2-26-2025

Education Module to Improve Staff Medication Administration Practice

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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,
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Walden University
2025

Executive Summary: Staff Education Project

Education Module to Improve Staff Medication Administration Practice

by

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Executive Summary Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2025

Summary

Medication mismanagement in the nursing home is a costly and pertinent issue that leads to negative health outcomes, high readmission rates, and death. It has been reported that 23% of patients discharged from a hospital to a skilled nursing facility will be readmitted within 30 days with an estimated cost of 17.4 billion dollars per year. However, 76% of readmissions are considered avoidable through education. The objective of this staff education project was to assess the project site's nursing staff knowledge on medication administration practice in the nursing home by answering the practice-focused question: Will an education module on best practice for timely and safe medication administration processes increase self-reported knowledge and confidence levels among licensed nursing staff members who care for patients at a nursing home? The analysis, design, development, implementation, and evaluation (ADDIE) model guided the project to ensure training was effective. A recruitment email was sent to the 11 staff members who completed the education module. A pre- and posttest methodology was used to analyze the education module's impact on the staff's knowledge level. The test consisted of 10 true/false questions using a 5-item Likert score. Staff correctly answered 71% of the pretest questions and 93% of the posttest questions. A two-tailed paired *t* test indicated a significant improvement between the pre- and posttest scores ($M = -2.36$, $SD = 0.43$, $t(11) = -5.74$, $p < .001$) after the completion of the education module. Education may promote positive social change by increasing knowledge of nursing staff on safe medication practice.

Background

The prevalence of medication mismanagement in the nursing home goes unnoticed and underreported because of lack of staff education and unawareness of its detrimental effects. Sluggett et al. (2022) stated that initiatives to support safe and efficacious medicine use in residential aged care facilities, also known as nursing homes, include education, case conferencing, and comprehensive medicine reviews. Schmidt (2022) stated that the World Health Organization reported that unsafe medication practices and errors are a significant contributor to avoidable patient injury and harm, incurring a worldwide health care cost of over $42 billion. Lack of staff knowledge of medication administration best practices can lead to errors. Considine et al. (2023) provided a solution stating that practice changes that are implemented using educational interventions with the aim of improving patient care can change staff perception and attitudes toward safe medication practices.

Evidence-based practice optimizes patient outcomes and protect patients from unnecessary or harmful interventions (Considine et al., 2023). For example, Anderson and Ferguson (2020) reported a 29.7% decrease in readmission of patients in the hospital after a staff education was performed in a 30-day period. Distractions during medication administration in the nursing home can lead to errors (Schmidt, 2022). Medication management in the nursing home is dependent on effective communication during transition of care (Mardani et al., 2020). Dellinger et al. (2020, as cited in Rantz et al., 2021) observed that poor communication and coordination among the interprofessional team during handoff for continuation of care (transitional care) resulted in high morbidity and mortality rates of patient harm and death.

The purpose of this Doctor of Nursing Practice (DNP) project was to educate nursing staff about the detrimental effects of medication mismanagement in the nursing home with the potential to improve safe medication administration practices. The project question addressed for the DNP project was the following: Will an education module on best practice for timely and safe medication administration processes increase self-reported knowledge and confidence levels among licensed nursing staff members who care for patients at a nursing home?

Staff Education Project Development

Literature Review

Evidence-based research was conducted using CINAHL Plus with Full Text, and CINAHL & MEDLINE Combined Search for research articles. My database search included the following keywords: “medication administration in the nursing home,” “medication management,” “medication mismanagement,” “medication administration,” and “educating medication administration.” The literature search was limited to articles published in the last five years in English, resulting in 13 articles. I found three articles that were Level 1 (systemic review and meta-analysis, randomized controlled analysis, and experimental study), one article that was Level 2 (quasi-experimental study), one article that was Level 3 (qualitative study), three articles that were Level 4 (opinions of respected authorities, reports of nationally recognized expert committee, consensus panels based on scientific evidence), and five articles that were Level 5 (literature reviews, integrative reviews, and quality improvement). The overarching evidence supported the use of education to improve staff knowledge on safe medication practices.

Mardani et al. (2020) described medicine management as a complex undertaking in both short- and long-term health care settings, including hospitals and nursing homes, and requires collaboration by health care providers such as nurses, physicians, and pharmacists to maximize positive health care consequences and to minimize practice errors. Collaboration and communication with pharmacy is imperative because it clarifies missed information or adds more information that was not reported during transition of care (Sadeq et al., 2022). Medication management during transition of care is imperative because it provides medication and disease state education through counseling and a personalized medication schedule (Amin et al., 2020). Attention to medication management at the point of transition is a vital component of a successful patient transition (Achilleos et al., 2020). Junius-Walker et al. (2021) reported that the implementation of an intervention to improve medication management in the nursing home through education yielded an improvement in quality of life as well as activities of daily living functions. Medication management must be reiterated during staff meetings for safe and effective continuity of care (Considine et al., 2023). Nurses need consistent reeducation and reevaluations of those interventions to obtain adequate results.

Project Site Analysis

To understand the project site organization's capacity to implement and extract value from the staff education targeted at medication management in the nursing home, I used the comprehensive organization readiness tool. In addition, the project's implementation was supported by the utilization of the strength, weakness, opportunity, and threat (SWOT) tool, stakeholder analysis, and question development tool. These tools were employed to identify the project's strengths, weakness, opportunities, and threats.

As the project leader, I had numerous responsibilities that included using reviews of peer-reviewed literature to obtain evidence that supported the existence of a practice gap regarding medication mismanagement and preventive measures for avoiding unsafe medication administration practices in the nursing home.

Conceptual Framework

The ADDIE model is a teaching model that includes a series of repetitive steps to promote effective education and training in five phases (Ab Latif & Mat Nor, 2020). The five phases for ADDIE stand for analyze, design, develop, implement, and evaluate (Ab Latif & Mat Nor, 2020). During the analysis phase, the director of nursing, who is the facility's clinical leader, pinpointed an increase in medication mismanagement and poor medication administration over the past year. For the design phase, the director of nursing assisted me in reviewing the Texas state nursing home compliance requirements. She was responsive and interested in reducing the statistic of noncompliance with medication administration in preparation of state nursing home full book. A full book in a nursing home is a survey undertaken by the state of Texas nursing home authority to ensure safe practices. Texas nursing home authority (State surveyors) evaluates a facility for safe medication administration and overall practices, ensuring that the nursing homes are compliant with all regulations. The educational project that I developed aimed to translate successful research from peer-reviewed into practice.

Before starting the project development, I had to get the project approved by the project site leadership and Walden University. Walden's ethic pledge was completed and approved prior to implementation of the educational project at the project site. Key project site stakeholders' advice was incorporated into the development of the

educational content. An examination of researched literature was conducted to synthesize evidence to support the education module. The education module presentation consisted of 12 slides (see Appendix A). A pre- and posttest was developed in addition to the education module to assess change in staff's knowledge (see Appendix B).

For the implementation phase, a flyer was sent to eligible staff at the project site outlining the intent of the project with a time and date for the educational presentation. Prior to the start of the presentation, a pretest was distributed to participants and collected. There were no personal identifiers captured among participants to ensure anonymity. I presented the educational material in a didactic format and did not exceed more than 30 minutes. After the presentation, participants were asked to complete a posttest consisting of the same questions as the pretest. Analysis of the pre-and posttest answers by the participants served as the evaluation phase of the ADDIE model.

Participants

Eleven staff members (three RNs, five licensed vocational nurses, and three medication aides) participated in the education project and completed the pre-test and posttest. Data analysis was conducted via Microsoft Excel using the XLMiner Analysis ToolPak Version 2.0.0.0.

Results

Tests were scored manually, and data analysis was conducted via Microsoft Excel spreadsheet using the XLMiner Analysis ToolPak Version 2.0.0.0. Descriptive statistics indicated an improvement in test scores after implementation of the educational program, as shown in Table 1. A two-tailed paired samples *t* test was conducted to examine whether the mean difference of the pretest and posttest scores was significantly different

from zero. The results of the *t* test indicated the mean difference between the pre- and posttest scores was significant ($M = -2.36$, $SD = 0.43$, $t\ (11) = -5.74$, $p < .001$), as shown in Table 2.

Table 1

Data From Pretest and Posttest

Participant number and role	Pretest correct answers (*n*, %)	Posttest correct answers (*n*, %)	Difference (*n*, %)
1. MA	4 (40%)	9 (90%)	5 (+50%)
2. LVN	6 (60%)	10 (100%)	4 (+40%)
3. MA	6 (60%)	9 (90%)	3 (+30%)
4. LVN	6 (60%)	9 (90%)	3 (+30%)
5. MV	7 (70%)	10 (100%)	3 (+30%)
6. LVN	7 (70%)	9 (90%)	2 (+20%)
7. RN	8 (80%)	10 (100%)	2 (+20%)
8. RN	8 (80%)	10 (100%)	2 (+20%)
9. LVN	8 (80%)	9 (90%)	1 (+10%)
10. RN	9 (90%)	10 (100%)	1 (+10%)
11. LVN	8 (80%)	8 (80%)	0 (0%)
Average	7 (70%)	9.36 (93.6%)	2.36 (+23.6%)

Note. MA = medication aide; LVN = licensed vocational nurse; RN = registered nurse.

Table 2

Two-Tailed Paired Samples T Test for the Difference Between Pretest and Posttest

Difference	*M*	*SE*	*df*	*t*	*p*
Var 1 – Var 2	-2.3636364	0.43217688	10	-5.4691411	0.0003

The data yielded a result that was statistically significant. Therefore, I rejected the null hypothesis that education module does not improve staff medication administration practices. This project may prepare and equip the nursing staff with the resources, knowledge, and skills to improve medication administration in the nursing home.

Limitations

The limitations for this project were the time constraint and small sample size. Due to the time constraint, implementation of the project was challenging because it was done during the shift change. In addition, the sample size was small and affected the credibility and reliability of the results.

Conclusions

The issue of medication mismanagement in the nursing home is overlooked or deemed insignificant, which staff education can correct. Prior to the initiation of this project, nursing home staff recalled having limited, if any, education pertaining to medication administration practices. According to observations, nursing home staff are used to routine and have poor use of best practices to endorse care. Therefore, medication management and administration in the nursing home is a crucial aspect of patient care and must be conducted in a safe and timely manner. Many patients in nursing homes are on multiple medications and cannot afford to miss any pertinent medication or adverse reaction will ensue. Therefore, educating staff about the importance of safe and timely medication administration and increasing their knowledge may have a considerable effect on patient health outcomes.

This project demonstrated the importance of staff education on safe medication administration practices of nursing staff in the nursing home. This project was needed because the population of older adults is increasing, and many will be going to nursing homes (Bengtsson et al., 2021). Nursing homes need to equip their nurses and medication aides with the knowledge they need to provide excellent care for this patient population. The dissemination of this project's results and raising awareness among nursing home

staff may yield positive results in the short term and long term. One strategy any organization can implement to improve medication administration is education. Organizations must include educational interventions during staff meetings, onboarding, and in-service activities for all prospective and active nursing home staff (Considine et al., 2023).

References

Ab Latif, R., & Mat Nor, M. Z. (2020). Using the ADDIE model to develop a Rusnani concept mapping guideline for nursing students. *Malaysian Journal of Medical Sciences*, *27*(6), 115–127. https://doi.org/10.21315/mjms2020.27.6.11

Achilleos, M., McEwen, J., Hoesly, M., DeAngelo, M., & Jennings, T. (2020). Pharmacist-led program to improve transitions from acute care to skilled nursing facility care. *American Journal of Health-System Pharmacy*, *77*(12), 979–984. https://doi.org/10.1093/ajhp/zxaa090

Amin, P. B., Bradford, C. D., Rizos, A. L., & Shah, B. M. (2020). Measuring the impact of medication related interventions on 30-day readmission rates in a skilled nursing facility. *Journal of Pharmacy Practice*, *33*(3), 306–313. https://doi.org/10.1177/0897190018803229

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

Bengtsson, M., Ekedahl, A.-B. I., & Sjöström, K. (2021). Errors linked to medication management in nursing homes: An interview study. *BMC Nursing*, *20*(1), 1–10. https://doi.org/10.1186/s12912-021-00587-2

Considine, J., Shaban, R. Z., Fry, M., & Curtis, K. (2023). Education interventions and emergency nurses' clinical practice behaviours: A scoping review. *Australasian Emergency Care*, *27*(2), 119–135. https://doi.org/10.1016/j.auec.2023.10.004

Junius-Walker, U., Krause, O., Thürmann, P., Bernhard, S., Fuchs, A., Sparenberg, L., Wollny, A., Stolz, R., Haumann, H., Freytag, A., Kirsch, C., Usacheva, S., Wilm, S., & Wiese, B. (2021). Drug safety for nursing-home residents: Findings of a pragmatic, cluster-randomized, controlled intervention trial in 44 nursing homes. *Deutsches Ärzteblatt International*, *118*(42), 705–712. https://doi.org/10.3238/arztebl.m2021.0297

Mardani, A., Griffiths, P., & Vaismoradi, M. (2020). The role of the nurse in the management of medicines during transitional care: A systematic review. *Journal of Multidisciplinary Healthcare*, *13*, 1347–1361. https://doi.org/10.2147/JMDH.S276061

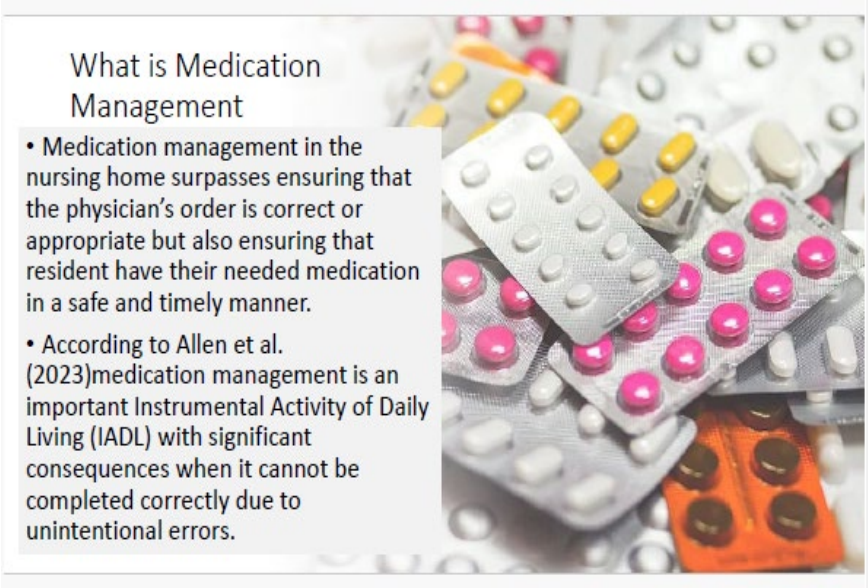
Rantz, M., Petroski, G. F., Popejoy, L. L., Vogelsmeier, A. A., Canada, K. E., Galambos, C., Alexander, G. L., & Crecelius, C. (2021). Longitudinal impact of APRNs on nursing home quality measures in the Missouri Quality Initiative. *Journal of Nutrition, Health & Aging*, *25*(9), 1124–1130. https://doi.org/10.1007/s12603-021-1684-5

Sadeq, A., Strugaru, M., Almutairi, M., Stewart, D., Ryan, C., & Grimes, T. (2022). Interprofessional interventions involving pharmacists and targeting the medicines management process provided to older people residing in nursing homes: A systematic review and meta-analysis of randomised controlled trials. *Drugs & Aging*, *39*(10), 773–794. https://doi.org/10.1007/s40266-022-00978-3

Schmidt, A. (2022). Using missed care survey results to improve medication management. *Nursing Management*, *53*(11), 40–46. https://doi.org/10.1097/01.NUMA.0000891472.02201.f3

Sluggett, J. K., Caughey, G. E., Air, T., Moldovan, M., Lang, C., Martin, G., Carter, S. R., Jackson, S., Stafford, A. C., Wesselingh, S. L., & Inacio, M. C. (2022). Medicines use before and after comprehensive medicines review among residents of long-term care facilities: A retrospective cohort study. *BMC Geriatrics*, *22*(1), Article 493. https://doi.org/10.1186/s12877-022-03187-0

Appendix A: Staff Education Materials

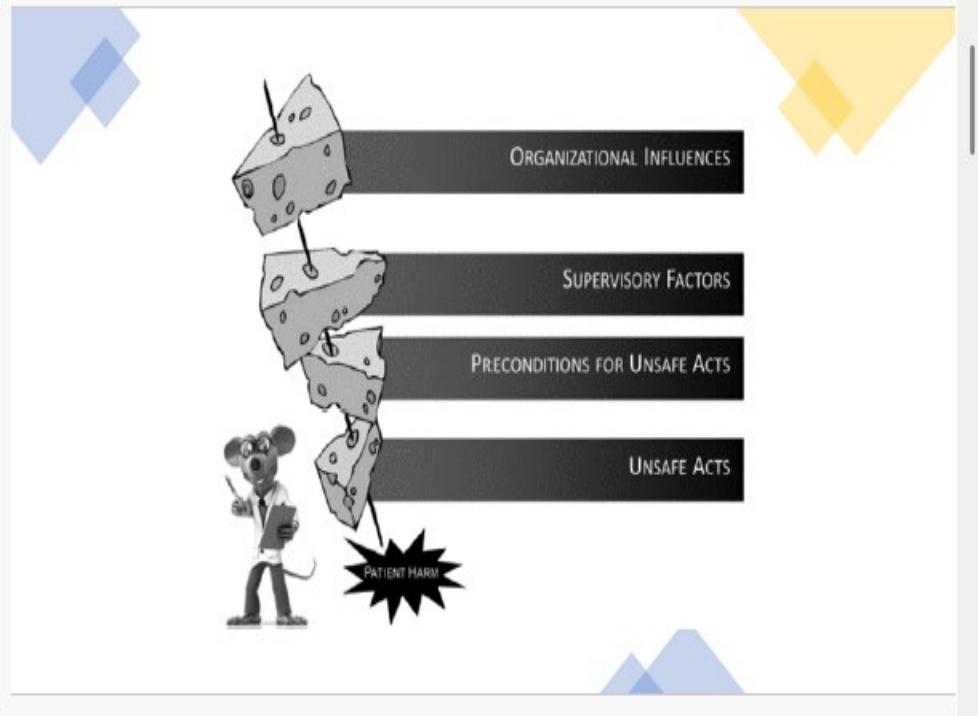


- This means that we have a moral and professional obligation to make sure that resident living in the nursing home get their prescribed medication in a timely and safe manner by being proactive in reordering pertinent medication.

- Communication within the disciplinary team is an effective approach because it leads to impactful positive change.

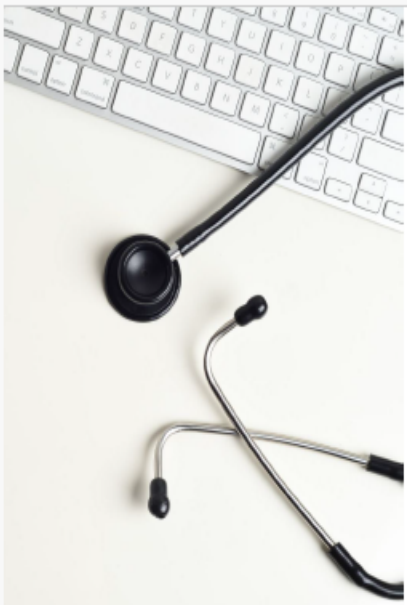
Story Time- Based on True event

- Once upon at time, there was a resident in the nursing home that missed their seizure medication for more than 3 days, their health deteriorated, and a change of condition (COC) was the sign that forced the nursing team to send the resident to the emergency room (ER). Based on a true event, when it was investigated to know why the resident abruptly declined in health, it was found that the resident was missing their medication for 2-3 days before the incident happened. This was a gradual process, but the signs were there.
- It is important to know and understand your employers' medication ordering system and ensure that medications are ordered in a timely manner to prevent unavailability and prevent negative health outcomes. Whenever you are unsure, ask you employer's nursing management for resources on medication administration/ordering processes.



Risk Factors for Nursing Staff to not Comply with Medication Management

- Miscommunication
- Poor time management
- Failure to reorder medication
- More patient to a nurse ratio
- Short-staffing
- Lack of proactiveness and initiative
- Uneducated during orientation or failure to ask questions.

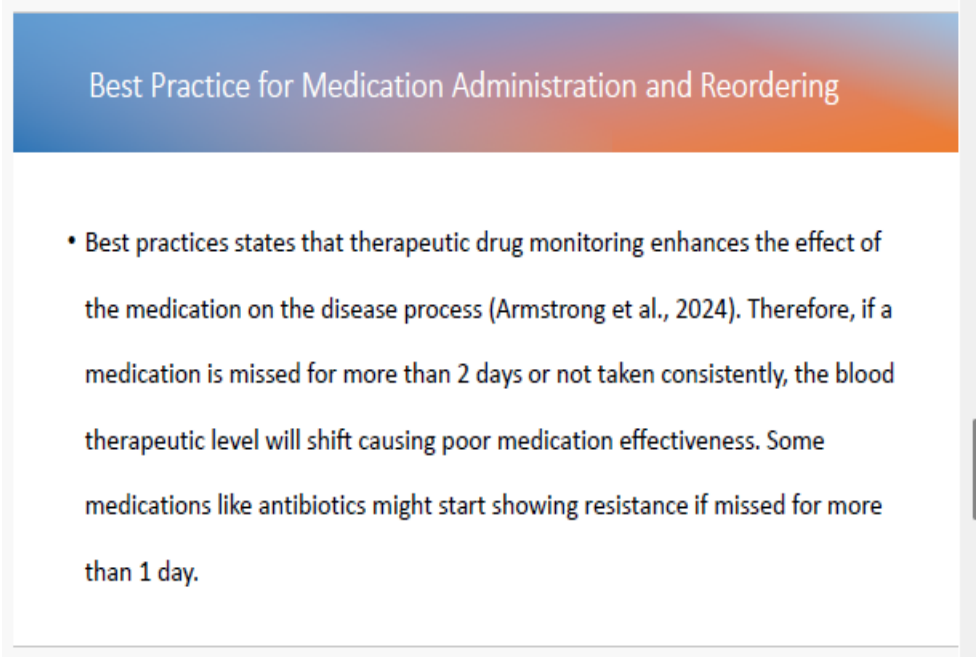


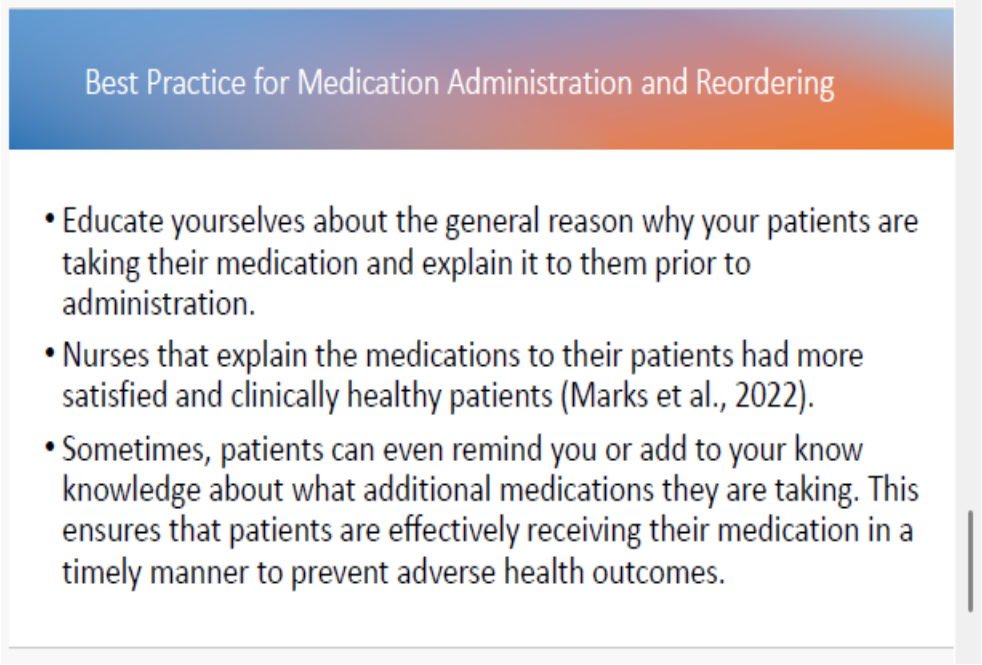
Prevention of Medication Mismanagement

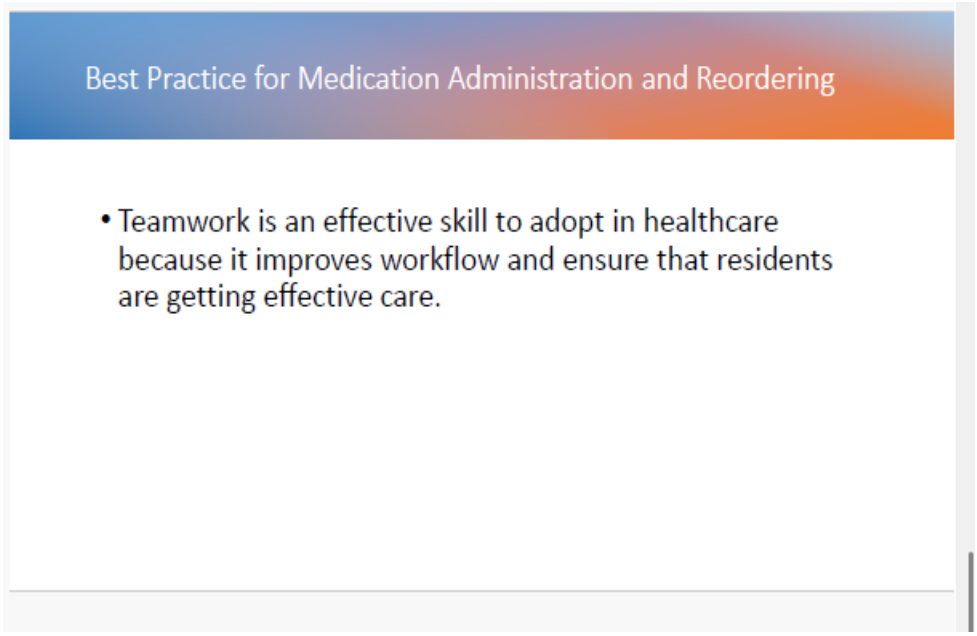
- Time management: Arrive early to your scheduled shift and prepare your day. Get and give pertinent report and ask about changes to follow-up and follow-through.
- Communication: Be clear and advocate for those in your care with the physician, pharmacy, nursing leadership, nurses, certified medication aides (CMA) and certified nursing aide (CNA).
- Ask questions and more questions: Do not be afraid to ask questions or support for those in your care. Medication management is about proactiveness, safety, timeliness, and effectiveness in reordering medication.

Outcomes of Effective Medication Management

- Better and positive health outcomes
- Low/decrease readmissions rate in the nursing home which leads to improve quality measure and return to acute (RTA).
- Less grievance and state reporting for elder abuse or negligence.
- More patient referral to the nursing home which is good for cost containment
- Improving the external perception of the nursing home and the care that is being provided as optimal.
- Work satisfaction for nurses, medication aides and all members of the healthcare team.


Best Practice for Medication Administration and Reordering
• Best practices states that therapeutic drug monitoring enhances the effect of the medication on the disease process (Armstrong et al., 2024). Therefore, if a medication is missed for more than 2 days or not taken consistently, the blood therapeutic level will shift causing poor medication effectiveness. Some medications like antibiotics might start showing resistance if missed for more than 1 day.


Best Practice for Medication Administration and Reordering
• Educate yourselves about the general reason why your patients are taking their medication and explain it to them prior to administration.
• Nurses that explain the medications to their patients had more satisfied and clinically healthy patients (Marks et al., 2022).
• Sometimes, patients can even remind you or add to your know knowledge about what additional medications they are taking. This ensures that patients are effectively receiving their medication in a timely manner to prevent adverse health outcomes.


Best Practice for Medication Administration and Reordering
• Teamwork is an effective skill to adopt in healthcare because it improves workflow and ensure that residents are getting effective care.

Appendix B: Pretest/Posttest Questionnaire

1.) Medication management is:
   a. Ensuring the physician's order is correct before administering the medication.
   b. Making sure residents receive their medication in a safe and timely manner.
   c. Managing the patients' medications based on their ability to pay for the medications.
   d. Both A & B

2.) A consequence of not taking medication as scheduled is:
   a. Insurance may not pay for the medication.
   b. The blood therapeutic level will shift causing poor medication effectiveness.
   c. Patients may develop intolerance to the medication.
   d. There isn't a consequence if the medication is only skipped a few times.

3.) A helpful strategy for medication management is to:
   a. Have the patient state all the side effects they may experience.
   b. Administer medications at the time they are ordered by the provider.
   c. Make sure the patient knows what their insurance will cover.
   d. Give food with medications so the patient doesn't have adverse events.

4.) All of these are methods to prevent medication mismanagement accept:
   a. Be prepared for the shift by arriving on time to work to get a thorough report from the off-going shift.
   b. Clear communication with the interdisciplinary team about patient's medications.
   c. Asking questions to clarify any concerns about the patient's medications
   d. Assume the medication record is correct since the patient says it is.

5.) One outcome of explaining medications and why they are being administered is:
   a. Patients are more satisfied with their care.
   b. Patients are not as concerned about why they need their medications.
   c. Patients might become scared to take their medication.
   d. Patients' family members may argue that the patient took the medication already.

6.) Risk factors for Nursing staff to NOT comply with medication management are:
   a. Reordering medication when it is due and having too many staff involved in the process.
   b. Having staff who are not proactive in safe medication administration and staff who have poor time management.
   c. Being knowledgeable of medication administration practices and asking the right questions
   d. Communication with the interdisciplinary team that questions incorrect medication orders.

7.) Medication management is
   a. Not that important if the resident gets the medication at some point.
   b. Is a professional obligation of staff.
   c. Requires a lot of time for the staff.
   d. Puts a lot of pressure on the nurses.

8.) Patient harm is caused from
   a. Leadership empowers staff to make decisions about their residents.
   b. Staff don't seek clarity when they have concerns or questions.
   c. Patients are not taking their medication because of the side effects.
   d. Staff knowing when to reorder patient's medications.

9.) When it comes to medication management, communication within the disciplinary team can:
   a. Cause hurt feelings when choices are challenged.
   b. Lead to impactful positive change.
   c. Delay medication administrations
   d. Lead to more work for the nurses.

10.) Adverse events from poor medication management can come from:
   a. Staff holding a medication to seek clarity as to why the provider order it if the patient has an allergy to the medication.
   b. Staff give the medication as it is ordered, when it is ordered.
   c. Staff are not taking the time to accurately read the medication order and administer as it is ordered.
   d. Staff reordering medication to be sure there is a sufficient supply, so the patient doesn't run out.