

Safe Medication Administration: From Policy to Practice



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Objectives

- Provide overview of error-prone conditions that result in medication errors by student nurses
- Describe:
 - Elements in medication administration policy that were redesigned to improve safety
 - Redesign of the error reporting process to support a learning and just culture
- Explain the structure and purpose of internal and external medication safety committees.



SAFETY COMPETENCY

- Minimizing risk of harm to patients from medications errors through:
 - improving individual performance
 - advocating for improvements in systems where our students practice to reduce the opportunities for errors.

University of Windsor



Windsor, Ontario



Faculty of Nursing



Background

Medication Administration is the highest risk activity done by our nursing students.



Background

The Great Unknown

- *Were our students making any errors?*

The Great Challenge

- *What does our Medication policy say and what does it mean??*
- *Does our policy support safe practice?*
- *What are we teaching and is it based on the best evidence in safe medication practices?*

Our Priority

- *No patient injured*
- *No student/instructor medication errors*

Student Nurse Medication Administration

What Could Possibly Go Wrong?

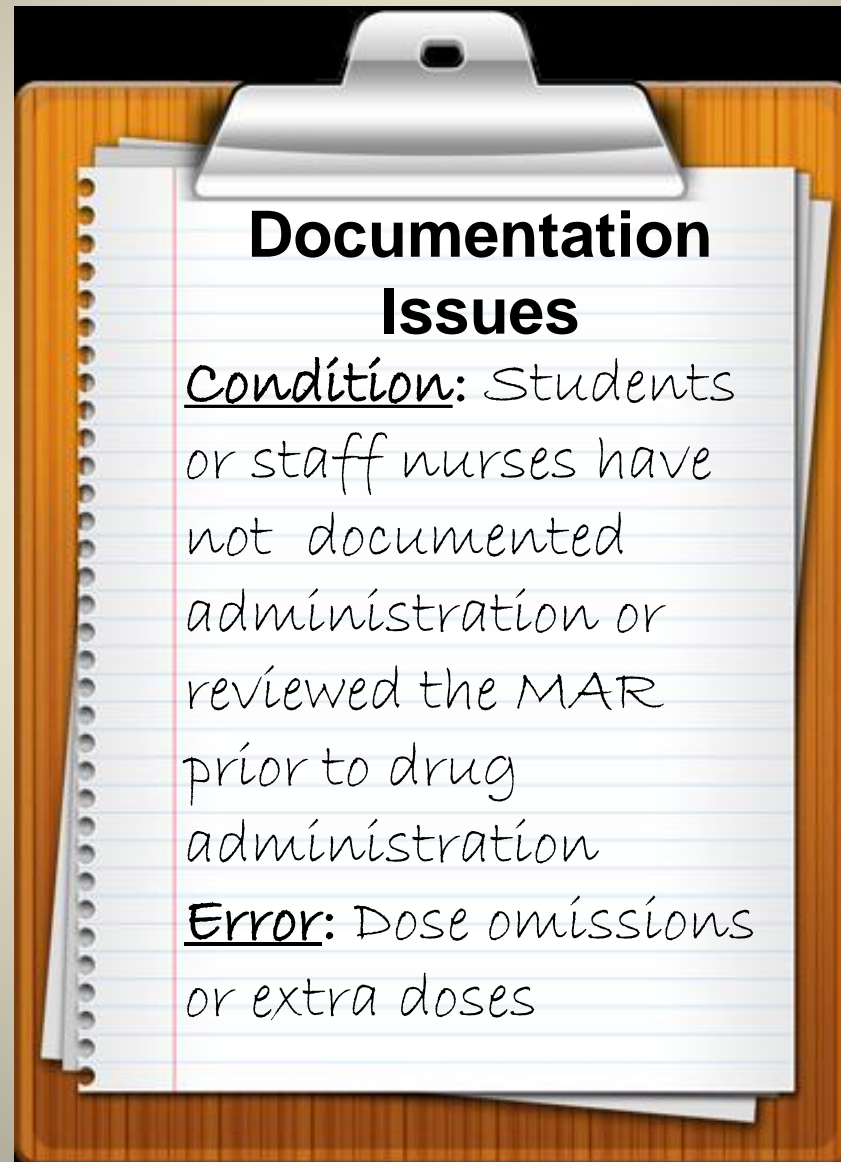


Student Nurse Medication Administration

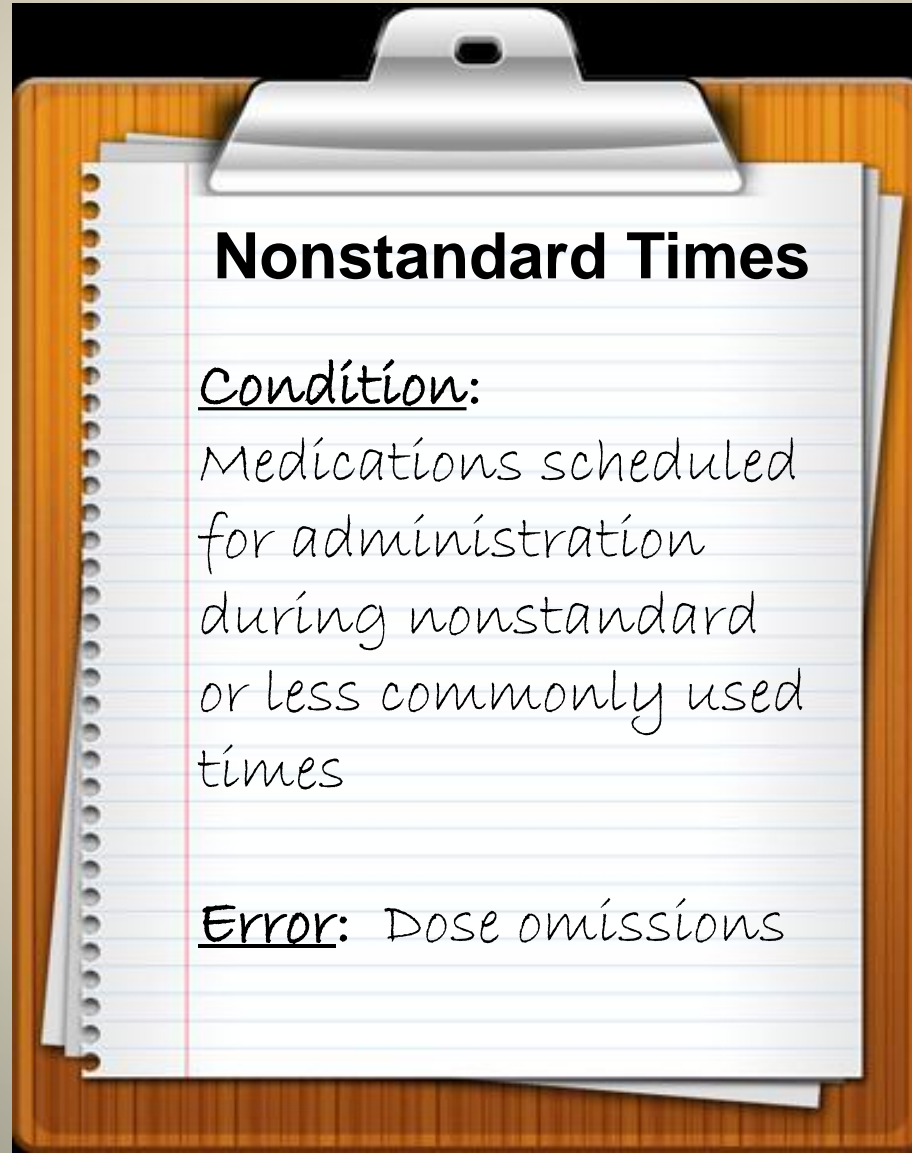


Just about anything can go wrong...

Error-Prone Conditions Resulting in Medication Errors by Student Nurses



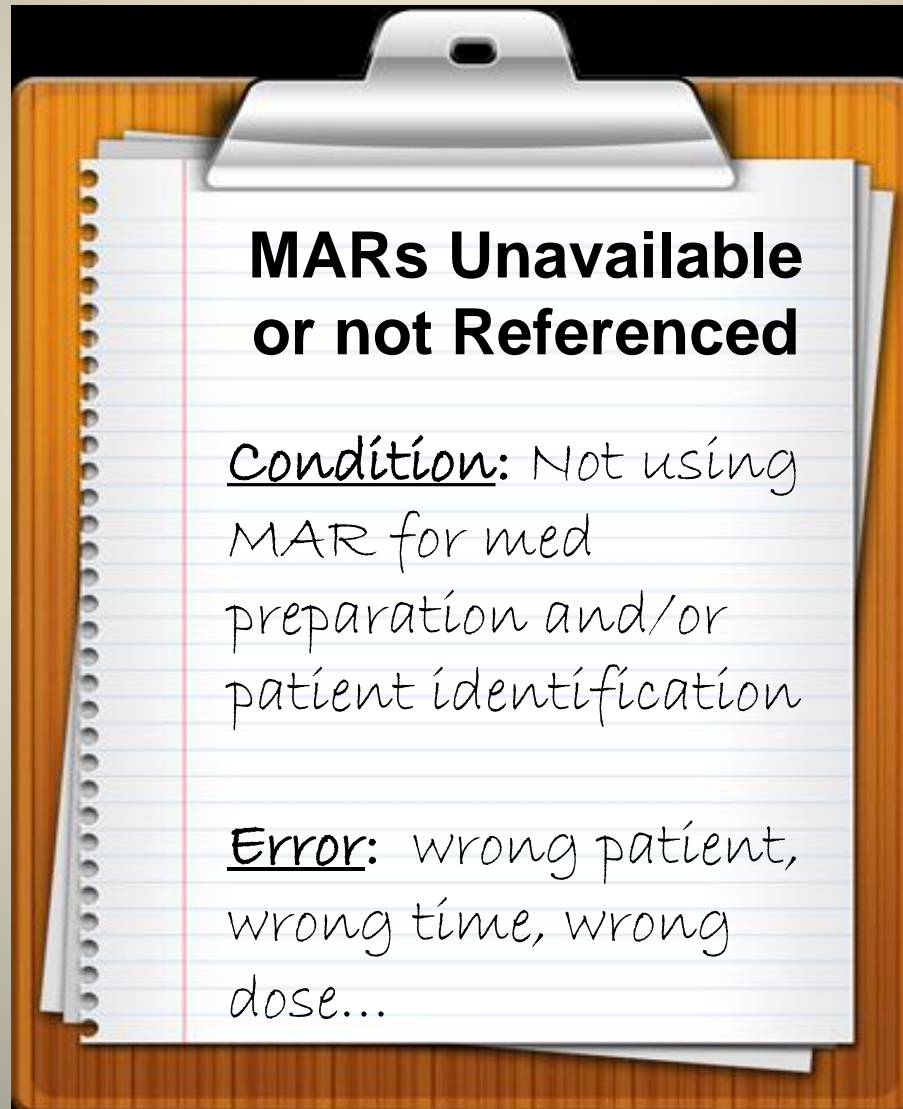
Error-Prone Conditions Resulting in Medication Errors by Student Nurses



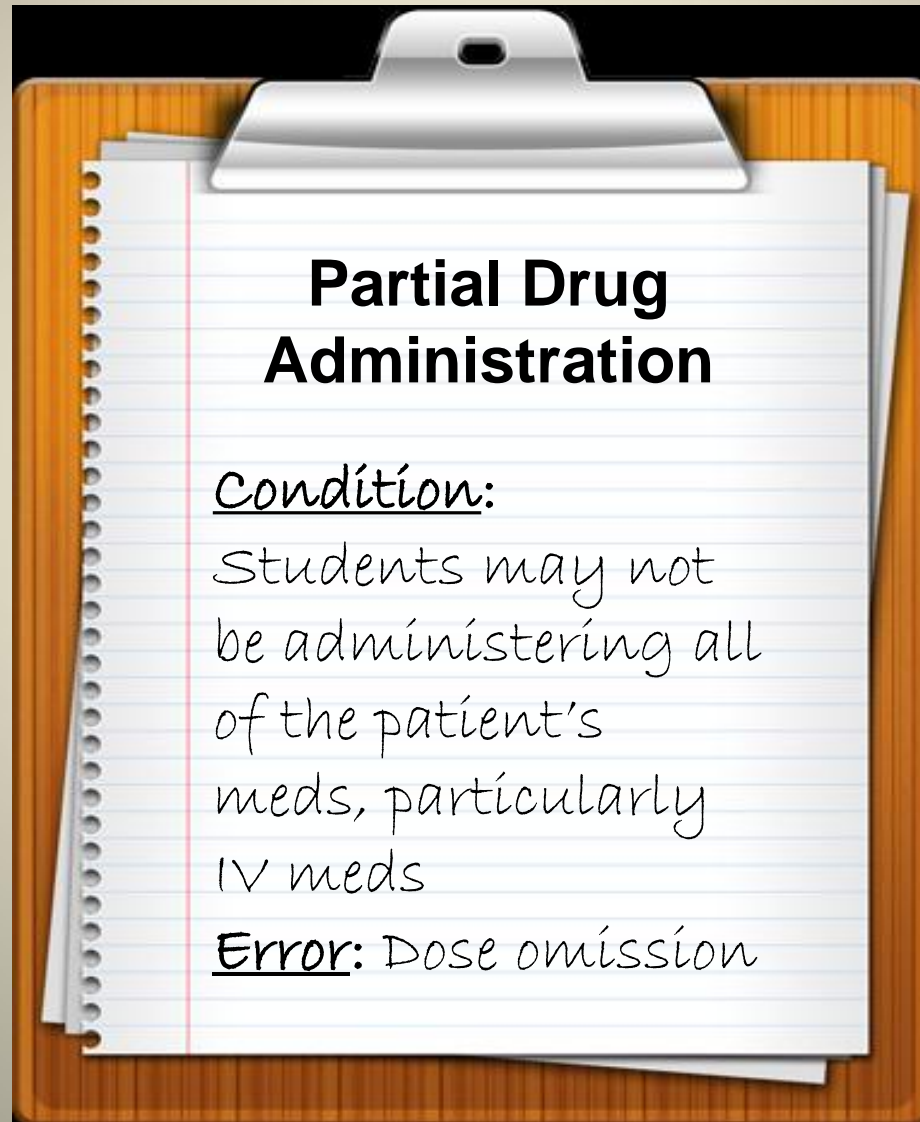
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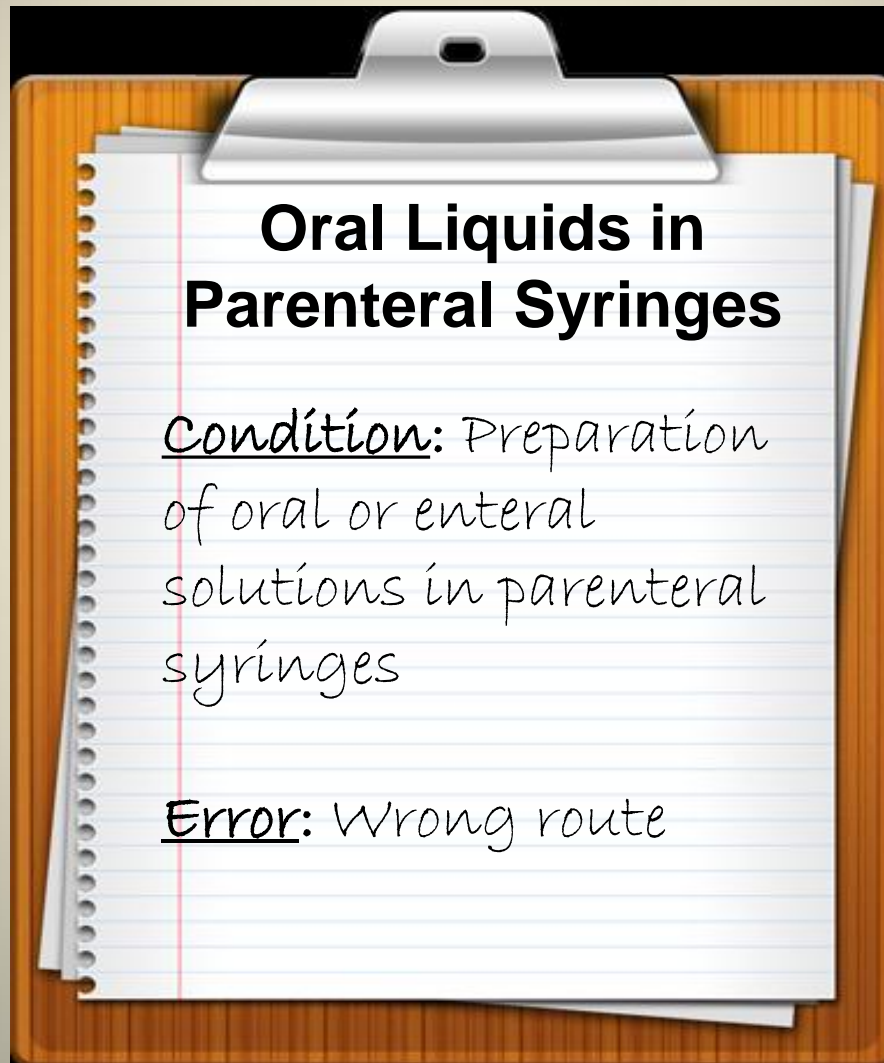
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Error-Prone Conditions Resulting in Medication Errors by Student Nurses



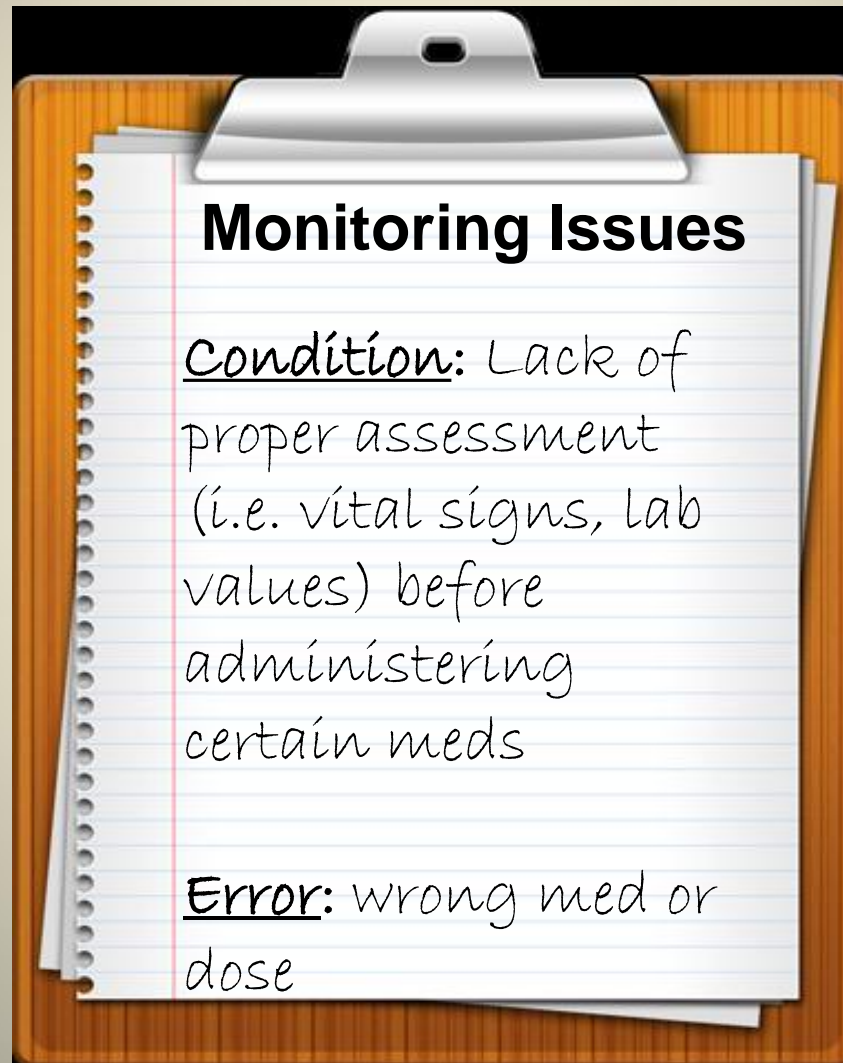
Error-Prone Conditions Resulting in Medication Errors by Student Nurses



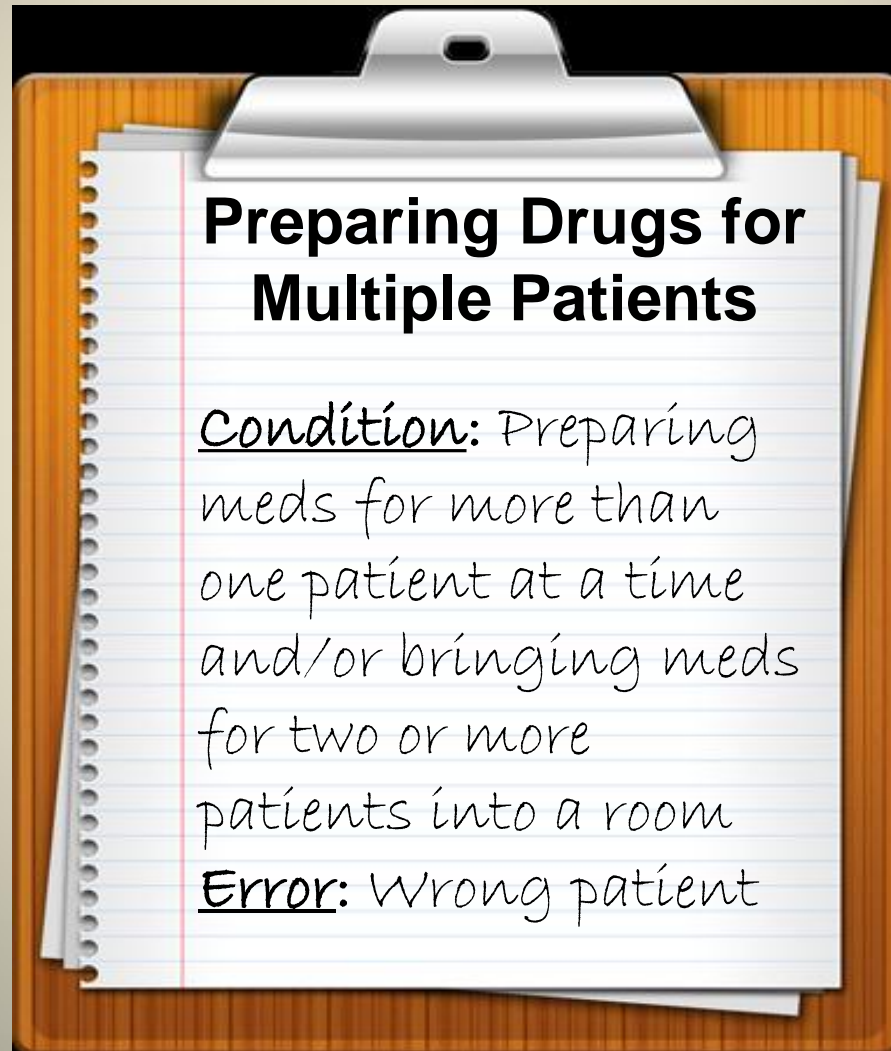
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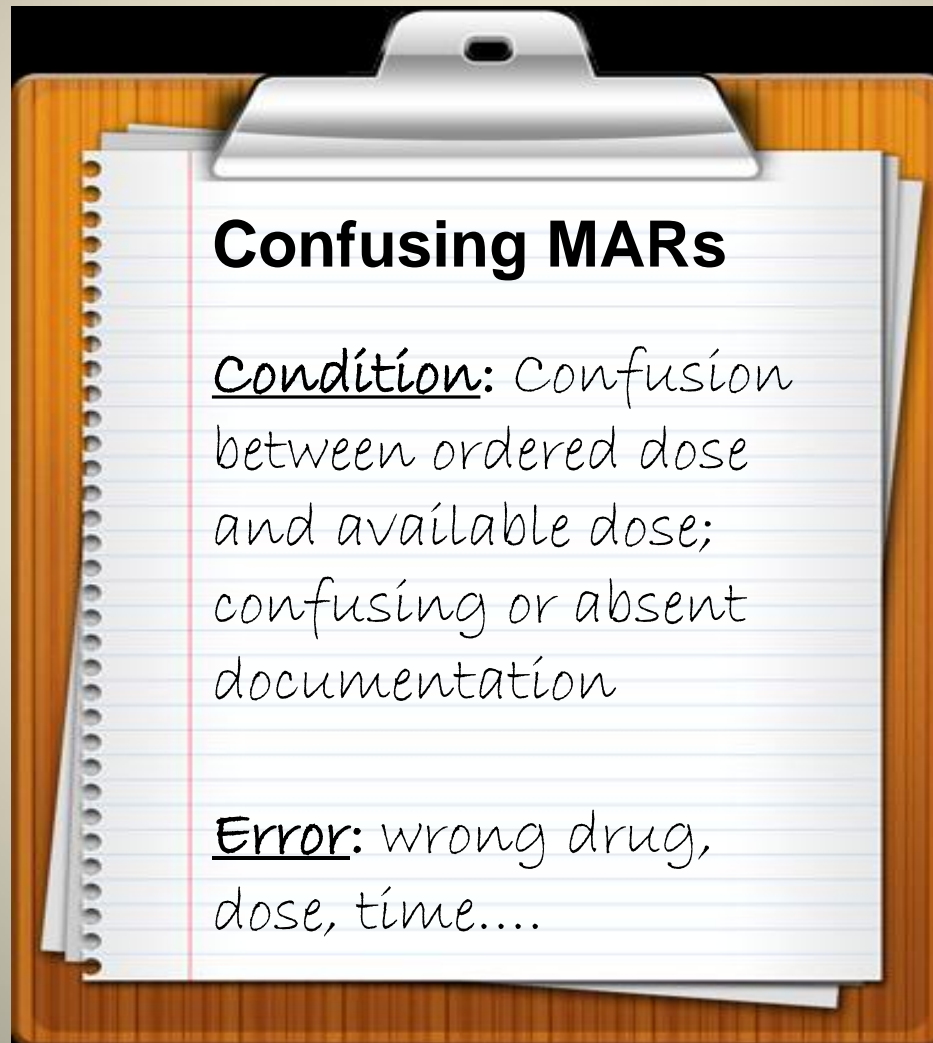
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Error-Prone Conditions Resulting in Medication Errors by Student Nurses





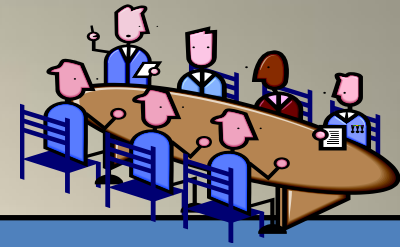
Student Nurse Medication Administration:

What Is A Nursing School to Do?



"To Do" List

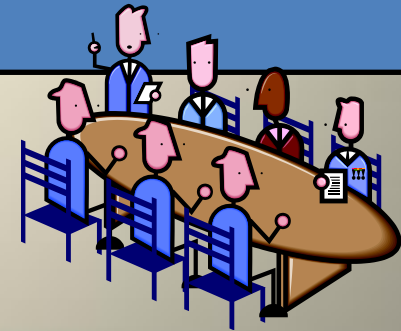
1. New Patient Safety Committees
2. Policy Redesign
 - Philosophy
 - Clarified Expectations for Instructors and Students
 - High alert medications
 - Error response
 - Error reporting
3. MAR redesign
4. Safe practice education



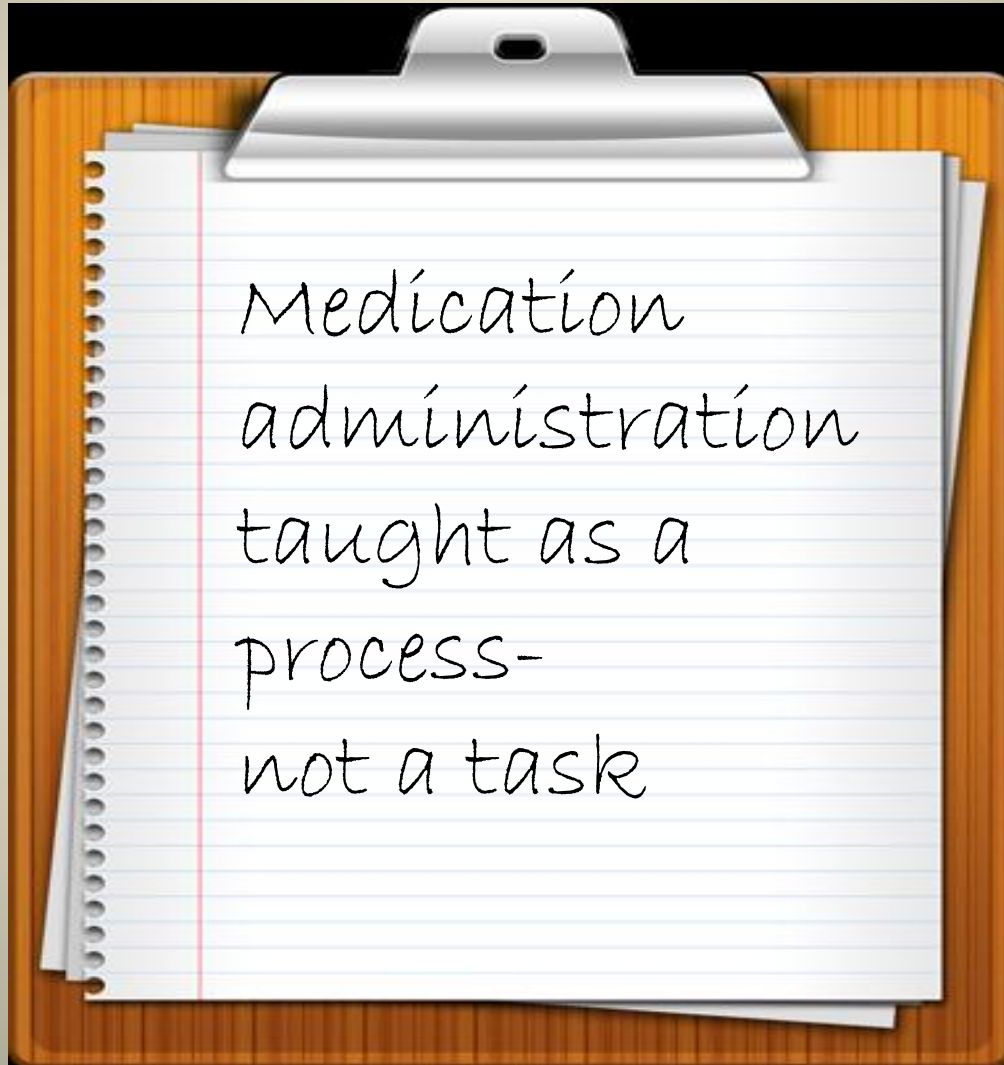
Medication and
Patient Safety Advisory
Committee (MAPSAC)

Patient Safety
Committees

Interdisciplinary
Medication Safety
Committee

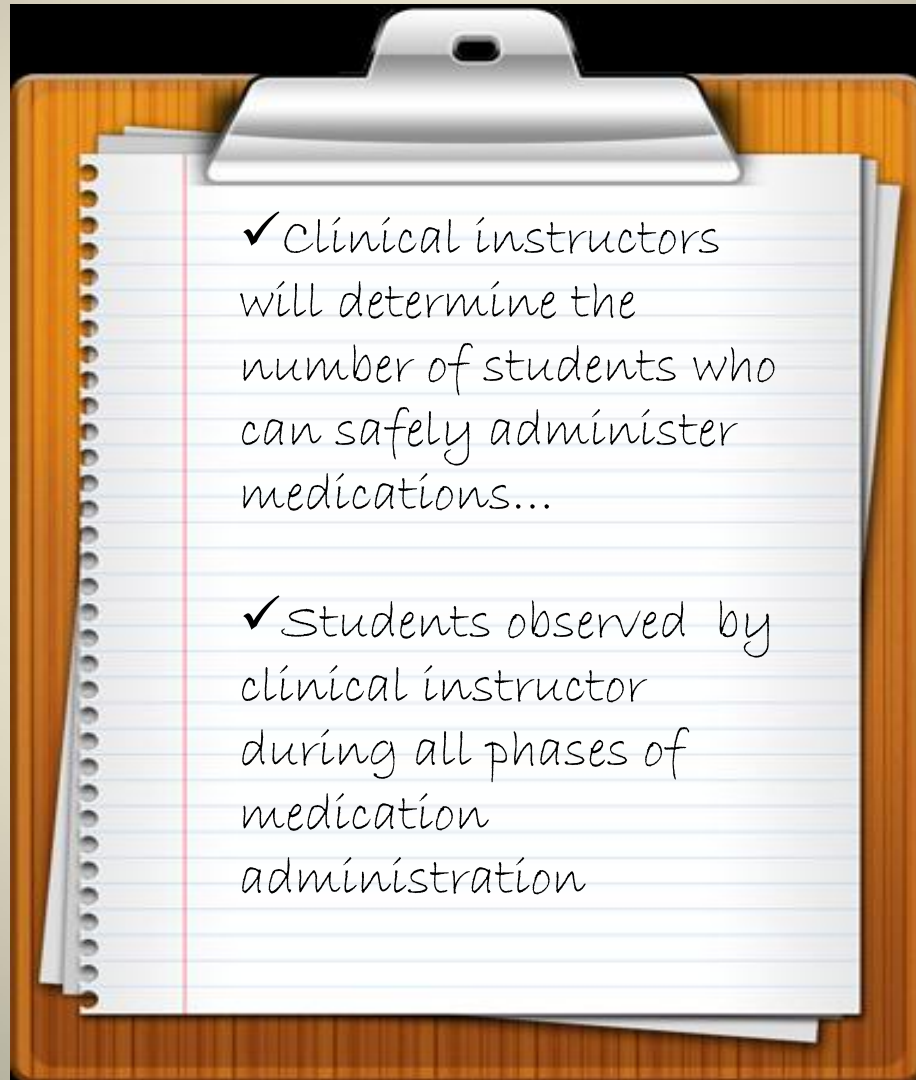


Policy Redesign: Philosophy














Medication
administration
taught as a
process-
not a task

Policy Redesign: Clarified Expectations for Instructors










Policy Redesign: Clarified Expectations for Students & Instructor

STANDARD OPERATING PROCEDURE
Instructor's Observations of Medication Administration of 2nd & 3rd Yr

1. Instructor and student **discuss medications to be given/not given by student** with staff nurse. Student and instructor **review patient's medication administration record (MAR).**

2. Student and instructor **verify medications with physician orders.**

3. Student **evaluates assessment information** (vital signs, lab results, tests).

4. Student **demonstrates knowledge** of patient's medications (purpose, side effects, lab monitoring, etc) verbally and/or in writing to instructor.

5. Instructor **observes medication preparation.**

6. Instructor & student complete **Independent double checks** on high alert medications with RN.

7. Instructor observes student **matching patient with MAR** before administering medication using **2 identifiers** (full name, birth date and/or medical record number).

8. Instructor observes student **opening medication at bedside and involving and educating patient.**

9. Student **documents medications and education.** Instructor **co-signs.**

10. Student **assesses the patient's response to medications** (& reports/ documents any abnormal observations).

11. Instructor guides/observes student's **hand-off communication** of medications given/not given to staff nurse.


Policy Redesign: Clarified Expectations for Students & Instructor

Standard Operating Procedure
Medication Competencies for 2nd & 3rd Yr Students NOT Administering Medications

1. Student **reviews** patient's medication administration record (MAR). 
2. Student **verifies** medications with physician orders. 
3. Student **evaluates** assessment information (vital signs; lab results; tests). 
4. Student **demonstrates knowledge** of patient's medications (purpose, side effects, lab monitoring, etc) verbally and/or in writing to instructor. 
5. Student **educates** patient on medications (assesses knowledge; provides education; uses techniques such as "teach back" to evaluate learning). 
6. Student **assesses** the patient's response to medications. (& reports any abnormal observations) 
7. Student **documents** patient education. 

Policy Redesign: Management of High Alert Medications

Institute for Safe Medication Practices

ISMP's List of *High-Alert Medications*

High-alert medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error. Although mistakes may or may not be more common with these drugs, the consequences of an error are clearly more devastating to patients. We hope you will use this list to determine which medications require special safeguards to reduce the risk of errors. This may include strategies like improving access to information about

these drugs; limiting access to high-alert medications; using auxiliary labels and automated alerts; standardizing the ordering, storage, preparation, and administration of these products; and employing redundancies such as automated or independent double checks when necessary. (Note: manual independent double-checks are not always the optimal error-reduction strategy and may not be practical for all of the medications on the list).

Classes/Categories of Medications	Specific Medications
adrenergic agonists, IV (e.g., epinephrine, phenylephrine, norepinephrine)	calcitriol injection**
adrenergic antagonists, IV (e.g., propranolol, metoprolol, labetalol)	epinephrine (EpiPen), IV
anesthetic agents, general, inhaled and IV (e.g., propofol, ketamine)	insulin, subcutaneous and IV
antiarrhythmics, IV (e.g., lidocaine, amiodarone)	magnesium sulfate injection
antithrombotic agents (anticoagulants), including warfarin, low-molecular-weight heparin, IV unfractionated heparin, Factor Xa inhibitors (rivaroxaban), direct thrombin inhibitors (e.g., bivalirudin, heparin), thrombolytics (e.g., alteplase, reteplase, tenecteplase), and glycoprotein IIb/IIIa inhibitors (e.g., eptifibatid)	methotrexate, oral, non-oncologic use
cardioplegic solutions	opium tincture
chemotherapeutic agents, parenteral and oral	oxytocin, IV
diuretics, hypertonic, 20% or greater	oxytocin sodium for injection
dialysis solutions, peritoneal and hemodialysis	potassium chloride for injection concentrate
epidural or intrathecal medications	potassium phosphates injection
hypoglycemics, oral	propofol, IV
hypotensive medications, IV (e.g., diprivan, milrinone)	sodium chloride for injection, hypertonic (greater than 0.9% concentration)
liposomal forms of drugs (e.g., liposomal amphotericin B)	sterile motor for injection, inhalation, and irrigation (excluding pour bottles) in containers of 100 mL or more
moderate sedation agents, IV (e.g., midazolam)	
moderate sedation agents, oral, for children (e.g., chloral hydrate)	
nonoxalic epinephrine, IV, transdermal, and oral (including liquid concentrates, immediate and sustained-release formulations)	
neuromuscular blocking agents (e.g., succinylcholine, rocuronium, vecuronium)	
radiopaque agents, IV	
total parenteral nutrition solutions	

**Although calcitriol injection should no longer be used, it will remain on the list as a reminder of ongoing calcitriol injection use by about 250 US. For details, please visit www.ismp.org/Tools/Updates/2016/20160505CalcitriolInjection

Background

Based on error reports submitted to the USP-ISMP Medication Errors Reporting Program, reports of harmful errors in the literature, and input from practitioners and safety experts, ISMP created and periodically updates a list of potential high-alert medications. During February-April 2007, 770 practitioners responded to an ISMP survey designed to identify which medications were most frequently considered high-alert drugs by individuals and organizations. Further, to assure relevance and completeness, the clinical staff of ISMP, members of our advisory board, and safety experts throughout the US were asked to review the potential list. This list of drugs and drug categories reflects the collective thinking of all who provided input.

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© ISMP 2006. Permission is granted to reproduce material for internal newsletters or communications with proper attribution. Other reproduction is prohibited without written permission. Unless noted, reports were received through the USP-ISMP Medication Errors Reporting Program (MREP). Report actual and potential medication errors to the MREP on the web at www.ismp.org or by calling 1-800-551-5252. ISMP guarantees confidentiality of information received and respects reporters' wishes as to the level of detail included in publications.

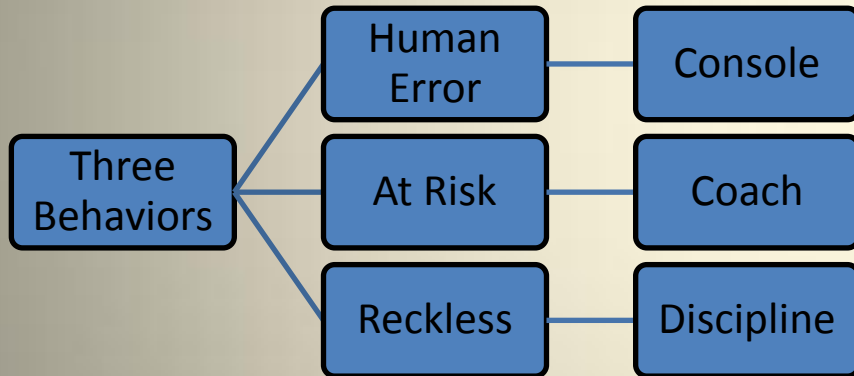
Institute for Safe Medication Practices
www.ismp.org

- Defined high alert medications
- Instituted independent double checks

ISMP, 2008b

Error Response: Just Culture

Source: David Marx, www.justculture.com



Errors influenced by:

- Systems
- Behavioral choices

To create safer systems:

- Learning culture
- Design systems to reduce errors
- Focus on human behaviours
 - Create a just culture

Policy Redesign: Error Reporting Form

1

University of Windsor Student Nurse Medication Error Report and Follow-up

This form is to be completed by the clinical instructor and nursing student for all medication errors. The original completed form is to be submitted to the Associate Dean. Please note: all errors must also be reported via the hospital or agency reporting mechanism (i.e. Risk Pro Monitor).

Date of Incident: _____ Time of incident: _____
 Agency and unit (if applicable): _____
 Student name and level: _____
 Clinical Instructor name: _____

Was agency error report submitted (i.e. electronic or agency form)? Yes No
 If 'No', please explain: _____

Name of Medication involved in error: _____

Type of Incident:

<input type="checkbox"/> Extra dose/duplication	<input type="checkbox"/> Wrong administration technique
<input type="checkbox"/> Missed dose	<input type="checkbox"/> Drug prepared incorrectly
<input type="checkbox"/> Incorrect dose/quantity	<input type="checkbox"/> Mislabelling
<input type="checkbox"/> Wrong patient	<input type="checkbox"/> Deteriorated/expired product
<input type="checkbox"/> Wrong time	<input type="checkbox"/> Wrong dosage form
<input type="checkbox"/> Wrong route	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Wrong medication	
<input type="checkbox"/> Prescribing error	

Contributing Factors (check all that apply):

- Abbreviation issue
- Administration error
- Communication failure (i.e. physician to nurse or nurse to nurse/student)
- Confusion with physician order
- Confusion with MAR (i.e. illegible or incomplete)
- Documentation error (i.e. dose not documented)
- Drug delivery device problem (free flow, pump issue)
- Drug labelling issue (i.e. look-alike drugs, look-alike packaging)
- Drug storage or delivery issue (i.e. missing dose, problem with delivery)
- Environmental problem (i.e. interruptions, noise)
- Lack of independent double check
- Lack of knowledge related to the drug
- Missing patient information (circle all that apply): lab values, vital signs, allergies, age, weight, diagnosis, renal impairment, pregnancy
- Transcription error
- Other (please specify): _____

2

Brief factual description of incident:

Immediate Actions Taken Post Incident:

Patient Condition Post Incident:

Recommendations (check all that apply):

- Improved communication with unit staff
- Improved communication with physician or pharmacy
- Use of 2 patient identifiers
- Bring MAR to bedside
- Administer medication to one patient at a time
- Check physicians orders
- Complete 3 checks of medication labels
- Increase knowledge of medication
- Improve preparation for clinical and medication administration
- Complete an IDC with all high risk medications according to agency policy
- Clarify unclear handwriting, orders or abbreviations
- Ensure documentation is completed after med is given
- Follow up on any medications that are on hold (i.e. post procedure)
- Label IV medications correctly
- Other (please specify): _____

Institution Recommendations and Follow-up

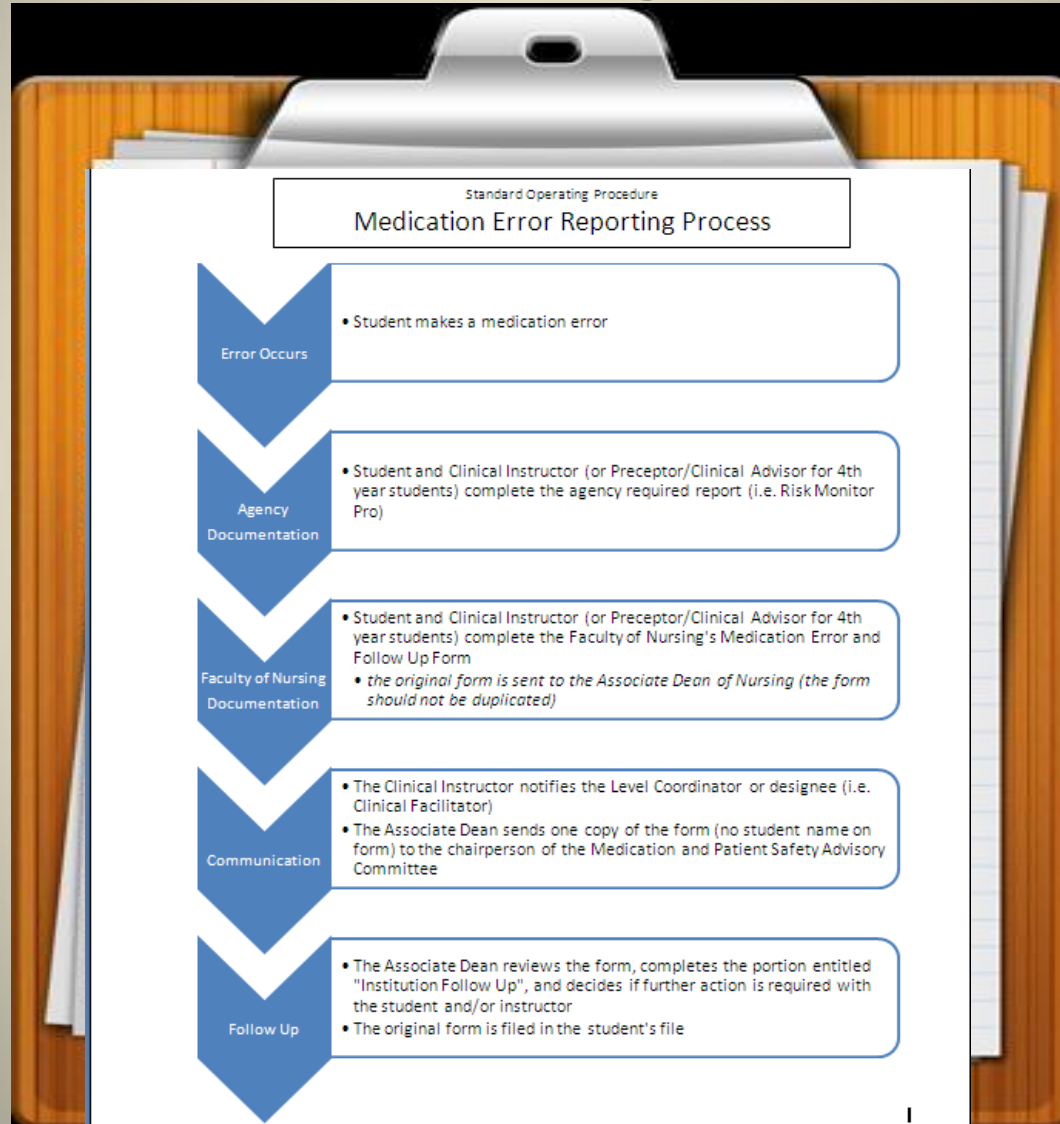
Type of Medication Error:

- Human Error (product of our current system design)
- At-Risk Behaviour (a choice: risk believed insignificant or justified)
- Reckless Behaviour (intentional or deliberate risk-taking)

Follow-up Recommendations:

Signature: _____ Date: _____

Policy Redesign: Error Reporting Process



Advocated for Redesign of MARs in Hospitals

Error-Prone MAR for Nurses

DAPSONE 25 MG TAB

12.5 MG (0.5 TAB)

PO DAILY

DIGOXIN ELIXIR 0.05 MG/ML 60 ML

0.125 MG (0.25 mL)

PO DAILY

Advocated for Redesign of MARs in Hospitals (Cohen, 2007)

Ideal MAR for Nurses

Generic Drug Name (brand name)

**Pt. specific dose, route & frequency
(and indication if applicable) BOLD**

Product strength/special instructions/
warnings

Committee Members as Guest Lecturers

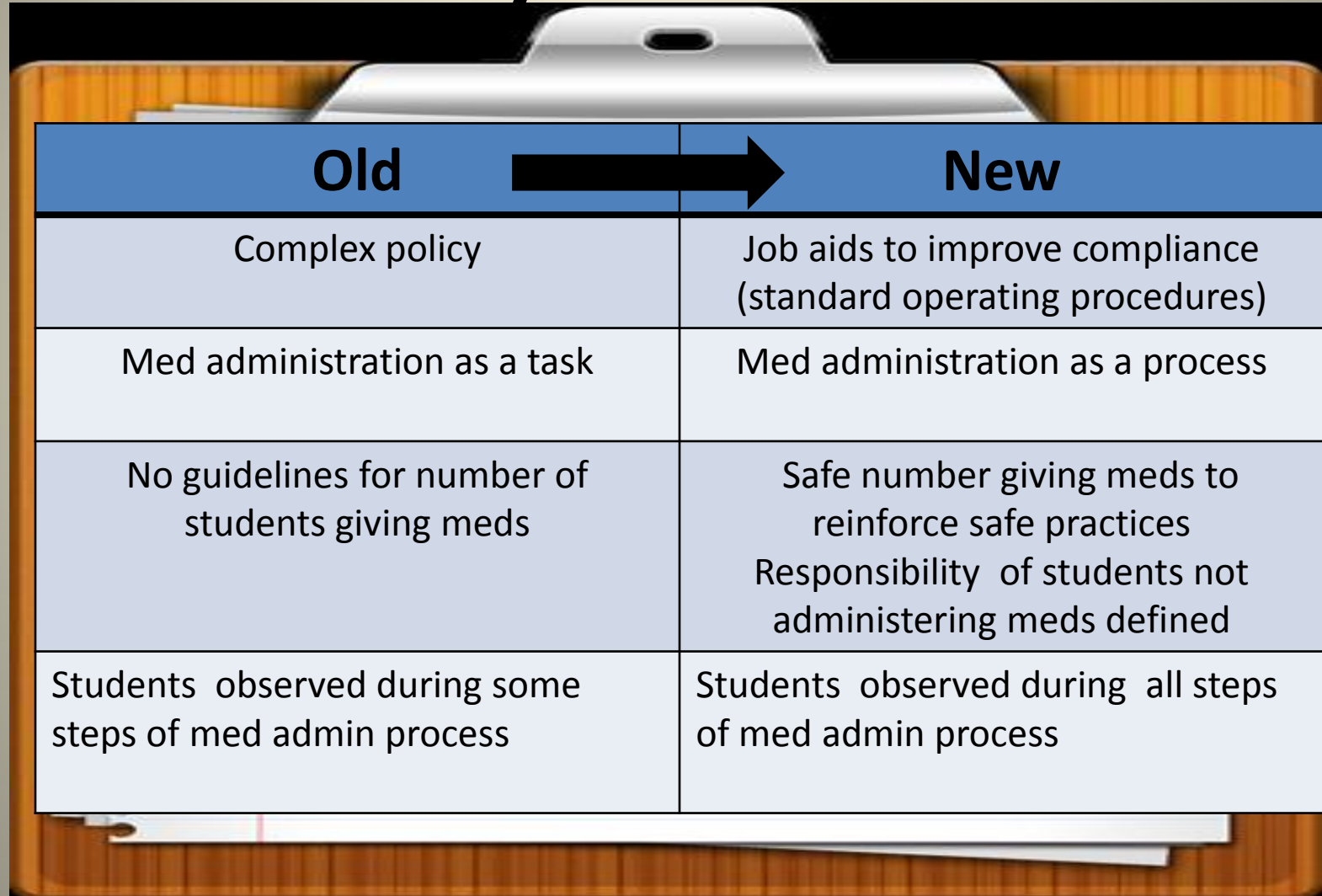


Outcomes

- ✓ Policy reflects best practices
- ✓ Instructors have a voice in improving practices
 - ✓ Revisions to MAR
- ✓ Improved communication and sharing of information
- ✓ Improved error reporting
- ✓ Education redesign based on errors
- ✓ Increased awareness of medication safety with faculty/instructors
- ✓ Transition to a just culture
- ✓ Committee members as guest speakers on med safety

Summary

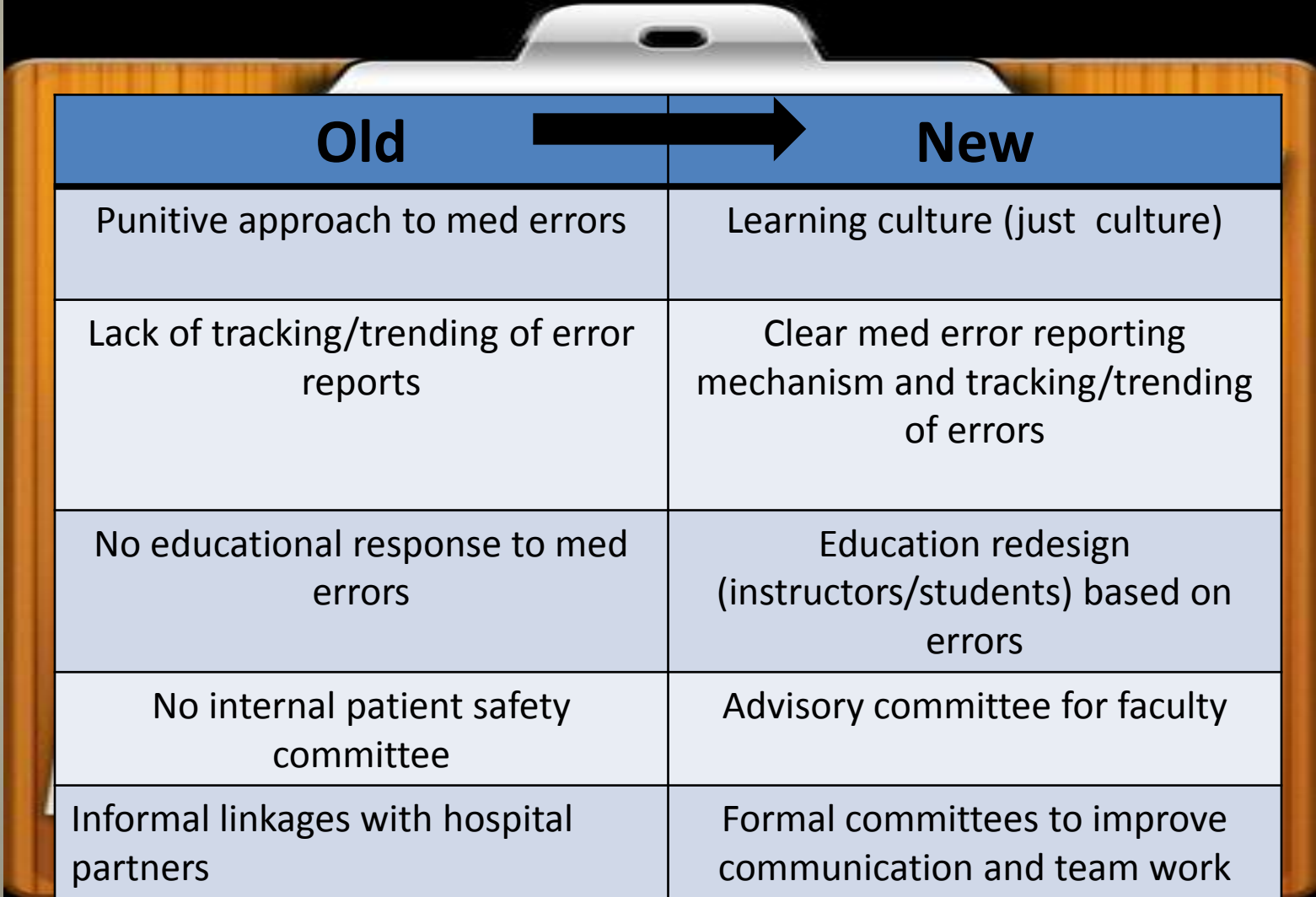
Medication Administration: Policy to Practice



Old	New
Complex policy	Job aids to improve compliance (standard operating procedures)
Med administration as a task	Med administration as a process
No guidelines for number of students giving meds	Safe number giving meds to reinforce safe practices Responsibility of students not administering meds defined
Students observed during some steps of med admin process	Students observed during all steps of med admin process

Summary

Medication Administration: Policy to Practice



Old	New
Punitive approach to med errors	Learning culture (just culture)
Lack of tracking/trending of error reports	Clear med error reporting mechanism and tracking/trending of errors
No educational response to med errors	Education redesign (instructors/students) based on errors
No internal patient safety committee	Advisory committee for faculty
Informal linkages with hospital partners	Formal committees to improve communication and team work

References

Association of Perioperative Registered Nurses. (2006). *AORN Just Culture tool kit*.

Retrieved from

<http://www.aorn.org/PracticeResources/ToolKits/JustCultureToolKit/DownloadTheJustCultureToolKit/>

Cohen, M. (Ed) (2007). *Medication Errors*. Washington: American Pharmacists Association.

College of Nurses of Ontario (2008) *Practice standard medication*. Retrieved from

http://www.cno.org/docs/prac/41007_Medication.pdf

Institute for Safe Medication Practices (2008a). Error-prone conditions that lead to student nurse related errors. *Nurse Advise-ERR*, 6(4).

Institute for Safe Medication Practices (2008b). ISMP's list of high alert medications.

Retrieved from <http://www.ismp.org/Tools/highalertmedications.pdf>

Marx, D. (2001). Patient Safety and the "Just Culture": A Primer for Health Care Executives. New York, NY: Columbia University.

Available at: http://www.mers-tm.org/support/Marx_Primer.pdf

Marx, D. (2008). The Just Culture Algorithm. Outcome Engineering, LLC.

www.justculture.org

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QUESTIONS?