Chapter 10 and 11
Parenteral Administration

• Equipment
  – Syringes
    • Syringe consists of a barrel, a plunger, and a tip.
    • Outside of the barrel is calibrated in milliliters, minims, insulin units, and heparin units.
  • Types
    – Tuberculin syringe
    – Insulin syringe
    – Three-milliliter syringe
    – Safety-Lok syringes
    – Disposable injection units
Figure 23-4

Parts of a syringe.

(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. Nursing interventions and clinical skills. [3rd ed.]. St. Louis: Mosby.)
Figure 23-6

Calibration of U100 insulin syringe.

(From Clayton, B.D., Stock, Y.N. [2004]. Basic pharmacology for nurses. [13th ed.]. St. Louis: Mosby.)
Figure 23-7

Reading the calibrations of a 3-mL syringe.
Figure 23-9

Safety-Glide syringe.
Figure 23-11

Parts of a needle.

Parenteral Administration

• Equipment (continued)
  – Needles
    • Parts are the hub, shaft, and beveled tip.
    • Opening at the needle’s beveled tip is the lumen.
    • Size of the diameter of the inside of the needle’s shaft determines the gauge of the needle; the smaller the gauge, the larger is the diameter.
    • Needle gauge selection is based on the viscosity of the medication.
Parenteral Administration

• Equipment (continued)
  – Needle Length
    • Selected based on the depth of the tissue into which the medication is to be injected
    • Intradermal: 3/8 to 5/8 inch
    • Subcutaneous: 5/8 to 1/2 inch
    • Intramuscular: 1 to 1 1/2 inch
Figure 23-12

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Length</th>
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<tr>
<td>15G</td>
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<td>18G</td>
<td>1 1/2&quot; (1 1/2&quot; - 2&quot;)</td>
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<td>20G</td>
<td>1 1/2&quot; (1&quot; - 1 1/2&quot;)</td>
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</tr>
<tr>
<td>28G</td>
<td>1/2&quot; (1/2&quot; - 3/8&quot;)</td>
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</table>

(From Clayton, B.D., Stock, Y.N. [2004]. *Basic pharmacology for nurses.* [13th ed.]. St. Louis: Mosby.)

Needle length and gauge.
Intramuscular injections

- Gauge-20-22
- Length-1-1 ½ inches
- Angle-90 degrees
- Darting motion
- ASPIRATE
Parenteral Administration

• Intramuscular Injections
  – Involves inserting a needle into the muscle tissue to administer medication
  – Site Selection
    • Gluteal sites
    • Vastus lateralis muscle
    • Rectus femoris muscle
    • Deltoid muscle
  – Z-track Method
    • Used to inject medications that are irritating to the tissues
Figure 23-15, C

Locating IM injection for ventrogluteal site.

Locating right dorsogluteal site. Giving IM injection in left dorsogluteal site.

Figure 23-17, C

Giving IM injection in vastus lateralis site on adult.

Figure 23-18


(From Clayton, B.D., Stock, Y.N. [2004]. Basic pharmacology for nurses. [13th ed.]. St. Louis: Mosby.)
Figure 23-19, C

Giving IM injection in deltoid site.

Figure 23-20

Intradermal Injections

- Gauge-25-29
- Length-1/4 to ½ inch
- Amount- 0.1 ml
- Angle-15 degrees
- DO NOT ASPIRATE
Parenteral Administration

- Intradermal Injections
  - Introduction of a hypodermic needle into the dermis for the purpose of instilling a substance such as a serum, vaccine, or skin test agent
  - Not aspirated
  - Small volumes (0.1 ml) injected to form a small bubblelike wheal just under the skin
  - Used for allergy sensitivity tests, TB screening, and local anesthetics
  - A tuberculin syringe used with a 25-gauge, 3/8- to 5/8-inch needle
Angles of insertion for intramuscular (90°), subcutaneous (45°), and intradermal (15°).
Subcutaneous injections

- Gauge-25-29
- Length-3/8, ½ and 5/8 inches
- Angle-45 degrees
- DO NOT ASPIRATE
Parenteral Administration

• Subcutaneous Injections
  – Injections made into the loose connective tissue between the dermis and the muscle layer
  – Drug absorption slower than with IM injections
  – Given at a 45-degree angle if the patient is thin or at a 90-degree angle if the patient has ample subcutaneous tissue
  – Usual needle length is 1/2 to 5/8 inch and 25 gauge
  – Used to administer insulin and heparin
Subcutaneous injection. Angle and needle length depend on the thickness of skinfold.
Nursing Process

• Nursing Diagnoses
  – Anxiety
  – Health-seeking behaviors
  – Injury, risk for
  – Knowledge deficient
  – Mobility, impaired
  – Noncompliance: drug regimen
  – Sensory/perception, disturbed