

# Injection considerations for needle length and gauge selection

## Intradermal injections

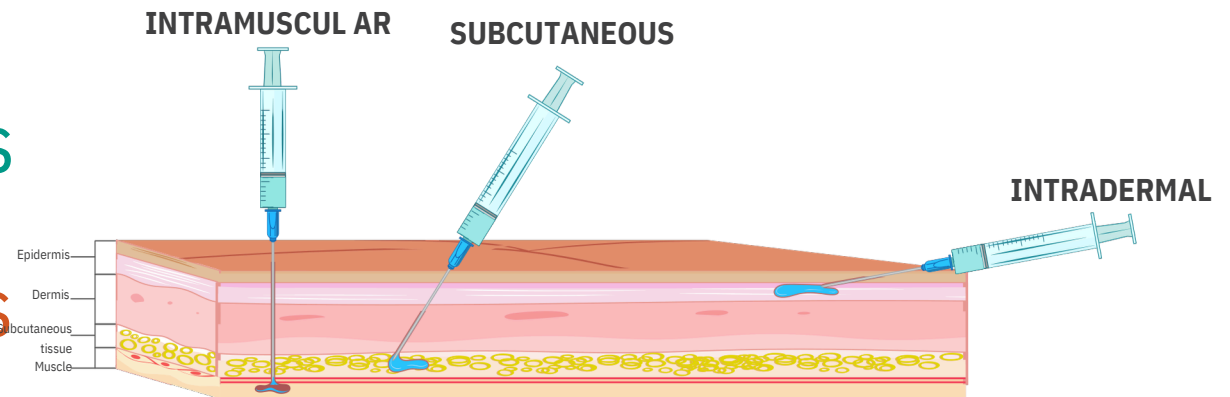
pages 1 - 2

## Subcutaneous injections

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## Intramuscular injections

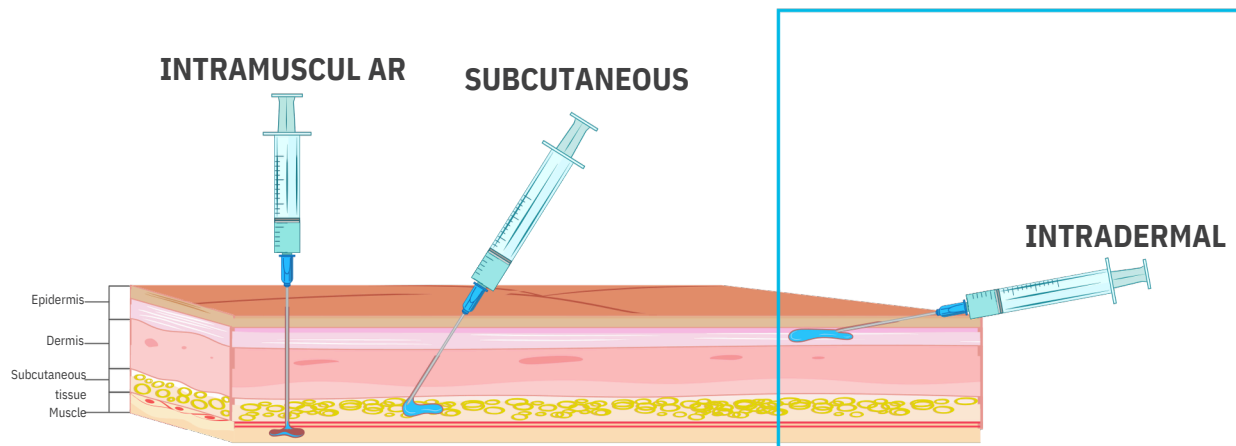
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# Intradermal injection considerations

For needle length and gauge selection

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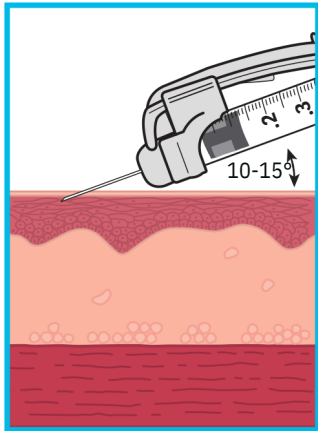


Intradermal (ID)		Location of injection **	Needle length**	Needle gauge **	Needle angle
<b>Paediatric to adult</b>	< 12 months (infants)	Anterolateral aspect of forearm, upper chest, upper back, back of upper arm	10mm – 19mm	26 – 28 G	10° – 15°
	12 months to 18 years				
	>18 years				

\*Adapted from *Fundamentals of Nursing Human Health and Function*, Craven R, Hirnle C, Henshaw CM, 8th ed. Wolters Kluwer, 2017

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

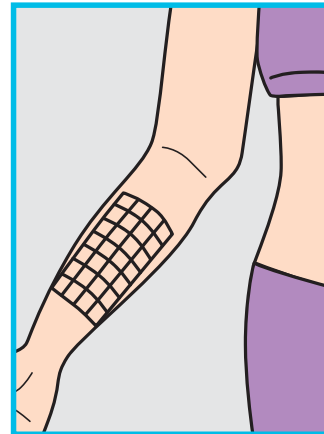
# Intradermal (ID) injection considerations:



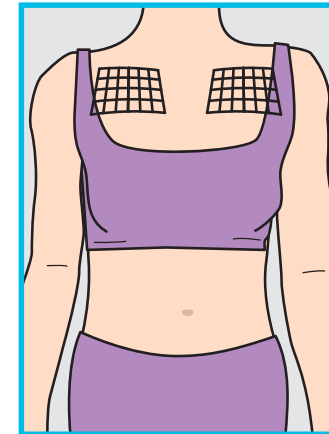
## Injection procedure

- Spread the skin taut, and insert the needle tip at a **10° – 15°** angle.
- Inject medication slowly.

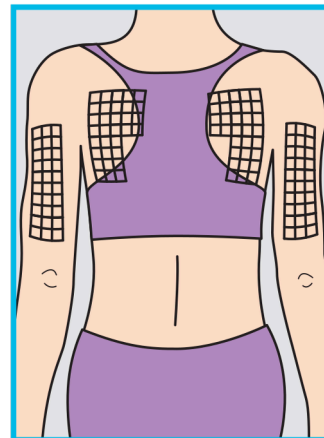
**If a wheal does not appear, it was administered in the subcutaneous tissue.**



**Anterior aspect of the forearm**



**Upper chest**

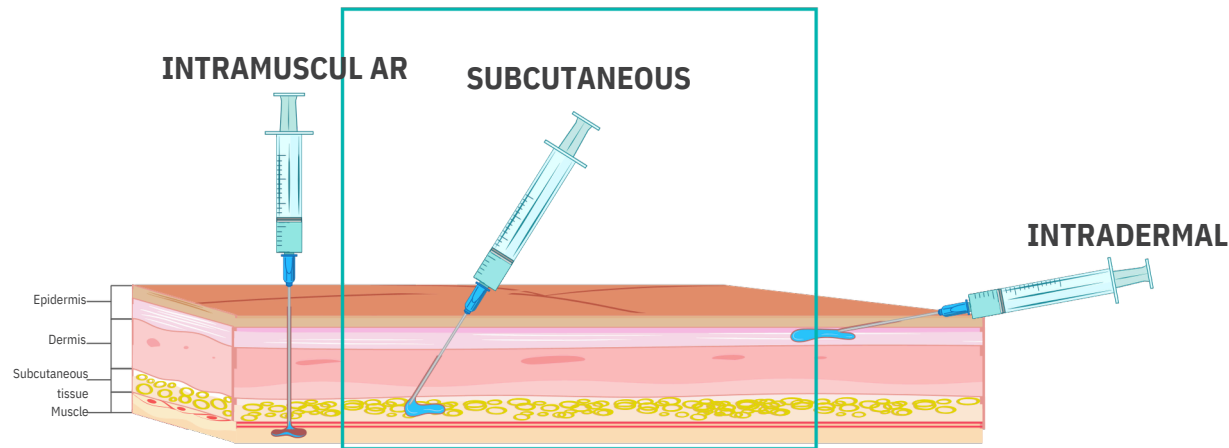


**Upper back /  
back of arm**

# Subcutaneous injection considerations

For needle length and gauge selection

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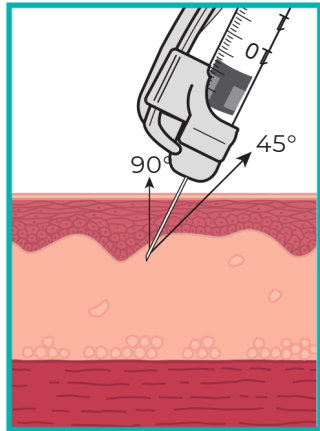


Subcutaneous (SubQ)		Location of injection **	Needle length**	Needle gauge **	Needle angle
<b>Paediatric to adult</b>	< 12 months (infants)	Anterolateral thigh, upper outer tricep area, upper buttocks, abdomen (avoid 50mm radius around umbilicus)	Insulin delivery: 4mm – 13mm	Insulin delivery: 29 – 32 G	45° – 90°
	12 months to 18 years		Other injections: 13mm – 16mm	Other injections: 26 – 31 G	
	>18 years				

\*Adapted from *Fundamentals of Nursing Human Health and Function*, Craven R, Hirnle C, Henshaw CM, 8th ed. Wolters Kluwer, 2017

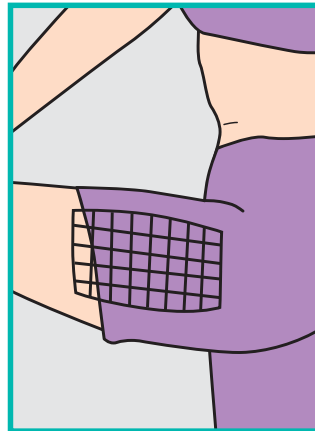
\*\* Location, needle length & gauge dependent on patient age, physical condition and medication requirements.

## Subcutaneous (SubQ) injection considerations:

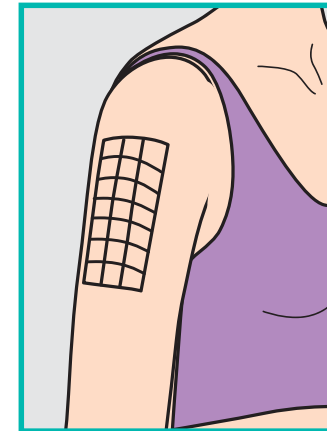


### Injection procedure

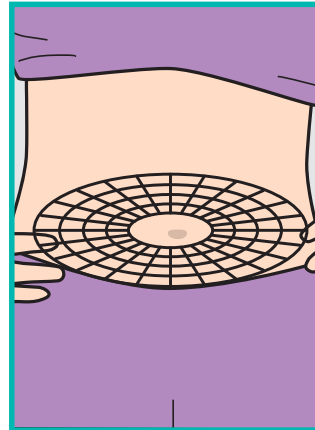
- Raise a fold of skin between the thumb and forefinger, and insert the needle at a **45° – 90°** angle.



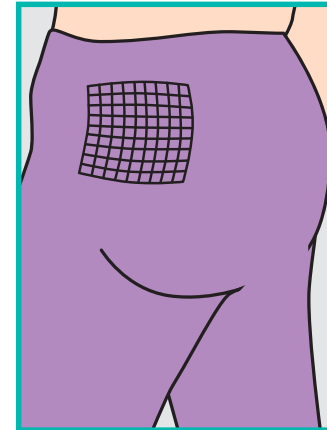
**Outer aspect of the upper thigh**



**Outer aspect of the upper arm**  
(not preferred site)



**Abdomen**—avoid injecting within 50mm around the umbilicus

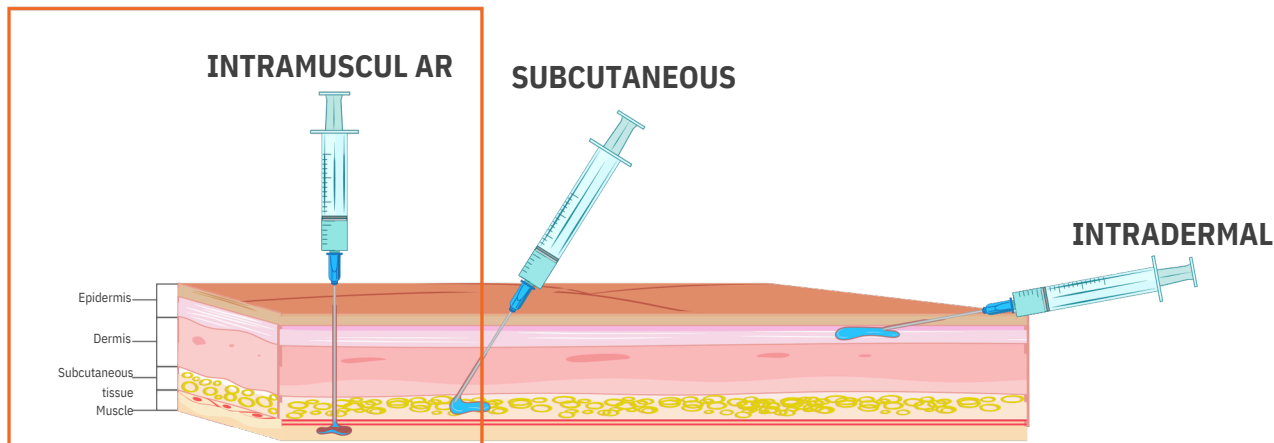


**Upper buttocks**

# Intramuscular injection considerations

For needle length and gauge selection

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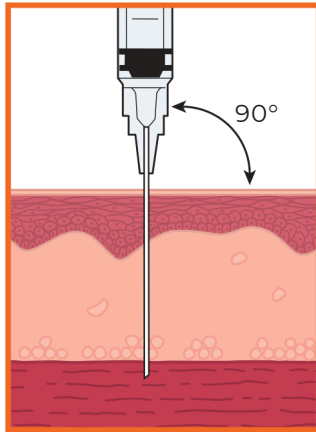
Intramuscular (IM)**		Location of injection ***	Needle length ***	Needle gauge ***	Needle angle
Paediatric	< 12 months (infants)	Vastus lateralis muscle ( $\leq 0.5\text{ml vol.}$ )	22mm – 25mm	25 – 27 G	90°
	12 months to 18 years	Deltoid muscle, ventrogluteal site, dorsogluteal site (not recommended for <3 years), vastus lateralis muscle	22mm – 30mm	22 – 25 G	90°
Adult	> 18 years	Deltoid muscle, ventrogluteal site (may be best site for cachectic adults), dorsogluteal site (avoid in obese adults), vastus lateralis muscle	25mm – 40mm (up to 76mm for large adults)	19 – 25 G	90°

\* Adapted from *Fundamentals of Nursing Human Health and Function*, Craven R, Hirnle C, Henshaw CM, 8th ed. Wolters Kluwer, 2017

\*\*Prior to administering an IM injection, refer to your procedure manual to determine the injection site utilising body landmarks.

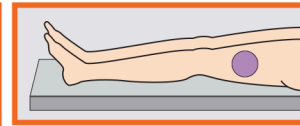
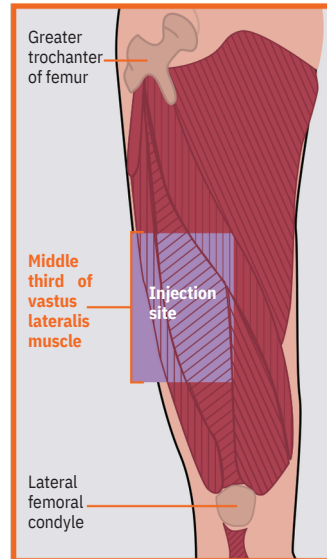
\*\*\* Location, needle length & gauge dependent on patient age, physical condition and medication requirements.

# Intramuscular (IM) injection considerations:

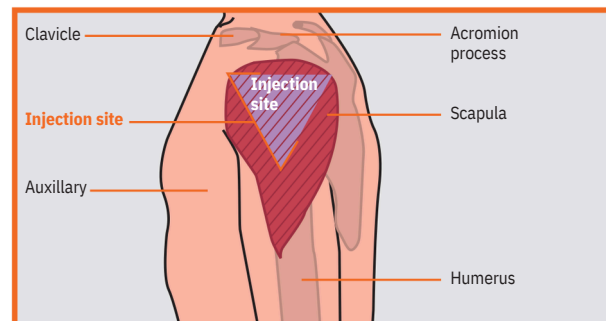


## Injection procedure

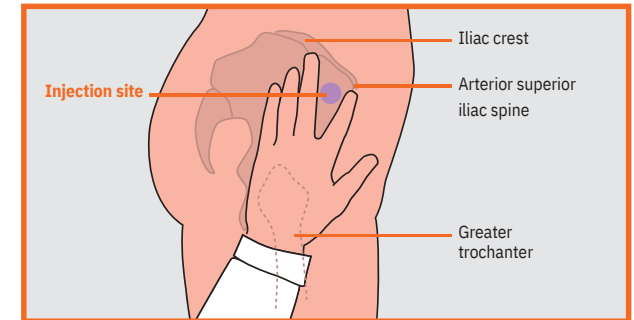
- Spread the skin taut (except the vastus lateralis which requires lifting the muscle) and insert the needle at a 90° angle.
- Pull back plunger slightly. If blood appears, remove needle, dispose of properly and prepare a new injection.
- If no blood is present, inject medication slowly.



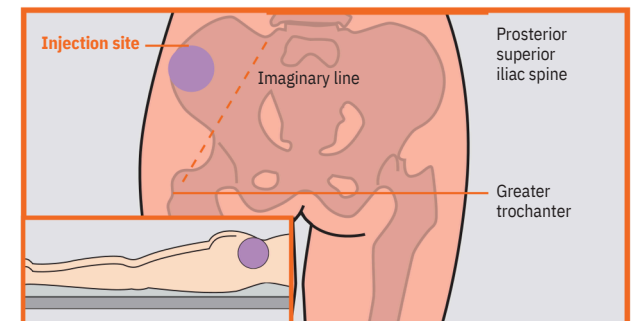
The **vastus lateralis site** is in the lateral middle third of the thigh between the greater trochanter and the knee. When injecting, lift the vastus lateralis muscle away from the bone.



The 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 **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 **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.





ISO hub color standards for safety-engineered needles: ISO 6009:2016

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