication safety. The results also emphasized the need to incorporate medication management and pharmacology in nursing education curriculum	The conclusion was that there is a need to train the nurses in pharmacology and provide an opportunity for medication management development.	III
Anazi, A. A. (2021). Medication reconciliation process: Assessing value, adoption, and the potential of information technology from pharmacists' perspective. *Health Informatics Journal*, *27*(1), 146045822098727.	Teamwork	Will improving teamwork (medication reconciliation) and employing information technology improve patient safety?	Descriptive cross-sectional study	The results of the study confirmed the need for MedRec to reduce medication errors and improve patient safety. Most of the participants responded with the need to improve the MedRec process to align with information technology.	The study concluded that MedRec is a necessary tool in mitigating medication errors and improving patient safety. The authors concluded that a MedRec process associated with information technology can improve the medication administration process and augment the	V

https://doi.org/10.1177/14604582209872 76					medication administration system thereby improving patient safety.	
Anderson, R., & Ferguson, R. (2020). A nurse practitioner–led medication reconciliation process to reduce hospital readmissions from a skilled nursing facility. *Journal of the American Association of Nurse Practitioners*, *32*(2), 160–167. https://doi.org/10.1097/jxx.0000000000000264	Teamwork, communication	Will implementing a NP-led medication reconciliation intervention lead to reduction in all-cause hospital readmissions from a skilled nursing facility within 30 days?	Pre- and post-implementation design	The results showed that there was a significant decrease in patient readmission in 30 days from the skilled nursing facility when a NP led the MedRec process was initiated. The authors recommended that an additional study with NP led MedRec should be conducted. They also recommended that the Federal Health department take a second look at the restrictions on what NPs can do in the SNF. Also recommended to encourage the states to look at a full practice authority for Nps in SNF	The authors concluded that having NP led MedRec in SNFs is a strategy to reduce readmission from SNF with 30 days of discharge. They also concluded that having NPs in the SNF will not only improve the quality of life for the residents but will also lower health care costs.	III
Blignaut, A. J., Coetzee, S. K., Klopper, H. C., & Ellis, S. M.	Communication	Will improved communication improve medication	A cross-sectional, observational design	The results showed that most errors related to deviation from	Deviation from safe practice possesses a significant problem to	V

(2017). Medication administration errors and related deviations from safe practice: An observational study. *Journal of Clinical Nursing*, *26*(21-22), 3610–3623. https://doi.org/10.1111/jocn.13732		administration by decreasing deviation from safe practice?		safe practice were associated with patient identification. Errors associated with interruptions and patient acuity were mostly wrong dose and wrong route.	medication administration safety. The authors recommended improving communication between educators and student nurses which in turn will help improve communication between nurses, pharmacists, and physicians thus reducing medication errors.	
Chiewchantanakit, D., Meakchai, A., Pituchaturont, N., Dilokthornsakul, P., & Dhippayom, T. (2020). The effectiveness of medication reconciliation to prevent medication error: A systematic review and meta-analysis. *Research in Social & Administrative Pharmacy*, *16* (7), 886–894. https://doi.org/10.1016/j.sapharm.2019.10.004	Not Defined	Does MedRec reduce medication errors?	Systemic Review and Meta-Analyses	The risk of medication error was 75% lower for patients who had MedRec versus those who did not. Effects of medication error reduction was higher when MedRec was done in the secondary hospitals as opposed to primary care hospitals	The authors concluded that current evidence shows that MedRec reduces medication errors in both inpatient and outpatient. The authors recommended that MedRec should be given priority in the ambulatory settings. They also recommended that MedRec should be promoted in the hospitalized patients especially in secondary hospitals.	I

Craig, S. J., Kastello, J. C., Cieslowski, B. J., & Rovnyak, V. (2021). Simulation strategies to increase nursing student clinical competence in safe medication administration practices: A quasi-experimental study. *Nurse Education Today*, *96*. https://doi.org/10.1016/j.nedt.2020.104605	Communication	Will an education strategy using a medication safety enhancement simulation program with technology reduce medication errors?	Quasi-experimental replication study	The results showed that upon completion of the study, participants expressed increased perceptions and confidence in their ability to administer medication safely.	The authors concluded that the integration of technology provided the students with a real medication administration experience. The authors also concluded that the students who participated in the intervention group performed significantly better in the medication administration process than the control group, thus less errors. The authors recommended that additional research is needed to ascertain the long-term impact MSE simulations may have on the reduction of medication errors.	III
Dubovi, I., Levy, S. T., & Dagan, E. (2017). Now I know how the learning process of medication administration among nursing students with non-	Communication	Does pharmacology inter-leaved Learning virtual reality simulation when applied to nursing education, as a tool for learning medication administratio	A quasi-experimental pretest-intervention-posttest comparison group design	The results showed a positive relationship between experiences of VR and learning.	The authors concluded that virtual simulations can be beneficial in providing an opportunity for practice, and recognition of any potential errors before they happen in	III

immersive Desktop Virtual Reality Simulation. *Computers & Education*, *113*, 16–27. https://doi.org/10.1016/j.compedu.2017.05.009		n procedures reduce medication errors?			a real patient scenario. The authors recommended that to evaluate the benefits of learning with VR, further studies need to be conducted on a larger scale with other healthcare professionals.	
Feldhacker, D. R., Lucas Molitor, W., Jensen, L., Lohman, H., & Lampe, A. M. (2022). Occupational therapy and the Impact Act: Part 2. A systematic review of evidence for functional status, medication reconciliation, and skin integrity interventions. *The American Journal of Occupational Therapy*, *76*(1). https://doi.org/10.5014/ajot.2022.049324	Teamwork	Does MedRec improve the professional value of Occupational therapy professionals?	Systematic Reviews and Meta-Analyses	The results showed that there was compelling evidence that supports individualized occupational therapy interventions focusing on medication adherence.	The authors concluded that occupational therapy interventions with regards to MedRec did improve medication management. The authors recommended additional studies to ascertain the impact on the Occupational therapy career when they engage in MedRec and medication management.	I
Hale, D., & Marshall, K. (2023). Medication Safety and	Communicate	Does MedRec improve patient safety?	Literature review	The authors stated that MedRec contributes to patient safety	The authors concluded that nurses in home healthcare should be	IV

Reconciliation. Home Healthcare Now, 41(3), 165. https://doi.org/10.1097/NHH.0000000000001172				because of the high incidence of polypharmacy which usually results in medication errors in the elderly.	cognizant of medication errors and report them. The authors recommended regular training for the staff nurses in home health to improve the medication administration process.	
Härkänen, M., Turunen, M., & Vehviläinen-Julkunen, K. (2020). Differences Between Methods of Detecting Medication Errors: A Secondary Analysis of Medication Administration Errors Using Incident Reports, the Global Trigger Tool Method, and Observations. *Journal of Patient Safety, 16(2),* 168–176. https://doi.org/10.1097/pts.0000000000000261	Communication/Teamwork	Which method is best to detect medication errors?	Observational method, detection by the Global Trigger tool and incident reports	The results showed that the observational method revealed more dangerous errors but few when compared to the other two methods. The incident reports and the Global Trigger Tool method revealed wrong doses, meanwhile the observational method revealed the wrong administration technique.	The authors concluded that based on the shortcoming of each of the three methods, a combination of methods should be used for the most accurate results. The authors recommended that to increase medication administration safety, there should be interdisciplinary collaboration and communication and an environment free of distractions.	III
Koprivnik, S., Albinana-Perez, M. S., Lopez-Sandomingo, L., Taboada-	Teamwork	Does MedRec reduce medication errors during	Prospective descriptive study	The authors showed that there was a positive relationship between	The authors concluded that MedRec reduced medication errors. They	III

Lopez, R. J., & Rodriguez-Penin, I. (2020). Improving patient safety through a pharmacist-led medication reconciliation program in nursing homes for the elderly in Spain. *International Journal of Clinical Pharmacy*, *42* (2), 805. https://doi.org/10.1007/s11096-020-00968-8		transition of care?		patients with more than 5 medications and a medication error found due to medication reconciliation.	also concluded that the chance of a patient being harmed by medication error is reduced when a standardized medication error is employed.	
Krivanek, M. J., Dolansky, M. A., Kukla, A., Ramic, M., Guliano, J., Waite, P., & Small, D. (2019). Perspectives from academic and practice leaders on Nursing Student's education and role in medication reconciliation. Journal of Professional Nursing, 35(2), 75–80. https://doi.org/10.1016/j.pro	Communication	Are nursing students equipped enough to conduct MedRec?	Electronic survey	The authors reported that most of the nurse respondents voiced a concern that their facility does not allow student nurses to engage in MedRec.	The authors concluded that student nurses are not getting enough education and or opportunity to practice MedRec during their clinicals.	III

fnurs.2018.07.005						
Park, J., & Han, A. Y. (2023). Medication safety education in nursing research: Text network analysis and topic modeling. *Nurse Education Today*, *121*, N.PAG. https://doi.org/10.1016/j.nedt.2022.105674	Communication	Are student nurses receiving adequate medication safety education?	Quantitative content study	The results of this study showed that even though medication safety education is internationally encouraged, they are yet to be implemented in conjunction with education.	The authors concluded that it is necessary to develop a standardized curriculum to strengthen nurses' medication safety education and competency. They also recommended that the development for both nurses and nursing students' curriculum be done simultaneously in the university and clinical fields.	III
Stuijt, C. C., van den Bemt, B. J., Boerlage, V. E., Janssen, M. J., Taxis, K., & Karapinar-Çarkit, F. (2022). Differences in medication reconciliation interventions between six hospitals: A mixed method study. *BMC Health Services Research*, *22*(1). https://doi.org/10.1186/s12913-022-08118-8	Teamwork	Are differences in the MedRec implemented across the 6 hospitals?	Retrospective mixed-method study	The authors reported that the MedRec processes across the 6 hospitals showed considerable differences in the number of interventions. The authors identified three main reasons for the differences which includes patients and healthcare involved; where the patients were interviewed; and whether a MedRec	The authors concluded that there were significant differences in the number of interventions performed during MedRec. The conclusion was that the differences were because of the patient mix and the healthcare professionals involved, location and where the interview took place, and how entrenched the MedRec process is at	III

				process was already entrenched in the hospital.	the particular hospital.	
Tunc, E. M., Pruitt, J., Zayas-Santiago, A., Moore, C., Hoffmaster, H., Waehner, E., Cox, A., & Cohn, A. (2020). 99. Decreasing Discharge Medication Reconciliation Errors: An Interprofessional Collaborative Quality Improvement Project. Academic Pediatrics, 20 (7), e47. https://doi.org/10.1016/j.acap.2020.06.120	Teamwork	Does MedRec decrease medication errors?	Quality Improvement methodology	After the implementation of the intervention, the results showed that the MedRec error rate was reduced by about half from the original level.	The authors concluded that interdisciplinary collaboration with pharmacists, nurses, and physicians with regards to MedRec may influence patient safety.	V
van Sluisveld, N., Zegers, M., Natsch, S., & Wollersheim, H. (2012). Medication reconciliation at hospital admission and discharge: Insufficient knowledge, unclear task reallocation and lack of collaboration as major barriers to	Teamwork/ Communication	What are the barriers to an effective MedRec?	Semi-structured interviews	The results showed that major barriers to MedRec is the lack of knowledge of healthcare professionals about the problems with MedRec. Other problems that were noted was the reluctance of clinicians in assigning tasks to nurses. The		VI

medication safety. BMC Health Services Research, 12(1), 170–181. https://doi.org/10.1186/1472-6963-12-170				authors noted that another major barrier to an effective MedRec was communication and collaboration among the different healthcare professionals.		

Note. Melnyk, B. M., Fineout-Overholt, E., Stillwell, S. B., & Williamson, K. M. (2010). Evidence-Based Practice: Step by Step The Seven Steps of Evidence-Based Practice. *AMERICAN JOURNAL OF NURSING*, *110*(1), 51–53. https://doi.org/10.1097/01.NAJ.0000366056.06605.d2

Appendix C: Curriculum Plan

Title of Project: Staff Education Program on Medication Reconciliation

Student: Chika Muoghalu, BSN, MSN.

Problem: The problem identified for this DNP project is the need for a MedRec program and nursing staff education on MedRec (SEPMR) in the HHA for which the project is intended

Purpose: The purpose of this staff education project (SEP) is to plan, implement, and evaluate a staff education program on a standardized evidenced-based medication reconciliation process (SEPMR)

Practice Focused Question(s): The guiding practice-focused questions for the SEP are:

- Does the literature provide evidence that MedRec is successful in decreasing errors in patient medication care?
- How will the participants evaluate the SEPMR related to the objectives and curriculum on MedRec?
- Will the SEPMR result in improved knowledge of the staff nurse participants on medication reconciliation as demonstrated by a pretest/posttest?

Objective Number and Statement	Detailed Content Outline	Evidence (from Literature Review Matrix)	Grading the Evidence	Method of Presenting	Method of Evaluation P/P Item
Define & discuss reasons for MedRec	a. What is MedRec? -Process whereby the patient's medications are compared to all the medications the patient is	Article #2	III III	PowerPoint	Question #1 Question #2

	taking including over the counter medications. -Nationally recognized tools, if implemented correctly, would mitigate medication errors. b. Why is Med Rec important? -Lack of MedRec resulted in 66% medication errors at our HHA. -Lack of a Standardized MedRec has been reported as a major health problem affecting millions of HHA patients.	Article #3 Article #9 Article #11 Article #2 Article #3 Article #4 Article #5 Article #16	IV III IV III V I		Question #3 Question #9 Question #7 Question #2
Discuss when MedRec should be done and who is involved	When should the nurse perform the MedRec process? -MedRec should be performed every time the patient’s level of care changes or a patient is transferred from one level of care to another including outpatient visits. Who is involved with MedRec? -All health care professionals, patients, families, and health care facilities including hospitals, outpatient facilities and retail pharmacies.	Article #4 Article #5 Article #14 Article #15	V I III V	PowerPoint	Question #3 Question #8 Question #4 Question #6

Discuss nurses' knowledge of MedRec and potential bias towards performing MedRec	What is the impact of the nurse's knowledge or lack thereof in their ability to perform an effective MedRec? -Lack of knowledge about the importance of MedRec and the eventual consequence leads to the laissez-faire attitude of nurses with regards to MedRec. What should be done to improve the nurse's engagement in an effective MedRec? -Education and continuous education on the importance of MedRec has shown to be very effective in improving the ability of nurses to engage in effective MedRec. -Increase communication between disciplines to improve MedRec	Article #10 Article #15 Article #4 Article #9 Article #1 Article #12 Article #13	III V V IV III III III	PowerPoint	Question #2 Question #10
Discuss the implications of not doing MedRec.	What are the implications of not doing MedRec? -Results in medication errors with will jeopardize patient safety and increase health care cost	Article #5 Article #11	I III	PowerPoint	Question #9

Appendix D: Curriculum Plan Evaluation by Content Experts

Title of Project: Staff Education Program on Medication Reconciliation

Student: Chika Muoghalu, BSN, MSN.

Respondent: (A, B, C)

Products for Review: Curriculum Plan, Complete Curriculum Content, Literature Review Matrix

Instructions: Please review each objective related to the curriculum plan, content, and matrix. The answer will be a "met" or "not met" with comments if there is a problem, understanding the content or if the content does not speak to the objective, At the conclusion of this educational experience, the participant will be able to:

Objective Number	Objective Statement	Met	Not Met	Comment
1.	Define & discuss reasons for MedRec			
2.	Discuss when MedRec should be done and who is involved in an effective MedRec			
3.	Discuss nurses' knowledge of MedRec and potential bias towards performing MedRec			
4.	Discuss the implications of not doing MedRec.			

Appendix E: Pretest/Posttest

Staff Education Program on Medication Reconciliation #_____

Chika Muoghalu RN, MSN.

DNP Student, Walden University

Thank you for taking the time to participate in my DNP Project. The test on SEPMR is anonymous. Please make sure to write down the same anonymously assigned number on both the pretest and posttest. Please circle your letter of choice and you have 10 minutes to take this test.

1. Medication reconciliation is:

- **a**. The process of reporting adverse drug reactions to the authorized organization
- **b**. A formalized, interactive, and multi-professional process for creating the most accurate and complete list of a patient's current medications and comparing the list to a patient's record or medication orders at interfaces of care.
- **c.** A simple interview of the patient
- **d.** The process of providing patient counseling about risky medications.
- **e.** The process of ensuring appropriate use of abbreviations while writing medications in the inpatient or outpatient setting.

2. Why is MedRec important?

- **a**. To obtain a complete list of medications the patient is regularly taking.
- **b.** To reduce the risk of medication errors.
- **c.** To ensure the patient is receiving the appropriate medication.
- **d.** All the above

3. MedRec can be achieved:

a. During patient admission

b. During an internal transfer at hospital

c. At discharge of the patient from hospital to home

d. During an outpatient office visit

e. At all these transition of care points

4. What are the sources of information during MedRec?

a. The patient

b. The physician

c. Family member/caregiver

d. Medication list

e. Community pharmacy profile

f. All the above

5. A medication error maybe:

a. Omission of the drug usually taken by the patient

b. Drug dosage higher than the dosage usually prescribed.

c. Drug duplicate from brand/generic name combinations or formulary substitutions

d. Drug dosage is lower than the dosage usually prescribed.

e. All the above

6. To do an accurate MedRec, you must consult:

a. One source of information

b. At least 2 sources of information

c. At least 3 sources of information

d. As many sources as possible that are involved in the patient's care.

7. **When doing MedRec, you must collect information about:**

a. Prescription medication

b. Over-the-counter medication

c. Complementary herbal medicine

d. Vitamins and supplements

e. All the above

8. Who can be involved in the MedRec process?

a. Nurses

b. Physicians

c. Pharmacists

d. Certified medical assistants

e. Pharmacy technicians

f. All the above

9. MedRec does not prevent medication errors or promote patient safety.

a. True

b. False

10. Education is an important part for an effective MedRec Program

a. True

b. False

Answer Key

B

D

E

E

F

B

E

F

B

A

Appendix F: Pretest/Posttest Content Validation by Content Experts

Title of Project: Staff Education Program on Medication Reconciliation

Student: Chika Muoghalu, BSN, MSN.

Respondent: (A, B, C)

Accompanying Packet: Curriculum Plan, Pretest/Posttest with answers, Pretest/Posttest Expert Content Validation Form

INSTRUCTIONS: Please check each item to see if the question is representative of the course objective and the correct answer is reflected in the course content.

Test Item # 1 2 3 4

1 Not Relevant __ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

2 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

3 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

4 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

5. Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

6 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

7 Not Relevant__ Somewhat Relevant__ Relevant ___ Very Relevant__

Comments:

8 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Comments:

9 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

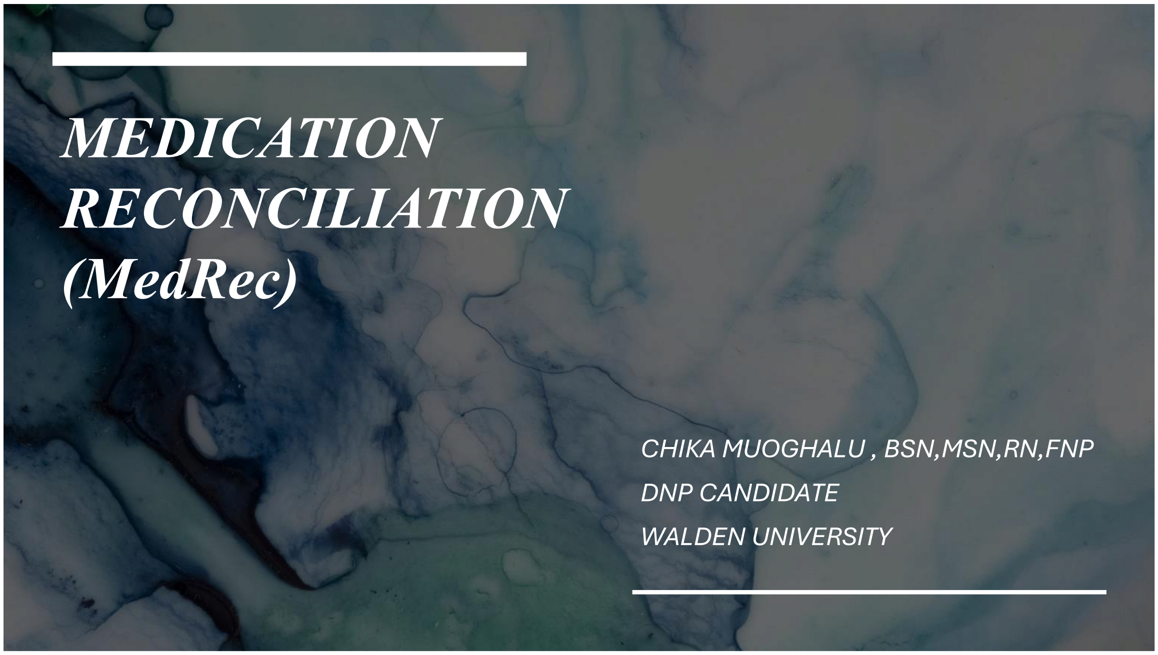
Comments:

10 Not Relevant__ Somewhat Relevant__ Relevant___ Very Relevant__

Appendix G: Pretest/Posttest Change in Knowledge by Participants

Number of Students	Pretest Score Numerical	Posttest Score Numerical	Change in Knowledge	Pretest Score Percentage	Posttest Score Percentage
1	6	10	4	60%	100%
2	7	8	1	70%	80%
3	8	10	2	80%	100%
4	7	9	2	70%	90%
5	6	10	4	60%	100%
6	7	10	3	70%	100%
7	6	10	4	60%	100%
8	8	8	0	80%	80%
9	8	9	1	80%	90%
10	9	9	0	90%	90%
11	8	10	2	80%	100%
12	7	10	3	70%	100%
13	4	10	6	40%	100%
14	9	9	0	90%	90%
15	4	10	6	40%	100%
Total	104	142	38	1040%	1420%
Mean	6.9	9.5	2.5	69%	95%
Range	4-9	8-10			

Appendix H: Staff Education Program



WHAT IS MEDICATION RECONCILIATION?

Definition:

MedRec is a process whereby the patient's medication orders are compared to all the medications the patient is currently taking including over-the-counter and herbal medications;

Stuijt et al., 2022

REASONS FOR MEDREC

- Increase patient safety
- Reduce risk for medication errors
- Ascertain that the patients are receiving the correct medication (dose and strength)
- Improve collaboration/communication between healthcare disciplines, patients and family

PSNet, 2019

WHEN DO YOU DO MEDREC?

Whenever a patient's level of care changes or goes through a transition of care point.

WHO IS INVOLVED WITH MEDREC?

- Patients
- Families
- Health Care Professionals (Physicians, pharmacists nurses, and medical assistants.

DEFINITIONS

Medication Lists:

Is a list of medications obtained from the healthcare facilities, patients and families.

Medications include prescriptions, over-the-counter medications, herbal, nutritional supplements, vitamins, vaccines, diagnostic and contrast agents, radioactive medications, parenteral nutrition, blood derivatives, and intravenous solutions.

DEFINITIONS CONTINUED

Transition of Care:

- Occurs during hospital admission, transfer, and discharge.
- At outpatient centers
- Admission to home health and long-term care facilities.

Information Sources for Medications:

- Patients
- Families

DEFINITIONS CONTINUED

Information Sources for Medications (Continued):

- All health care professionals
- Electronic Health Records
- Retail pharmacies
- All health care facilities visited by the patient

Medication Error:

Difference between medication lists including duplication, addition, wrong dose, omission, and drug-drug interactions

BARRIERS TO EFFECTIVE MEDREC

Staff:

Lack of knowledge about the need for MedRec

Lack of relationship between disciplines to facilitate communication about MedRec

Lack of collaboration between disciplines, often ordering new medications without reviewing what medications the patient is on.

Time:

Lack of time to dedicate to MedRec due to competing responsibilities

BARRIERS TO EFFECTIVE MEDREC (Cont'd)

Patients:

Lack of knowledge about medications

Lack of ability to give medication history and uncooperative attitude.

Health Records:

Inability to obtain patient medication lists from outside facilities like retail pharmacies.

Rojas-Ocana, (2023)

WHAT CAN BE DONE TO EFFECTUATE AN EFFECTIVE MEDREC?

Staff education:

Continuous staff education on the need for an effective MedRec, identifying why MedRec is necessary and the advantages of an effective MedRec.

Appendix I: Evaluation of the Staff Education Program by Participants

Objective Statement At the conclusion of this education program the participant will be able to:	Were the objectives met? Please circle.	
Define & discuss reasons for MedRec	Yes No	
Discuss when MedRec should be done and who participates in an effective MedRec	Yes No	
Discuss nurses' knowledge of MedRec and potential bias towards performing MedRec	Yes No	
Discuss the implications of not doing MedRec.	Yes No	
Additional Comments		

Appendix J: Content Expert Letter

Dear Content Expert,

Thank you for agreeing to participate as a Content Expert for my Walden University Doctor of Nursing Practice project titled *Staff Education Program on Medication Reconciliation*. In the enclosed packet, you will find documents for your review along with this letter. At the top of each document are instructions for completing the form. An alphabetic letter has been assigned to each Content Expert to ensure anonymity. No names will be on any of the forms. The documents have been delivered to you by another person to ensure anonymity. Once you have completed the packet, please put the material in the enclosed envelope and someone will collect the packet in about 10 days. That individual will place the materials in a new envelope with no identification and deliver them to me. Please feel free to contact me at any time by phone or email. If necessary, my faculty member.

Contents of packet:

i. Letter of Introduction
ii. Literature Review Matrix
iii. Curriculum Plan
iv. Evaluation of the Curriculum Plan by Content Experts
v. Pretest/Posttest
vi. Pretest/Posttest Context Validity by Content Experts

Sincerely

Appendix K: Evaluation of the Staff Education Project, Process, and My Leadership by Content Experts

Title of Project: Staff Education Program on Medication Reconciliation

Student: Chika Muoghalu, BSN, MSN.

Thank you for completing the Summary Evaluation on my project. Please complete and send anonymously via interoffice mail to:

I. Content Expert Approach

a. Please describe the effectiveness (or not) of this project in terms of communication, and desired outcomes etc.

b. How do you feel about your involvement as a content expert member for this project?

c. What aspects of the content expert process would you like to see improved?

II. There were outcome products involved in this project including an educational curriculum and pre/posttest.

a. Describe your involvement in participating in the development/approval of the products.

b. Share how you might have liked to have participated in another way in developing/approving the products.

III. The role of the student was to be the leader of the project.

a. As a leader how did the student direct you to meet the project goals?

b. How did the leader support you in meeting the project goals?

IV. Please offer suggestions for improvement.

Appendix L: Curriculum Plan Evaluation by Content Experts Summary

Met = 1   Not Met = 2

Objective Number and Statement	Evaluator A	Evaluator B	Evaluator C	Mean Score
1. Define & discuss reasons for MedRec	1	1	1	1
2. Discuss when MedRec should be done and who is involved in an effective MedRec	1	1	1	1
3. Discuss nurses' knowledge of MedRec and potential bias towards performing MedRec	1	1	1	1
4. Discuss the implications of not doing MedRec.	1	1	1	1

Moon/August 2019

Appendix M: Summary of the Evaluation of the Staff Education Program by Participants

“Met = 1” “Not Met” = 2

Objective Statement	Response	Mean
Define & discuss the reasons for MedRec.	Yes 15 No	1
Discuss when MedRec should be done and who is involved in an effective MedRec	Yes 15 No	1
Discuss nurses’ knowledge of MedRec and potential bias towards performing MedRec	Yes 15 No	1
Discuss the implications of not doing MedRec.	Yes 15 No	1
Mean		1
Comments: Comments made by the participants ranged from “great program” to “excellent program”. Participants also commented that the SEPMR should be included in the new orientation program and the annual education program.		

Moon/Dec/2021

Appendix N: Pre/Posttest Content Expert Validity Index Scale Analysis

Rating on X-Items Scale by Three Experts on a 4-point Likert Scale

Items	Expert 1	Expert 2	Expert 3	I-CVI
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	0	0	1	0.33
5	1	1	1	1
6	1	1	1	1
7	1	1	0	0.66
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
				S-CVI = 089

Adopted from Polit, D. F., & Beck, C. T. (2006). The content validity index

Appendix O: Summary Evaluation Results of the Staff Education Project by Content Experts

Title of Project: Staff Education Program on Medication Reconciliation

Student: Chika Muoghalu, BSN, MSN.

I. Content Expert Approach
Please describe the effectiveness (or not) of this project in terms of communication, and desired outcomes etc.

Evaluator A	Evaluator B	Evaluator C
This project remarkably effective in meeting the desired outcomes	The effectiveness of this project with regards to communicating the outcome is very evident.	The desired outcome for this project was well communicated.

How do you feel about your involvement as a content expert member for this project?

Evaluator A	Evaluator B	Evaluator C
I am extremely excited to be a part of this project.	It is an honor to be involved with this project.	I am privileged to be a part of this.

II. There were outcomes products in this project including an educational curriculum and pre/posttest.
Describe your involvement in participating in development/approval of the products.

Evaluator A	Evaluator B	Evaluator C
I am privileged to have the opportunity to review and approve the packet including the curriculum and the pretest/posttest.	I reviewed and approved the contents of the envelope.	I was happy to have been involved with this process.

d. Share how you might have liked to have participated in another way in developing/approving the products.

Evaluator A	Evaluator B	Evaluator C
I think the opportunity to review the packet was insightful.	The process is fine.	I will not change anything.

III. The role of the student was to be the leader of the project.
As a leader how did the student direct you to meet project goals?

Evaluator A	Evaluator B	Evaluator C
The student provided clear expectations for the project.	I was given adequate time to give my feedback.	I was told in clear terms what was expected of me.

How did the student support you in meeting the project goals?

Evaluator A	Evaluator B	Evaluator C
The time for review was adequate.	The student made sure to give me clear expectations.	The expectations were clear.

IV. Please offer suggestions for improvement.

Evaluator A	Evaluator B	Evaluator C
No improvement is needed at this time.	None at this time.	Nothing to change, this is a great project.

Moon/Mar 2022