

SARASOTA MEMORIAL HOSPITAL

NURSING PROCEDURE

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| TITLE: | INJECTIONS: PREPARATION AND ADMINISTRATION OF SUBCUTANEOUS AND INTRAMUSCULAR (inj01) | DATE: 07/81 REVIEWED: 9/10 PAGES: 1 of 5 |
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| ISSUED | RESPONSIBILITY: |
| FOR: Nursing | RN, LPN |

PURPOSE:

1. To maintain aseptic technique in preparing and administering an injection.
2. To administer the correct medication utilizing the proper injection technique.

KNOWLEDGE BASE:

1. The nurse administering the medication will verify the “right” or correct patient, the “right” or correct drug, the “right” or correct dose, the “right” or correct time, the “right” or correct route, and the expiration dates.
2. Subcutaneous injection (SQ) into the adipose tissue allows slower, more substantial drug administration than intramuscular (IM); it also causes minimal tissue trauma and carries little risk of striking large blood vessels and nerves. Drugs or solutions are injected through a 25 to 29 gauge needle using sterile technique.
3. Intramuscular (IM) injections deposit medication deep into muscle tissue where a large network of blood vessels can absorb it readily and quickly. IM injections are recommended for patients who cannot take medication orally, and for drugs that are changed by digestive juices.
4. The site for IM injection must be carefully chosen, taking into account the patient’s general physical status and the purpose of the injection. IM and SQ injections should not be administered at inflamed, edematous, or irritated sites or those containing moles, birthmarks, scar tissue, or other lesions. IM injections may also be contraindicated in patients with impaired coagulation mechanisms and in patients with occlusive peripheral vascular disease, edema, and shock because these conditions impair peripheral absorption.
5. IM injections require sterile technique to maintain the integrity of muscle tissue.
6. Positive patient identification is required prior to performing this procedure. Refer to SMH Policy Patient Identification: Inpatient/Outpatient.

DEFINITIONS:

1. **Subcutaneous:** An injection administered at a 45- or 90-degree angle into subcutaneous tissue. The angle used for administering the injection will depend on the amount of subcutaneous tissue at the site.

Standard site: Upper arm area or outer aspect of the upper arms, using a 5/8 inch, 25-gauge needle. The fluid volume which may be administered is 0.5 to 1.0 ml.

Exception: A larger subcutaneous injection volume may be given when the drug manufacturers prescribing information supports it. (Example: Neupogen, Erythropoetin, Filgrastim, etc)

Alternate sites: Subcutaneous tissue of lateral thighs or lower abdomen.

NOTE: See notes regarding the administration of subcutaneous injection of insulin and heparin included in this procedure.

2. **Intramuscular:** An injection administered at a 90-degree angle into muscle.

Standard site: The gluteal muscles (gluteus medius and minimus and the upper outer corner of the gluteus maximus), using a 1½-inch, 21-gauge needle. The maximum fluid volume which may be administered is 3ml.

Alternate sites: Deltoid, using 1 to 1½, 20-23 gauge needle or 1 ml maximum volume; vastus lateralis in lateral mid-thigh, using 1½-inch 21 gauge needle; ventrogluteal, using 1½-inch, 21 gauge needle. The maximum fluid which may be administered is 3ml.

- a. **EXCEPTION:** Fluid volume limit for Fosphenytoin exceeds the 3 ml limit.

EQUIPMENT:

Assemble the following:

1. Sterile, 3 ml-syringe with 20-22-gauge, 1 to 1½-inch needle or insulin syringe or tuberculin syringe
2. Sterile alcohol wipes
3. Prescribed medication
4. Gloves

PROCEDURE:

PREPARATION:

1. Verify the label on the drug with the correct one on the Medication Administration Record (MAR). Check the patient allergies.

PROCEDURE (cont'd):

2. Remove syringe and needle aseptically from container.
 - a. Avoid touching the shaft of the plunger.
 - b. Keep the needle capped until used.

3. When withdrawing solution from a vial with a rubber stopper:
 - a. Cleanse the rubber stopper with an alcohol wipe.
 - b. Draw air into the syringe and inject it into the vial of medication.
 - c. Invert the vial and withdraw the desired amount of medication.
 - d. Use a one-handed scoop to replace top on needle.

NOTE: After drawing up a drug, you may consider changing needles, as the needle's point and bevel can be dulled.

4. When withdrawing solution from a glass ampule:
 - a. Remove solution from the neck of the ampule by lightly tapping the upper part.
 - b. Snap the neck of the ampule using an alcohol swab to protect the fingers.
 - c. Switch to a filtered needle at this point to filter out any glass splinters.
 - d. Insert the needle to the bottom of the ampule and withdraw the solution.
 - e. Attach the appropriate needle to administer injection.
5. When withdrawing solution for an intramuscular injection, draw about 0.2 ml of air into the syringe. When the syringe is inverted during the injection, the air bubble rises to the plunger end of the syringe and follows the medication into the injection site. The air clears the needle of medication and helps prevent leakage into the subcutaneous tissue following injection by creating an air block that reduces reflux (tracking) along the needle path.

ADMINISTERING THE INJECTION:

1. Identify the patient and position as appropriate for the selected site. Positive patient identification is required prior to administering the injection.
2. After selecting the injection site, gently tap it to stimulate the nerve endings to minimize pain when inserting the needle. Encourage the patient to relax the muscle prior to injecting as injections into tense muscles are more painful.
3. Cleanse the skin at the injection site with an alcohol wipe using a circular motion and preparing an area about three

inches in diameter. Allow the skin to dry. Put on gloves.

- a. For subcutaneous injection, grab a cushion of flesh, hold the needle with the bevel side up and insert quickly at a 45- or 90-degree angle.

NOTE: Lovenox should be administered in the subcutaneous tissue using a “bunching” technique below the level of the umbilicus and 2 inches away from the midline. Air should not be withdrawn from the syringe and it should be administered at 90 degree angle into the fold of skin. After the injection, point the needle down and away from yourself; push down on the plunger to activate the safety shield. Do not administer high in the patient’s trunk which can risk rectus hematoma. Lovenox should not be administered in the deltoid or thigh. The site should not be rubbed after the injection.

PROCEDURE (cont’d):

- b. For intramuscular injection, spread or tense the skin at the injection site, hold the syringe perpendicular, and insert the needle quickly at a 90-degree angle.

3. Pull back on the plunger to see if the needle is in a blood vessel.

NOTE: If there is a blood return, withdraw the needle and begin again with a new sterile syringe and fresh medication.

NOTE: If administering Heparin, Lovenox, or Insulin subcutaneously, aspiration is no longer recommended.

4. Inject the medication slowly.

NOTE: A slow, steady injection rate allows the tissue to distend gradually and accept the medication under minimal pressure.

5. Remove the needle quickly and massage the site gently with an alcohol swab. **DO NOT RECAP THE NEEDLE.** Exception: Massaging is omitted with Heparin, Insulin, Fragmin, Lovenox and Iron when contraindicated by drug manufacturer.

6. Remove the wipe and check the injection site for bleeding or bruising. Apply gentle pressure or bandaid as appropriate.

7. Reposition the patient as necessary.

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8. Activate safety device prior to disposal in Sharps box in the patient's room. Remove gloves. Perform hand hygiene.

DOCUMENTATION:

1. Medication Administration Record (MAR): Document the time, initials, and the injection sites.
2. Document as appropriate in patient's medical record.

REFERENCE(S):

Allen, D. et. al. (2009). Nursing Procedures, Fifth Edition. pp. 303-312. Lippincott, Williams and Wilkins. Philadelphia: PA.

SMH Policy. (2010). Patient Identification: Inpatient/Outpatient. (01.PAT.09). SMH: Author.

Saunders (2002) Nursing Drug Handbook. Appendix L. Page 1211.

www.lovenox.com

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APPROVAL:

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