Medication Safety Tips

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Disclosures

- None

Objectives

- Discuss the evolution of the patient safety movement and its implications on medication safety
- Review the types of medication errors and their nomenclature
- Describe tips to prevent medication errors in the emergency department setting

Case 1

- 74 yo f pt presents to ED via MLF for intracranial hemorrhage
- Referring facility notes an INR of 7.8
- Pt is intubated, goes to OR for evacuation of SDH, has prolonged recovery and ends up in SNF
- Review of her records after admission shows that 5 days prior to event was given script for cipro for a UTI

Case 2

- 59 yo f pt brought in by EMS for hip pain
- Had syncopal episode at home and fell with resultant L hip intertrochanteric fx
- EKG shows NSR with QTc of 599
- Review of recent medical records-she has hx schizoaffective d/o, on seroquel, recently saw PCP for bronchitis and posttussive emesis, started on zofran and azithromycin

Case 3

- 49 yo m pt admitted for cellulitis
- Morbidly obese with BMI of 46 and OSA among other medical issues
- Written for prn morphine for pain
- Receiving his usual percocet for chronic pain as well
- Got 2 scheduled doses of IV morphine as well as home meds
- Found unresponsive and pulseless in room during routine check

Case 4

- 80 yo m pt admitted to OBS unit for DVT, started on lovenox
- 6 hours post admit developed new onset afib and was admitted to cardiology who requested UFH IV infusion
- This was started approximately 9 hours after lovenox (1.5 mg/kg) injection
- Pt developed large retroperitoneal bleed approximately 6 hours later; declined blood transfusion and expireed the following day

To Err Is Human

- Patient safety/medical quality movements relegated to fringes of medicine until 1999
- IOM published book-length report, *To Err Is Human*, identifying medical errors as secret epidemic
- Estimates based off 2 large studies (Harvard and Colorado) that 44-98,000 patients per year die from medical errors
- Outlined steps in this report, and follow-up *Crossing the Quality Chasm*, for improvement

Medication Safety

- Many errors were medication related
  - Betsy Lehman, *Boston Globe* reporter, killed by massive overdose of doxorubicin
  - Libby Zion, died from serotonin syndrome from interaction of demerol and MAOI
- Institute for Safe Medication Practices formed in response to concerns regarding medication safety
- In 2001 Congress allocated funds to AHRQ for medication and patient safety research

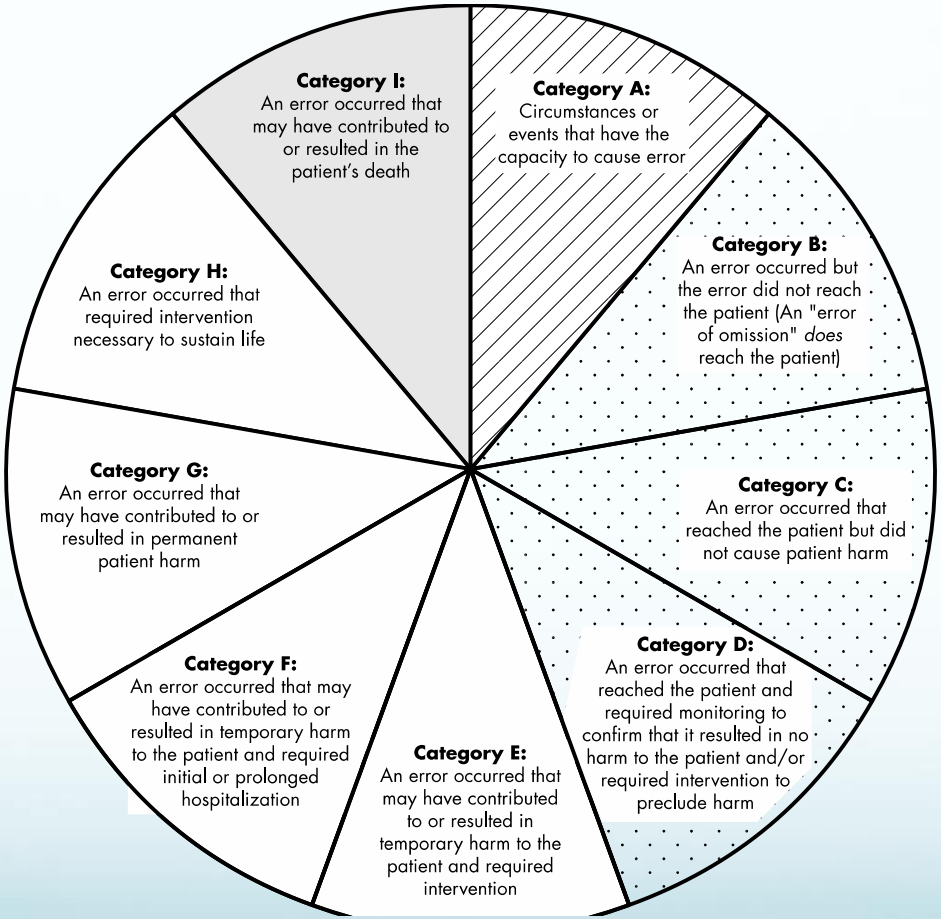
Error Vs ADE

- ADE=adverse drug event
- Error implies issue with prescribing or administration of drug
- ADE may or may not be the result of an error
  - Patient is prescribed glyburide and becomes hypoglycemic; dose and med may have been appropriate

Types of Medication Errors

- ISMP came up with classification for errors, ranging from identification of issue with potential for error to error causing or contributing to death
- This provides framework for reporting types of errors
- Data pulled from PSN's to help identify errors in house

Types of Medication Errors



- No Error
- Error, No Harm
- Error, Harm
- Error, Death

Definitions

Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom.

Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubation, etc.)

Why So Complicated?

- Need to differentiate issues with potential for harm from actual errors causing harm
- Identification of issues with potential to cause harm as important as reporting actual cases of harm
- Goal is prevention
  - Root cause analysis of errors or potentially unsafe conditions

What Are The Highest Risk Medications?

- Heparin
- Insulin
- Opioids
- Oral hypoglycemics
- Antibiotics
- Sedation agents
- Antipsychotics

Why Should We Care (Isn't This The Pharmacist's Job?)

- Preventable errors emotionally devastating to patients and providers
- Litigation risk
- Payment risk
  - Medicare issues CoP (Conditions of Participation) annually
  - Outlines standards for medication safety
    - In 2014-15, safe opioid use is big issue

ED-Related Errors

- Rates of anywhere from 6-40% reported from ED prescriptions
- Problems include dosing and drug interaction primarily
- Many errors/ADE's are not identified so rate is likely underreported
- The majority of patients dc from ED leave with at least one new presciption

Most Common ED-Related Errors

- Opioids
- Anticoagulants
- Adrenergic agents
- Sedation drugs
- Antipsychotics

Most Common Types of Errors

Table 1. Predominant Medication Error Event Types Associated with the Emergency Department (n = 1,825, 71%), August 1, 2009, through July 31, 2010

EVENT TYPE	NUMBER	% OF TOTAL REPORTS (N = 2,569)
Wrong dose/overdosage	452	17.6%
Drug omission	353	13.7
Other (specify)	301	11.7
Wrong drug	269	10.5
Wrong dose/underdosage	180	7.0
Extra dose	140	5.4
Wrong route	130	5.1

Who Are The High Risk ED Patients?

- Pediatrics (infants < 1 year of age)
- Geriatrics
- Multiple comorbid diseases/multiple meds
- Psychiatric

Identifying Medication Errors

- Sometimes very obvious
  - “oops, they were allergic to PCN and we gave them unasyn”
- Often overlooked
  - “Why is your INR 6.8 today?”
- Requires reporting by full members of team
  - Cover-ups?

Reporting Medication Errors

- Administrative
  - To attending caring for patient
  - PSN
  - Should be done with eye to education, not blame
- To patient
  - Studies show patients want to know about errors even if no harm resulted
- If major harm has resulted, then recommend contact with risk management to help with disclosure

Prevention

- Human factors
  - Use of electronic ordering to remove transcription errors
  - Use of readback with verbal ordering
    - “Give 1 mg of dilaudid”
    - “You want 1 mg of dilaudid”
    - “that’s correct, 1 mg of dilaudid”
    - Explicitly spell out certain doses
      - “That’s 15, one-five milligrams”
      - As opposed to sound alike of 50

Prevention

- Abbreviations
  - ISMP has list of “never” abbreviations
  - http://ismp.org/tools/errorproneabbreviations.pdf
- Tall Man lettering
  - Used for drugs that sound alike
  - hydrALAZINE and hydrOXYzine

Prevention

- Forcing functions
  - Must be done before the next step is allowed
  - Such as review of patients medication list before prescribing a new med
- Alerts
  - Drug interaction alerts
- Barcoding

Prevention

- Expert help
  - ED based pharmacist
  - Pocket brains
- Websites
  - ISMP
  - IHI
  - NPSF
  - EMPSF

Prevention

- Problems
  - No system is fool proof
  - Alert fatigue
  - Work arounds
  - Cover-ups
- Need a Culture of Safety to help produce meaningful results

Back To Our Cases

- Case 1
  - Cipro/warfarin interaction caused elevated INR leading to ICH
- Case 2
  - Syncope from arrhythmia from multiple QT-prolonging agents
- Case 3
  - High risk patient for CNS sedatives given multiple doses of same resulting in respiratory, then cardiac arrest
- Case 4
  - Poor communication leading to overanticoagulation

Summary

- Medication errors very common
  - ED very high risk setting
- Reporting is very important to prevention
  - Even near misses need to be reported
- Use all available tools to reduce risk and increase safety

Questions?