

Med-Rec: The Storm Passing Overhead a Deep Dive

Diana Rangaves, PharmD

Content Creation and Ghostwriting Services, Medical Writer, Clinical Consultant Services, USA

***Correspondence to:** Dr. Diana Rangaves, Content Creation and Ghostwriting Services, Medical Writer, Clinical Consultant Services, USA.

Copyright

© 2023 Dr. Diana Rangaves. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received: 04 January 2023

Published: 02 February 2023

Keywords: *Deep Dive; Adverse Drug Event (ADE)*

Glossary of Terms

Adverse Drug Event (ADE): An adverse event involving medication use.

Adverse Drug Reaction: Adverse effect produced by the use of a medication in the recommended manner. These effects range from “nuisance effects” (e.g., dry mouth with anticholinergic medications) to severe reactions, such as anaphylaxis to penicillin. CHU-Kara.

Adverse Event: Any injury caused by medical care.

Competency: Having the necessary knowledge or technical skill to perform a given procedure within the bounds of success and failure rates deemed compatible with acceptable care.

Error: An act of commission (doing something wrong) or omission (failing to do the right thing) that leads to an undesirable outcome or significant potential for such an outcome.

Error Chain : Error chain generally refers to the series of events that led to a disastrous outcome, typically uncovered by a root cause analysis.

The Five Rights: The “Five Rights” - administering the Right Medication, in the Right Dose, at the Right Time, by the Right Route, to the Right Patient - are the cornerstone of traditional nursing teaching about safe medication practice.

Medication Reconciliation(Med Rec): Refers to the process of avoiding inadvertent inconsistencies across transitions in care by reviewing the patient's complete medication regimen at the time of admission/transfer/discharge and comparing it with the regimen being considered for the new setting of care.

Medication Reconciliation Form (Med Rec Form): This tool may be used to track a patient's medications upon admission, transfer, and discharge. The document used to record the drugs that the patient is taking before admission to the hospital, drugs that are discontinued, held, restarted or ordered new at each transitional point of care. See attached example.

Patient Safety: Freedom from accidental or preventable injuries produced by medical care.

Plan-Do-Study-Act : Refers to the cycle of activities advocated for achieving process or system improvement.

Potential ADE: A potential adverse drug event is a medication error or other drug-related mishap that reached the patient but happened not to produce harm.

Root Cause Analysis (RCA): A structured process for identifying the causal or contributing factors underlying adverse events.

Safety Culture: Safety culture and culture of safety are frequently encountered terms referring to a commitment to safety that permeates all levels of an organization, from frontline personnel to executive management.

Standard of Care: What the average, prudent clinician would be expected to do under certain circumstances.

Root Cause Analysis (RCA): A structured process for identifying the causal or contributing factors underlying adverse events.

Sub-Acute Specialty Care

TCU = Transitional Care Unit a location in or near the main or acute hospital which serves those who have been discharged from the hospital, but still require short-term rehabilitation and special care in order to make the transition from hospital to home.

Long-term Care serves those needing extended custodial and residential care.

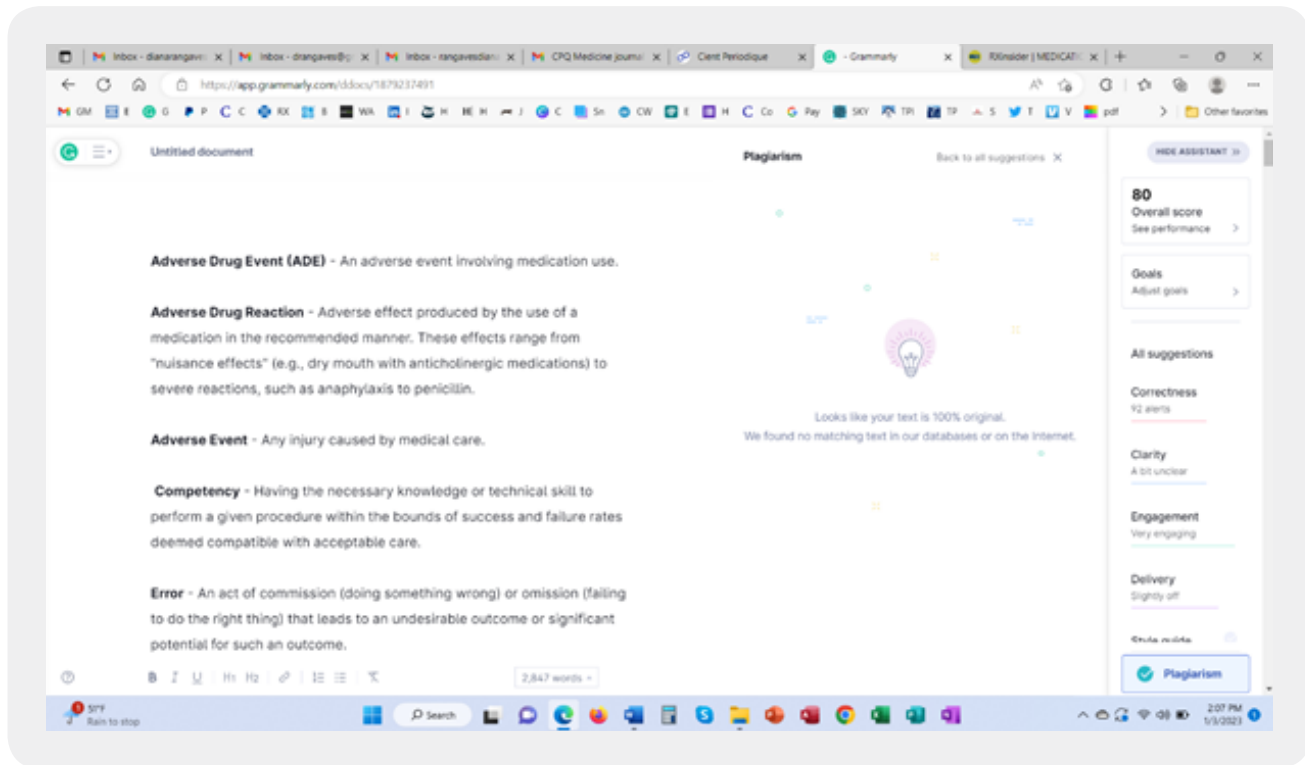
Underuse, Overuse, Misuse - For process of care, quality problems can arise in one of three ways: underuse, overuse, and misuse.circumstances.

“Underuse” refers to the failure to provide a health care service when it would have produced a favorable outcome for a patient.

“Overuse” refers to providing a process of care in circumstances where the potential for harm exceeds the potential for benefit.

“**Misuse**” occurs when an appropriate process of care has been selected but a preventable complication occurs and the patient does not receive the full potential benefit of the service.

Note from Author : Aspects of these definitions above were inspired by definitions published by Agency for Healthcare Research and Quality • 540 Gaither Road Rockville, MD 20850 •



Introduction

Health care economics and patient outcomes are embedded in every facet of the health care model. Due to their pharmaceutical knowledge and training, pharmacy technicians and pharmacists are poised to contribute in the creation, development, and implementation of medication reconciliation. These opportunities are consistent with Safe Practice Recommendations and Patient Point-of-Care.

<http://www.macoalition.org/Initiatives/RecMeds/SafePractices.pdf>

The Impact

Medication errors injure at least 1.5 million Americans annually, costing the nation more than \$3.5 billion a year [1]. Estimates suggest that up to 60 percent of patients have at least one discrepancy in their admission medication history [2]. Experience from hundreds of organizations has shown that poor communication of medical information at transition points of care is responsible for medication errors [3]. Poor communication is known as the “common denominator” in medication errors.

Ineffective communication at significant patient exchange points (transition points of care): admission, transfers between care settings, and discharge, result in as many as 50% of all medication errors in the hospital and up to 20% of adverse drug events [3]. A uniform systems approach, designed to help organizations maintain their culture of safety, is critical.

Core Elements

Plan-Do-Study-Act and the Five Rights are integral in the clinical support of a medication reconciliation process. Understanding the rationale and evidence reinforcing the importance of the medication reconciliation process will support the health care team members in the creation, development, and implementation of a template.

Four-Step Process of Medication Reconciliation

The medication reconciliation process includes four steps:

1. Verify (collect a current medication list)
2. Clarify (make sure the medications and doses are appropriate)
3. Reconcile (compare new medications with the list and document changes in the orders)
4. Transmit (communicate the updated and verified list to the appropriate caregivers) [4].

This four-step process is to be conducted at each phase of transition in the patient point-of-care.

Goals

Medication reconciliation is a shared collaboration, bringing together responsible health care team members: patient or patient's representative, nurse and/or unit nurse manager, pharmacist and pharmacy technician, physician, executive management and directors, and/or other allied health professionals.

The primary commitment is to the coordination of interdisciplinary efforts to develop, implement, maintain, and monitor the effectiveness of the medication reconciliation process. Throughout the continuum of care pharmacists and pharmacy technicians have a responsibility to educate patients and caregivers by obtaining a personal medication list. The goal of medication reconciliation is improvement in patient well-being through education, empowerment, and active involvement in the accurate transfer of medication information throughout transitions along the healthcare continuum [5].

Strategies

Medication reconciliation must be standardized across the continuum within an organization.

The data set must have common elements to facilitate the efficient transfer of information.

This systems approach is an effort to prevent medication errors, omissions, duplications, dosing inaccuracies, drug interactions, and to observe compliance and adherence patterns. A comparison of existing, previous, added, deleted and changed medication therapies must occur at every transition of care. In a patient-centered process, one must be sensitive to diversity and the patient's level of health, literacy, cognitive and physical ability, and willingness to engage in his or her personal health care [5].

Non-judgmental, neutral, and open communication skills are necessary for the success of any structure. The intention is to resolve discrepancies in medication regimens and improve patient safety and ultimately the health of the community. In order to optimize success, clinicians must work together, putting community cooperation and partnership foremost, in place of individual territories.

Management

The Joint Commission (TJC - formerly known as JCAHO) has set an expected standard of practice with the National Patient Safety Goal (NPSG) 8 on medication reconciliation. National Patient Safety Goal 8 is to accurately and completely reconcile medications across the continuum of care. However, since its introduction in 2005, effective methods to administer and manage have been challenging to implement. Currently, this finding will not contribute to an organization's accreditation decision. The intent of NPSG 8 is the improvement of health care. The Joint Commission recognizes the difficulties and expects organizations to continue to address medication reconciliation [6]. As of April 2010, the TJC has commenced a field review [7]. Organizational compliance is an imminent focus.

In one study, a standardized medication reconciliation process using a multidisciplinary approach, academic detailing (targeted one-on-one education), crosschecks, audits, and feedback led to a reduction in medication discrepancies [8]. There are numerous aspects that must be addressed by a multidisciplinary approach and supported by electronic tools. In order to reduce the number of discrepancies, the severity of discrepancies, and the types of discrepancies, a Collaborative Partnership must be created. The Collaborative Partnership would include and involve:

- Senior Administrative Leadership
- Clinical Leadership
- Physician Leader (that is also a Senior Administrative Leader or a respected 'thought leader' among the physician group)
- Unit Nurse Manager
- Staff Nurse
- Pharmacist Manager
- Pharmacy Technician
- Human Resource
- Patients

Pharmacists and pharmacy technicians are an outstanding manpower resource throughout all stages of the medication reconciliation process. At many institutions they have begun performing medication histories for patients at transitions of care. In addition, they continue to enhance the accuracy of patient medication lists by direct entry in the electronic hospital summary (patient profile) [8].

Previous studies have shown that medication reconciliation performed by a pharmacist in the preoperative clinic results in a substantial number of pharmaceutical interventions or in a reduction of medication discrepancies from about 40% to 20%. A reduction of discrepancies by half was also identified in a study in which pharmacy technicians were used to obtain medication histories, suggesting for the first time that technicians could have such a role [9].

Major reductions of medication discrepancies can be achieved by the use of pharmacy technicians supervised by pharmacists. The supervision is not to correct mistakes in the actual medication verification process, but rather to identify additional drug-related problems.

Expanding the role of pharmacy technicians is more than a cost-effective intervention. This approach quantifies the collaborative team, while also enhancing job satisfaction and retention.

Clinical interventions can be successfully assigned to pharmacy technicians and pharmacists, resulting in a statistically significant decrease in medication discrepancies [10].

Beta-Test Collaborative Partnership

Hospital admissions, transfers, and discharges occur during all hours throughout the week. Developing and implementing electronic medication reconciliation is challenging. In order to establish a starting point, a 'paper' retrospective review can be completed. This will establish a given baseline of data for comparison. The Pharmacy Manager can obtain a set of 30 closed patient records with the following parameters:

1. A minimum patient stays of 3 days.
2. A retrospective timeline of 1 to 3 months.
3. Utilization of a random selection process.
4. Review the charts and count the unreconciled medications.
5. Tally the errors and report the data as a monthly number of errors per 100 admissions.
6. Present findings to members of the Collaborative Health Care Team.

The Medication Safety Reconciliation Toolkit developed by North Carolina Center Hospital Quality and Patient Safety, September 2006, encompasses assessment, project, performance improvement model, spreading and formalizing, and reference materials. This Toolkit is highly recommended as additional reading before the commencement of a medication reconciliation process. <http://tinyurl.com/2bwmq4a>

Model for Improvement

Once a baseline performance has been established the Collaborative Team begins the difficult task of creating a system process. Each system is unique to the organizational environment and corporate culture. Suggested guidelines for initial beta-test resources toward development meetings and tasks are:

Project Manager

8 to 10 hrs./week the first 6 weeks of the 6 month beta test

24 to 36 hrs. /month for the remainder of the project

Team Members

1 to 4 hrs./week for the first 6 weeks of the 6 month beta test, depending on role

4 to 12 hrs./month for the remainder of the project

The majority of the beta-test time will be devoted to planning, creation of forms and the process, real-time undertaking, retrospective study and analysis, user feedback, and establishment of best practices for policies, procedures, and training. This involves repeating the pattern of activities, Plan-Do-Study-Act, until a workable process or system improvement is achieved.

The developed and implemented electronic medication reconciliation documentation process must be adaptable and flexible at this early phase. Requirements for successful implementation include adequately staffed pharmacy personnel to expand the reconciliation documentation process, the ability of nursing and pharmacy to collaborate with prescribers, and the availability of technical support. Until computerized prescriber order entry becomes mandatory, the implementation of an institution's standardized medication reconciliation process will continue to be delayed [11].

Points to Ponder: A Guide for the Med Rec Team

These are just a small handful of Discussion Questions to be addressed during the Development process:

1. What could a med rec process look like?
2. Who will the players be?
3. How do all the players interact in the process?
4. What type of competencies must the individual have?
5. Are there to be different professionals at different points of transitional care?
6. Does the pharmacy technician interact with the patient? If so how?
7. How are the forms filled out? Hard copy? Electronic? Other?
8. Are there any drugs that must be red flagged?

9. What errors are easily made (common to) with med rec?
10. How can the pharmacy technician avoid common med rec errors?
11. What types of 'things' or discrepancies should the pharmacy technician be 'listening' for? looking for? alerted by?
12. At which specific points of transition or points of care will the medication reconciliation process best benefit by the utilization of pharmacy technicians: All or Specific Areas? ER? In- Pt Admit? Out Pt Services? Transfer from room to room? Transfer from hospital to TCU or other hospital? Discharge home?
13. Is it legal for a pharmacy technician to discuss directions for use of a drug with a pt?
14. What can the pharmacy technician do and not do? Say or not say?
15. When or under what circumstances does a pharmacy technician call upon the expertise of a RN/RPh?

Role of the Pharmacist and Pharmacy Technician

Pharmacy Technicians and pharmacists are uniquely qualified to undertake the lead in the medication reconciliation process. Any personnel selection process is to include excellent communication and problem solving skills, training and background reading, competency checklist, observing and shadowing a mentor, performing supervised interviews, cross-training, maintenance of consistent core personnel, and ongoing performance competency reviews.

The author has designed and implemented a medication reconciliation process for a local acute care clinic, working with the existing electronic health records system. The process involved a medical assistant, pharmacy technician, and pharmacist. The pharmacy technician was selected based upon superior communication skills and pharmacology knowledge. Patients were triaged to the Pharmacy Intervention Clinic by providers. The medical assistant and pharmacy technician observed ten medication reconciliation interventions conducted by the pharmacist. Once the training was complete and competencies met, the pharmacist observed ten medication reconciliation interventions conducted by the pharmacy technician.

Patients were given health education, medication discrepancies were categorized and documented electronically, and suggested corrections were emailed to the providers. A sample Medication Reconciliation form is provided at the end of this document and may be used or adapted to fit another medication reconciliation system. Outcomes and success stories were shared with the providers.

The role of the medication reconciliation pharmacy technician is not well defined at this time, but rather it is evolving and can be created based on the system's requirements.

Outcomes

Each year, as more studies are conducted, the literature is revealing that medication reconciliation provides optimum care. Whittington and Cohen showed a 70% reduction in errors and 15% reduction in Adverse

Drug Events over a 7-month period with Medication Reconciliation (Med Rec) intervention [12]. Another study corroborated with an 80% reduction of potential adverse drug events, within 3 months, in a segmented population of surgical patients utilizing pharmacy technicians to initiate the reconciling process [13].

Medication reconciliation impacts all four business quadrants, Financials, Product/Services/Quality, Customer Satisfaction, and Workload (eventually). This is hard work. Asking people to change what they have been doing is problematic, but not impossible. The Med Rec team will provide vision, prioritize, focus, and share project data and success stories with colleagues and senior leadership. Ethically, improved medication management is the right thing to do.

Teaching Patients to Take Charge

The role of patients cannot be undervalued. Patients are an integral part of the process. Patients and family care takers can be taught about the importance of an accurate and updated medication list, including non-prescription medications and herbal supplements, as well as the necessity of bringing medication bottles or the most current medication list to every provider visit or hospital admission [14].

Overall, patients voiced a realization of the importance of health care providers and patients working together to ensure a complete medication review. Many times, patients stated that they had experienced medication-related difficulties in the past or were being admitted with medication-related problems. Some patients expressed that they had a family member admitted or discharged with medication-related difficulties in the past [15]. The importance of an up-to-date and readily accessible list of medications cannot be underestimated.

Conclusion

In the coming years, medication reconciliation will become a targeted goal for organizations. The intention of the Joint Commission is unmistakable. Pharmacy technicians are in a knowledge and experiential based position to utilize their talents. While organizations create their medication reconciliation health care teams, some technicians may find an opportunity to become a member of that team. As a team member one will influence and design their process, and construct a career path for future pharmacy technicians. Equally, as the practice matures and ripens, pharmacy technicians may have an opportunity to develop employment proposals, job descriptions, or professional competencies for a medication reconciliation pharmacy technician.

One issue is very clear: together as a community we can create better health care economics and therapeutic outcomes. All health care partners have a role to fulfill. It takes individuals dedicated to change and the accompanying challenges, frustrations, and successes to initiate this process. In addition, the growth of the individual in self-competency skills assessment, knowledge based pharmacology, communication, and diversity are key. Innovations, initiatives, and intelligently designed systems will provide form and structure. Appropriate utilization of technology and a network of health care team members are key contributing factors in implementing medication reconciliation in the healthcare system.

Sociodemographic Aspects

- Haig, K. R. N. (2003). One Hospital's Journey Toward Patient Safety - a Cultural Revolution. *Medscape Money & Medicine*, 4(2).
- Pronovost, P. (2003). Medication Reconciliation: A Practical Tool to Reduce the Risk of Medication Errors. *Journal of Critical Care*, 18(4), 201-205.
- Rogers, G., *et al.* (2006). Reconciling Medications at Admission: Safe Practice Recommendations and Implementation Strategies. *Joint Commission Journal on Quality and Patient Safety*, 32(1), 37-50.
- Continuity of care in medication management: Review of issues and considerations for pharmacy. *American Journal of Health-System Pharmacists*, 62(16), 1714-1720.

Additional Reading

Agency for Healthcare Research and Quality

http://www.ahrq.gov/qual/nurseshdbk/docs/barnsteinerj_mr.pdf

Patient Safety Network /Agency for Healthcare Research and Quality.gov

<http://psnet.ahrq.gov/primer.aspx?primerID=1>

Institute for Healthcare Improvement

<http://www.ihp.org/IHI/Topics/PatientSafety/MedicationSystems/Changes/Reconcile+Medications+at+All+Transition+Points.htm>

Endnotes

1. Institute of Medicine (2007). Preventing medication errors. Washington, DC: The National Academies.
2. Cornish, P. L., Knowles, S. R., Marchesano, R. Â., *et al.* (2005). Unintended medication discrepancies at the time of hospital admission. *Arch Intern Med.*, 165(4), 424-429.
3. Institute for Healthcare Improvement (IHI). Errors from unreconciled medications per 100 admissions.
4. Carol Ptasinski (2007). Joint Commission Solutions: Develop a medication reconciliation process. *Nurs Manage.*, 38(3), 18.
5. (2007). Summary & Recommendations ASHP/APhA Medication Rec Initiative Workgroup Mtg Feb 12.
6. (2009). Joint Commission Perspectives®, March 29(3), Copyright 2009 Joint Commission on Accreditation of Healthcare Organizations.

7. (2010). Joint Commission announces field review for medication rec, Patient Safety Monitor Alert, April 7.
8. Prathibha Varkey, *et al.* (2007). Multidisciplinary approach to Inpatient Medication Reconciliation in an Academic Setting. *American Journal of Health-System Pharmacy*, 64(8), 850-854.
9. Patricia, M. L. A., van den Bemt, Sifra van den Broek, Alfons K. van Nunen, Johannes Harbers, B. M. & Albert Lenderink, W. (2009). Medication Reconciliation Performed by Pharmacy Technicians at the Time of Preoperative Screening. *Ann Pharmacother.*, 43(5), 868-874.
10. (2009). The Annals of Pharmacotherapy, 43(5), 868-874. © 2009 Harvey Whitney Books Company
11. (2007). American Journal of Health-System Pharmacy, 64(4), 404-422. © 2007 American Society of HSP
12. Whittington, J. & Cohen, H. (2003). OSF Healthcare in patient safety. *Qual Manag Health Care.*, 13(1), 53-59.
13. Michels, R. D. & Meisel, S. Program using pharmacy technicians to obtain medication histories. *American Journal of Health-System Pharmacists*, 60(1), 1982-1986.
14. (2007). American Journal of Health-System Pharmacy, 4(8), 850-854. © 2007 American Society of HSP.
15. (2007). Inpatient Medication Reconciliation in an Academic Setting: Conclusion Prathibha Varkey; Julie Cunningham; John O'Meara; Robert Bonacci; Nima Desai; Robert Sheeler. *American Journal of Health-System Pharmacy*, 64(8), 850-854. © 2007 American Society of Health-System Pharmacists.