Block the Swiss Cheese Effect

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Objectives
- Define medication errors within the pharmacy setting
- Review how medication errors can happen even with current technology
- Discuss examples of pharmacy medication errors
- CDR Bott and CDR Young do not have any conflicts of interest.

Test Your Knowledge
- Medication errors can be related to everything except:
  - Product labeling
  - Packaging and nomenclature
  - Weather
  - Compounding
  - Dispensing
- T/F: Medication errors can not happen now that we have a lot of technology in our pharmacies
- What stage of the prescription pathway is most vulnerable to medication errors?
  - Pharmacy receives order
  - Processing of medication order
  - Medications is filled
  - Medication and order are verified
  - Medication is delivered

Adverse Event vs. Medication Error

Adverse Event
- An adverse event is any undesirable experience associated with the use of a medical product in a patient.
- Required reporting:
  - Death
  - Life-threatening
  - Hospitalization (initial or prolonged)
  - Disability or permanent damage
  - Congenital anomaly or birth defect
  - Requires intervention to prevent permanent impairment or damage (dysfunction)
  - Other

How to Report Adverse Events
https://www.accessdata.fda.gov/scripts/medwatch/index.cfm?trifaction=reporting.home
Medication Error

- Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.
- May be related to professional practice, health care products, procedures, and systems, including:
  - Prescribing
  - Order communication
  - Product labeling
  - Packaging and nomenclature
  - Compounding
  -Dispensing
  -Distribution
  -Administration
  -Education
  -Monitoring
  -Use

https://www.fda.gov/drugs/drugsafety/medicationerrors

Med Error Statistics

- Over 50% of Americans do not take their medications as prescribed
- Up to 20% of prescriptions are dispensed with errors


Medication Errors – Common Causes

- Poor Communication
- Ambiguities in product names, directions for use, medical abbreviations of writing
- Poor procedures or techniques
- Patient misuse because of poor understanding of the directions for use of the product

https://www.fda.gov/Drugs/DrugSafety/MedicationErrors/ucm080629.htm

Cutting the Cheese

Prescription Pathway

- Doctor writes order
- Pharmacy receives order
- Processing of medication order
- Medication is filled
- Medication and order are verified
- Medication is delivered
- Patient receives/takes medication

Doctor Writes Order
Pharmacy Receives Order

Processing of Medication Order

Medication is Filled (Inpatient)

Medication is Filled (Outpatient)

Medication and order are verified

Medication is delivered
Patient receives/takes medication

Additional Factors

Technology
- Computer
- Electronic Health Record
- Fax
- Barcode scanning
- Dose Edge, Pyxis
- Automation
  - Filling (ScriptPro, Omnicell)
  - Dispensing (Pyxis)
- Compounding technology
- IV robotics
- IV workflow systems

Block the Swiss Cheese Effect

Example #1…the path of lisinopril

- RN 1: Removes from Pyxis®
- Tech 1: Places in return bin
- Tech 1: Removes unused med to pharmacy
- Tech 1: Places in labeled bin
- Tech 2: Fills 10 labeled tablets for next Pyxis® run

Example #1…the path of lisinopril

- Tech 3: Only scans a portion of tablets into Pyxis
- RN 2: Only checks 1 of 10 tablets
- RPh: Administers labeled to patient, bypasses scanning

http://apps.who.int/iris/bitstream/10665/252274/1/9789241511643-0.pdf

Calculations - Conversions

- Grams
  - Kilograms, Grams, Milligrams, Micrograms

Example #2 Calculations - Conversions

- How many vials will the technician need?
- 1.25gm = ? mg
- 1.25gm = 1250mg
- 3 vials of 500mg to compound 1250mg

Example #2 Calculations - Conversions

- Vancomycin 500mg vial after reconstitution is 50mg/mL
- How many mL should be drawn up to add to the IV bag?
- 50mg/mL = 1250mg/X mL
- 1250mg/50mL = X
- X = 25mL

Example #3 Calculations - Weight Conversion

- Doctor writes an order for ibuprofen 10mg/kg
- Patient weighs 35 pounds
- How many mg of ibuprofen is ordered?
  - 2.2 pounds = 1 kg
  - 2.2 pounds = 35 pounds
  - 1 kg = X kg
  - 10 mg = 10 mg
  - 1 kg = 13.6 kg
  - X = 10 * 13.6 = 136 mg ibuprofen

Example #4 – Look Alike Sound Alike
Test Your Knowledge

- Medication errors can be related to everything except:
  - a. Product labeling
  - b. Packaging and nomenclature
  - c. Weather
  - d. Compounding
  - e. Dispensing

- T/F: Medication errors can not happen now that we have a lot of technology in our pharmacies.

- What stage of the prescription pathway is most vulnerable to medication errors?
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Example #7 – Unapproved Abbreviations

https://www.jointcommission.org/facts_about_do_not_use_list/