

# MENTAL HEALTH SERVICE GUIDELINE COVER SHEET



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<b>FUNCTIONAL GROUP(S)</b>	Mental Health
<b>KEY TERMS</b>	Process of preparing and administration of intramuscular injections for psychiatric medications
<b>SUMMARY</b>	This guideline offers a framework for mental health nurses to practice in line with current research into the process of preparing and administration of intramuscular injections. Applicable to both inpatient and community mental health settings.

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## Intramuscular Injection in Mental Health

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## Section 1 – Background

Intramuscular (IM) injections have been an integral part of drug administration in nursing practice for almost half a century. Many medications used in mental health settings require IM route of administration and IM injections are often given in circumstances in which there are risks to both consumers and staff. Involuntary administration of medications is also a coercive practice that can be experienced by consumers as traumatic.

The purpose of this guideline is to ensure consistent best practice for administration of medications by this route in SESLHD mental health services. Areas addressed within this guide include appropriate circumstances in which to utilise IM medications, injection sites, appropriate needle selection and volume administered through IM injections, and injection techniques.

An appropriate injection technique ensures efficiency of medication uptake and reduction of complications post injection. Sound clinical skills for an effective injection technique include: knowledge of anatomy and physiology, pharmacology, suitable injection sites and injection techniques, effective communication skills and implementation of Trauma Informed Practice.

**This document is for the intramuscular administration of psychotropic medications only. The guidelines detailed within this document do not apply to other non-psychiatric intramuscular injections such as vaccinations.**

## Section 2 – Principles

The correct injection site and volume for the intramuscular injection outlined in this guideline should be followed. Decisions regarding the preferred site to use for Intramuscular injections may be based on clinical judgement of the nurse, aligning to contemporary practices. Consumer's body make up and body mass index, needle length available, and types of medication must be considered during clinical care. The IMI administration site may vary for rapid tranquilization and depot medications. See [Table 1](#).

## Section 3 – Responsibilities

### Medical staff are responsible for:

- Intramuscular injections will be prescribed under the direction of the Consultant Psychiatrist.

### Nursing staff are responsible for ensuring:

- Nursing staff members are trained in the correct administration of Intramuscular injections.
- The correct safety precautions, preparation and procedure are followed.
- The Z tracking technique must be used in the administration of the IMI.
- The 5 Rights: *right patient, right drug, right dose, right route* and *right time* are followed at each administration.

### Site and Service Managers are responsible for:

- The Community and Inpatient Unit Service Managers are to ensure adherence to two person checking requirements as set out by the NSW Health [PD2022\\_032 Medication Handling](#).
- Clinical Line Managers are responsible for ensuring this guideline is available to all MHS staff member in their work area.
- Clinical staff members involved in the administration of intramuscular will follow these guidelines.
- Site and Service Managers are responsible for ensuring this guideline is circulated and implemented locally.

## Section 4 – Injection site

**Table 1. Injection site and volume for effective muscle absorption**

Injection Site	Background Information	Volume of medication	Muscle
<p><b>Deltoid –</b> Suggested indications</p> <ul style="list-style-type: none"> <li>• Loading doses Paliperidone – Manufacturers recommendations</li> <li>• When amount is less than 2 mL</li> <li>• Personal preference unless against manufactures advice due to compromising clinical effect</li> <li>• Excessive subcutaneous fat thickness is present in other sites</li> </ul>	<ul style="list-style-type: none"> <li>• Injections into the mid deltoid muscle produce a quick uptake of the medicine. The maximum which can be safely injected is 2 mL and based on clinical opinion.</li> <li>• Common practice is to use this site for small volume injections such as vaccinations and manufacturers recommending site for the loading doses of Paliperidone.</li> </ul>	<p><b>0.5 to 2 mL</b></p>	<p>Deltoid</p>
<p><b>Dorsogluteal –</b> Suggested indications</p> <ul style="list-style-type: none"> <li>• For rapid tranquilisation in prone position</li> <li>• When amount is up to 3 mL</li> <li>• Repeated injections</li> <li>• Z tracking works effectively with this site</li> </ul>	<ul style="list-style-type: none"> <li>• The dorsogluteal site, colloquially called the ‘upper outer quadrant’, targets the gluteus maximus muscle.</li> <li>• When this site is used, there is a risk that the medicine will not reach the target muscle, but instead will be injected into subcutaneous fat. As a result, delayed uptake of the medicine will occur and tissue irritation or the development of granulomas may result. The 38 mm/1 ½ inch green (21G) and blue (23G) needles are unlikely to reach the gluteal muscles in a considerable number of consumers and may result in damage to the sciatic nerve or gluteal artery, both of which lie</li> </ul>	<p><b>1 to 3 mL</b></p>	<p>Gluteus maximus</p>

<p>to trap fluid in the correct layer</p> <ul style="list-style-type: none"> <li>Personal preference unless against manufactures advice due to compromising clinical effect</li> </ul>	<p>(for those who are very thin) a few centimetres distal to the dorsogluteal injection site, causing pain, paralysis or haemorrhage. Drawing back during an administration will check for penetration of vessels. There may also be modesty issues and consideration for trauma history of consumers associated with the use of this site.</p> <ul style="list-style-type: none"> <li>Consider injection depth.</li> <li>Clinicians need to be trained in the process of administrating and locating the landmarks before dorsogluteal IMI injection can be given.</li> </ul>		
<p><b>Ventrogluteal –</b> Suggested indications:</p> <ul style="list-style-type: none"> <li>Clinically indicated for consumers consenting for deep IMI</li> <li>Personal preference unless against manufactures advice due to compromising clinical effect</li> <li>Elderly consumers with reduced muscle tissues in the dorsogluteal site</li> <li>When the administering nurses is trained in locating the correct Ventrogluteal site. Refer to Appendix A.</li> </ul>	<ul style="list-style-type: none"> <li>There are few disadvantages to using this site. It is relatively free of major nerves and blood vessels, the muscles are large and well defined, and the landmarks for administration are easy to locate. This site is <b>not</b> preferred in a rapid tranquilisation situation. There may be modesty issues and consideration needed for trauma history of consumers associated with the use of this site.</li> <li>Excessive subcutaneous fat in this area can lead to the risk of a subcutaneous injection, rather than the injection reaching the muscle layer. As a result, delayed uptake of the medicine will occur and tissue irritation or the development of granulomas may result. The 38mm/1 ½ inch green (21G) and blue (23G) needles are unlikely to reach gluteal muscles in a considerable number of overweight or obese consumers.</li> <li>Consider injection depth for those who are very thin.</li> <li>Clinicians need to be trained in the process of administrating and locating the landmarks before ventrogluteal IMI injection can be given.</li> </ul>	<p><b>1 to 3 mL</b></p>	<p>Gluteus medius and Minimus</p>

**Please note: Nurses must use the recommended needles sizes for each injection supplied inside the packs used for Aripiprazole, Olanzapine, Paliperidone and Risperidone.**

An assessment of the patient’s body shape and composition (fat and muscle distribution) should influence the choice of needle length. Only needles supplied in the dose pack should be used. Consider shorter needle for the deltoid site.

**Table 2. Injection site and Needle size guide**

Bodyweight	Injection site	Needle size
Consider (BMI < 30) and body shape.	Deltoid Gluteal	25mm/1 inch + 23gauge 38mm/1 ½ inch + 21gauge
Consider (BMI > 30) and body shape.	Deltoid Gluteal	38mm/1 ½ inch + 21gauge 50mm/2 inch + 21gauge

- To ensure an injection reaches the muscle layer a clinician needs to consider the persons BMI, weight and subcutaneous fat thickness when choosing needle length selection.

## BODY SHAPE

- Somatype is one method to assist the clinician to estimate the potential subcutaneous fat thickness. Somatype refers to three categories: the ectomorph (narrow shoulders, torso and hips); mesomorph (broad shoulders & muscle limbs) and endomorph (round body with predominance of fat)<sup>1</sup>. Consideration of these body shapes has most relevance to the dorso gluteal and ventro gluteal sites.
- “Females, obese individuals and endomorph individuals had thicker subcutaneous fat and were more likely to have a subcutaneous injection outcome.” p.1 <sup>1</sup> Use of a 38mm needle length is a viable option in the ventrogluteal site but still has limitations.<sup>1</sup> In these cases consideration of a 50mm needle would increase the success of an injection reaching the muscle layer in the either gluteal site or choosing a different injection site.
- Other factors to consider is consumers receptivity to intramuscular injections, preferred administration site and response to treatment, potential history of trauma, and the nurses clinical judgement.

<sup>1</sup> Larkin, Ashcroft, Hickey & Elgellaie (2018). Influence of gender, BMI and body shape on theoretical injection outcome at the ventrogluteal and dorsogluteal sites. *Journal of Clinical Nursing*, 27, 242-250.

## Section 5 – Preparation

### 5.1 Equipment

The nurse will need:

- 2 – 5 mL syringe
- 21 gauge 38mm/1 ½ inch (or 50mm/2 inch needle if body shape or BMI indicates obese > 30)
- 21/ 23 gauge 38mm/1 ½ inch (or 50mm/2 inch needle if body shape or BMI indicates obese > 30) safety or equivalent needle; in the instance of high aggression or during a situation in which a restraint is necessary due to significant risk for consumers and staff
- Needle for drawing up injection – 18 gauge 40mm/1 ½ inch needle
- Prescribed medication or injection kit.
- Gloves
- Alcohol swab
- Non-woven gauze swab
- Small plaster (optional)
- Prescribed medication
- Prescription chart /electronic medication order
- Dish for equipment
- Sharps container

### 5.2 Procedure

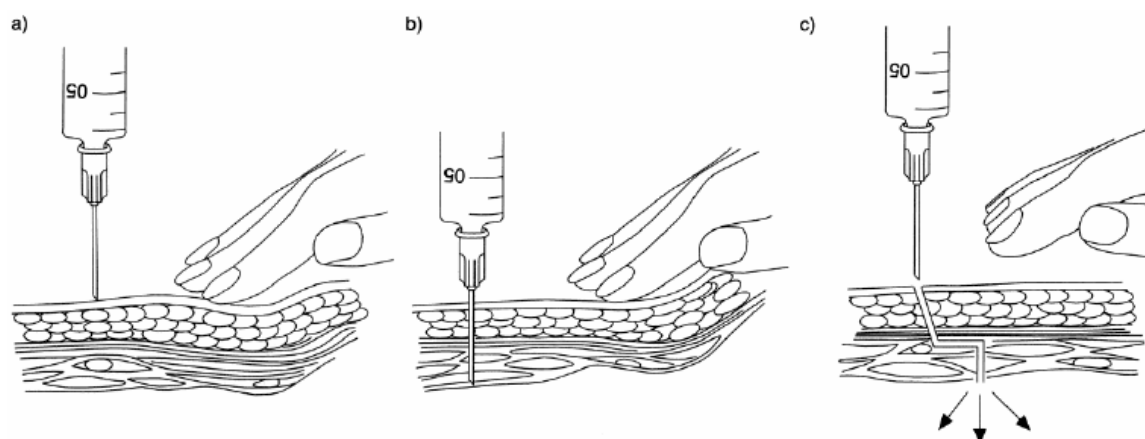
1. Confirm that the injection is due for the identified consumer or has not already been administered before assembling the equipment by checking the prescription, the administration record and whenever possible with the consumer.
2. Explain to the consumer the procedure and which site you will be using. Seek confirmation of consumer's consent expressed or implied. If there are problems with communication offer information in another format or consider advocacy or interpreter services documenting what action has been taken in the consumer's notes. Staff should also be mindful of trauma histories when explaining procedures. If the consumer does not consent to this site, consider another site, being aware of potential licensing implications. Maintain communication with your consumer throughout the procedure, offering reassurance and explaining as you proceed with the procedure (If in restraint, one person talking).
3. Prior to preparation of medication, it is vital to identify an area where the qualified nurse will not be disturbed, that provides confidentiality and dignity for the consumer and where there is appropriate facility for the disposal of sharps - either a sharps box within a clinical area or a portable sharps container.
4. The nurse should wash their hands and don gloves before preparing the medication and touching the consumer, adhering to the 5 points of hand hygiene.
5. Check medication expiry date.



6. Draw up the prescribed dose of medication immediately prior to the injection, using a wide bore needle. Allow refrigerated medications to return to room temperature before administration.
7. Change needle and use the relevant gauge and length needle to administer. (For guidance, see [Table 1](#)).
8. If the consumer has a history of aggression and violence, or if the plan for the administration is during a restraint the use of a safety or equivalent needle should be considered. The needle should be changed using the relevant safety or equivalent needle gauge and length for administration. (For guidance, see [Table 1](#)).
9. For Aripiprazole, Olanzapine, Risperidone or Paliperidone Long Acting Injections (LAI) the components (needles, syringes diluents etc) provided in the injection kits must be used. Consideration of subcutaneous fat thickness may warrant a review of the pre-packaged needles and substituting needle lengths where necessary. This is to ensure the product reaches the intended site and therefore the consumer is effectively treated.
10. The injection must be prepared by a Registered Nurse or Enrolled Nurse without notation and checked by a second person (one of whom must be a registered nurse). An exception to this is in the community health setting if a second person is not available. The injection must be administered by one of the two nurses, who have drawn up and checked the medication.
11. Check the consumers known allergies against the medication order and with the patient. If an allergy to the medication being administered is identified, do not administer the medication and contact the consumer's medical officer.
12. Choose a site for the injection. In general, not more than 3 mL of oily injection should be administered at any one time in a gluteal site, and no more than 2 mL at the deltoid site (always refer to [MIMS](#) to ensure you are following the latest guidelines).
13. Ask the consumer to expose hip, buttock or arm for injection, using the opposite side to that of the one injected previously.
14. Examine site for evidence of lesions and establish that the site is pain free. Implement trauma informed practice by ensuring that an attempt is made to clarify that the consumer is happy to have medication given at this site. If the consumer is not happy with clinically indicated site, further discussion with the multi-disciplinary team should be initiated. Avoid using restraints to enforce medication administration unless in an emergency situation.
15. Wipe the injection site with an alcohol swab and wait 30 seconds until it dries (to avoid the possibility of alcohol entering the site).
16. Administer the injection using the Z-track technique as shown below.

## Z-Tracking Technique

1. Displace the skin by pulling it laterally away from the intended point of injection.
2. Insert the needle into the site at a 90° angle, aspirate and if safe continue to inject slowly 1 mL per 10 seconds.
3. Wait 10 seconds then withdraw the needle and release the skin allowing the displaced tissue to seal the needle track.



## Section 6 – Safety or equivalent needles

1. Safety or equivalent needles are needles that are used in situations where there is an identified risk of aggression or violence, or during a restraint situation.
2. As safety or equivalent needles are costly they do not need to be used in every instance of IMI, and should be limited to situations of significant risk eg high levels of aggression, or during restraint situation.
3. Prior to the use of the safety or equivalent needle all staff will need to have local onsite appropriate training.
4. Procedure - Draw up the medication as usual (please see 5.2 section 8) and follow the administration protocol.
5. After administration, the safety mechanism can be immediately activated by pressing the plunger rod until you feel a click. The needle will then retract into the syringe barrel.

## Section 7 – Documentation

Document the procedure including the time, date and site of insertion in the eMR and in the appropriate medication form/eMEDs.

## Section 8 – References

### SESLHD

- [Olanzapine Pamoate Long-Acting Injection \(LAI\)](#)
- [SESLHDPR/343 Bare Below the Elbows – Hand Hygiene](#)

### NSW Health

- [PD2022\\_032 Medication Handling](#)
- [GL2024\\_002 Blood and Body Substances Occupational Exposure Prevention](#)
- [PD2014\\_036 Clinical Procedure Safety](#)
- [Consent to Medical and Healthcare Treatment Manual](#)

### Others

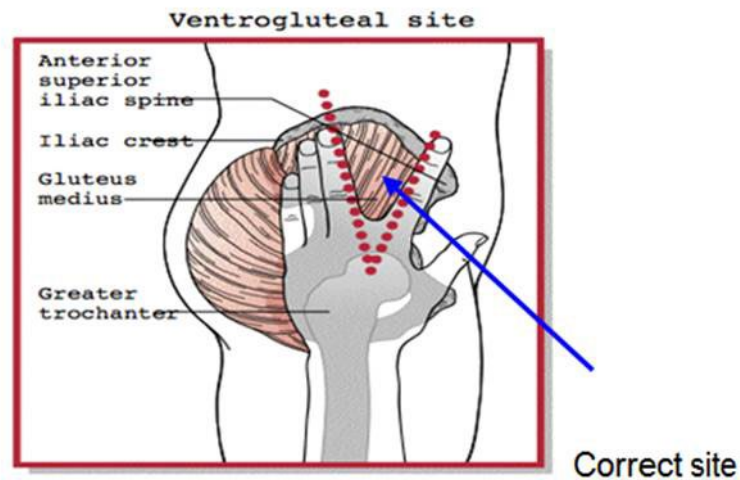
- [National Safety and Quality Health Service Standards \(second edition\)](#)
  - Standard 1: Clinical Governance (1.2, 1.5, 1.30)
  - Standard 4: Medication Safety (4.01)
  - Standard 5: Comprehensive Care, Minimising Harm (5.33)
- [Clinical Excellence Commission Infection prevention and Control Practice Handbook \(2020\)](#)
- [National Inpatient Medication Chart \(NIMC\) – User Guide](#)
- [MIMS Online](#)
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- Hunt, C. 'Which site is best for an IM injection?' *Nursing* Vol 38, Issue 11, p62 November 2008

## Section 9 – Version and Approval History

Date	Version no:	Author and approval notes
August 2018	0	Bronwyn Walker, Clinical Nurse Educator, Workplace Capabilities Team, SESLHD MHS; Benjamin Chidester, Workplace Capabilities Nurse A/Educator, SESLHD MHS. Editor: Trinh Huynh, Policy and Document Development Officer, SESLHD MHS. Initial consult: Kim Reid, CNC Mental Health, TSH.
September 2018	0	Angela Karooz, Clinical Nurse Manager, SESLHD MHS
October 2018	0	Reviewed by MHS Therapeutics & Drug Committee. Disseminated for wider consultation.
November 2018	1	Endorsed by DDDCC. Endorsed by SESLHD Clinical Council.
December 2018	1	Processed by Executive Services and progressed to Clinical and Council Committee for approval prior to publishing.
February 2019	1	Approved by Clinical and Quality Council
October 2020	v2.0	Working group (K Reid, T Anderson, A O'Mara, J Masterson) convened to write process for use of retractable needle
January 2022	v2.1	Routine review commenced factoring in feedback from the October 2020 retractable needle working group. Updated document circulated for feedback.
February 2022	v2.2	Minor feedback received from DDCC. Reviewed by Dr S Kavanagh, Chair, MHS Standard 4 Committee. Appendix A and Appendix B removed to ensure staff are referring to MIMs for current guidance. Reference to consult MIMs added to guideline. Endorsed by Document Development and Control Committee. Endorsed by Executive Sponsor.
March 2022	v2.3	Endorsed by SESLHD Quality Use of Medicine Committee with minor amendments.
September 2024	v2.4	Appendix A Administration of Ventrogluteal Intramuscular Injection added. Links checked and updated. Circulated to DDCC for review.
November 2024	v2.5	Sizes updated to include inches. The importance of body shape and composition has been emphasised.
December 2024	v2.6	Additional changes to wording by MH Lead Pharmacist. Sent to Document Development and Control Committee, MH NS4C and MH Clinical Council for out-of-session endorsement.
20 January 2025	2.6	Executive Sponsor approved for publication and document published.

## Section 10 - Appendix A - Administration of Ventrogluteal Intramuscular Injection



### Definitions

**Ventrogluteal:** Ventro – A prefix denoting ventral. Pertaining to the belly or to any venter. Gluteal – Relating to the buttocks.

**Trochanter:** One of the bony prominences developed from independent osseous centres near the upper extremity of the femur; there are two in humans.

**Anterior iliac crest:** Front surface of the long, curved upper border of the wing of the ilium (the broad, flaring portion of the hipbone).

(Source: *Stedman's Medical Dictionary for the Health Professions and Nursing*)

### Precautions

- The consideration for the ventrogluteal site, is the small area suitable for injection. If the consumer needs multiple injections, the clinical staff member may need to use other areas of the body.
- Locating landmarks may be difficult on obese consumers.
- Very thin consumers may not have adequate muscle tissue for an intramuscular injection at the ventrogluteal site.

### What to do

1. Prepare equipment (including a sharps disposal plan) and the injection site on the client while maintaining a high standard of hygiene and asepsis before, during and after the procedure.
2. Draw up medication using a size 18 gauge, blunt drawing up needle.
3. Remove the drawing up needle.

4. Replace the drawing up needle with a standard size 21 gauge needle. (A longer needle may be required in some instances where there is a thick fat layer to ensure the drug is delivered intramuscularly).
5. Alternatively, for pre-packaged products, follow the manufacturer's directions.
6. Position the consumer on their side so the muscle group is relaxed.
7. Locate the greater trochanter. It is the knobby top portion of the long bone in the upper leg (femur). It is about the size of a golf ball.
8. Find the anterior iliac crest.
9. Place the palm of your hand over the trochanter. Point the first/index finger towards the anterior iliac crest. Spread the second or middle finger towards the back, making a 'V'. The thumb should always be pointed towards the front of the leg. Always use the index finger and middle finger to make the 'V'.
10. To avoid an accidental needle stick injury, move the non-dominant hand (the hand that made the 'V') before injecting.
11. Prepare the needle site with an approved facility antimicrobial preparation pad, using a circular outward motion.
12. Stretch the skin tight using the Z track technique.
13. Hold the syringe like a pencil or dart. Insert the needle at a right angle to the skin (90 degrees) to prevent shearing and tissue displacement. Enter the skin firmly with a controlled thrust.
14. Draw back on the syringe and check for blood return, to ensure the needle is not in a blood vessel. If blood is seen, the procedure needs to be recommenced.
15. Inject medication slowly and steadily: about 1mL per 10 seconds to allow the muscle to accommodate the fluid. You may give up to 3-5mL (cc) of fluid in this site.
16. Allow 10 seconds after completion of the injection to allow the medication to diffuse, then withdraw the needle at the same angle as it entered. Release the stretched skin.
17. Do not massage afterwards, but be prepared to apply gentle pressure with a gauze swab.
18. For regular depot injections, use the opposite side.
19. Document the procedure – including the time, date and site of insertion – in the medical record and in the appropriate medication form.
20. Dispose of equipment as per [GL2024\\_002 Blood and Body Substances Occupational Exposure Prevention](#)
21. Use alcohol hand rub or wash hands as per [Hand Hygiene Australia](#) guidance

### Compliance evaluation

Staff using the ventrogluteal intramuscular technique will be able to:

1. Explain the rationale for using this technique. Answer criteria is as follows:
  - Older, malnourished or non-ambulatory consumers may have dorsogluteal muscle atrophy, leading to decreased drug absorption.
  - The relevant area has a greater thickness of gluteal muscle than the dorsogluteal site. Injections into this area are less likely to be inadvertently deposited into subcutaneous tissue rather than muscle tissue. Unintended subcutaneous injection is related to difficulty with assessing the thickness of the subcutaneous fat pad. Apart from altering drug absorption and response, this practice can cause injury to subcutaneous tissue.
  - The area is relatively free of large penetrating nerves and blood vessels.
  - The area is innervated and receives blood from multiple small nerve and blood vessel branches, thus reducing the potential for more significant injury.
  - Landmarks are clearly defined.
  - 3mL to 5mL can be injected.



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2. Demonstrate safe and accurate use of this technique. Answer criteria is via correct 'Identification of the Ventrogluteal Intramuscular Injection site' (see diagram above).
  3. Explain how the client is treated with dignity and respect throughout the procedure. Answer criteria is as follows:
    - The client is given knowledge regarding the efficacy and therapeutic outcomes of ventrogluteal intramuscular injections.
    - The client's ability to provide informed consent about the desired intramuscular injection site is assessed.
    - The client is prepared with appropriate information before the procedure, so that he/she understands what is happening and can comply with instructions.
    - The client is informed that the intramuscular injection will be given in alternate sites during his/her treatment regime
  4. Landmarks are confidently obtained by administering nurse
  5. Consumers have adequate muscle tissue in the ventrogluteal area
  6. Staff administering in this method are adequately trained in the correct administration procedure.