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Medication Safety

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Upon Successful Completion of this Course, the Learner Should Be Able To

- Discuss the effects of medication errors
- Identify individuals at high risk for medication errors
- Identify common medication errors/sentinel events
- Discuss common unapproved abbreviations
- Identify sound-alike/look-alike drugs
- Describe methods to prevent medication errors

Medications

Medications

- Delivery methods
  - Oral
  - Subcutaneous (in fatty tissues)
  - Intramuscular
  - Intravenous
  - Buccal
  - Sublingual
  - Optic (ocular)
  - Otic
  - Intranasal
  - Topical
  - Nebulizer

Medications

- Medications can be delivered by
  - Doctor
  - Medication aid
  - Nurse
  - Respiratory therapist

Medications

- Why is the patient receiving the medication?
- What are the side effects specific to that medication?
- Does the patient understand what side effects to watch for?
- DO NOT be afraid to question medications (as a healthcare worker or as a patient)

Effects of Medication Errors

Effects of Medication Errors

- Disability
- Death
- Mistrust
- Low patient satisfaction scores
- Lack of confidence in the healthcare provider

Common Errors

Common Errors

- Wrong patient
- Wrong dose
- Wrong route
- Wrong time/omission
- Wrong medication

Individuals at High Risk for Medication Errors

Individuals at High Risk for Medication Errors

- Older adults
- Children
- Individuals taking more than one medication (polypharmacy)
- Individuals with renal or liver disease
- Individuals taking narcotics or sedatives

Common Causes of Medication Errors

Common Causes of Medication Errors

- Poor handwriting
- Communication failure
- Improper medication selection
- Fatigue
- Workload
- Inexperience
- System flaws
- Sound-alike/look-alike drugs
- Unapproved abbreviations
- Shortcuts
- Labeling errors
- Storage (different strengths/doses in the same looking vial or stored in the same location)

Unapproved Abbreviations by The Joint Commission

Unapproved Abbreviations by The Joint Commission

- U (for unit)
- IU (for international unit)
- QD (for daily)
- QOD (for every other day)
- 5.0 (trailing zero)
- .5 (lack of leading zero)
- MS (for morphine sulfate)
- $MgS0_4$ (for magnesium sulfate)

ISMP Error-Prone Abbreviations

Institute for Safe Medication Practices (ISMP)

ISMP Error-Prone Abbreviations

https://www.ismp.org/recommendations/error-prone-abbreviations-list

- Examples include:
  - µg (microgram) mistaken for mg (milligram)
  - AD, AS, and AU (right, left, or each ear respectively) mistaken for OD, OS, or OU (right, left, or each eye respectively)
  - BT (bedtime) mistaken for BID (twice daily)
  - CC (cubic centimeters) mistaken for U (units)
  - D/C (discharge) mistaken for DC (discontinue)
  - IJ (injection) mistaken for IV (intravenous) or intrajugular
  - IN (intranasal) mistaken for IM or IV
  - HS (half-strength) mistaken for BT

ISMP Error-Prone Abbreviations

- hs (hours of sleep) mistaken for HS
- IU (international unit) mistaken for IV or 10
- OJ (orange juice) mistaken for OD or OS
- Per os (by mouth) mistaken for OS
- QHS (nightly) mistaken for Q Hr (every hour)
- Q1D (daily) mistaken for q.i.d. (four times daily)
- SC, SQ, or sub q (subcutaneous) mistaken for sublingual, 5 every, or sub q2 (every two hours before surgery) respectively
- SS (sliding scale)
- SSRI for (sliding scale regular insulin) mistaken for selective serotonin reuptake inhibitors

ISMP Error-Prone Abbreviations

- 100mg (with no space – the M is sometimes mistaken for an additional zero)
- U (unit)
- 1mg
- @ (at) mistaken as a 2
- < or > (greater than or less than) mistaken for one another
- + (plus) mistaken as a 4

- In general, write out complete words, not symbols or acronyms

Sound-Alike/Look-Alike Drugs (SALAD)

Sound-Alike/Look-Alike Drugs (SALAD)

- Bupropion
- Dopamine
- Doxorubicin
- Glipizide
- Prednisolone
- Hydralazine

- Buspirone
- Dobutamine
- Daunorubicin
- Glyburide
- Prednisone
- Hydroxyzine – hydromorphone

Methods of Preventing Medication Errors

"Tall man lettering, a term coined by the ISMP, describes a method for differentiating the unique letter characters of similar drug names known to have been confused with one another. Starting with a drug name printed in lowercase letters, tall man lettering highlights the differences between similar drug names by capitalizing dissimilar letters. Accentuating a unique portion of a drug name with uppercase letters along with other means, such as color, bolding, or contrast, can draw attention to the dissimilarities between look-alike drug names as well as alert healthcare providers that the drug name can be confused with another drug name." – https://www.ismp.org

Methods of Preventing Medication Errors

- The Joint Commission's list of approved abbreviations
- ISMP list of recommended abbreviations
- Medication safety workstations/vests
- Scanning armbands
- Following safety checks
- No shortcuts
- Prepare medications at the bedside (open at the bedside)
- Double check allergies
- When in doubt, clarify (dose, crushing)
- Tall man lettering

predniso**LONE** predni**SONE**

gly**BURIDE** glipi**ZIDE**

Patient Teaching to Promote Medication Safety

Patient Teaching to Promote Medication Safety

- Take medication as directed
- Do not use expired medications
- Question a medication that looks unfamiliar
- Take medication on time
- Wash your hands after using a cream/ointment
- Dispose of medication properly (pills and sharps)
- Read the leaflet at the pharmacy
- Double check medication before leaving pharmacy
- Know where to store the medication (ask the pharmacist)

Case Study

Case Study

- Nurse is reviewing orders and notes a patient has an order for levofloxacin 500mg intravenously daily (an antibiotic)
- White blood cell count (WBC) normal
- Lung sounds clear bilaterally
- Has been on the antibiotic for 17 days
- Patient entered with initial diagnosis of pneumonia
- Antibiotics order was for only 14 days according to pharmacist
- Some facilities have what is called a "stop order"
  - Intended to put stops to orders that have gotten to the time limits unless extended by a physician
- Some facilities require a physician to stop the order
- What would you do?
- It is important to see and/or ask why a patient is on a medication

Case Study

- The healthcare provider is in a hurry and writes on a Post-it Note regular insulin 5u sq and hands it to the unit clerk
- The unit clerk enters in the order as 50 units subcutaneous insulin
- The pharmacist calls the unit clerk and asks for a clarification stating, "Are you sure that reads 50 units and not 5 units?" The unit clerk reads off the paper "50 subcutaneous regular insulin."
- The healthcare provider has used an unapproved abbreviation
  - The "5u sq" should have been written as "5 units subcutaneous"
- The patient's blood glucose level was 80 mg/dL
  - 50 units subcutaneously was administered
  - The patient did not eat lunch
  - The patient's blood sugar dropped to 20 mg/dL

mg/dL (milligrams per decilitre)

Case Study

- The patient's blood glucose level must be raised
  - Patient was conscious
  - Patient received 15 mg of carbohydrates
  - Patient's blood sugar is eventually raised to an acceptable level
- Medication error form was required to be filled out and submitted
- Healthcare provider is required to be notified of the error
- The root cause of the error would be the handwritten note containing the order that should have been entered into the computer system, and the use of unapproved abbreviations in the written order
- A respiratory therapist is administering breathing treatments on the 7th floor
- Two patients with the same last name are two doors apart (701 and 703) on the same unit

Case Study

- 701 required a breathing treatment and 703 did not
  - 701 had pneumonia and 703 did not have a respiratory condition
- Respiratory department was short-staffed and the respiratory therapist was in a hurry in order to keep up with the orders
- A computer on wheels was being used
  - However, the armbands were not scanned
  - The last name was checked on the armband and it matched the order
- One received breathing treatments via nebulizer; one did not
  - 703 erroneously received the breathing treatment
- What happened?
- Failure to double check the medication administration record (MAR)
- Failure to verify the name and date of birth with the patient
- Failure to scan the bracelet to see/verify the medication order on the computer

Case Study

- In this case, the patient was not harmed and only experienced an elevated heart rate
  - Patient only required monitoring to ensure no harm was done
- The patient may be the one to ask as to what and why they are receiving said medication
  - But some may not ask the questions, or may not be even able to do so
- DO NOT take shortcuts, follow procedures to the fullest
- Patient chart – no allergies
- Armband – no allergies
- Receives penicillin for cellulitis
- Nurse checks on the patient 15 minutes later; patient has died
- What happened?
- A question not asked can lead to patient death
- Always verify the patient's information to include possible drug allergies
- You may also want to ask if the patient has ever taken the medication, and if so, did they have any adverse reactions

Case Study

- The patient may not know of the allergy, so it is important to stay with the patient for a short time to observe for any adverse reactions

References

- https://www.ismp.org/recommendations/tall-man-letters-list
- https://www.jointcommission.org/facts_about_do_not_use_list/
- https://www.ismp.org/recommendations/error-prone-abbreviations-list
- https://www.fda.gov/drugs/drug-information-consumers/working-reduce-medication-errors

Medication Safety

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