Vaccine Administration

A Guide to Landmarking

Why is landmarking important?

- Landmarking is important to reach the appropriate tissue site (dermis, subcutaneous tissue or muscle), optimize the immune response, reduce the risk of injection site reactions, and avoid inadvertent injection into a blood vessel or injury to a nerve.

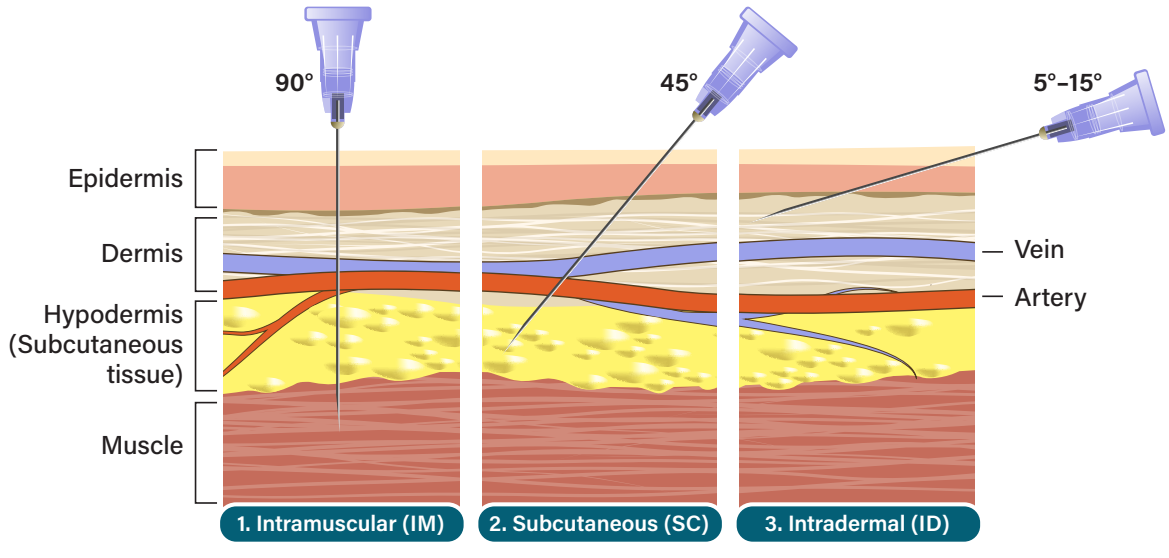
Additional resource:

Vaccine administration: a guide to selecting needle gauge and length

General considerations

- Route and site of vaccine administration should be based on the recipient's factors (e.g. age, muscle mass) and immunizing agent.
- Aspiration prior to injection of vaccine is not recommended.
- Vaccine providers should incorporate routine infection control practices into all immunization procedures, such as:
  - Performing hand hygiene before vaccine preparation, between vaccine recipients, and whenever the hands are soiled.

Routes of administration



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Administration by the intramuscular (IM) route

- Stretch skin flat (between thumb and forefinger).
- Insert needle at a 90-degree angle and as far as possible into the muscle.
- For deltoid administration, the injection site is about 2 to 3 finger-widths below the acromion.
  - The deltoid site is often selected for toddlers and young children as temporary muscle pain post-vaccination in the anterolateral thigh muscle may affect ambulation.

Intramuscular injection landmarking

There are 2 sites for IM injection in individuals aged 12 months and older. For infants less than 12 months of age, the anterolateral thigh is used.

Figure 1. Deltoid muscle[1]

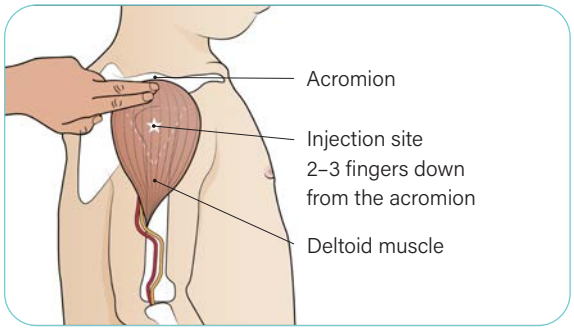
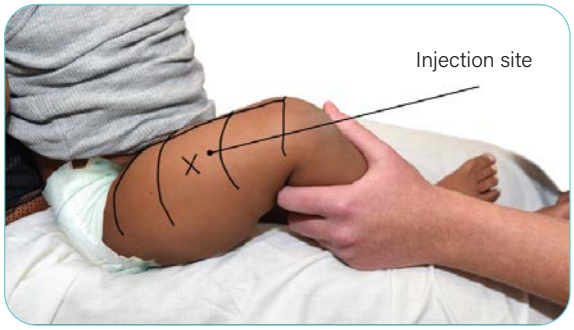


Figure 2. Anterolateral thigh muscle[1]



Administration by the subcutaneous (SC) route

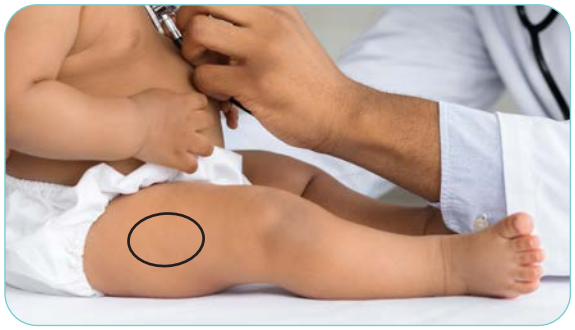
- Pinching of the skin may be necessary to ensure injection into the subcutaneous tissue and avoid the muscle.
- Insert needle at a 45-degree angle.

Subcutaneous injection landmarking

The upper triceps area of the arm is the usual site for SC injection for those 12 months and older.
For infants less than 12 months of age, the anterolateral thigh is the usual site.

Figure 3. Upper triceps area of the arm

Figure 4. Anterolateral thigh



[1] Courtesy of the Australian Technical Advisory Group on Immunisation. Australian Immunisation Handbook, Australian Government Department of Health, Disability and Ageing, Canberra, 2024, Immunisation.Handbook@Health.gov.au.

Administration by the intradermal (ID) route

- The site of ID administration is product specific. For each product administered intradermally, refer to the specific product monograph or product guidance documents.
- Options for ID administration include: inner (volar) forearm, the area over the deltoid muscle, the suprascapular area on the back or the area over the anterolateral thigh.
- Typically administered at a 5-degree to 15-degree angle.
- A wheal 6 mm to 10 mm in diameter should form indicating proper administration into the dermis.
- If a wheal does not form, remove the needle and repeat the procedure with a new needle and syringe, preferably in a separate anatomic injection site or in the same anatomic injection site but separated by at least 2.5 cm (1 inch).

Intradermal injection landmarking

- For individuals of all ages, there are **4 possible** sites for ID injection.

Figure 5. Possible intradermal injection sites

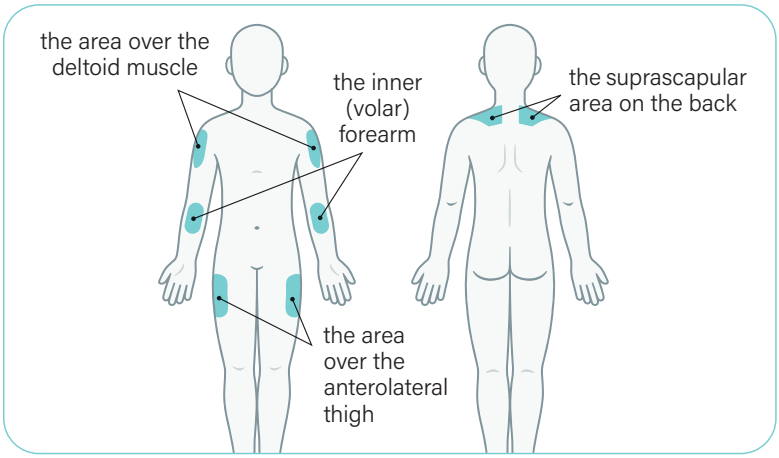
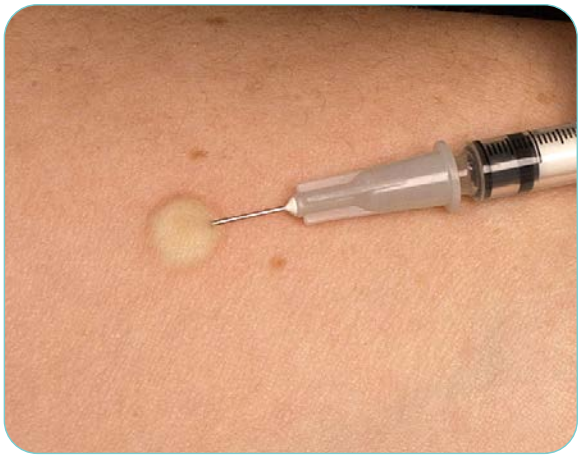


Figure 6. Wheal formation[2]



[2] Courtesy of the U.S. Centers for Disease Control and Prevention.

For more information on vaccine administration practices, including infection prevention and control:
Vaccine administration practices: Canadian Immunization Guide

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