Improving Medication Safety: The Role of the Medication Safety Officer

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The Power to Heal. A Passion for Care.
Objectives

• Define medication safety and describe its importance to managing an effective patient safety program
• Delineate the scope, positional goals, and potential responsibilities for a medication safety officer
• Discuss opportunities, challenges, and strategies for implementation of an effective medication safety program
Key Definitions

**Patient Safety**: freedom from accidental or preventable injuries produced by medical care

**Medication Safety**: freedom from accidental or preventable injuries produced by medications

**Adverse Drug Event (ADE)**: an adverse event, or injury resulting from medical care, involving medication use

**Preventable ADE**: an ADE that involves some element of error in medication use

Available at: http://www.psnet.ahrq.gov/glossary.aspx
Impact of Medications on Patient Safety

• 1999 Institute of Medicine Report
  – Up to 7,000 deaths result from ADEs every year
  – Have we improved since then?
• Impact of ADEs on patient care
  – As many as 10.4% of patients experience an ADE
  – Length of stay increased 8-12 days on average
  – Hospitalization costs increased by $16,000 to $24,000
• Estimated 3.8 million inpatient admissions and 3.3 million outpatient visits have serious preventable medication errors resulting in $21 billion in wasteful costs to healthcare

Arch Intern Med 2000;180(14): 2129-34
JAMA 1996;274(1): 29-34
Accountability for Medication Use

• National Quality Forum (NQF) Safe Practice 18: “Pharmacy leaders should have an active role on the administrative leadership team that reflects their authority and accountability for medication management systems performance across the organization.”

• American Society of Health-System Pharmacists (ASHP) Council recommendations
  – Council on Pharmacy Practice
  – Council on Therapeutics

• Pharmacy Practice Model Initiative (PPMI)

Polling Question

Does your healthcare organization have a Medication Safety Officer or other medication safety leadership position?

A. Yes
B. No
Importance of Quality and Safety

• Increasing number of standards and quality measures relying on medication use
• Increasing number of quality and safety measures tied to reimbursement
  – Core Measures
  – Pay-for-Performance
  – Value-Based Purchasing
  – Accountable Care
• The PATIENT
Adverse Drug Events and Medication Errors
Swiss-Cheese Model

The NEW LOOK: Genesis of complex system failure

Defenses

Institution
Organization
Information
Technical

ACCIDENT

Modified Reason 1991, Cook 1997

Available at: http://www.carefusion.com/pdf/Center_for_Safety/InvitedConferences/Using_Tech_to_Address_Med_Errors_Summary.pdf
“An error doesn't become a mistake until you refuse to correct it.”

- Orlando A. Battista
Business Case for Safety

• Making the business case for medication safety
• What is the cost to the healthcare system of each preventable ADE?
• Medication safety leader should be an authoritative expert in safe medication use
• Key questions
  – What can larger organizations do?
  – What can smaller organizations do that can’t justify the creation of an MSO position?
Safety Innovation: *Unit-Dosing*

- Innovative pharmacy practice spurred by medication safety
- Ready-to-administer dosage forms
- Reduce medication errors through standardization
- Opportunity for safety improvements
  - Automated dispensing
  - 49% of errors observed in dispensing or administration phases (*Bates et al*)

*JAMA* 1995;274:35-43
Role and Scope

• Integration across the department and organization

• Challenges of facilitating process improvement initiatives related to safe medication use that affect multiple disciplines

“Pharmacists can play an important role as leaders to reduce patient safety risks, optimize the safe function of medication management systems, and align pharmacy services with national initiatives that measure and reward quality performance.”
Regulatory Compliance

- Joint Commission Medication Management Chapter
  - MM.07.01.03 – Analyzing actual and potential ADEs
  - MM.08.01.01 – Evaluation of the medication management program
- Centers for Medicare and Medicaid (CMS)
  - Condition of Participation – Medication errors, adverse drug reactions, drug incompatibilities
- North Carolina Board of Pharmacy (NCBOP)
- Division of Health Service Regulation (DHSR)
- Drug Enforcement Administration (DEA)
- Environmental Protection Agency (EPA)
- North Carolina Department of Energy and Natural Resources (NCDENR)
Medication-Use Process

Available at: http://www.achca.org/content/pdf/LTCPLC_Stmt3_MedUseProcess_081031.pdf

NC Quality Center
Role and Scope

• Identifying and prioritizing medication safety initiatives
• Balance of visibility throughout the organization and hospital administration with engaging front-line staff
• Liaison and contact person for medical staff, nursing, pharmacy, and ancillary services
A medication safety leader must be an effective leader within the organization

- Organizer
- Facilitator
- Steward
- Dynamic
- Patient safety liaison
- Consultative
- Writer

- Excellent communication
- Good presentation skills
- Engaging
- Non-punitive
- Encouraging (i.e. of incident reporting)
Potential Responsibilities

• Patient/Medication safety rounds
• Precepting residents/students
• Policy development and review
• Reviewing ADE data
• Identifying and leading performance improvement and quality improvement initiatives
• Conducting medication safety tracers to assess medication management compliance
• Hosting surveyor/inspector visits from regulatory agencies
• Reviewing and providing recommendations for new technologies
• Medication safety assessments and gap analyses
• Auditing for compliance with regulatory standards
• Developing programs for hazardous drug management
Delivering Safety Information

- Storytelling and its impact
- Case presentations
- Multidisciplinary collaboration
  - Nurse shadowing
- Medication safety pearls

ISMP Medication Safety Alert 2011;16(18):1-3
Case Presentations

• Real experiences that emphasize key points
• Analysis of the case
  – Existing safety strategies
  – Potential reasons for system breakdowns
    • Identified risks
    • Attributable causes
    • Contributing factors
  – Risk reduction strategies
• Tell a story that captures attention
Shadowing Experience

- Resident/Student shadowing nurses
- Learning experience
- Unbiased learner observing the medication-use process from the nursing perspective
- Reduces the Hawthorne Effect
- Discuss the experience and provide feedback
Data Analysis and Trending

- Clear definitions of medication error, adverse drug reaction, and adverse drug event
- Actual versus potential medication errors
- Quality Improvement (QI) metrics
- Maximize technology for reporting
- Minimize workarounds
  - Medication errors associated with information technology
Implementing Technology

- Computerized Prescriber Order Entry (CPOE)
- Clinical decision support
- Automated storage devices
  - Automated dispensing cabinets (ADCs)
  - Carousel technology
- Barcode Medication Administration (BCMA)
- Electronic Medication Administration Record (eMAR)
- Automated compounding devices
Polling Question

Which of the following medication use technologies does your healthcare organization have?

A. Barcode Medication Administration (BCMA) only
B. Computerized Prescriber Order Entry (CPOE) only
C. Both BCMA and CPOE
### 2007 Informatics Survey

<table>
<thead>
<tr>
<th>Hospital Category</th>
<th>BCMA (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All U.S. Hospitals</td>
<td>24.1</td>
</tr>
<tr>
<td>&lt;50 staffed beds</td>
<td>14.7</td>
</tr>
<tr>
<td>50-99 staffed beds</td>
<td>24.3</td>
</tr>
<tr>
<td>100-199 staffed beds</td>
<td>30.2</td>
</tr>
<tr>
<td>200-299 staffed beds</td>
<td>36.5</td>
</tr>
<tr>
<td>300-399 staffed beds</td>
<td>40.2</td>
</tr>
<tr>
<td>400-799 staffed beds</td>
<td>25.6</td>
</tr>
<tr>
<td>≥800 staffed beds</td>
<td>6.3</td>
</tr>
<tr>
<td>Veterans Affairs Hospitals</td>
<td>100</td>
</tr>
</tbody>
</table>

Of the hospitals without BCMA, 56.5% planned to implement a system within 3 years.
Technology Barriers: BCMA

• Implementation of a BCMA system can prevent many errors but may also contribute to some ADEs

• Failure points in the BCMA process
  – Medication mislabeling
  – Medication missing bar-code
  – Inability to scan bar-code
  – System not available

• Potential system workarounds
  – Facilitated by workflow design

• Any other processes that may contribute to errors caused by BCMA

## Technology Workarounds: BCMA

<table>
<thead>
<tr>
<th>Workaround</th>
<th>Potential Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>User scans med without visual check</td>
<td>Wrong med, dose &amp; route</td>
</tr>
<tr>
<td>User bypasses med “double check”</td>
<td></td>
</tr>
<tr>
<td>User does not verify new med orders</td>
<td></td>
</tr>
<tr>
<td>User scans bar-code after label removed</td>
<td></td>
</tr>
<tr>
<td>User administers med without parameters</td>
<td>Wrong med, dose, route &amp; time</td>
</tr>
<tr>
<td>User administers med without scanning bar-code</td>
<td></td>
</tr>
<tr>
<td>User administers med without scanning patient ID</td>
<td>Wrong patient</td>
</tr>
<tr>
<td>Patient ID placed somewhere besides the patient</td>
<td></td>
</tr>
<tr>
<td>User scans &amp; transports meds for &gt;1 patient</td>
<td></td>
</tr>
<tr>
<td>User separates scanner from cart</td>
<td></td>
</tr>
<tr>
<td>User scans 1 med multiple times for full dose</td>
<td>Wrong med &amp; dose</td>
</tr>
</tbody>
</table>
Implementing New Technology

• Conduct a Failure Mode and Effects Analysis (FMEA) whenever possible
• Utilize champions in the nursing staff
• Define expectations and a standardized process through written policies and procedures
• Hold staff accountable
• Utilize available continuous quality improvement (CQI) reporting capabilities
• Technology is an additional safety measure NOT a replacement for critical thinking
Polling Question

Does your healthcare organization use available continuous quality improvement (CQI) reporting functions to monitor use and optimize information technology applications?

A. Extensively
B. Somewhat
C. Rarely
D. Never
E. Reporting functions are not available
Literature Review and Evaluation

• ISMP Medication Safety Alerts
• Nurse Advise-ERR
• Joint Commission Sentinel Event Alerts
• Medication safety assessments
• Gap analyses
Success Stories

• Share your successes within and outside your healthcare organization

• WakeMed recent examples of safety improvement
  – Acetadote dosing standardization
  – Concentrated oral morphine
    • Quality improvement changes across the health system in ordering, preparing, dispensing and administration
  – PCA protocol changes to reduce the risks of dosing errors
Using Medication Safety to Implement Quality Improvement Initiatives

- Collect data
  - Retrospective
  - Prospective

- Identify risks and hazards

- Develop action plan(s)

- Implement process improvements

- Monitor performance
Medication Safety: A Shared Responsibility

• Safety is a broader goal that should be shared
• The patient does not benefit if lessons learned are not shared
• Systems breakdowns are generally not unique to one system just like individual errors are often not isolated to one individual
• Share stories of system breakdowns and process improvements that were implemented
Conclusion

• Healthcare organizations should have a position with responsibilities dedicated to improving medication safety

• Role and scope of a medication safety leader may include a variety of responsibilities that provide oversight over the medication management system

• Medication safety leaders should coordinate medication-related systems improvement initiatives to improve patient safety