PURPOSE:
To administer a prescribed dose of medication into a large muscle.

CONSIDERATIONS:
Medications are given by injection to secure a fairly rapid response and/or to administer medications which cannot be given in another route:
1. The vastus lateralis remains the only recommended site until the age of 3 years when the ventrogluteal site can be used.
2. The deltoid muscle is rarely used in children under 6 years of age and then only for small amounts of medication.
3. The dorsogluteal site is not utilized for any child that has not walked for at least 1 year, and it is strongly recommended that children under the age of 6 years do not receive injections in this site. The objection is that the muscle is small and is located close to the sciatic nerve, which is comparatively large and takes up more space in young children than it does in older children.
4. Guideline for amounts of medication:

<table>
<thead>
<tr>
<th>Location</th>
<th>Age</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deltoid muscle</td>
<td>6 to 15 yrs.</td>
<td>0.5 mL</td>
</tr>
<tr>
<td>Ventrogluteal</td>
<td>3 to 6 yrs.</td>
<td>1.5 mL</td>
</tr>
<tr>
<td></td>
<td>6 to 15 yrs.</td>
<td>1.5 to 2.0 mL</td>
</tr>
<tr>
<td>Dorsogluteal</td>
<td>6 to 15 yrs.</td>
<td>1.5 to 2.0 mL</td>
</tr>
<tr>
<td>Vastus lateralis</td>
<td>Birth to 1.5 yrs</td>
<td>0.5 mL</td>
</tr>
<tr>
<td></td>
<td>1.5 to 3 yrs.</td>
<td>1.0 mL</td>
</tr>
<tr>
<td></td>
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<td>1.5 mL</td>
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</tr>
</tbody>
</table>

5. For volumes of less than 1.0 mL a tuberculin syringe should be utilized.
6. The needle length must be sufficient to penetrate the subcutaneous tissue and deposit the medication in the body of the muscle.
7. Smaller needles (25-30 gauge) cause the least discomfort, but larger diameters are needed for viscous medication.
8. Since children often move unexpectedly, have an extra needle available to exchange for a contaminated one. It is advisable to have an additional person assist in immobilizing the child during the procedure.
9. Injections should not be administered to a sleeping child. It can cause the child to fear going to sleep.
10. Inject the medication slowly to allow the muscle to distend to accommodate the medication into the surrounding tissues.
11. Factors to be considered when selecting a site:
   a. Amount and character of medication to be injected.
   b. Amount and general condition of the muscle mass.
   c. Frequency or number of injections to be given.
   d. Type of medication.
   e. Factors that may impede access to or cause contamination of the site.
   f. Ability of the child to assume required position safely.
12. A filter needle must be used to draw up medication from an ampule and then replaced with appropriate size needle for injection.
13. Use at least 2 patient identifiers prior to administering medications.

EQUIPMENT:
Disposable, sterile syringe with 20-25-gauge needle, 1/2 to 1 1/2 inch in length
Medication
Alcohol wipes
Gauze or cotton balls
Self-adhesive bandage
Gloves
Impervious trash bag
Puncture-proof container
Extra 20-25 gauge, 1/2 to 1 1/2 inch needle
Filter needle (optional)

PROCEDURE:
1. Adhere to Standard Precautions.
2. Identify patient and explain procedure to caregiver and patient, if age appropriate.
3. Check doctor’s order for dosage, frequency and route of administration.
4. Select site.
   a. Dorsogluteal:
      (1) The site is found by locating the greater trochanter and posterior iliac spine. An imaginary line is drawn between these two points.
      (2) The injection is made above the line into the gluteus medius. The needle is directed perpendicular to the surface on which the child is lying, when prone.
   b. Ventrogluteal:
      (1) The site is found by placing the palm on the greater trochanter and the index finger on the anterior iliac spine. The middle finger is extended along the iliac crest as far as possible forming a triangle between the middle and second fingers.
      (2) The injection is given in the center of the triangle or V formed by the hand, with the needle directed slightly upward toward the iliac crest.
   c. Deltoid:
      (1) The deltoid site is located in the lower part of the upper third of the deltoid and the axilla on the lateral surface of the arm.
(2) The needle is directed into the muscle at a 90-degree angle (at a depth of 1/2-1 inch, depending on the muscle and nutritional status) but pointed slightly toward the acromion process.

d. Vastus lateralis:
   (1) The site is found by drawing an imaginary line between the trochanter to just above the knee on the outer aspect of the thigh. The middle third of the thigh should be located by visually marking off the area from the knee to the groin into thirds.
   (2) The injection is given in the middle third of the thigh.

5. Administer medication.
   a. Check that the needle is securely attached to syringe.
   b. Cleanse top of vial with alcohol wipe or break ampule with gauze.
   c. Draw up appropriate dosage of medication and expel any air in syringe.
   d. Place child in comfortable position. You may need caregiver to hold child.
   e. Prepare selected site with alcohol wipe; allow to air dry.
   f. Grasp muscle firmly between thumb and other fingers to isolate and stabilize muscle. For obese children, it is necessary to firmly spread the skin with the thumb and index finger.
   g. Insert needle quickly with dartlike motion. Use the Z track and/or air-bubble technique, as indicated.
   h. Avoid any depression of the plunger during insertion of the needle.
   [Note: Aspiration of IM is not indicated for immunizations and vaccinations. Aspiration may be indicated for injections that include large molecule injections i.e. Penicillin. If there is no blood aspirated, medication may be injected. If there is blood aspirated, withdraw needle, discard medication and syringe properly and repeat procedure, choosing another injection site.]
   i. Inject medication slowly at rate of 1 mL/10 seconds.
   j. Withdraw the needle, keeping slight pressure over the area to avoid the tissue from pulling upward as the needle is withdrawn.
   l. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Encourage caregiver to comfort child.
2. Utilize play opportunities to help the child master his/her feelings about injections.
3. Document in the patient's record:
   a. Medication administered, dose, time, route and site.
   b. Patient's response to procedure, side effects and management.
   c. Instructions given to caregiver.
   d. Communication with the physician.