Medication Errors: Identification, Reporting and Prevention
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Objectives
- Describe the impact of medication errors on the healthcare system
- Identify errors and methods for their prevention, including Failure Mode and Effects Analysis
- Develop an understanding of the process for continuous improvement related to error prevention, including root cause analysis
- Identify ways to increase patient safety during transitions of care

Introduction
- Emily's Law: Video
  http://www.youtube.com/watch?v=RPBlEE3xiE0
- Emily Jerry, 2 years old
  — Last chemo session
  — 23.4% NaCl was used instead of 0.9%
  — Pharmacist was imprisoned
  — Emily Jerry Foundation, committed to reducing preventable medication errors

Introduction
- Medication errors harm 1.5 million people per year
- 400,000 preventable adverse drug events occur per year in hospitals
- At least one medication error per patient per day
- One quarter of these errors are preventable

Definitions
- Medication error: Any error occurring in the medication-use process
  — Institute of Safe Medicine Practices estimates 40 steps in this process
- Adverse drug event: Any injury due to medication

Disclosure
- I have no affiliations associated with this presentation to discuss
Impact of Medication Errors

- No price can be placed on the loss of life or function resulting from a medication error
- Economic impact of preventable medical errors ranges from $17 billion up to $50 billion annually
- Preventable adverse events lead to the death of 210,000-400,000 hospitalized patients
- Medical errors may be the third leading cause of death in the U.S. behind heart disease and cancer


Patient Rights

- Be the source of control for all medication management decisions that affect them
- Accept or reject medication therapy on the basis of their personal values.
- Be adequately informed about their medication therapy and alternative treatments.
- Ask questions to better understand their medication regimen.
- Receive consultation about their medication regimen in all health settings and at all points along the medication-use process.
- Designate a surrogate to assist them with all aspects of their medication management.
- Expect providers to tell them when a clinically significant error has occurred.
- Ask their provider to report an adverse event and give them information about how they can report the event themselves.


Types of Medication Errors

- Prescribing error
- Dispensing error
  - Wrong drug preparation error
  - Wrong drug error
- Wrong time error
- Medication administration error
- Patient compliance error
- Deteriorated drug error
- Monitoring error


Causes of Medication Errors

- Ambiguous strength designation on label
- Drug product nomenclature
- Equipment failure
- Illegible handwriting/improper transcription
- Inaccurate dosage calculation
- Inadequately trained personnel
- Lapses in individual performance
- Medication is unavailable


Preventing Medication Errors

- Adopting a safety culture
  - Senior leadership engagement
  - Performance improvement
  - Safety teams/projects
  - Review of personnel/workload
- Patient Safety Organizations (PSO)
  - As of 2015, hospitals must comply in order to participate in health insurance exchanges
- Opportunities in transitions in care


Preventing Medication Errors

- Failure Mode and Effects Analysis (FMEA)
  - Systematic identification of areas of potential failure in your setting
  - Use whenever adding a new medication or medication use process
  - Assume errors will occur/consequences
  - Proactive approach
  - Part of risk reduction strategy
FMEA

• How will the drug be prescribed and used
  – How is it different from current options
• What could potentially go wrong when this drug is prescribed for a patient
  – Side effects, clinical monitoring, patient education
• Determine the likelihood of errors and consequences of those errors
• What error reduction strategies are already in place and can be applied
• Evaluation and feedback system in the event errors are still occurring with the new drug

Preventing Medication Errors

ISMP

• Self assessments
• Error reporting
• Quarterly Action Agenda
• Safety webinars
• Newsletter
• Safe practice guidelines
• Best Practices for Safe Medication Use

ISMP Best Practices


• 1: Dispense vinCRIStine (and other vinca alkaloids) in a minibag of a compatible solution and not in a syringe.

• 2: Use a weekly dosage regimen default for oral methotrexate. If overridden to daily, require a hard stop verification of an appropriate oncologic indication.

• 3: Measure and express patient weights in metric units only. Ensure that scales used for weighing patients are set and measure only in metric units.

• 4: Ensure that all oral liquids that are not commercially available as unit dose product are dispensed by the pharmacy in an oral syringe.
ISMP Best Practices

• 5: Purchase oral liquid dosing devices (oral syringes/cups/droppers) that only display the metric scale.

• 6: Eliminate glacial acetic acid from all areas of the hospital.

Preventing Medication Errors

• Drug naming
  — Look Alike-Sound Alike
    • TALLMAN Lettering
    — DAUNOribin and DOXOribin
    • Physical separation on shelf
    • Auxiliary Labeling
    • Using Brand and Generic name
    • Including indication on orders
    • Industry FMEA on drug naming for prevention

Confused Drug Names

• Serzone (nefazodone) and Seroquel (quetiapine)
• Brilinta (ticagrelor) and Brintellix (vortioxetine)
• Lamictal (lamotrigine), Lamisil (terbinafine), Lomotil (diphenoxylate)
• Taxotere (docetaxel) and Taxol (paclitaxel)
• Celebrex (celecoxib) and Celexa (citalopram)
• Metoprolol tartrate and Metoprolol succinate

Preventing Medication Errors

High Alert Medications

• Medications that bear a heightened risk of causing significant patient harm when they are used in error
• ISMP Recommendations
  — limiting access to high-alert medications
  — using auxiliary labels and automated alerts
  — standardizing the ordering, storage, preparation, and administration of these products
  — automated or independent “double checks”

Preventing Medication Errors

ISMP “High Alert” Categories

• Insulin
• Antithrombotics
• Concentrated Electrolytes
• Chemotherapy
• Dialysate solutions
• Anesthetic/Sedation Agents
• Paralytics
• TPN
• Hyper/hypotonic solutions
• Opioids

“High Alert” Medications

• U-500 Insulin
• Inhaled Epoprostenol
• Magnesium Sulfate
• Potassium Chloride and Phosphate concentrated injections
• Oral Methotrexate
• Opium Tincture
• Oxytocin
• Nitroprusside
• Promethazine

High Alert Medication Error

• Fox News Story Published on Sep 28, 2010
  • http://www.youtube.com/watch?v=6fWstD90v60
Managing the Medication Error

• Result of error
  – No risk
  – Life-threatening risk
• Root Cause Analysis
  – An approach for identifying underlying causes of why an incident occurred so that the most effective solutions can be identified and implemented.
  – Retroactive assessment

Root Cause Analysis

• Identify the Problem
  – What error occurred?
  – How did it effect organizational goals?
• Analysis
  – Ask “Why did that happen?” and ask again
• Identify Solutions
  – Determine how to prevent error in the future
  – Develop action plan
• Education

Root Cause Analysis

• Action plan
  – Each actionable item has a specific plan
  – Clearly specified

Reporting the Medication Error

• Intended to track trends
• Inform practitioners, regulators, and the pharmaceutical industry
• Potential product and system hazards
Reporting the Medication Error

- Internal Reporting
- The Food and Drug Administration
  www.fda.gov/medwatch.htm
- Institute for Safe Medication Practices
  www.ismp.org
- U.S. Pharmacopeia
- The Medication Errors Reporting (MER) Program
  www.usp.org
- MedMARX-USP's anonymous reporting program—hospitals, are not submitted to the FDA.
  www.medmarx.com

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Disclosing the Medication Error to the Patient

FSS 395.1051 Duty to notify patients.—An appropriately trained person designated by each licensed facility shall inform each patient, or an individual identified pursuant to s. 765.401(1), in person about adverse incidents that result in serious harm to the patient. Notification of outcomes of care that result in harm to the patient under this section shall not constitute an acknowledgment or admission of liability, nor can it be introduced as evidence.

http://www.flsenate.gov/Laws/Statutes/2011/395.1051

Disclosing the Medication Error to the Patient

Surveys have shown what matters to patients

- Disclosure of all harmful errors
- An explanation as to why the error occurred
- How the error’s effects will be minimized
- Steps taken to prevent recurrences


The Second Victim

- “A health care provider who [is] involved in an unanticipated adverse patient event, in a medical error and/or a patient related injury and become[s] victimized in the sense that the provider is traumatized by the event.”
- After an error, providers may feel anxiety, depression, and shame
- Example:
  - Nurse in Cardiac ICU at a Children’s hospital overdosed an 8-month-old patient with calcium chloride.
  - The patient died.
  - Nurse with 24 years experience, immediate reporting
  - Faced an investigation
  - Ultimately RN took her own life


After the Medication Error

- Surfing the Healthcare Tsunami: Chris Jerry & Eric Cropp Unseen Footage

http://www.youtube.com/watch?v=Mseld9FcoV0I
Transitions in Care

Estimated 60% of medication errors occur during transitions of care
• 5 Step Process recommended by The Joint Commission
  – Create the best possible medication history
  – Develop a list of medications to be prescribed
  – Compare these two lists
  – Make clinical decisions on what is to be continued
  – Communicate to patient/caregiver/providers
• New in 2014- ensure patient understands importance of maintaining updated medication information.

To ensure effective medication reconciliation occurs use a multi-disciplinary approach
• “Care transitions is a team sport, and yet all too often we don’t know who our teammates are, or how they can help.”
  
  – Dr. Eric Coleman

Pharmacy Hotline

• Pharmacy Hotline at St. Vincent’s Medical Center
  – Resource for discharged patients/families for questions regarding their medications
  – Implemented in April 2015
  – Example of calls received:
    • Brilinta not available, what should patient do?
    • Discharged on Xarelto for new PE, but retail pharmacy did not have 15mg so filled 20mg prescription
    • Discharged on oral vancomycin and patient cannot find pharmacy to fill

Resources

• AHRQ
  – Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation
• ISMP
  – Self Assessment for Hospitals (last update 2011)
    http://www.ismp.org/selfassessments/Hospital/2011/pdfs.asp
References