

CONSIDERATIONS:

1. Storing insulin:
 - a. If not in use, store vials in refrigerator
 - b. If in use, insulin can be kept at room temperature for 30 days after opening. (Date vial when opened)
 - c. A vial of opened insulin can be kept in refrigerator until the expiration date
 - d. Avoid extreme temperatures (< 36 °F or > 86 °F) or excess agitation to prevent loss of potency, clumping, frosting or precipitation
2. Insulin injection sites:
 - a. Always administer insulin subcutaneously into subcutaneous tissue
 - b. Appropriate areas for subcutaneous injections include:
 - i. Upper arm
 - ii. Anterior and lateral aspects of the thigh
 - iii. Buttocks
 - iv. Abdomen (with the exception of a circle within a 2 inch radius of the navel)
3. Insulin site rotation considerations:
 - a. Rotate sites to prevent lipohypertrophy or lipoatrophy
 - b. Rotate within one area at a time (e.g., rotate abdomen injections systematically) rather than rotating to a different area with each injection
This practice may decrease variability in absorption from day to day:
 - i. Different areas have different absorption rates
 - ii. Fastest to slowest absorption: abdomen, arm, leg, buttocks
 - iii. Insulin glargine does not exhibit different absorption rates at different sites
 - c. Absorption of insulin is also affected by:
 - i. Exercise; increases the rate of absorption from all sites
 - ii. Hypertrophy/atrophy/scarring; slows absorption
4. Techniques for administering insulin include:
 - a. Hold skin taut across the injection site or pinch skin up with non-dominant hand:
 - i. Use either method for average-sized patient
 - ii. Use pinch method for obese patient
 - b. Angle of injection:
 - i. 90° angle for average size patients
 - ii. 45° angle may be more appropriate for children and thin adults
 - c. Aspiration is not indicated for subcutaneous injections
 - d. Do not massage site after giving injection
5. For detailed information about preparing and administering insulin by subcutaneous injection or with other devices see:
 - a. See *Endocrine System - Insulin Administration: Infusion Pump*
 - b. See *Endocrine System - Insulin Administration: Pen Device*
 - c. See *Medications - Preparation: Ampules & Vials*
 - d. See *Medications - Route: Subcutaneous Injection*
6. When teaching patients/caregivers how to give insulin injections, include teaching on disposal of used needles/syringes:
 - a. Determine local and state regulations for disposal of insulin syringes
 - b. EPA recommends using a “safe needle community service program” as the best option for disposing of needles. See <http://www.epa.gov/osw/nonhaz/industrial/medical/med-home.pdf>
 - c. EPA indicates that if no “safe needle program” can be accessed:
 - i. Use a hard plastic container, like a detergent or bleach bottle, for sharps
 - ii. When full, screw container's top on tightly
 - iii. Use heavy-duty tape to secure the cap
 - iv. Write “Do not recycle”
 - v. Place container in non-recyclable trash

EQUIPMENT:

(Patient Use) Insulin syringe with 24 - 30 gauge needle, 5/16 (five-sixteenths) to 1/2 (one-half) inch long filled with prescribed dose of insulin

(Clinician Use) 1 ml Safety-Lok Insulin syringe filled with prescribed dose of insulin

Alcohol wipe

Gloves

Puncture-proof sharps container

Impervious trash bag

PROCEDURE:

1. Adhere to Standard Precautions, explain procedure to patient and gather equipment on a clean surface.
2. If nurse is performing injection, a safety syringe must be used.
3. Discuss with patient/caregiver about preferred injection area and the need to systematically rotate injection site in area.
4. Inspect and palpate abdomen/legs/arms for any appropriate injection area. Avoid areas with skin lesions/masses or tenderness.
5. Determine area for injection – abdomen, arms, or legs – and determine a systematic rotation schedule.

6. Select and clean the injection site:
 - a. Use an alcohol wipe in a circular motion starting at the center and moving outward
 - b. If patient's skin is clean and dry, then alcohol wipe is not necessary
7. Teach patient/caregiver to remove the needle cap/sheath by pulling it straight off.
8. Teach patient/caregiver to hold the syringe like a dart, between the thumb and forefinger of the dominant hand.
9. Teach patient/caregiver to hold skin taut or pinch skin with non-dominant hand as appropriate to the patient.
10. Teach patient/caregiver to inject needle with a quick dart-like motion at either a 45° or 90° angle as appropriate to position distal end of needle under the skin.
11. Teach patient/caregiver if skin pinched, release skin.
12. Teach patient/caregiver to grasp the lower end of the syringe barrel with non-dominant hand and use the dominant hand to depress the plunger all the way down the barrel.
13. Have patient/caregiver count to 5 before removing the needle.
14. Have patient/caregiver hold an alcohol wipe over the site and pull the needle straight out.
15. Discard soiled supplies in appropriate containers.

AFTER CARE:

1. Document in patient's record:
 - a. Medication, dose, time and site of administration
 - b. Any leak back of insulin from the injection site
 - c. Patient's response/reaction to procedure
 - d. Instructions given to patient/caregiver
 - e. Communication with physician
2. Teach patient/caregiver techniques of giving injection, assuring good technique and confidence through return demonstration.

REFERENCE:

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