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Medication Reconciliation in an Outpatient Clinical Setting

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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
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Walden University
2020

Abstract

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MSN, Walden University, 2015

BSN, Southern University and A&M College, 2010

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Medication reconciliation is a fundamental step in the delivery of safe care, because if it is not done correctly, it can set the stage for medication errors. Medication reconciliation has been shown to alleviate safety issues that lead to mortality, falls, and adverse drug reactions. The project question examined how in-service training can improve the knowledge of nurse practitioners and medical assistants about medication reconciliation. The project was guided by Knowles' theory of adult learning and Rosswurm and Larrabee's health belief model. A 1-hour educational module was prepared, and all participants completed the training prior to a discussion period. Sources of evidence included 2 pre- and posttests prepared for the nurse practitioners, medical assistants, and nurses (RNs/LPNs). There were 12 participants in the training: 4 NPs, 6 MAs, 1 LPN, and 1 RN. The nurse practitioners had 10 questions on the pre- and posttests; the MAs, LPNs, and RNs all had 7 role-specific questions. On the pretest, the NPs averaged 4.67; less than half (46.7%) answered the questions correctly. On the posttest, the NPs score improved to 6.17—61.7% was the average correct score—but not in a statistically significant way. The MAs, RNs, and LPNs scored less than half correct with an average score of 3.33 questions correct out of 7(47.6%); they, too, had an increased score on posttest with 4.67 answered correctly out of 7 questions (66.7%). Participants reviewed the correct answers in discussion, and all agreed on the answers. Positive social change for nursing practice occurs because of fewer adverse reactions, falls, and less mortality by promoting safe practice and prevention of medication errors within the outpatient setting.

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Dedication

I dedicate this paper to my Grandmother Albert Robinson who gained her wings in heaven during the most important milestones during the Doctor of Nursing Practice pursuit. I also dedicate this paper to my father Charles Ray Weary, Sr. who gained his wings in heaven in 1999. He was a big inspiration in my life and always instilled in me to never give up on your goals and dreams in life. With much respect to my mother Helen Weary, Mae Catherine Martin, and Momo Mickey, thanks you all dearly. To all my family who stood by my side no matter what all is greatly cherished.

I would like to extend special appreciation to those who never left my side during this journey and always encouraging me when I felt like there was no gain in earning this degree. My husband Stanley who stayed up late hours assisting when times get rough are greatly valued and noted. Finally, my personal cheer team: Gabrielle saying" mommy you have to finish studying even if it's late! No, you can't stop", Roxetta, Kashmia, Marco & Tia thanks for being available when I needed them to vent. Most of all, I thank God for allowing me to complete the journey.

"I have and will surmount all adversities that come my way by God's grace!"
Tilena Nicole Martin

Acknowledgments

I express many thanks to my committee for their continued guidance, support, and encouragement through the pursuit to reach this level of my academia success. To Dr. Barbara Niedz, my committee chair; Dr. Kathleen Brewer; Dr. Jennie De Gagne. I offer my deepest sincere appreciation to Dr. Niedz & Dr. Hahn who guided me through the final stages of my project. I also would like to acknowledge Nicole Jouette who would always offer her advice and encouragement during this journey.

Setting the destiny in which God has planned for me and the path in which inspired the compassion to advance my career has been a long journey. Although I have faced many storms but through perseverance, commitment, and dedication my journey is complete by God's grace.

Psalms 3: 5-6: Trust in the Lord with all your heart and lean not on your own understanding; In all your ways submit to him, and he will make your paths straight.

Table of Contents

List of Tables

List of Figures

Section 1: Nature of the Project

Introduction

The Institute for Healthcare Improvement (IHI, 2006) defines medication reconciliation (MR) as the process of creating and maintaining an accurate medication list to ensure patient safety. It is a fundamental step in the delivery of safe care, because if it is not done correctly, it can set the stage for medication errors. MR is a process performed by clinicians to prevent omissions, dosing errors, and adverse drug interactions. Three organizations mandate it: The Centers for Medicaid and Medicare Services (CMS), Joint Commission on Accreditation of Healthcare Organizations (TJC), and Agency for Healthcare Research and Quality (AHRQ). The Institute of Medicine (IOM) reported that patients experience up to 1.5 million preventable adverse drug events annually (Institute for Healthcare Improvement [IHI], 2019). TJC includes MR in outpatient care settings as a national patient safety goal to maintain and communicate accurate patient medication information (2012). The reconciliation process may help alleviate certain comorbid safety issues that can lead to hospital readmission after discharge, increased length of stay in the hospital, falls, adverse drug reactions, and mortality, falls, adverse drug reactions (Masnoon, Shakib, Kalisch-Ellett, & Caughey, 2017).

The gap in practice identified for this educational project was the clinic staff's knowledge deficit in proper MR processes during office visits. Providers found it difficult to keep up with patients' medication lists because patients were seeing multiple providers, which made it difficult to obtain an accurate and up-to-date medication list.

Patients easily get confused if they have several medication lists after seeing the provider. It is important for providers to reconcile medications at each visit. Some lists include both the generic and the brand name of their medications and patients are further confused because the patients do not realize they are the same drugs. A thorough MR during each office visit will help to rectify his problem. A multitude of factors contribute to improper medication reconciliation, creating a potential for safety issues once the patient return to the community setting (CS) (IHI, 2006). Patients in outpatient settings often get prescribed the wrong medications by providers and providing evidence-based practice information will promote positive outcomes.

The staff were educated on evidence-based practice approaches on how to successfully prepare a MR before allowing patients to return to the community after an office visit. There were in-service trainings at outpatient clinics and throughout the community to present? best practices. The goal of implementing a MR is to create an accurate medication list by using a systematic approach based on a patient and or caregiver interview and by assessing other sources, such as medication bottles or pharmacy records while in the providers office (Almanasreh, Moles, & Chen, 2016). Incorporating evidence-based practice will help nurses adequately perform MR and prevent medication errors within the office setting because the patient will be prescribed the correct medications. Patients are at risk for medication discrepancies if a reliable, accurate, up-to-date, comprehensive medication history and reconciliation is not done (Bishop, Cohen, Billings, & Thomas, 2015).

Problem Statement

This doctoral project addressed the inability of nurse practitioners to perform MR during each office visit. At an internal medicine clinic, the nurse practitioners were not reconciling medications properly. Based on the month-end report, the office manager reported that patients 55 and over, who were taking six or more medications, had medication errors or discrepancies quarterly. MR discrepancies place patients at high risk for adverse drug events (ADEs) if, for example, medications are duplicated. The nurse practitioners did a review of the electronic health records indicated that when providers compared patients' medication lists during visits to identify duplications, omissions, and dosing errors, they found that over 30% of the lists were inaccurate. Such inaccuracies may occur when the MR process is not performed by the provider after delegating the task to the medical assistant. Often, when patients visit other providers, they fail to bring an updated medication list. This puts them at risk for medication duplications when a provider sends medications to the pharmacy for refills. For example, if a patient is prescribed Lasix by his or her primary care the cardiologist prescribing a Lasix will be a duplication.

According to Duguid (2012), patients over the age of 65 years and those taking several prescription medicines have a significantly increased risk of medication errors. Medication discrepancies are characteristic and can lead to medication errors and adverse reactions simply due to inconsistencies between the lists and this may affect patient safety (Akram et al., 2015).

Significance for the Field of Nursing Practice

It is important to maintain best practices across the continuum of care when it comes to patient safety. Nurses must reconcile medications properly because of the risk for medication errors. The stakeholders that are typically impacted by addressing medication errors include physicians, nurse practitioners, nurses, office manager, medical assistants, and nursing? students. It is important to keep an open line of communication among all providers to improve the warnings of prescribing medications to prevent medication errors. Creating a culture of humility, communication, and teamwork is the only way healthcare providers can learn and hope to decrease preventable medication errors (DaSilva & Krishnamurthy, 2016)

TJC continues to emphasize the importance of MR in all practice settings (2012). IOM's most recent studies indicated that medication errors result from individual recklessness or actions that lead individuals to make mistakes (Khan, 2019). Evidence-based practice ties current knowledge and effective care delivery models to promote safe and effective patient outcomes. Implementing evidence-based practice for MR improves healthcare quality, reliability, and patient safety (Melnyk, Gallagher-Ford, Long, & Fineout-Overholt, 2014).

Purpose Statement

The purpose of this project was to provide information about the prevention of medication errors caused by inaccurate MR in outpatient settings using the latest evidence-based practice information. This project tested the knowledge of nurse practitioners, medical assistants, and ancillary staff about the MR processes. The details

of the project included conventional teaching methods and a reinforced return demonstration of educational material; it ended with retesting. The gap in practice exists due to inaccurate MR processes by nurse practitioners. Medication errors stem from a lack of communication between nurse practitioners or from inaccurate medication transcription during patient visits.

The practice-focused question for this doctoral project was as follows: Will in-service training for nurse practitioners and medical assistants improve their knowledge of the patient MR process? This doctoral education project taught providers and staff about the effectiveness of the MR process and its impact on the continuum of care for patients in the community. It also served to help reduce medication errors in outpatient settings. Bridging the gap to prevent medication errors for providers by compiling an accurate medication list is necessary for care coordination (Johnson, Guirguis, & Grace, 2015). This education program sought to reduce the gap in practice that currently exists at this practice site. The goal of the project was to ensure that staff were reconciling medications properly and following the correct process that was established at the clinic after the DNP student taught the educational program. Another goal was to reduce the number of medication errors for patients after their office visit to prevent any unwanted adverse drug reactions that could end in death or hospitalization.

Nature of the Doctoral Project

The literature has been reviewed to identify best practices. The literature of review for MR was conducted using the Walden University library. The following

databases CINAHL, ProQuest, Medline, Mbase, and Google scholar for peer-reviewed articles within the past five years to assist with identifying current best practices for MR.

Other sources of evidence I used were collected from TJC and the AHRQ. Once identified, articles were appraised using the Rosswurm and Larrabee model for evidence-based practice. This appraisal model focus on triggers and current nursing practice issues (Rosswurm & Larrabee, 2011). Using evidence-based practice articles for best practices ensured that only the highest level of evidence was included in the educational program for providers and other staff members. According to Peterson, et al. (2014), incorporating the highest level of evidence was done to improve patient care outcomes and to help mend a gap between new knowledge.

Significance

Stakeholders at the clinic site who had the greatest impact on the MR process were clinical staff members, medical assistants, and nurse practitioners. I focused on teaching, I encouraged teamwork, and I provided a collaborative approach in the clinical setting to provide a safe practice environment. MR helped make a positive impact on nursing practice that contributed to positive patient outcomes in the community. The Educational programs affect all clinical areas such as disease prevention, various screenings, and advantages of health preventative services. The transferability of this project in outpatient settings and ambulatory care settings are vital because MR processes are done after each visit. I expected the process to make a positive contribute to social change by decreasing adverse effects and reducing mortality to ensure patient safety. Performing MR is a way to help reduce medication errors (Ramjaun, Sudarshan,

Patakfalvi, Tamblyn, & Meguerditchian, 2015). The MR process also allowed the staff to adhere to and/or promote adherence to the IOM and evidence-based practice guidelines in the clinical setting.

Summary

MR is important within outpatient settings and it is vital that nurse practitioners understand how to do it properly. A reduction of medication errors across the continuum of care helped nurse practitioners manage medication list during each visit. The educational approach that was implemented to improve the staff MR process was introduced in this section of the proposal; it is further explained in Section 2.

In Section 2, I will include the following because of patient safety issues, adverse effects, and medication errors. The concepts, models, and theories relevant to nursing practice, local background and context, role of the DNP student, role of the project team will be discussed.

Section 2: Background and Context

Introduction

MR inconsistencies change the need to be made in a primary care clinic before the patient goes into the community setting need to be addressed promptly. The practice-focused question was: Will in-service training for clinic staff and providers improve their knowledge of the patient MR process?

The goal of this study was to promote patient safety, reduce medication errors? and promoting best practices in nursing. According to the IHI (2018), in outpatient settings MR inaccuracies account for up to 50% of medication errors within an organization are due to some nurse practitioners do not understand and it is important that all staff follow the correct processes. In addition, this section discusses how the project promoted patient safety in an outpatient care setting.

Concepts, Models, and Theories

Nurse practitioners used numerous models, concepts, and theories to navigate evidence-based practice (EBP) educational projects for clinical practice. Two models were chosen for this project. One model was the Rosswurm and Larrabee (1999) model for EBP change. After exploring their EBP model, the organization is to collaborate with staff, present current knowledge, and target problem-focused triggers that helped staff to question current nursing practices (Doody, 2011). The other model chosen to guide this DNP project was the adult learning? theory of Knowles.

Rosswurm and Larrabee's Model

The Rosswurm and Larrabee model consists of a six-step approach to implementation of EBP in primary care (1999). The providers identified unique relationships in the practice setting in resolving the identified problems. For example, collaboration with staff and other providers to rectify MR. The Rosswurm and Larrabee (1999) model linked problems such as inaccurate MR that were identified in clinical practice setting to design change in the practice. The six-step model assessed the need for change in practice, linked problems with interventions and outcomes, synthesized the best evidence, designed change in practice, and implemented and evaluated the changes? (Rosswurm & Larrabee, 1999). The model helped to evaluate how the educational MR program worked within the practice for patient care. It also served as an evidence-based guide for providers as they made changes on a day-to-day basis as barriers were identified. The barriers that hinder change within the organization were addressed and identified. It is important for staff and providers to make change within an organization beneficial for positive patient outcome.

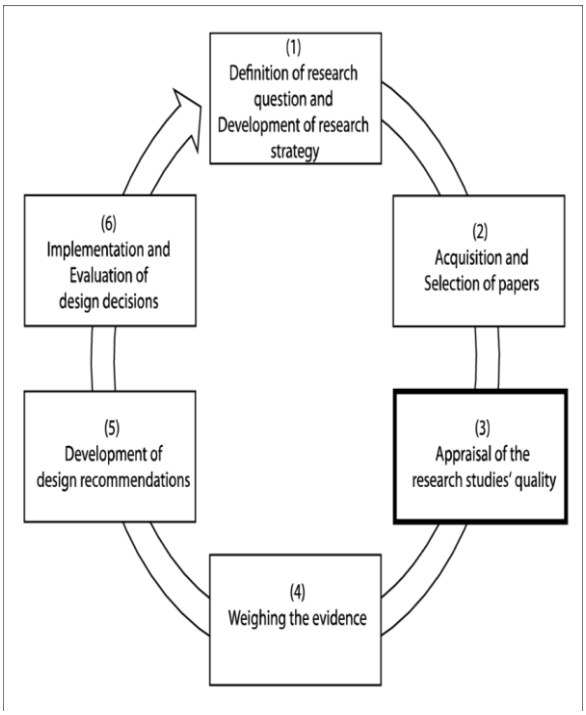

Figure 1. *The circle of evidence-based design*. Source: Adapted from Rosswurm & Larrabee (1999) and Brown & Ecoff (2011).

Health Belief Model

The health belief model was used in this project because it holds accountability for each staff who educate and adhere to best practices in healthcare (Shao et al., 2018). This model is based upon one's ability to change and perception of change; it is important all providers communication remains open; thus, it is the most widely used [word(s) missing?] in the United States (Jones, Jensen, Scherr, Brown, Christy, & Weaver, 2015).

Theories

Knowles' (2013) adult learning theory of andragogy was the theoretical framework used to guide the MR in-service. It is a learning system for adults and is appropriate for use. Knowles identified four key pillars for understanding adult learners.

History of Knowles' adult learning theory of andragogy. As healthcare becomes more complex the ability to logically think and problem solve plays a major role in the delivery of healthcare. Knowles' adult learning theory was chosen because it is a self-motivated learning theory. It was originated in the early 1950s by an American educator who had a great impact on the adult-learning field (Knowles, 2013). The theory gives a mechanism to shape adult learning and create a comprehensive theory of adult learning and development throughout a lifetime (Knowles, 2013).

Components of Knowles' adult learning theory of andragogy. Knowles' (2013) adult learning theory of andragogy identified four key pillars of understanding how the adult learner receives information. A description of Pillars 1-5 is provided for each of the components.

Pillar 1: Maturing Self-Concept –This will happen when an individual shifts from one stage as he or she begins to grow and learn to accept responsibility and not depend on others. The individual frame goals recognize various resources for learning and implementing learning strategies and evaluation of learning outcomes (Knowles, 2013).

Pillar 2: the adult has an increase in experience as their resource for learning deepens (Knowles, 2013).

Pillar 3: the adult experiences an increase in readiness to learn as they move into various roles during the workforce because various roles require new knowledge (Knowles, 2013).

Pillar 4: involves shifting application and orientation. As adult learners, the application of learning becomes immediate and problem centered. As adults encounter problems, they learn how to solve them, and then immediately apply the knowledge to the problems (Knowles, 2013).

Pillar 5: is an internal motivation to learn for adults as they want to grow self-development. For example, instead of having education forced on them, they pursue education (Knowles, 2013).

In summary, Knowles' five pillars provided a foundation of understanding adult learning and believe it shaped the teaching and curriculum accordingly. The theory allowed the adult to place special emphasis on the learners, how they perceived information, and the motivation exhibited during the learning process. The Knowles theory was used for the project to assess the knowledge of the adult learners by actively engaging them during in-service trainings and participation in active visual group learning sessions to address learning and connection of learning experience.

Relevance to Nursing Practice

According to Rungvivatjarus et al. (2019), TJC included the MR as a 2005 National Patient Safety Goal to help reduce errors despite the many institutions and organizations struggling to implement successful MedRec. Medication errors are most common in nursing which leads to adverse outcomes such as mortality. Medication errors

often lead to adverse outcomes such as increased medical expenses; however, medication errors can be caused by all members of the health care teams, and in nursing practice medication errors are one of the most common (Cheragi et al., 2013). The most interesting factor of MR as it relates to nursing practice and the influence it has on patient outcomes is how the process prevents errors (TJC, 2006). To foster safety for patients, the nurse practitioner must ensure MR is performed at every visit to prevent medication errors. More so, the practitioners must make sure other team members are following the correct process. MR is important, and the practitioners are expected to reconcile the patient's medication at every visit (Rose, Fischer, Paasche-Orlow, 2017). The practitioners may encounter issues during the reconciliation process but having a wealth of education helped to decrease medication errors.

As a practitioner's responsibility is to ensure best practice guidelines are followed as well as advocate for his or her patient's safety. Utilizing evidence-based strategies to help achieve positive patient outcomes to lessen medication errors in outpatient settings were provided at the clinic after the project implemented. Utilizing best practices is a great starting point and practitioners and to implement change in the practice environment is important (Rochester-Eyeguokan, Pincus, Patel, & Reitz, 2016). More so, it is important to include patient and family in the process during MR during office visits. Medication errors are the most reported including mediation safety knowledge (Kim, Suarez-Cuervo, Berger, Lee, Gayleard, Rosenberg, & Dy, 2018).

Local Background and Context

MR is a process that is used to implement a process to obtain and document a complete list of the patient's current medication list (Agency for Healthcare Research and Quality, 2019). Creating the most accurate MR list to prevent any adverse drug events (ADEs) or preventing harm from medications. This must remain a top patient safety concern within the community as well as across the continuum of care for patients (Institute for Healthcare Improvement, 2006). In fact, reconciling medications in a community setting or outpatient setting there are two questions a practitioner must capture and they are as follows; what may have occurred in the visit, any discontinued medications, altered, or held pending consultations with other prescribers . More so, have any new prescriptions been added since the last office visit (IHI, 2006). To counteract the issue, there must be consistency in the process to avoid medication errors. Within the organization there must be protocols and policies in place before addressing any concern about how the educational project.

I completed the DNP project at a local outpatient internal medicine clinic in Texas, that services an adult population of 275 or more adults 17 and older. The patient population was culturally diverse with Blacks, Hispanics, Whites, and Asians. After review of the 275 patients, 83 (about 30%) had medication duplications and/or omissions on their medication list during each visit. According to the office manager, the information was retrieved from quarterly reports. Practitioners also identified there were patients who did not have an up to date medication list along with multiple omissions and

medication duplications. This project will serve as a tool for educating them at an in-service on MR process.

Definition of Keywords

MR process: most accurate list of medication a patient is supposed to be taking with various goals listed on it.

Medication error: When medications are entered into the system wrong causing unwanted effects

In-service: In Collins English dictionary a group of professionals who are provided training as they attend special course to improve skills or to learn new developments in their field Harper Collins (2019).

Adverse drug effect: an unexpected reaction to a drug or unwanted effect caused by the administration of a drug. The onset of the adverse reaction may be sudden or develop over time. It may be called adverse drug event (ADE), Adverse drug reaction (ADR), adverse effect or adverse event.

Health information technology: information technology applied to health and health care. It supports health information management across computerized systems and the secure exchange of health information between consumers, providers, payers, and quality monitors.

Interest by TJC goals for the National Patient Safety goal is to reconcile medications accurately and completely across the continuum of care by implementing and documenting a current and accurate medication list (The Joint Commission, 2005). It is important to reconcile medications properly to prevent any harmful unwanted effects it

may cause to the patient. It is imperative practitioners are educated on evidence-based practice guidelines regarding how to properly reconcile the patient's medication list.

Role of the DNP Student

I currently work as a RN and will soon transition into my new role as a NP. My role as the DNP was to educate the staff on MR by implantation of an educational program. This execution was to help improve the process within the outpatient setting. Furthermore, the advancing of the project to completion evolution, evaluation of outcomes, and presentation of the final project within the clinic. I am focusing on the importance of medication safety for patients and prevention of errors. Assisting the staff and working close with other NPs and physicians has given deeper insight on what is to be expected as I transition into the new role. For example, being more cognitive of a patient's medication profile and analyzing his or her medications more closely allows greater insight on there may be a gap that need may exist or barrier that need to be addressed. As a nurse, it allows a sense of compassion and greater understanding as to what a patient may need and nurture his or her issue with a warm welcome.

I am very motivated to implement this project because of social impact and change first and foremost. Secondly, to aid in medication safety and awareness to cultivate patient safe havens. Promoting positive medication safety awareness is a priority and an evidence-based approach is by far the best way to promote it through an educational project. By educational design, DNP graduates transition knowledge into practice by meeting with the practitioners and educational staff for in-service trainings

monthly to address the MR issues and improvements in medication list by checking for accuracy at the end of a quarter.

Summary

This section explored the importance of MR and how important it is to prevent medication errors as well as patient management. Utilizing models and theories to help translate evidence into practice plays a major role in healthcare today to help bridge the gap. Thus, improvement in overall patient healthcare outcomes is the most important goal all providers need to aim in collectively.

Section 3 provides an overview of the specifics of the project's methodology.

Section 3: Collection and Analysis of Evidence

Introduction

In most instances, practitioners do not intentionally omit medications or duplicate medications when reconciling medications. The purpose of this project was to develop an educational program for staff members that would deliver evidence-based practice information using the latest up-to-date, evidence-based information to help improve the MR process. The goal of the educational program was to prepare providers (for what exactly?) and teach them how to properly reconcile medications and incorporate best practices in the process. This approach provided an effective way of increasing safety awareness once the patient returned home. The approach for this educational project included the use of a pretest and a posttest, followed by a program evaluation.

After conducting the pretest, I delivered the educational program. Participants then took a posttest (see Appendix C) to determine what was learned. After the posttest, participants were asked to complete the program evaluation to determine whether the program met the educational objectives. The educational program was created to present evidence-based information to help improve the MR process. Using a pretest and posttest was a way that nurse practitioners (NP) could determine if the educational program resulted in knowledge acquisition that could improve the way they practice.

Practice-Focused Question

The main problem identified in the practice for this doctoral project was the challenge the providers are facing with MR and knowledge about the process. The goal was to close the (knowledge?) gap for the nurses at the clinic and increase awareness of

patient safety. The practice- focused question that guided the project was as follows: Will in-service training for practitioners and medical assistants improve their knowledge of the patient MR process?

Sources of Evidence

One source of evidence for the project was a literature review on knowledge and attitudes about the MR process. The other source was a staff education program, where a MR pretest and posttest were compared. The nurse practitioners and office staff were allotted a short time for the educational program, which included the MR pretest and posttest, PowerPoint presentation, short MR video, oral discussion after the post PowerPoint presentation, and care transitions forms, along with medications at transition and clinical handoffs (MATCH) guidelines using best practices.

Published Outcomes and Research

The evidence was gathered from multiple databases, for the years 2006–2019, and a few websites. The following databases were used: CINAHL, Medline, Mbase, Google Scholar, and ProQuest. The following websites were used: The following keywords were used: TJC, CDC, CMS, AHRQ. The following keywords were used: *MR in outpatient settings, providers, nurse practitioner and best practice for medication reconciliation, evidence-based and knowledge of medication reconciliation, outpatient or clinics* or *ambulatory, quality measures for mediation reconciliation process, guidelines for medication reconciliation, medication error, staff education or staff training or staff development- or professional development* or *in-service,* and *general practice*.

Evidence Generated for the Doctoral Project

Participants. The participants in the project included the 10 staff members at the outpatient clinic who interact daily with the patients. The staff were informed on the accountability measures staff members will take to improve on reconciling medications and using evidence-based practice guidelines. There are four medical assistants (MAs), four nurse practitioners (NPs) and one Registered Nurse (RN) and one Licensed Practical Nurse (LPN) at the site. Though the ultimate responsibility for MR rests with the NPs and primary care providers, every member of the primary care team has a role. Working together as a team will help improve non-compliance within the organization, improve best practices and patient safety at each visit.

Procedures. The educational program was performed after clinic hours coordinated by the office manager during scheduled meetings for staff and providers. Information presented for the in-service educational program included the MR knowledge presented in a PowerPoint, a pretest and posttest for both medical assistants, clinical staff and primary care providers, specifically the nurse practitioners (Appendices A and B), as well as evidence-based educational resources such as the AHRQ (2012) toolkit for MR process (Appendix C). The in-service information was provided on how to accurately perform MR process, the use of the Medications at Transitions and Clinical Handoffs (MATCH) tool assessment and other educational resources, a summary of best practices for improving patient medication safety in outpatient clinical settings before returning to the community. Clinical issues and gaps in care of mediation compliance with state, local, and national guidelines for best practice will reviewed at the in-service

sessions, see Appendix A for an overview of the educational program.

The pretest and posttests were administered to staff at the site before and after the educational program. This educational program was optional for the practitioners and staff within the organization, but staff were encouraged to participate. The pre- and posttests were identified by role only by virtue of participation and were anonymous, always held confidential.

The information collected from the pretest and posttest comparison provides insight regarding the clinical staff's application of knowledge through case study scenarios and delineation of role. A set of questions will also be presented to the staff for the educational program to assess the effectiveness of the program. The staff responsiveness was assessed by using a Likert scale (five-point multiple-choice scale), yes or no answers, and selected open-ended questions (Cooper & Johnson, 2016).

The pretest and posttest were used as a measure to provide evidence-based approaches to educate the staff on reconciling medications properly. To successfully carry out the educational project a staff educational in-service program was implemented for the practitioners and staff in the medical clinic. An overview of the program was thoroughly explained to the staff, relevant evidence-based research tools, and current statistics were discussed. Strategies to put in place for practitioners to promote safety were discussed for the well-being of the patients in the community. The staff were encouraged to participate in the educational program and to ask for clarity in relation to best practice as it apply to reconciling medications.

Protections. Protection of human rights was secured through the Walden IRB

manual and the project was designed in accordance with the Walden educational manual requirements. Permission was secured on 04/16/2020, Approval Number 04-17-20-0400558. To prevent any misleading or misunderstanding of the content to be presented, permission was secured from participants to answer the Likert-type questions of the study. I completed the necessary National Institutes of Health human subjects' protection training as mandated by Walden University prior to clinical practicum.

Analysis and Synthesis

In developing this project, the process included the development of 5-point scale Likert type multiple choice questions for the in-service training. Posttest answers were compared to pretest answers and analyzed to see if the nurse practitioners' understanding of how to perform MR improved after the training. Additionally, staff members were asked to complete a brief survey with questions to provide insight on their view of the effectiveness of the training (see Appendix B). Recommendations emerged from the survey questions for additional training and discussion on medication reconciliation.

Summary

Section 3 addressed the approach of the project and ways to improve the MR process as well as prevent medication errors. It described the purpose of the project as it relates to the outpatient clinic, the primary care setting for the DNP project. The intent of the project information was used for sources of evidence. Mores so, the main focal point of the project was to elaborate on ways to improve staff knowledge regarding medication errors. The goal of the project was to improve staff knowledge and competency regarding MR processes.

Section 4 describes a summary of findings and recommendations as well as the outcome of the project.

Section 4: Findings and Recommendations

Introduction

There are many challenges that health care providers face in outpatient care settings. The lack of knowledge about the MR processes used in the office setting and the time constraints that allow the providers to complete MR with the patients during each office visit are two of the most pressing. Staff members at the project site did not necessarily use evidence-based guidelines during the MR process at each office visit. This challenge was recognized at the project site and the educational project was developed to train the staff to complete an accurate medication reconciliation. Further investigation led to possible causes of the problem and revealed that staff members do not always use MR processes onsite during each visit creating room for medication errors.

The purpose of the project was to ensure that the staff (all of whom volunteered) understood the MR process, across the continuum of care, as a key safety measure and as a National Patient Safety Goal. The project delivered evidence-based educational material as a toolkit to improve patient outcomes.

The practice-focused question addressed in the project was: In an outpatient clinical setting, will an in-service training and educational program for clinical staff and providers improve their knowledge of the patient MR process? The providers' knowledge was measured by comparing the results of a pretest and a posttest, PowerPoint presentation followed by a verbal discussion. This section reports the findings of the analysis and synthesis of data regarding the impact of educational in-service.

Sources of Evidence

For this project the sources of evidence included valid databases such as Centers for Medicare and Medicaid Services (CMS), The Joint Commission (TJC), Centers for Disease Control (CDC), Medline, Agency for Healthcare Research and Quality (AHRQ), Mbase, CINAHL, and Google Scholar evidence-based policy searches. The key terms used to gather information included: *MR in outpatient settings*, *care transitions, providers*, *nurse practitioners* and *evidence-based* or *best practice for medication reconciliation, outpatient or clinics or ambulatory*, *quality measures for MR process* and *guidelines for medication reconciliation*. Information was also used to educate staff from TJC National Patient Safety Goals website. The terms were used together with the engine search to retrieve literature. Pretest and Posttest were used to measure the knowledge level along with open discussion feedback from staff with emphasis on MR in outpatient clinical setting in the tables below. The tables outlined the scores for knowledge acquisition by each NP, MA, LPN, and RN.

Findings and Implications

Findings

A review of literature was conducted to support the project. The educational overview and proposed training (Appendix A) were compiled and provided. There were two different pre- and posttests prepared for the nurse practitioners and medical assistants and nurses (RNs/LPNs). The pretest and posttests along with a survey questionnaire (Appendix B) were included in the training. The training included the use of MR tool, and medication discrepancy tool (Appendix C). The pretest was administered to a total of

12 employees at the clinical practicum site who were nurse practitioners, nurses, and medical assistants. The delivery method was via remote Zoom meeting with a PowerPoint presentation and a short you tube video attachment within the PowerPoint. Pretest and posttests were scored and analyzed after the participants participated in the project.

There were 12 participants in the training: four NPs, six MAs, one LPN, and one RN. The nurse practitioners had 10 questions, the MAs, LPN, and RN all had 7 role-specific questions on the pre- and posttests. The data were analyzed with descriptive statistics and were not normally distributed. Thus, a non-parametric test, the Wilcoxon-Signed Ranks test was used with paired data to compare scores on the pretest with scores on the posttest for both groups, the NPs, and the MA/LPN/RN group. Since there was only one LPN and one RN; these scores were clustered with the MAs since they used the same pre- and posttest to maintain confidentiality of the participants.

The NPs scored an average score of 4.67 of 10 questions on the pretest, less than half (46.7%) answered the questions correctly. On the posttest, the NPs score improved, but not in a statistically significant way with a score of 6.17 out of 10 (61.7% was the average correct score on the posttest) see Table 1. The MAs, RN, and LPN scored less than half correct with an average score of 3.33 questions correct out of 7(47.6%) and also had an increased score on posttest of 4.67 answered correctly out of 7 questions (66.7%), see Table 1. The increase in score was not statistically significant. The lack of statistical significance is explained by the exceedingly small sample size, which is a common problem and may have caused a type 2 error as the change in knowledge acquisition was

demonstrated. According to Banerjee, Chitnis, Jadhavm, Bhawalkar, and Chaudhury (2009), A Type 2 error is a false negative occurs if the researcher fails to reject a null hypothesis when a smaller sample size or population is used statistically. However, a type 2 error can never be avoided entirely by the researcher can reduce the likelihood by increasing the sample size (Banerjee et al., 2009).

Table 1

Knowledge Acquisition by Role

	Pretest score	Posttest score	Discussion
NP, *n* = 6	4.67/10	6.17/10	10/10
MA/LPN/RN, *n* = 6	3.33/7	4.67/7	7/7

Staff members were given an opportunity to engage in an open discussion after the presentation. After delivery of the educational project the staff were encouraged to provide feedback. Participants were also free to respond to questions and include additional recommendations regarding processes to conducting MR in primary care settings. With such short amount of time during the presentation and as many of the staff member were either new or novice, they were not as active in the discussion as they might have been.

Upon review of the posttest an oral discussion took place regarding each question answered incorrectly and the thought that was put into each question by the participants. After rereading the questions and taking the time to focus, they seemed to be more thorough and engaged. The staff also included several novice medical assistants and two novice nurse practitioners; all new to the practice and to the electronic health portal used at the site. They admitted it had been difficult doing multiple tasks during the day and

staying focused and they were less interactive during the project presentation. However, the information on MR was embraced and after the oral discussion, the staff were more informed, and each staff member's scores increased with knowledge gained (see Table 1). Staff were open to the use of the evidence-based tools provided to improve MR workflow within the clinical setting. The staff members identified the need to implement and use the electronic health portal and the evidence-based literature as a guide for MR in the primary care clinic.

A survey questionnaire evaluated the effectiveness of the training program and how MR would align in clinical practice and it was based upon a five-point scale. The twelve staff members responded to each item on the survey as follows on a scale from 1-5 (1=strongly disagree/not confident; 2=disagree, 3=neutral, 4=agree, and 5=highly confident) (Table 2). The table describes the average score of the staff knowledge level of evaluating the program for clinic use.

Table 2

Staff Evaluation Survey of Educational Project, N =12

1.Do you think implementing an educational program will improve the MR process in the clinic?	Yes	12 of 12 participants
2.Do you think there may be other strategies used by healthcare professionals to help with reducing medication errors within the clinical setting?	Providing the staff with resources for training and educational in-services at least quarterly. Possibly continuing education classes online annually, community pharmacy engagement tools, and continuous clinical education.	

3.Is the educational program relevant to your job description?	Yes, agree	12 of 12 participants
4.How has the educational in-service contributed to the organization guidelines?	Highlight areas for improvement within the organization, recognizing evidence-based information relevant to primary care settings, and methods to deliver clinical education to staff to improve practice outcomes.	
5.How will the outcomes be measured for this project?	Outcome measurements per nurse practitioners: Quality improvement assessment (QIA) trackers at least twice a year. The NP task includes performing at least 2 chart audits weekly and monitoring the medial assistant's entry at the end of the week for accuracy. Quarterly chart audits by the NP, RN, and LPN to monitor any errors from the pharmacy or patient medication chart review between transitions of care.	
6.Are there any important concepts that need to be implemented during the in-service sessions?	There were no important concepts left unaddressed after the presentation. The only roadblock was timing and the pandemic which has caused undue stress within the practice. All points were made clear by the presenter, there was engagement and group participation that allowed all of us to speak freely.	
7.What are the most important factors the providers should pay close attention to during the MR process?	Continuity of medication history and continuously verifying, obtaining, and documenting current medications and comparing medication list. Transmission of medications to the pharmacy, communication between all prescribers and local pharmacist to promote patient safety.	
8. Do you feel the information presented for MR was helpful?	Yes, strongly agree	12 of 12 participants

Implications

Lack of or improper MR processes can pose a threat to the health care industry, providers, patients, employers, and society. MR increases the awareness of nurses regarding patient safety if correctly done every time. If MR is not done properly it can be costly to organizations, the health care industry, society, and patients. Prevention of medication errors is paramount in nursing and it is the duty of all health care professionals involved in the care of patients to keep them safe. According to Redmond, Grimes, McDonnell, Boland, Hughes, & Fahey (2018), failure to reconcile medications results in medication errors and subsequent adverse drug events (ADE). The key to reducing serious medication errors and prevention of harm requires timely and accuracy at all transitions of care with competent coordinated responses from all health professionals (Wheeler, Scahill, Hopcroft, & Stapleton, 2018).

Saving a person's life and improving the quality of care are made possible by centralizing and adopting a standardized policy within the clinic. Positive social change for nursing practice occurs because of safe practice and prevention of medication errors within the outpatient setting. More so, it is important health care providers to maintain an accurate, comprehensive, and up-to-date medicine list to help reduce serious medication errors (Wheeler, et. al, 2018).

Recommendations

The primary goal of this project was to address the influence that an educational in-service had on medication reconciliation. The location, time, clinic staffing and technology capabilities played a major role in determining the effectiveness of the

training. A face-to-face staff educational presentation with multiple encounters and frequent follow-ups would have been desirable. This is what the staff were accustomed to before the Covid-19 pandemic. Thus, even though offered remotely via Zoom, there are clear indications for additional educational sessions in the future. Holding continuous educational programs for staff at least quarterly to refresh their knowledge about mediation reconciliation processes is an important process, which became clear at the site. In addition, nurses can use telehealth at this time to follow up with patients at least once per month to do a medication review. It was also proposed that the site conduct quality improvement projects on measuring the MR processes now, and future in-service trainings, and a random sample of 20-30 chart reviews, and revisit results within six months.

Strengths and Limitations of the Project

The staff at the clinical site embraced the material and their willingness were key strengths. All staff were incredibly supportive even though each person was busy and despite the COVID-nineteen pandemic which has influenced workflow and caused undue stressors. Despite the long hours and demands of extra workload they have been faced with, staff members at the site willingly participated. At the end of the program, the entire staff including NPs, RNs, LPNs, and MAs, informed me about how eager they were to initiate the approach included in the training, which is another strength.

One of the major limitations was availability of the staff at convenient times when I needed them, the lack of previous participation in a project, time constraints due to COVID-nineteen pandemic, no face-to-face presentations. Another limitation included

the small study conducted with the staff total of twelve participants. Suggestions for future projects included broadening the expansion to other outpatient sites, for stronger outcomes. Even though the project was implemented, there was limited time to conduct interactive role play, which may be another approach to use in future trainings on medication reconciliation.

Summary

The major focus of the DNP project is aimed at equipping providers with evidence-based practice literature regarding MR to ensure patient safety and improve patient outcomes. The project included information on the MR process regarding bridging the gaps in care, prevention of harm, barriers to medication reconciliation, and how to engage patients during the process. The project was intended to provide a thorough education to a clinical setting to help decrease harm causing errors using medication reconciliation. Continuous education and training to shape an evidence-based practice is the key to successful patient outcomes and this is an important function of a DNP leader. The implementation of the MR process is essential in primary care settings for patient safety. Within this organization, nurse practitioners, nurses, and medical assistants all play a significant role in the process of completing MR during each office visit. Although there are barriers and challenges, further identification to provide ongoing support to staff to improve patient outcomes thus preventing medication errors.

Section 5: Dissemination Plan

Introduction

The project addressed enhancing the MR process in a primary care setting. I presented an educational program to the staff delivered through a PowerPoint presented remotely. The final findings of the project were provided to the site as a summary guide with the teaching material, MR toolkits from Care Transitions, and MRT tools. The information was disseminated to all staff members who participated in the project. Permissions were provided to use the materials for other staff within the office since the presentation was virtual.

The prepared information from the educational program provided detailed information with various resources to inform staff members. After engaging with the staff and analysis of the information they had a better understanding of the information presented to the material. The staff were asked to complete a short survey regarding the delivery of the information to provide feedback on the in-service training. The project findings are to benefit other medical practice locations, community fairs, and medical home communities. The intent is to further develop findings into a manuscript for publication consideration within a peer-reviewed journal.

Analysis of Self

As a DNP student and Advanced Practice Registered Nurse I have experienced some growth in many areas of my life over the past two years. Those aspects have been intellectual, spiritual, and goal oriented as I have been more focused on purpose in life. As I took a deeper dive into evidence-based practice, literature reviews, and various

articles the evolving world of nursing around me began to change. My views on how problems in practice of MR need to be handled in the community and in primary care was a sensitive topic. Many of my colleagues and coworkers were unable to fill the gaps and felt the evidence only applied to a disease process. As MR started to become more of an issue and there were challenges faced by patients within the community and I began research, the numbers were explosive according to the literature. Many hours were spent studying the practical aspects of MR in outpatient settings with little to no information at times. Initially the only information being found was information on transition of care from the hospital or other direct care. I plan to partner with community pharmacist, home care agencies, and primary care practices to provide community medication home programs to provide medication education for Medicare and Medicaid home-bound patients.

As a scholar, it was challenging to get staff views to align with best practices and the project. In fact, allowing the providers to visualize changes within the practice was impractical, initially. As a scholar of change through Walden University's mission for social impact it potentiated me to present ideas through profound ways. One of the most important factors was allowing the providers to understand the broader scope of social influences have on a patient's health outcomes as change is embraced. Envisioning change within an organization with proper planning and implementation of initiative were highly encouraged to mend gaps within an organization. This helped the staff realize the importance of the project and support was gained from all individuals.

As a project manager, my goal for each participant was to ensure they understood the purpose of the project. Through each stage, the clinic staff were involved with project planning, which was helpful. Throughout each phase, the staff were delighted the steps to implementing MR were simple. This project regarding MR has helped me gain greater insight and understanding of the impact it has on healthcare. Taking a deeper dive with this project has helped me grow professionally and not view medications as just a task that needs to be performed on one level. With greater respect to the welfare of patient safety this project has gained a special interest within primary care settings. I was able to set goals on management of patients within the community and collaborate with providers across all transitions to promote safe practice. My optimism is to become more involved with state and local nursing organizations, community health fairs, and local pharmacist to provide education on the importance of medication reconciliation. In addition, I desire to the promotion of safe practices throughout the continuum of care for all patients.

Summary

MR is an evidence-based strategy that is key to patient safety. Medication errors and adverse drug events are very predominant among transitions of care regardless of the setting. Improper MR leads to poor patient outcomes with increased medical cost among patients and stakeholders. The DNP project aimed at implementing learning strategies in practice to promote practice change in primary care settings and promote safety. The benefits of the MR delivery model have made an impact in hospital settings, but outpatient settings have lagged in this regard. This project has helped to close a gap in

this primary care practice, through their participation in the MR training, and potentially through the recommendations provided in the project.

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Appendix A: Overview of the Educational Program

Learning Outcome(s): To be able to perform a complete and accurate medication reconciliation in their practice.

Nursing Professional Development: To stimulate learning strategies in practice to promote practice change. To promote safety in primary care. Patient Outcome: To promote safe delivery of care and safety awareness. Organizational Outcome: To assist in fostering evidence-based practice and identify gaps in practice when it comes to medication reconciliation.

Topical Content Outline	Time-frame	References	Teaching method/learner engagement and Evaluation method
Description of accurate medication reconciliation processes.	10”	Institute for Healthcare Improvement. (2020). Medication Reconciliation to Prevent Adverse Drug Events. Retrieved from http://www.ihi.org	PowerPoint presentation Pre-test Short video
Barriers of medication reconciliation.	10”	Uhl, M. C., Muth, C., Gerlach, F. M., Schoch, G. G., & Müller, B. S. (2018). Patient-perceived barriers and facilitators to the implementation of a medication review in primary care: a qualitative thematic analysis. BMC family practice, 19(1), 3.	Group activity with brainstorming ways to intervene barriers and present thoughts to presenter.
Engaging Patients: Tips for medication reconciliation in outpatient setting	10”	Health Team Networks. (2017). Changes for Improvement: How to overcome medication reconciliation challenges to improve patient care. Retrieved from http://www.healthteamworks.org./news/changes-improvement	PowerPoint with graph denoting safety measures in geographical areas
Joint Commission National Patient Safety Goals.	10”	Joint Commission. (2019). National Patient Safety Goals. Retrieved from http://www.jointcommission.org	PowerPoint presentation/Return demonstration

Case study regarding medication reconciliation	10”		PowerPoint presentation Post-test
Barriers or challenges to medication reconciliation in an outpatient setting	10”	Kennelty, K.A., Chewning, B., Wise, M., Kind, A., Roberts, T., & Kreling, D. (2015). Barriers and facilitators of medication reconciliation processes for recently discharged patients from community pharmacists’ perspectives. Research in social & administrative pharmacy: RSAP, 11(4), 517-530. Retrieved from https://doi.org/10.1013/j.sapharm.2014.10.008	Group discussion
Engaging patients in outpatient setting	10”	Heyworth, L., Paquin, A., Clark, J., Kamenker, V., Stewart, M., & Simon, S. (2014). Engaging patients in medication reconciliation via a patient portal following hospital discharge. Journal of the American Medical Information’s Association, 21(1),157-162. Retrieved from https://doi.org/10.1136/amiajnl-2013-001995	Group discussion

Appendix B: Pre- and Posttest, Survey Questions

Medical Assistants/LPN

1. Medication reconciliation is:
    a. A process for the creation and maintenance of an accurate medication list
    b. Used to promote patient safety measures
    c. One of the most fundamental steps in the delivery of safe care
    d. A meticulous process that can prevent omissions, dosing errors, and adverse drug interactions
    e. All the above

2. Medication is mandated by what organizations?
    a. The Center for Disease Control
    b. Center for Medicaid and Medicare Services (CMS)
    c. Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
    d. Abbot & Abbot pharmaceuticals
    e. B & C only

3. There are several ways to prevent medication errors and a common way to do this is by understanding all the following rights of drug administration except:
    a. Right drug
    b. Right dose
    c. Right time and frequency
    d. Right documentation
    e. Right year

4. Medication reconciliation involves three important steps. Which of the following will not occur during the three-step process?
    a. Inadvertently omitting medications a patient takes during office visits.
    b. Verification (collecting an accurate medication history)
    c. Clarification (ensuring all medications and doses are appropriate)
    d. Reconciliation (documenting every single change and making sure it agrees with all the other information)

5. Failure to perform medication reconciliation can put an elderly patient at an increased risk for:
    a. Falls
    b. Pressure ulcers
    c. COPD
    d. Infections

6. If the patient is unable to participate in a medication interview, it is acceptable to obtain medication history from sources such as (choose all that apply):
    a. Family/caregiver
    b. Patient's medication bottles
    c. Past medical records
    d. The local pharmacy

7. Medication reconciliation is important in outpatient settings because:
    a. It is the most important preventable cause of mortality for patients
    b. It is not an important process
    c. It is not ethical to perform
    d. None of the above

Answer Key
1. E
2. E
3. E
4. A
5. A
6. A, B, & C
7. A

RN and Nurse Practitioners

1, What is a complete medication review?
    a. A universal medication review that takes place at each visit and is tailored to the patients plan of care.
    b. A review of medications prescribed to patients who are taking five or more medications per day.
    c. A structured, critical examination of a patient's medicines that includes objectives toward treatment, optimizing the impact of medicines, minimizing the number of medication-related problems and reduction of waste.

    An intervention used in primary care to help optimize and decrease any medication errors.

2. What is the estimated cost for common healthcare-associated medication reconciliation adverse drug events?
    a.$1.2 million dollars
    b.$4.2 billion dollars
    c.$ 2.2 trillion dollars
    d.$7 hundred-thousand dollars

3. What is impecunious collaboration?
    a. Collaboration between nurse practitioners and pharmacist regarding medication reconciliation
    b. A lack of collaboration in health care and barrier of medication reconciliation.
    c. Interprofessional collaboration holds promise for reducing medication errors, improving the quality of care, and meeting the needs of diverse population.
    d. An evidence-based tool which aims to improve communication and teamwork skills.

4. What option is considered the *best* delivery method during medication reconciliation process? (Choose all that apply).
    a. Give the patient a preprinted medication list before each appointment.
    b. Give the patient a medication list during the patient's appointment.
    c. Provide the patient with a medication list after the appointment.
    d. A medication list is not appropriate for medication reconciliation.

5. Mr. Barth has Chronic Kidney Disease (CKD) and his Lisinopril 10 mg one po daily was omitted from his medication regimen while inpatient without any clear indication why. What prescribing considerations should the nurse practitioner take?
    a. Ignore there is a problem
    b. Considering obtaining routine labs for the patient before doing anything.
    c. Perform a thorough in office assessment, resume the lisinopril and send to pharmacy
    d. Discontinue the lisinopril 20mg one daily and reconcile his medication list.

6. What type of medication reconciliation error is a category E error?

    a. Errors that could cause temporary harm requiring initial hospitalization or prolonged harm, for example, an error for a patient taking warfarin.
    b. Error that could have caused temporary harm, for example a blood pressure medication that was inadvertently omitted from the orders.
    c. No error, capacity to cause error.
    d. Error that did not reach the patient.

7. Where do we see most errors in primary care?
    a. Prescribing
    b. Transcribing
    c. Dispensing
    d. Administering

8. Mrs. Ollie, an 85-year-old African American lives with her daughter. She is alert and oriented to time, place, and identity, able to communicate and understand all instructions provided to her. Her blood pressure and diabetes have been controlled over the past six months. Past Medical History: Type 2 Diabetes, Hypertension, and Hypercholesterolemia. Today, Mrs. Ollie presents to the primary care setting for a checkup. Current lab results show HgbA1c 6.5%, LDL of 100mg, and BP today is 130/82.

   Current Medication list:
   metformin 500 mg bid by mouth
   Fish oil 1000 mg one capsule daily by mouth
   hydrochlorothiazide 37.5/12.5 mg one daily by mouth
   atorvastatin (Lipitor) 20 mg one daily by mouth
   Medications added at this visit by the medical assistant:
   Glucophage 500 mg bid by mouth
   Microzide 37.5/12.5 mg once daily by mouth

   After carefully reviewing the electronic health record, how will the nurse practitioner reconcile the medication list below?
   a. Increase the Glucophage dose by 500 mg.
   b. Refer the patient to the pharmacy for a pharmacy consultation.
   c. Clarify that Glucophage is metformin and Microzide is the same drug as hydrochlorothiazide.
   d. Reevaluate the medications at another visit.

9. The AHRQ recommends a robust medication reconciliation process, which is characterized by:
   a. Preventing harm to promote safety outcomes in primary care
   b. Helping with collaboration in healthcare
   c. Using methods to evaluate care
   d. Determining effective strategies in primary care

10. Which of the following have the lowest percentage of harm-causing error when it comes to medication reconciliation?
    a. Prescribing.
    b. Transcribing.
    c. Dispensing.
    d. Administering.

    Answer Key:
    1. C
    2. B
    3. B
    4. A, C

5. C
6. B
7. A
8. C
9. A
10. A

Survey Questions

1. Do you think implementing an educational program will improve the medication reconciliation process in the clinic? Aligns with practice-based question # 2.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree
2. Do you think there may be other strategies used by healthcare professionals to help with reducing medication errors within the clinical setting? This aligns with question #1.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree
3. Is the educational program relevant to your job description?

4. How has the educational in-service contributed to the organization guidelines?

5. How will the outcomes be measured for this project?

6. Are there any important concepts that need to be implemented during the in-service sessions?

7. What are the most important factors the providers should pay close attention to during the medication reconciliation process accuracy?

8. Do you feel the information presented for medication reconciliation was helpful?
    a. Strongly disagrees
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agrees

Appendix C: Medication Reconciliation Tools

[Insert your Organization's Logo Here]	Patient Name: MR#: Date: Fin #:

Your Current Medication List
(Name_____
_____)

Please complete the following information. A registered nurse will review this list and update it, if needed, when you arrive for your surgery, procedure, or test.

ALLERGIES: None ____ (please check none) or list:

Source of Allergy	**Reaction**	**Source of Allergy**	**Reaction**
Example: Penicillin	Hives	3.	
1.		4.	
2.		5.	

Medication List the names of any medications you are taking. Please include any over the counter medicines (including vitamins,	Strength List the strength of each tablet, capsule, etc.	Dose How much are you taking? (number of tablets, capsules, units, etc.)	Frequency How often do you take the medication? (daily, twice a day, monthly, etc.)	Route How are you taking this medication? (by mouth, injection, patch, etc.)	Last Dose Taken Indicate the date and time of the last dose taken

minerals, and herbal supplements). Also include any medications you held for your procedure.					
Example: Toprol XL	*100 mg*	*1 Tablet*	*every day*	*by mouth*	*this morning*

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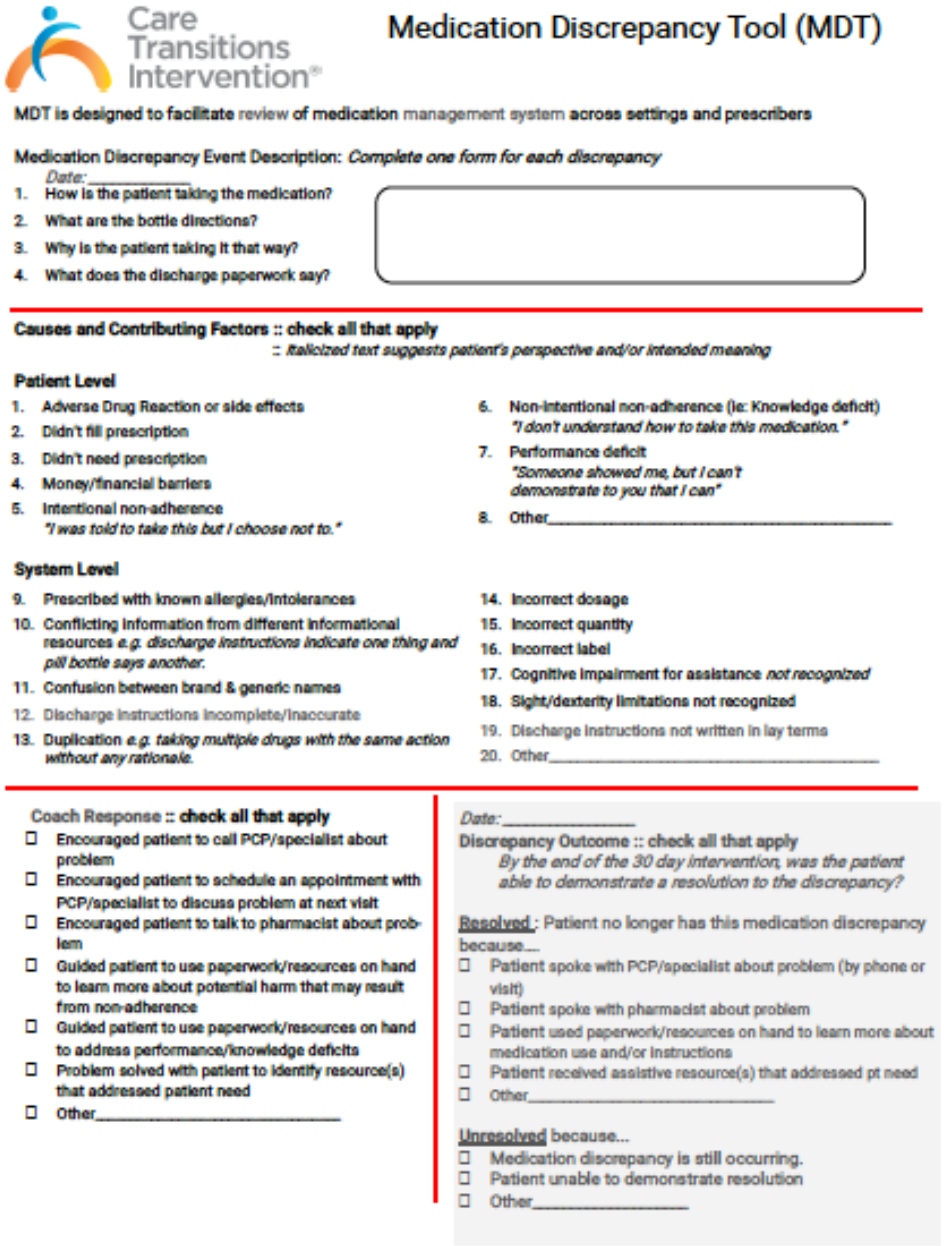
https://www.ahrq.gov/patient-safety/resources/match/matchap6.html



Care Transitions Intervention®

Medication Discrepancy Tool (MDT)

MDT is designed to facilitate review of medication management system across settings and prescribers

Medication Discrepancy Event Description: *Complete one form for each discrepancy*

*Date:*_____

1. How is the patient taking the medication?
2. What are the bottle directions?
3. Why is the patient taking it that way?
4. What does the discharge paperwork say?

Causes and Contributing Factors :: check all that apply

:: *Italicized text suggests patient's perspective and/or intended meaning*

Patient Level

1. Adverse Drug Reaction or side effects
2. Didn't fill prescription
3. Didn't need prescription
4. Money/financial barriers
5. Intentional non-adherence
   "I was told to take this but I choose not to."
6. Non-intentional non-adherence (ie: Knowledge deficit)
   "I don't understand how to take this medication."
7. Performance deficit
   "Someone showed me, but I can't demonstrate to you that I can"
8. Other_____

System Level

9. Prescribed with known allergies/intolerances
10. Conflicting information from different informational resources *e.g. discharge instructions indicate one thing and pill bottle says another.*
11. Confusion between brand & generic names
12. Discharge instructions incomplete/inaccurate
13. Duplication *e.g. taking multiple drugs with the same action without any rationale.*
14. Incorrect dosage
15. Incorrect quantity
16. Incorrect label
17. Cognitive impairment for assistance *not recognized*
18. Sight/dexterity limitations not recognized
19. Discharge instructions not written in lay terms
20. Other_____

Coach Response :: check all that apply

- ☐ Encouraged patient to call PCP/specialist about problem
- ☐ Encouraged patient to schedule an appointment with PCP/specialist to discuss problem at next visit
- ☐ Encouraged patient to talk to pharmacist about problem
- ☐ Guided patient to use paperwork/resources on hand to learn more about potential harm that may result from non-adherence
- ☐ Guided patient to use paperwork/resources on hand to address performance/knowledge deficits
- ☐ Problem solved with patient to identify resource(s) that addressed patient need
- ☐ Other_____

*Date:*_____

Discrepancy Outcome :: check all that apply

By the end of the 30 day intervention, was the patient able to demonstrate a resolution to the discrepancy?

Resolved: Patient no longer has this medication discrepancy because....

- ☐ Patient spoke with PCP/specialist about problem (by phone or visit)
- ☐ Patient spoke with pharmacist about problem
- ☐ Patient used paperwork/resources on hand to learn more about medication use and/or instructions
- ☐ Patient received assistive resource(s) that addressed pt need
- ☐ Other_____

Unresolved because...

- ☐ Medication discrepancy is still occurring.
- ☐ Patient unable to demonstrate resolution
- ☐ Other_____

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