How to Administer Intramuscular and Subcutaneous Vaccine Injections

Administration by the Intramuscular (IM) Route

Administer these vaccines via IM route
- Diphtheria-tetanus-pertussis (D TaP, Tdap)
- Diphtheria-tetanus (DT, Td)
- Haemophilus influenzae type b (Hib)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- Human papillomavirus (HPV)
- Inactivated influenza (IIV)
- Meningococcal serogroups A, C, W, Y (MenACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV13)
- Zoster, recombinant (RZV)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

**Patient Age** | **Injection Site** | **Needle Size**
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Newborn (0–28 days) | Anterolateral thigh muscle | ½"* (22–25 gauge)
Infant (1–12 mos) | Anterolateral thigh muscle | 1" (22–25 gauge)
Toddler (1–2 years) | Anterolateral thigh muscle | 1–1¼" (22–25 gauge)
Alternate site: Deltoid muscle of arm if muscle mass is adequate | ½"–1" (22–25 gauge)
Children (3–10 years) | Deltoid muscle (upper arm) | ½"–1" (22–25 gauge)
Alternate site: Anterolateral thigh muscle | 1–1¼" (22–25 gauge)
Children and adults (11 years and older) | Deltoid muscle (upper arm) | ½"–1" (22–25 gauge)
Alternate site: Anterolateral thigh muscle | 1–1½" (22–25 gauge)

* A ½" needle usually is adequate for neonates (first 28 days of life), preterm infants, and children ages 1 through 18 years if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.
† A ½" needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.

**Needle insertion**
Use a needle long enough to reach deep into the muscle.
Insert needle at a 90° angle to the skin with a quick thrust.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.)

Multiple injections given in the same extremity should be separated by a minimum of 1", if possible.

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**Intramuscular (IM) injection site for infants and toddlers**

Insert needle at a 90° angle into the anterolateral thigh muscle.

**Intramuscular (IM) injection site for children and adults**

Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process. See the diagram.
To avoid causing an injury, do not inject too high (near the acromion process) or too low.

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Administration by the Subcutaneous (Subcut) Route

Administer these vaccines via Subcut route

- Measles, mumps, and rubella (MMR)
- Varicella (VAR)
- Zoster, live (ZVL)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or Subcut.

<table>
<thead>
<tr>
<th>PATIENT AGE</th>
<th>INJECTION SITE</th>
<th>NEEDLE SIZE</th>
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</thead>
<tbody>
<tr>
<td>Birth to 12 months</td>
<td>Fatty tissue overlying the anterolateral thigh muscle</td>
<td>⅝” (23–25 gauge)</td>
</tr>
<tr>
<td>12 months and older</td>
<td>Fatty tissue overlying the anterolateral thigh muscle or fatty tissue over triceps</td>
<td>⅝” (23–25 gauge)</td>
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</tbody>
</table>

Needle insertion

Pinch up on subcutaneous tissue to prevent injection into muscle.

Insert needle at a 45° angle to the skin.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion. *)

Multiple injections given in the same extremity should be separated by a minimum of 1”.