Injection considerations for needle length and gauge selection

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Intradermal injection considerations

For needle length and gauge selection


Location, needle length & gauge dependent on patient age, physical condition and medication requirements.

### Intradermal (ID)

<table>
<thead>
<tr>
<th>Paediatric to adult</th>
<th>Location of injection**</th>
<th>Needle length**</th>
<th>Needle gauge**</th>
<th>Needle angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12 months (infants)</td>
<td>Anterolateral aspect of forearm, upper chest, upper back, back of upper arm</td>
<td>10mm – 19mm</td>
<td>26 – 28 G</td>
<td>10° – 15°</td>
</tr>
<tr>
<td>12 months to 18 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 18 years</td>
<td></td>
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</tr>
</tbody>
</table>
Intradermal (ID) injection considerations:

Injection procedure
- Spread the skin taut, and insert the needle tip at a $10^\circ - 15^\circ$ angle.
- Inject medication slowly.
  If a wheal does not appear, it was administered in the subcutaneous tissue.

- Anterior aspect of the forearm
- Upper chest
- Upper back / back of arm

This information is being provided for convenience only and is not intended to replace clinical decision making. Each clinician is solely responsible for determining the correct needle for each patient.
Subcutaneous injection considerations

For needle length and gauge selection

<table>
<thead>
<tr>
<th>Subcutaneous (SubQ)</th>
<th>Location of injection**</th>
<th>Needle length**</th>
<th>Needle gauge**</th>
<th>Needle angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paediatric to adult</td>
<td>Anterolateral thigh, upper outer tricep area, upper buttocks, abdomen (avoid 50mm radius around umbilicus)</td>
<td>Insulin delivery: 4mm – 13mm, Other injections: 13mm – 16mm</td>
<td>Insulin delivery: 29 – 32 G, Other injections: 26 – 31 G</td>
<td>45° – 90°</td>
</tr>
</tbody>
</table>


** Location, needle length & gauge dependent on patient age, physical condition and medication requirements.
Subcutaneous (SubQ) injection considerations:

Injection procedure

- Raise a fold of skin between the thumb and forefinger, and insert the needle at a 45° – 90° angle.

Abdomen—avoid injecting within 50mm around the umbilicus

Outer aspect of the upper thigh

Outer aspect of the upper arm
(not preferred site)

Upper buttocks

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Intramuscular injection considerations

For needle length and gauge selection

<table>
<thead>
<tr>
<th>Intramuscular (IM)**</th>
<th>Location of injection***</th>
<th>Needle length***</th>
<th>Needle gauge***</th>
<th>Needle angle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paediatric</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 12 months (infants)</td>
<td>Vastus lateralis muscle (≤0.5 ml vol.)</td>
<td>22mm – 25mm</td>
<td>25 – 27 G</td>
<td>90º</td>
</tr>
<tr>
<td>12 months to 18 years</td>
<td>Deltoid muscle, ventrogluteal site, dorsogluteal site (not recommended for &lt;3 years), vastus lateralis muscle</td>
<td>22mm – 30mm</td>
<td>22 – 25 G</td>
<td>90º</td>
</tr>
<tr>
<td><strong>Adult</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 18 years</td>
<td>Deltoid muscle, ventrogluteal site (may be best site for cachetic adults), dorsogluteal site (avoid in obese adults), vastus lateralis muscle</td>
<td>25mm – 40mm</td>
<td>19 – 25 G</td>
<td>90º</td>
</tr>
</tbody>
</table>

**Prior to administering an IM injection, refer to your procedure manual to determine the injection site utilising body landmarks.
*** Location, needle length & gauge dependent on patient age, physical condition and medication requirements.
Intramuscular (IM) injection considerations:

**Injection procedure**

- Spread the skin taut (except the vastus lateralis which requires lifting the muscle) and insert the needle at a 90° angle.
- Pull back plunger slightly. If blood appears, remove needle, dispose of properly and prepare a new injection.
- If no blood is present, inject medication slowly.

The **vastus lateralis site** is in the lateral middle third of the thigh between the greater trochanter and the knee. When injecting, lift the vastus lateralis muscle away from the bone.

The **ventrogluteal site**: Place the palm over the greater trochanter, form a ‘V’, with the middle finger toward the iliac crest and the index finger toward the anterior superior iliac spine. Inject within the center of the ‘V’, below the anterior superior iliac crest.

The **thickest part of the deltoid muscle** is 2.5–4 cm (1–3 finger breadths) below the lower edge of acromion process of the scapula over the midaxillary line.

The **dorsogluteal site** is above an imaginary line between the greater trochanter and the posterior superior iliac crest. The injection is administered laterally and superior to this imaginary line.

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