



# Clinical Practice Procedures: Drug administration/Intramuscular injection

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<b>Date</b>	September, 2024
<b>Purpose</b>	To ensure a consistent procedural approach to intramuscular injection (IM) drug administration.
<b>Scope</b>	Applies to Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless stated otherwise.
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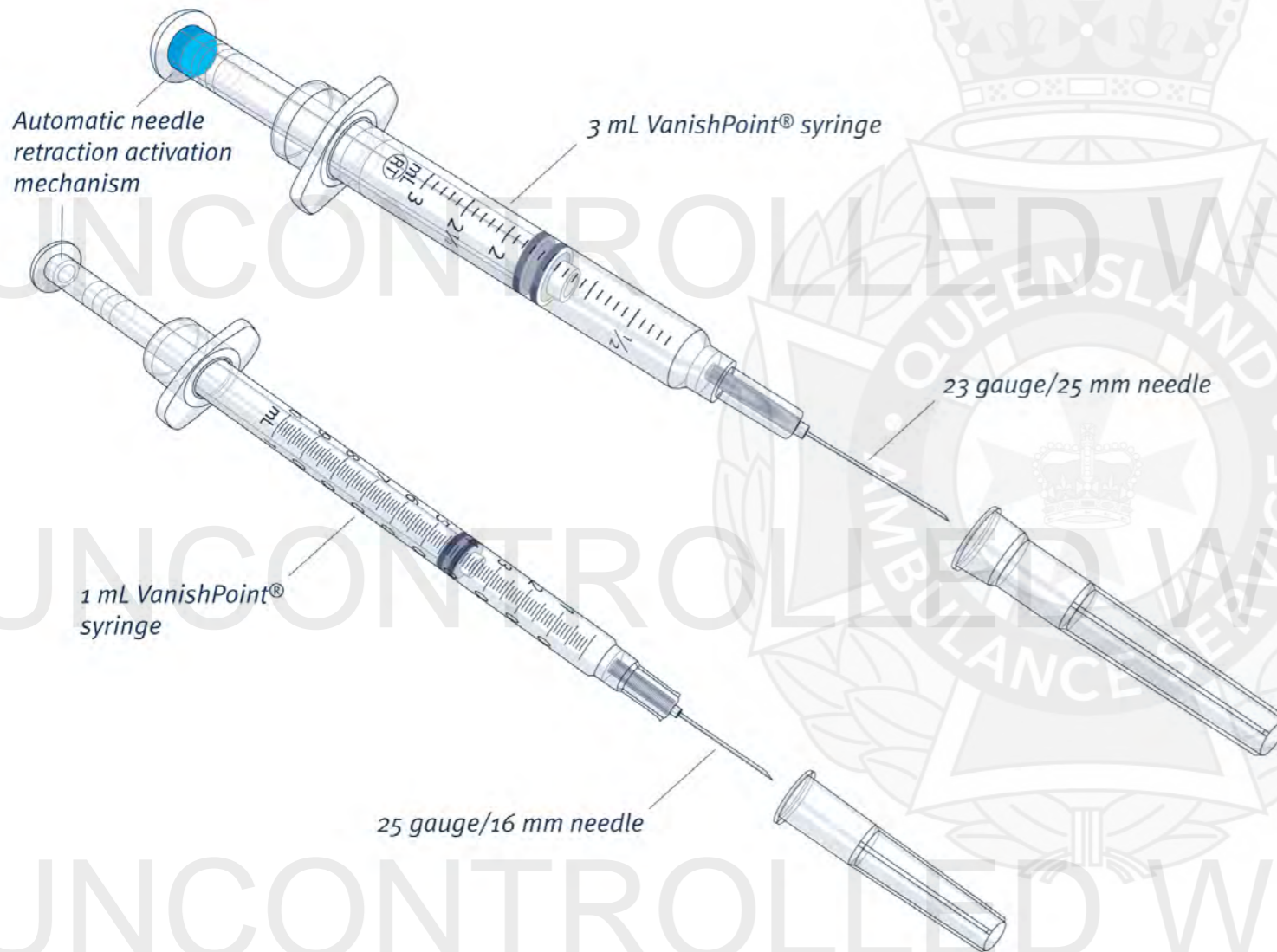
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# Intramuscular injection

September, 2024

An **intramuscular (IM) injection** involves the insertion of a sterile needle into the patient's muscle for the purpose of administering a liquid medication. IM injections are a common route of administration, due to the muscle's rich blood supply allowing for rapid absorption and distribution into the patient's circulation.<sup>[1]</sup>



## Indications

- Required intramuscular drug administration

## Contraindications<sup>[1]</sup>

- Patients in cardiac arrest
- Ability to administer the medication by an equally effective and less invasive route (e.g. oral, intranasal)
- Drugs not approved for IM administration
- Inadequate muscle mass at the selected injection site

## Complications<sup>[1,2]</sup>

- Pain (minor discomfort immediately following the injection is normal)
- Minor haemorrhage
- Abscess formation
- Cellulitis
- Nerve and blood vessel damage

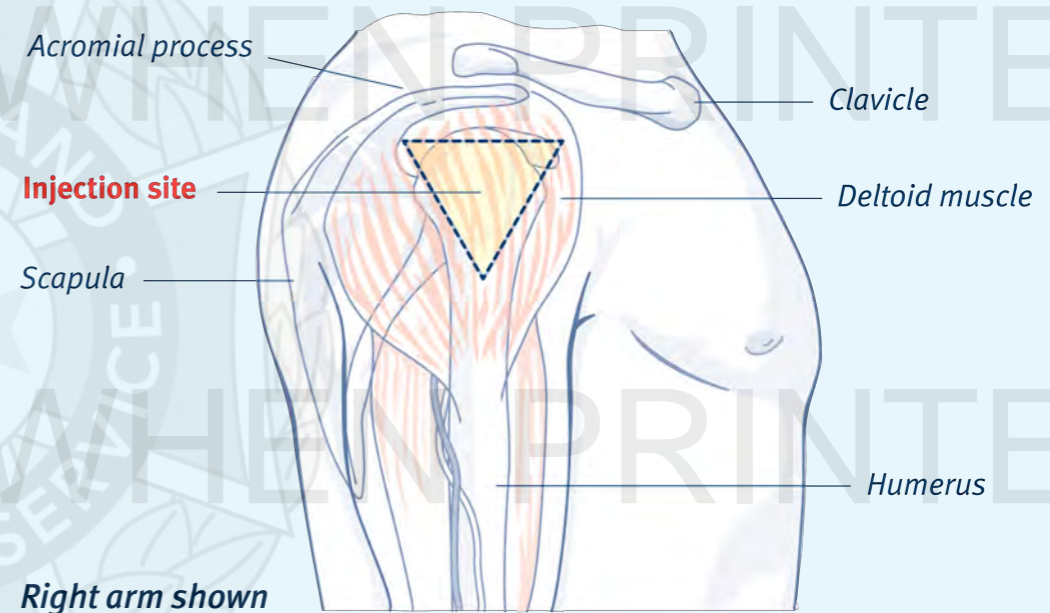
## Procedure – Intramuscular injection

1. Apply required infection control measures (refer to *QAS Infection Control Framework*).
2. Assess the patient's history of allergies and confirm suitability for medication administration.
3. Prepare the required dose of medication in an appropriately sized VanishPoint® syringe.
4. Ensure the syringe is appropriately labelled (refer to the *QAS Drug Management Code of Practice*).
5. Ensure all air bubbles are expelled from the prepared syringe.
6. Consider strategies to reduce patient discomfort:
  - a. Distraction;
  - b. Explaining the benefits of the injection to the patient; **and/or**
  - c. Oral glucose administration in infants (refer to *DTP: Sucrose 24%*)
7. Identify an appropriate injection site based on patient's age, muscle mass and medication volume.

### Deltoid

- Often easier to access in the pre-hospital environment
- Not suitable for patients less than 2 years of age
- Only recommended for small volumes (0.5 mL–1 mL)

The deltoid is identified by imagining an inverted triangle 1–3 finger depths below the acromial process with the midpoint of the lateral aspect of the upper third of the arm.

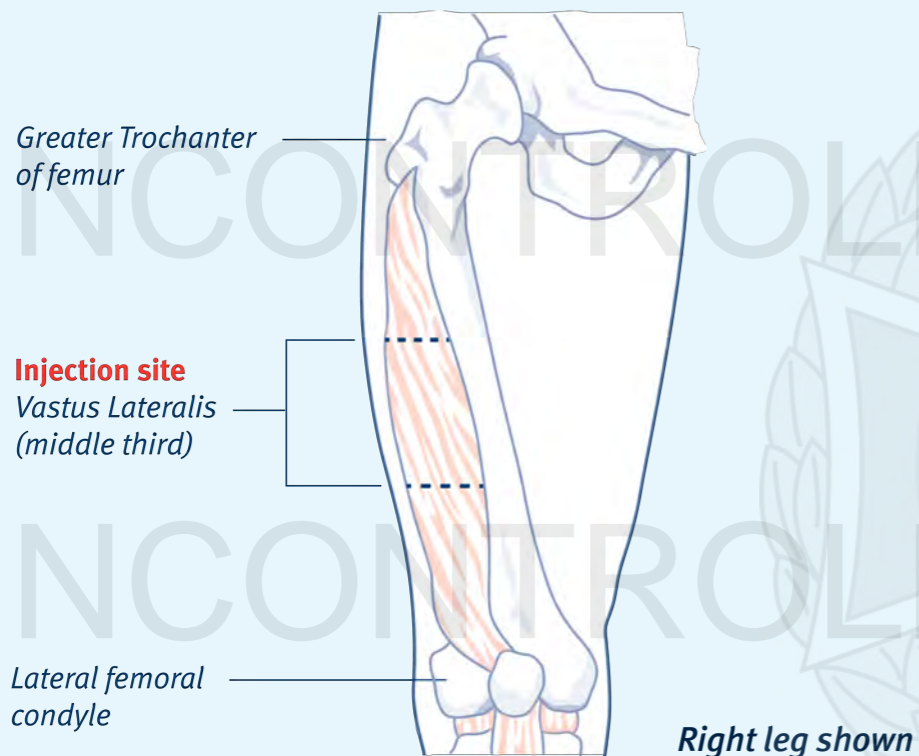


## Procedure – Intramuscular injection

### Vastus Lateralis

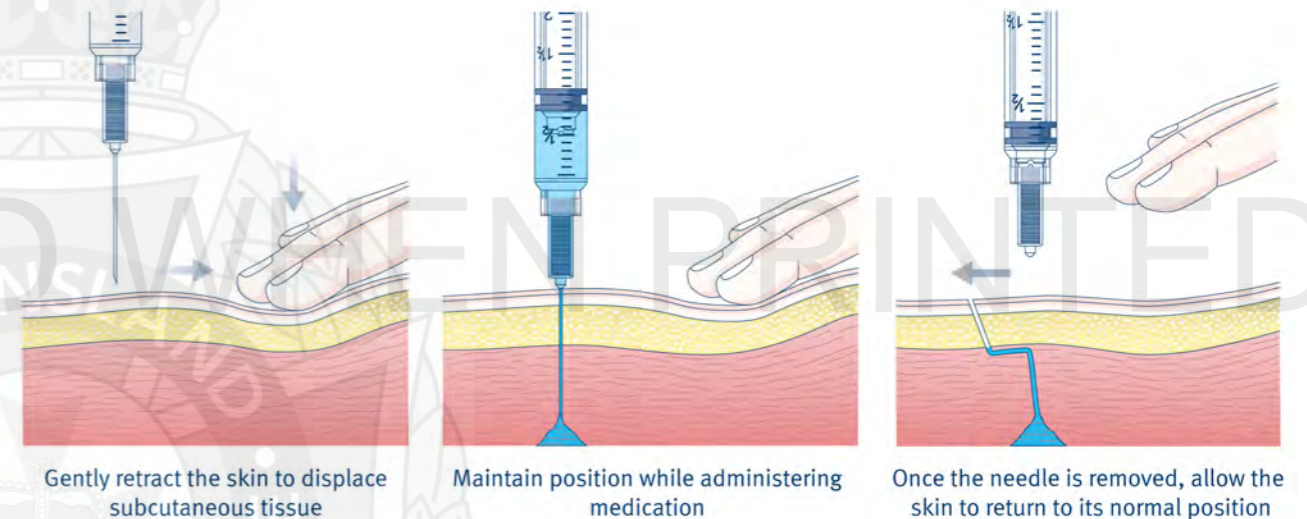
- Large muscle mass is suitable for larger volumes
- Preferred site for younger children and infants

Middle third of the muscle mass between the lateral Femoral Condyle of the knee and the Greater Trochanter.



8. If clinically appropriate, posture the patient's selected limb to encourage the muscle to relax.
9. Perform appropriate medication checks (refer to the *QAS Drug Management Code of Practice*).

10. If the patient is immunosuppressed or if the skin is visible dirty, clean it with an appropriate antimicrobial swab and allow the site to completely dry – if the skin is visibly clean, there is no requirement to use an antimicrobial swab.<sup>[3]</sup>
11. Use your non-dominant hand to stabilise and stretch the skin around the injection site. A 'Z-track' injection technique may be considered to prevent backtracking and leakage from the injection site.<sup>[1]</sup>



### Z-track injection technique

12. With your dominant hand, use a dart like technique to pierce the skin at a 90-degree angle.
13. With the needle inserted to the hub, slowly and smoothly inject the full contents from the syringe.
14. With the needle still positioned in the patient's muscle continue to depress the plunger to activate the VanishPoint® automatic needle retraction mechanism.
15. Immediately discard the needle in a sharps container.
16. After retracting the needle, consider applying gentle pressure to the injection site with a sterile dressing – do NOT rub the injection site.
17. Consider using a dressing if leakage at the injection site is identified.

## Additional information

- The QAS mandates the use of VanishPoint® syringes for all non-vaccine IM injections.
- All parenteral medications must be prepared using an aseptic technique. The rubber stopper on drug vials must be disinfected with an appropriate antimicrobial swab and allowed to dry prior to piecing.
- The Vastis Lateralis is the QAS preferred IM injection site, due to accessibility and lack of major blood vessels and nerves.
- For calculated IM volumes that exceed 2 mL, the volume must be split and administered at more than one IM site, to a maximum of 2 mL per site.
- It is no longer recommended to aspirate prior to injecting into the vastus lateralis or deltoid.<sup>[1]</sup> However, if you have done this and a flash of blood appears in the needle hub, withdraw the needle and prepare a new syringe with a new required dose.

The QAS supplies four sizes of VanishPoint® syringes for IM injections:

Volume	Gauge	Needle length	Suggested application
3 mL	23 G	38 mm	Large Adult
3 mL	23 G	25 mm	Adult
1 mL	25 G	25 mm	Child/Infant
1 mL	25 G	16 mm	Small/Pre-term Infant