Chapter 8

MEDICATION ADMINISTRATION

Learning Objectives

1. state the consequences of medication errors
2. identify the causes of medication errors
3. identify the role of the nurse in preventing medication errors
4. identify the role of the Institute for Safe Medication Practices (ISMP) and The Joint Commission (TJC) in preventing medication errors

Learning Objectives (Cont.)

5. state the base six "rights" of safe medication administration
6. identify factors that influence medication dosages
7. identify the common routes for medication administration
8. define *critical thinking*
9. explain the importance of critical thinking in medication administration

Learning Objectives (Cont.)

10. identify important critical thinking skills necessary in medication administration
11. discuss the importance of client teaching
12. identify special considerations relating to the elderly and medication administration
13. identify home care considerations in relation to medication administration

Medication Errors

A medication error is 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.

Award winning NICU nurse

Kimberly Sue Hiatt

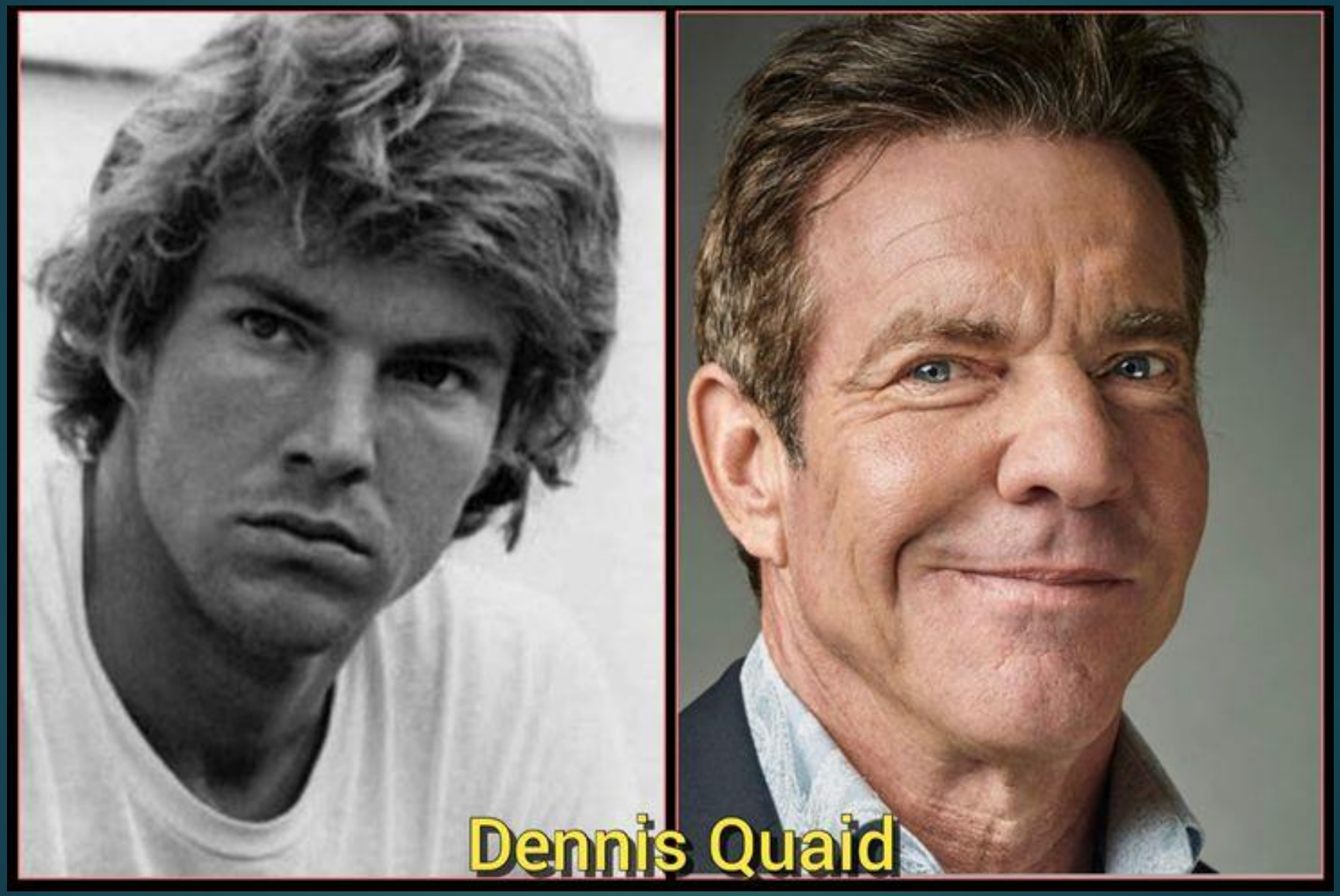
In Hiatt's 24-year career, all of it at Seattle Children's, dispensing 1.4 grams (1,400 milliggrama) of calcium chloride — instead of the correct dose of 140 milligrams — was the only serious medical mistake she'd ever made.

HTTP://WWW.NBCNEWS.COM/ID/43529641/NS/HEALTH-HEALTH_CARE/T/NURSES-SUICIDE-HIGHLIGHTS-TWIN-TRAGEDIES-MEDICAL-ERRORS/#.XZJH6EHKIUK

HTTPS://WWW.YOUTUBE.COM/WATCH?V=TNABKBTAAPA

Baby Kaya

Second Victim Syndrome


Dennis Quaid

Dennis Quaid

November 2007

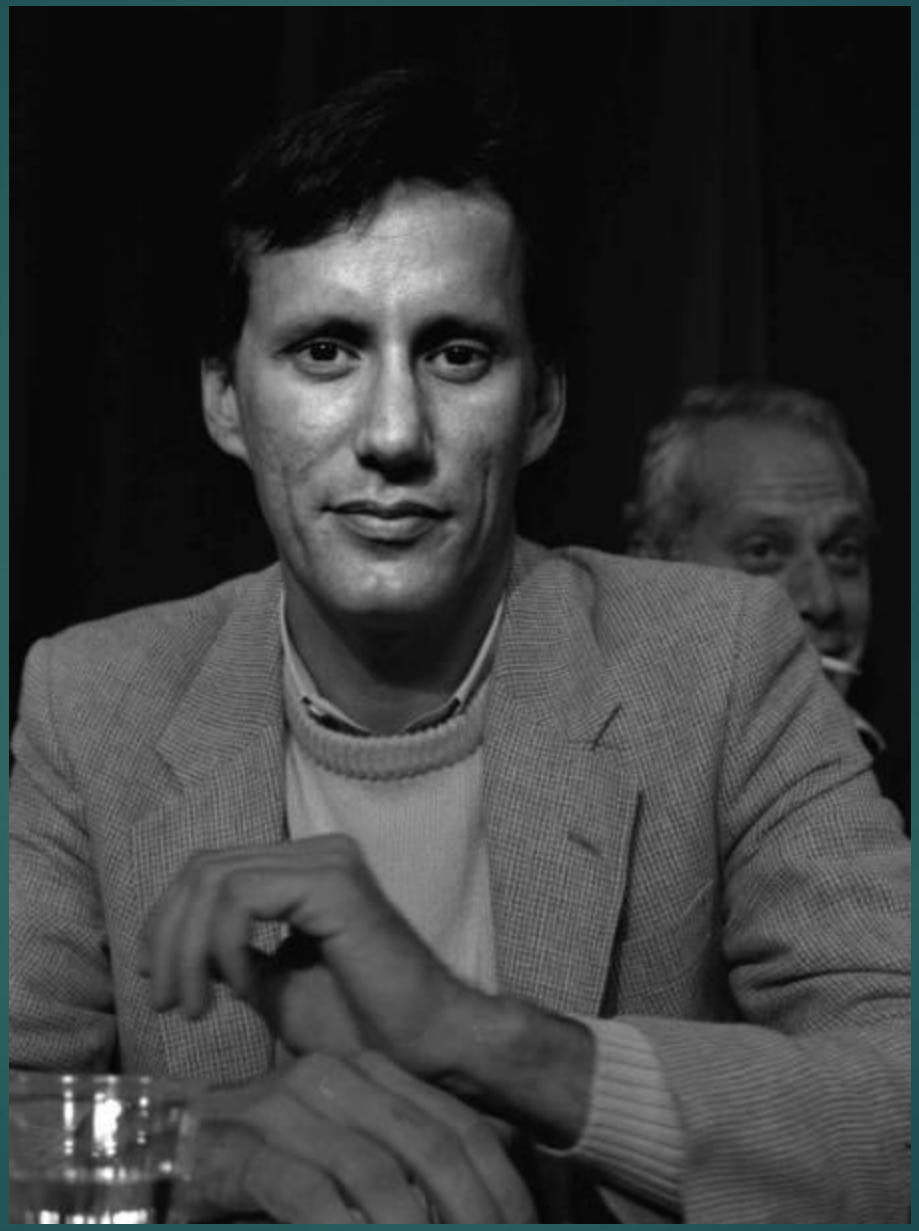
The drug **error** involving the **Quaid** twins was identified after one of the babies started to seep blood from a puncture site. Through blood tests, Cedars-Sinai staff found that three had been given excessive doses of heparin, officials said.

December 2008

Actor Dennis Quaid and his wife have reached a $750,000 settlement with a Los Angeles hospital over a life-threatening accidental overdose of their newborn twins with a blood thinner **medication**. The hospital apologized at the time of the **error**.

https://www.youtube.com/watch?v=GEDMYsm3Nxs

https://www.oprah.com/health/how-a-medical-mistake-almost-killed-dennis-quaids-twins/all



James Woods

July 2006

Michael Woods, 49 at the time, had gone to the emergency room with a sore throat and vomiting. An EKG showed that he had an abnormal heartbeat. During the trial, a doctor testified that she ordered he be put on a heart monitor, but the nursing staff did not follow up. Woods was left on a gurney in the hallway where he suffered the heart attack that killed him.

"Nobody knew where my brother was for the last hour and a half," Woods said.

December 2009

The settlement included undisclosed payments to Michael Woods' surviving daughters and son, plus a promise by the hospital to invest $1.25 million over the next five years in creating the Michael J. Woods Institute at Kent Hospital. The institute will be managed by a board that will include a Woods family member and will be charged with developing new procedures and training for hospital staff.

A sincere apology from the hospital's president paved the way for the settlement, according to James Woods. He said he'd never heard someone from the hospital say they were sorry for his family's loss.

https://www.youtube.com/watch?v=yKxGIwkurqA

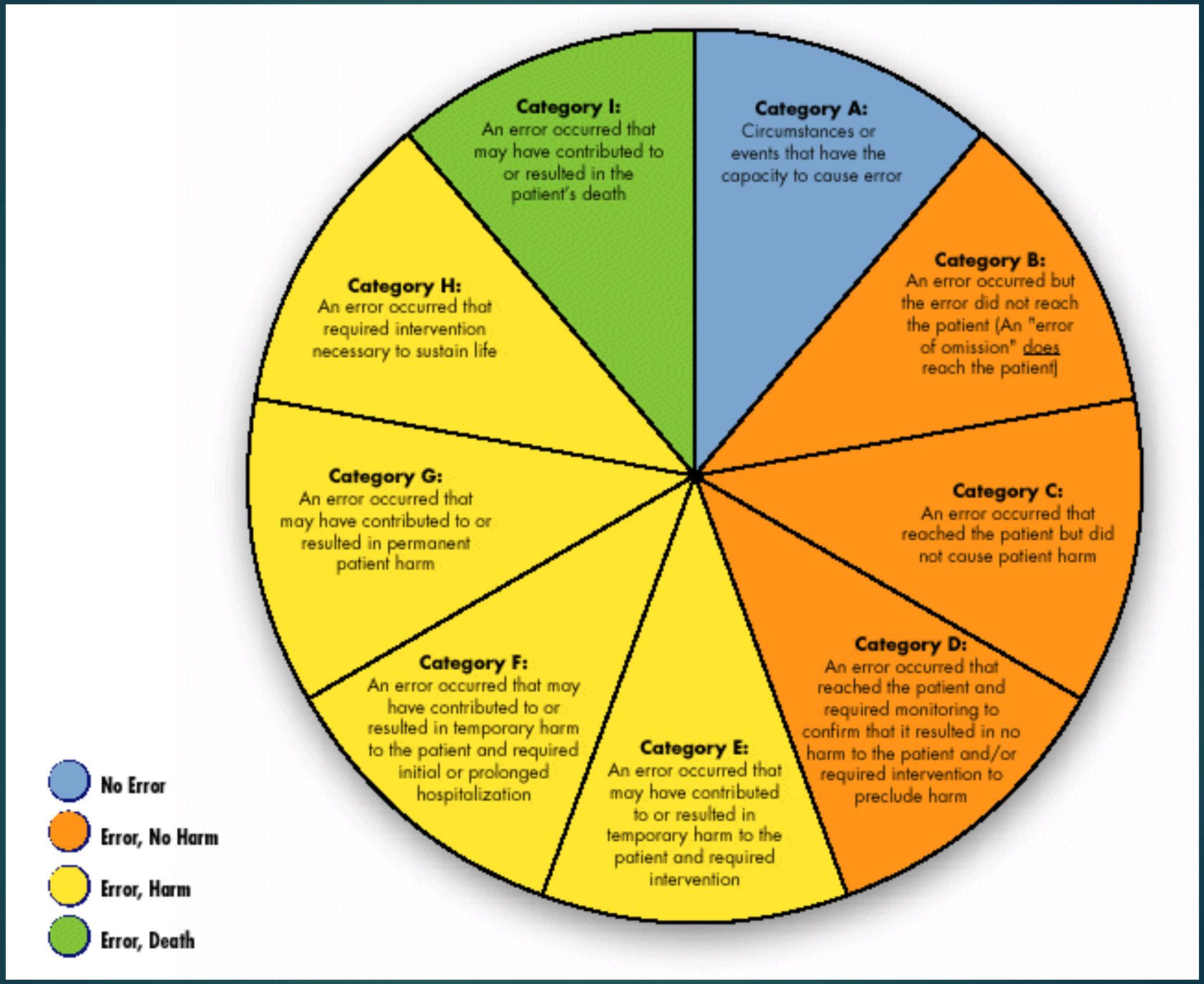
https://neffinjurylaw.com/articles/actor-james-woods-settles-wrongful-death-lawsuit-against-hospital/

Medication Errors

- Statistically - you will make an error
- It is just a matter or time
- It isn't if but when you will make an error
- Pray it is a small harmless one
- Be ever vigilant!

NCCMERP

National Coordinating Council for
Medication Error Reporting and Prevention


Category I:
An error occurred that may have contributed to or resulted in the patient's death
Category A:
Circumstances or events that have the capacity to cause error
Category B:
An error occurred but the error did not reach the patient (An "error of omission" does reach the patient)
Category C:
An error occurred that reached the patient but did not cause patient harm
Category D:
An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
Category E:
An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention
Category F:
An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization
Category G:
An error occurred that may have contributed to or resulted in permanent patient harm
Category H:
An error occurred that required intervention necessary to sustain life
No Error
Error, No Harm
Error, Harm
Error, Death

Medication Errors Causes

- Lack of med information
- Lack of client information
  - (e.g., allergies, home medications, the reason for the medication being administered)
- Confusing med names
- Miscalculation of dosages
- Incomplete orders
- Failure to observe "rights"
- Failure to identify a client
- Miscommunication of orders
  - poor handwriting, misuse of zeros and decimal points, confusion of dosing units, inappropriate abbreviations and errors in computer order entry.
- Failure to educate clients
- Administration of meds without critical thought (on auto pilot)
- Failure to comply with the required policy or procedure
- Shortage of nursing personnel
  - shift changes, floating staff, double shifts, and workload increases
- Distractions and interruptions
  - Vests
  - Painted lines

Medication Errors (Cont.)

- Potential consequences:
  - Acute or chronic disability
  - Death
  - Increased hospital stay
  - Increased health care cost
  - Legal consequences
  - Loss of nursing license
  - Loss of position
- Most common cause of client injury despite advances in technology

Medication Errors

- Organizations involved in advancement of client safety
  - United States Food and Drug Administration (FDA)
  - **Institute for Safe Medication Practices (ISMP)**
  - **The Joint Commission (TJC)**
  - United States Pharmacopeia (USP)
  - Quality and Safety Education for Nurses (QSEN)
  - National Quality Forum (NQF)

Critical Thinking and Medication Administration

- Definition: a process of thinking that includes being reasonable and rational
  - Organizational skills (know the process)
  - Autonomy: willingness to challenge incorrect orders and get clarification
  - Distinguish irrelevant from relevant information
  - Reasoning: selection of right tools and client assessment

The nurse who administers a medication is legally liable for the medication error regardless of the reason for the error.

Factors Influencing Medication Dose and Action

- All must be considered
  1. Route of administration
  2. Time of administration
  3. Age of client
  4. Nutritional status of client
  5. Absorption and excretion of the drug
  6. Health status of the client
  7. Gender of the client
  8. Ethnicity and culture of the client
  9. Genetics

Special Considerations for Elderly

- Two thirds use Rx and OTC meds
- Americans 65 years or older are expected to be 21.7% of the population by 2040.
- Physiological changes
  - slow function
  - cause unexpected medication reactions
  - make the elderly person more sensitive to the effects of many medications
- Physiological changes include:
  - Changes in circulation, absorption, metabolism, excretion, and stress response
  - Lowered body weight, change in mental status

Special Considerations for Elderly (Cont.)

- Require lower doses as a rule
- May need
  - Special delivery devices
  - Visual aid to read labels
  - Easy-open lids
- Allow extra time for teaching
- Clients of every age should demonstrate back what you taught them

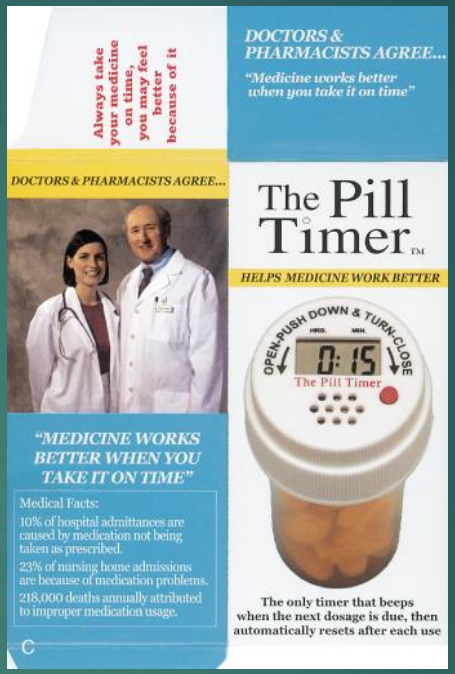


Figure 10-1 A, Container that holds a week's medications. B, The Pill Timer beeps, flashes, and
automatically resets every time it is closed. (From Perry AG, Potter PA, Elkin MK, Ostendorf WR: *Nursing interventions and clinical skills*, ed 6, St Louis, 2016, Mosby.)

Polypharmacy

Taking **five or more medications** per day (NIH)

Issues:

1. Increased risk of adverse effects
2. Drug interactions
3. Non-adherence
3. Cognitive impairment
4. Increased risk of falls
5. Increased cost

Polypharmacy

Bohemian Polypharmacy

https://www.youtube.com/watch?v=Lp3pFjKoZI8

RIGHTS OF MEDICATION ADMINISTRATION

1) Right Patient
2) Right Medication
3) Right Dosage
4) Right Route
5) Right Time
6) Right Documentation
7) Right Client Education
8) Right to Refuse
9) Right Assessment
10) Right Evaluation

Six "Rights" of Medication Administration

1. Right client
   - Two unique identifiers (e.g., name and DOB)
   - NOT room number
2. Right medication
   - Compare medication administration record (MAR) with order
   - Check 3 times before administration (before, during and after preparation)
   - Never give a med you haven't prepared
   - Never use a med not labeled
3. Right dose
   - Check calculations and labels

Six "Rights" of Medication Administration (Cont.)

4. Right route
   - How medication is administered (by mouth, injection, etc.)
   - Check orders and drug guides
   - Special considerations with feeding tubes
5. Right time
   - Time of day and frequency
   - "30-minute rule"
6. Right documentation
   - No documentation leads to double-dosing
   - Avoid "Do Not Use" abbreviations
   - Chart outcomes of medications (pain)

SAFETY ALERT! 

When a client questions a med, **STOP** and **LISTEN**. This may be an opportunity to identify an error before a client is harmed

Other "Rights"

- The right indication
  - Understands the reason for a medication to know when to hold
- The right to know
  - Educate clients regarding medications
- The right to refuse
  - Document and notify caregiver
  - Exception: Kendra's Law
    - 1999 a schizophrenic man pushed Kendra Webdale (32)off a NYC subway platform

      https://courses.lumenlearning.com/hvcc-abnormalpsychology/chapter/real-stories-3/
    - Court-ordered assisted outpatient treatment (AOT) for dangerously mental ill
  - Exception: Emergency court orders
    - May give forcibly
    - Requires judge's order
- The right response
  - ensuring the medication has the intended effect

Case Study

Mr. Ross is a 62-year-old male who is s/p palliative colostomy with mucous fistula. He has a history of advanced metastatic rectal cancer. Before he is transferred to the unit from the post-anesthesia care unit (PACU), you must confirm PCA morphine settings with the PACU nurse. What are the six rights you will verbalize to reduce medication errors?

Case Study (Cont.)

ANSWER:

1. Right medication
2. Right dosage
3. Right client
4. Right route
5. Right time
6. Right documentation

Medication Reconciliation

- Process of comparing medications the client has been taking before admission with the medications the organization will provide
- On admission, nurses need to get a thorough history of medications being taken by a client to prevent medication interactions that may cause harm or death
- Avoids errors of
  - Transcription, omission, duplication of therapy, and medication interaction

Patient/Client Education

- Imperative for preventing errors
- Helps prevent adverse reactions
- Improves adherence
- Include the following:
  - Brand and generic names, explanation of amount, explanation of timing for dose, measuring devices, and route
- Follow up on teaching

Case Study

Mr. Ross is transferred to the unit in stable condition. He has an NGT to low intermittent suction draining brownish red fluid. Surgical dressing is clean, dry, and intact, with minimal bloody drainage to colostomy and mucous fistula bags. Mrs. Ross is very involved in her husband's care and you ask her to confirm the medication reconciliation form. How do you respond when she asks, "What is medication reconciliation?"

Case Study (Cont.)

ANSWER:

Medication reconciliation compares medications Mr. Ross takes at home with the medications that we will administer during his stay. This helps to prevent medication interactions.

Home Care Considerations

- Home health care is increasing with increased population and early discharges
- Special considerations for "home" setting
- Practice requires more autonomy
- Use the six rights as guidelines
- Teaching focuses on devices from local pharmacies and calibrated home devices
- Communication is critical!

Nurse's Role in Med Error Prevention

- Open communication between nurses and clients may prevent med errors
  - This involves teaching AND listening
  - "Errors have been prevented by observant and informed patients and families" (Cohen, 2010)
- When med errors occur, report them per your organization's policy
- Always adhere to safety standards and use technology to help you prevent med errors and identify safety risks

Routes of Administration

Enteral

- Oral (p.o.)
  - Swallowed tablets, capsules, or liquid solutions
- Enteric coated
  - dissolves in the small intestine
- Insertion
  - Placed into body cavity such as rectal or vaginal suppositories

Parenteral

- IV, IM, Subcut, or ID

Percutaneous

- Absorbed via skin/mucous membrane
- Sublingual (SL)
  - Placed under tongue
- Buccal
  - Placed in mouth against cheek
- Instillation
  - Placed in the eye, nose, or ear

Routes of Administration (Cont.)

Percutaneous (continued)

- Inhalation (INH)
  - Administered into respiratory track such as metered-dose inhalers, nebulizers, spacers
- Intranasal
  - Solution instilled into the nostrils
- Topical
  - Applied to skin (lotions, ointments, pastes)
- Transdermal
  - Topically applied medicated patches or discs
  - Applied to skin or mucous membranes

Case Study

Mr. Ross is to receive 2 L of Dextrose 5% in ½ normal saline through a 20-gauge peripheral IV located on the right forearm. The IV fluid will run at a rate of 125 mL/hr. Which route of administration will be used?

a. Instillation
b. Percutaneous
c. Transdermal
d. Parenteral

Case Study (Cont.)

ANSWER: D **Parenteral**

Equipment for Med Administration

- Medicine cup (30 mL/1 oz/2 Tbs)
  - Used for liquid medication 5–30 mL
- Soufflé cup
  - Used for solids such as tablets or capsules
- **Calibrated** dropper
  - Used to administer small amounts of liquid medication

Equipment for Med Administration (Cont.)

- Nipple
  - Adapted for some infant meds
- Oral syringe
  - To administer liquid medications orally
  - Scientifically calibrated
- Parenteral syringe
  - Used for IM, Subcut, ID, IV meds
  - Barrel marked in mL or units
  - Needle attached to tip
  - Plunger pushes medication through needle

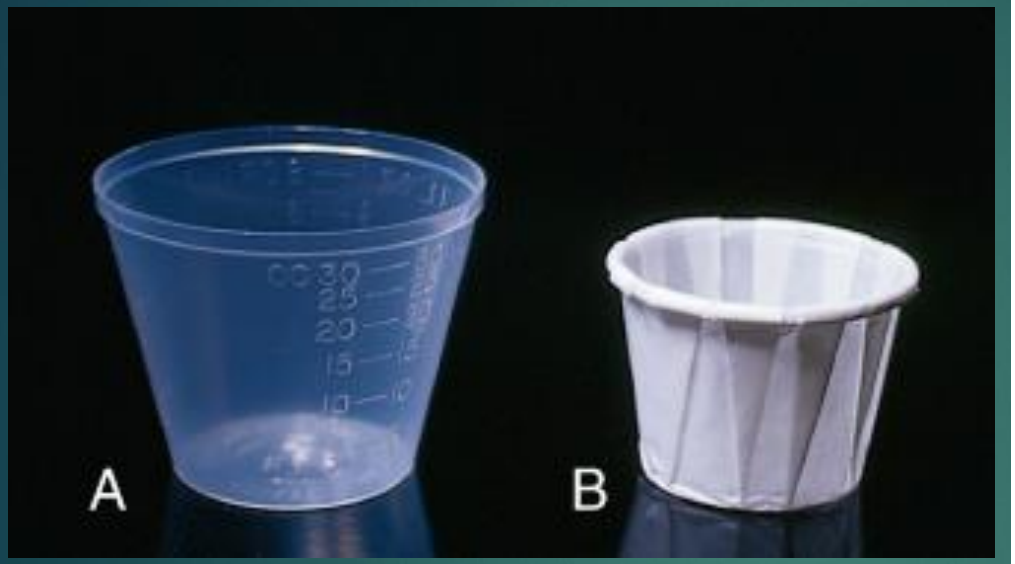


Figure 10-2 A, Plastic medicine cup. B, Soufflé cup. (Courtesy of Chuck Dresner. From Clayton BD, Willihnganz M: *Basic pharmacology for nurses,* ed 17, St Louis, 2017, Mosby.)

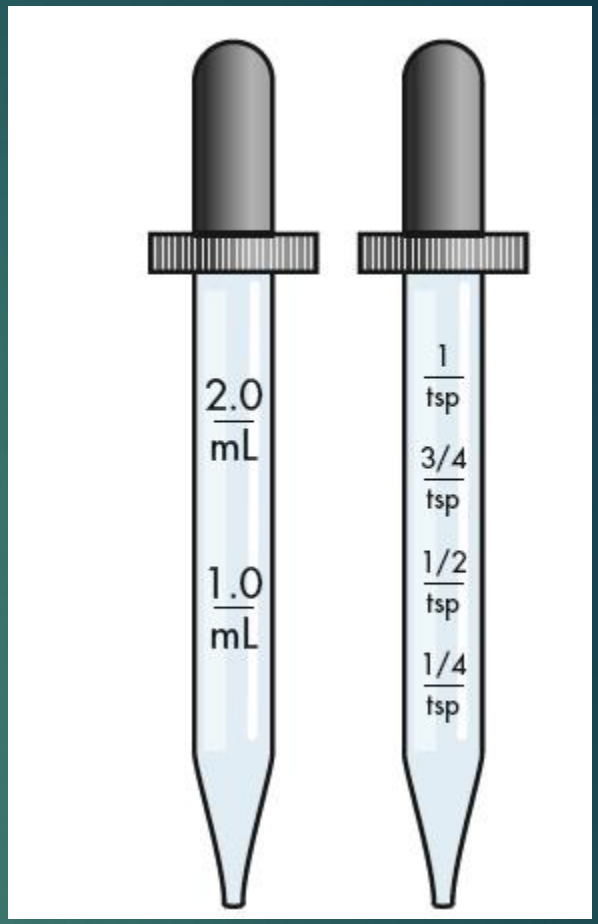


Figure 10-3 Medicine droppers.

Figure 10-4 Nipple. (Modified from Clayton BD, Willihnganz M: *Basic pharmacology for nurses,* ed 17, St Louis, 2017, Mosby.)

Figure 10-5 Oral syringes. (Courtesy of Chuck Dresner. From Clayton BD, Willihnganz M: *Basic pharmacology for nurses,* ed 17, St Louis, 2017, Mosby.)

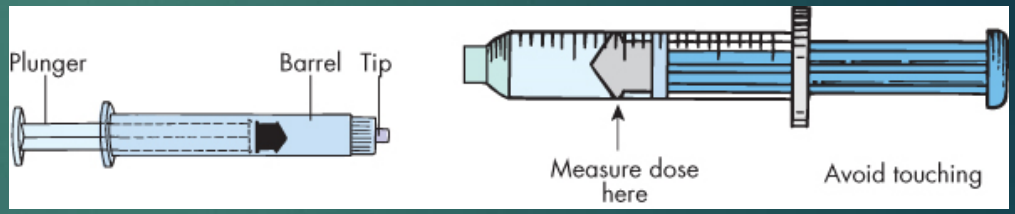


Figure 10-6 Parts of a syringe. (From Potter PA, Perry AG, Stockert P, Hall A: *Fundamentals of nursing,* ed 9, St Louis, 2016, Mosby.)

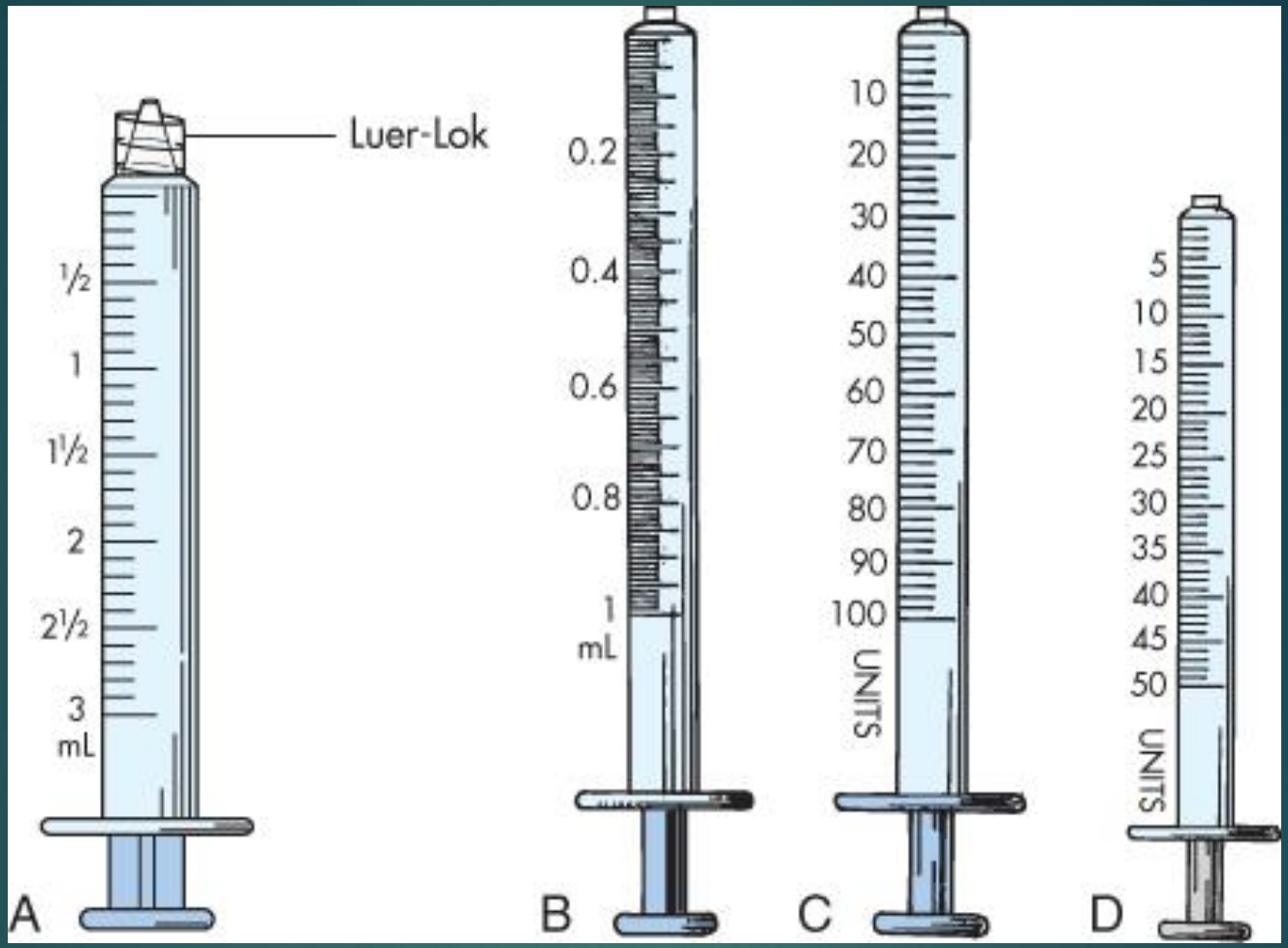


Figure 10-7 Types of syringes. A, Luer-Lok syringe marked in 0.1 (tenths). B, Tuberculin syringe marked in 0.01 (hundredths) for dosages of less than 1 mL. C, Insulin syringe marked in units (100). D, Insulin syringe marked in units (50). (From Potter PA, Perry AG, Stockert P, Hall A: *Fundamentals of nursing,* ed 9, St Louis, 2016, Mosby.)

Figure 10-8 A, Acceptable devices for measuring and administering oral medication to children *(clockwise):* measuring spoon, plastic syringes, calibrated nipple, plastic medicine cup, calibrated dropper, hollow-handled medicine spoon. B, Medibottle used to deliver oral medication via a syringe. (A, From Hockenberry MJ, Wilson D: *Wong's nursing care of infants and children,* ed 9, St Louis, 2011, Mosby. B, Courtesy Paul Vincent Kuntz, Texas Children's Hospital, Houston.)

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication?
2. How many tablespoons can one medicine cup hold?
3. Differentiate between the sublingual and buccal routes of administration.
4. What should you do if you make a med error?
5. Discuss some special considerations for the elderly.

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication? Oral syringe
2. How many tablespoons can one medicine cup hold?
3. Differentiate between the sublingual and buccal routes of administration.
4. What should you do if you make a med error?
5. Discuss some special considerations for the elderly.

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication? Oral syringe
2. How many tablespoons can one medicine cup hold?

   2 Tbsp
3. Differentiate between the sublingual and buccal routes of administration.
4. What should you do if you make a med error?
5. Discuss some special considerations for the elderly.

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication? Oral syringe
2. How many tablespoons can one medicine cup hold? 2 Tbsp
3. Differentiate between the sublingual and buccal routes of administration. Under tongue, Against cheek
4. What should you do if you make a med error?
5. Discuss some special considerations for the elderly.

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication? Oral syringe
2. How many tablespoons can one medicine cup hold? 2 Tbsp
3. Differentiate between the sublingual and buccal routes of administration. Under tongue, Against cheek
4. What should you do if you make a med error? Continually assess patient, inform doctor, document error
5. Discuss some special considerations for the elderly.

Practice Problems

1. Which device can you use to administer 1.5 mL of an oral medication? Oral syringe
2. How many tablespoons can one medicine cup hold? 2 Tbsp
3. Differentiate between the sublingual and buccal routes of administration. Under tongue, Against cheek
4. What should you do if you make a med error? Continually assess patient, inform doctor, document error
5. Discuss some special considerations for the elderly. Physiologic slowdown in functions, lower body mass, lower doses, change in mental status, more education

MEDICATION ERRORS

Medication error by nurse:

https://www.youtube.com/watch?v=2ZVO4qqpiH4
(4:21)

Medication error by ICU nurse:

https://www.youtube.com/watch?v=MGT8yoAIun4
(10:26)

Medication error by student nurse:

https://www.youtube.com/watch?v=bFY4YFLfUZk&feature=youtu.be
(21:00)