Cambridgeshire and Peterborough NHS Foundation Trust

Guidelines for Administration of Medicines by Intramuscular and Subcutaneous Injection

Author:	Clinical Skills Lead L&OD Clinical Pharmacist Non-Medical Prescribing Lead
Sponsor/Executive:	Medical Director
Responsible committee:	Patient Safety & Clinical Governance
Ratified by:	Quality Safety and Governance Committee
Consultation & Approval: (Committee/Groups which signed off the policy, including date)	Infection Prevention, and Control Safe to Care Group Medicines Governance Group 7 October 2019 QCE 21 October 2019
This document replaces:	CPFT Guidelines for Administration of Medicines by Intramuscular Injection v2.0
Date ratified:	18 December 2019
Date issued:	18 December 2019
Review date:	June 2022
Version:	3.0
Policy Number:	CL50
Purpose of the Policy:	To provide guidance for clinicians employed by Cambridgeshire & Peterborough NHS Foundation Trust (CPFT) that undertake administration of medicines by intramuscular or subcutaneous Injection
If developed in partnership with another agency, ratification details of the relevant agency	
Policy in-line with national guidelines:	EU Regulations on Safer Sharps 2013 National Occupational Standard Knowledge and Skills Framework (October 2004): Dimension HWB6 Assessment and Treatment Planning NMC The Code 2015 HCPC Standards of Performance Conduct and Ethics 2015

Signed on behalf of the Trust: ……..

Tracy Dowling, Chief Executive

Elizabeth House, Fulbourn Hospital, Fulbourn, Cambridge, CB21 5EF Phone: 01223 726789

Version Control Page

Version	Date	Author	Comments
1.0	April 2006	Nephat Chege	
2.0	March 2015	Julia Ferris Chris Jenkins	Reviewed to reflect new guidance
3.0	June 2019	Clinical Skills Lead L, NMP lead & OD Clinical Pharmacist	Amendments to Training needs and move to Proficiency in Practice of Competency Framework

Policy Circulation Information

Notification of policy release: All recipients; Staff Notice Board; Intranet;	Trust Weekly Comms Intramuscular and Subcutaneous Injection Training Session
Key words to be used in DtGP search.	Intramuscular, subcutaneous, injection

CQC Standards	Person Centred Care; Need for Consent; Safe Care and Treatment and Dignity and Respect
Other Quality Standards	Royal Marsden Clinical Procedures (2015)

Contents

Section

1 Introduction, Purpose and Scope

Administration of an intramuscular or subcutaneous injection should be a safe and consistent clinical procedure carried out by proficient staff. These guidelines have been developed to support staff in administering medication by intramuscular or subcutaneous injection within Cambridgeshire and Peterborough NHS Foundation Trust (CPFT). The guidelines aim to define the responsibilities, training, competencies and proficiency standards required of clinicians with regard to their role in administering these injections.

In order for staff to competently practise intramuscular or subcutaneous injections, they must possess the knowledge, skills and abilities required for professional, safe and effective practice without direct supervision. CPFT Learning and Development (Clinical Skills) will provide training for all staff that require as part of their role to administer intramuscular and subcutaneous injections.

These guidelines should be read in conjunction with CPFT's *Medicines Policy* and relevant *Medicines Management Standard Operating Procedures* (MMSOPs) for the ward/team.

In order for staff to mentor students, staff to demonstrate proficiency and competency to facilitate the education for learners in relation to having the opportunity to undertake the practice of the skill. Staff will ensure the learner has completed agreed relevant training and is able to demonstrate the understanding of the theory prior to the practicing of the skill.

2 Definitions and abbreviations

- **Intramuscular (IM) injection** is the process of administering medication into deep muscle tissue.
- **Subcutaneous (SC) injection** is the process of administering medication into the subcutaneous tissue.
- The term **"clinician"** will be used throughout this document and refers to a staff member who may administer an injection. The clinician can be a registered healthcare professional (Nursing Associate, Registered Nurse, Doctor or Paramedic), or a Health Care Assistant/Support Worker Band 4 who is working under delegation.

3 Duties and Responsibilities

Chief Executive

The Chief Executive is the nominated accountable officer with overall responsibility to ensure there are effective and appropriate systems for the management of administration of IM/SC injections within the Trust.

Service Area Managers are responsible for ensuring clinicians within their area are aware of, and practising within, these guidelines.

Line managers are responsible for ensuring systems are in place to identify and support staff training needs on the implementation of these guidelines.

Information regarding any failure to comply with the guidelines (e.g. lack of training, inadequate equipment) must be reported to the Line Manager and the incident reporting system used where appropriate.

All clinicians attending training and undertaking administration of IM and SC injections in the Trust have a responsibility to have read and understood all guidelines and policies related to these procedures. Those individuals undertaking the administration of IM or SC injections have a responsibility to ensure that they practice the skill on a regular basis to remain competent and skilled and achieve proficiency. They are also responsible for recognising any limitations in their competence and declining any duties they do not feel able to perform in a skilled and safe manner

Supervisors and Assessors of learners

CPFT provides training to learners from a range of disciplines. Regulatory bodies (such as the NMC or HCPC), and the Trust require that registered staff who undertake the supervision and assessment of student learners have the proficiency, skill and knowledge to facilitate the education for learners. They will, within the scope of their responsibilities, ensure that learners have completed agreed relevant placement training and are able to demonstrate the understanding of the theory prior to the practicing of the skill.

4 Safety of the Clinician

All staff should comply with the current health and safety legislation including the Health and Safety at Work Act 1974, and COSHH 2002; and be familiar with the CPFT policies for *Health and Safety* and *Infection Prevention and Control*, and the *Policy and Procedures for the Segregation and Disposal of Wastes from a Healthcare Environment.*

All clinicians must comply with Occupational Health requirements for vaccinations e.g. Hepatitis B.

To protect clinicians from any potential blood spills adherence to standard precautions and safe technique is imperative. Clinicians should ensure:

- Any existing wounds, skin lesions and all breaks in exposed skin are covered with waterproof dressings.
- If hands are extensively affected advice should be sought from Occupational Health.
- Good quality, well-fitting gloves (latex free) should be worn when undertaking administration of any injections.
- Personal Protective Equipment (PPE) must only be used for one patient and one aspect of care only.
- Hand washing with soap and water or cleansing hands with alcohol hand sanitiser should be carried out after contact with each patient (after removing gloves).

The primary aim of good infection control in administering injections is to prevent sharps injuries occurring (inoculation). Staff should ensure:

- Careful and meticulous technique
- Safety needles must be used for all injections.

- Staff should take care when unsheathing a sterile needle. In the event of a needle-stick injury with a sterile needle, that needle should not be used and must be disposed of immediately into the sharps container. Needles must never be re-sheathed.
- Safety needles should have the cover activated according to the manufacturer's guidelines and disposed of into a sharps container.
- Sharps should be placed directly into a suitable container immediately after removal from the patient and not passed directly from hand to hand.
- Syringes and needles are not dismantled by hand and are disposed of as a single unit where applicable.
- Healthcare workers must not wear open footwear in clinical situations where bodily fluids may be spilt, or where sharp instruments or needles are handled.

5 Disposal of sharps

Sharps containers must:

- Conform to British Standard 7320 and UN Standard 3291 • When in use be sited so that they cannot be tampered with.
- When in use be stored below the height of the shoulder and above waist height. For In-patient units sharps containers in use must be secured to the wall/fixture. For those in use in the community setting they must be stored upright with temporary lock activated.
- Be sealed and replaced when contents reach the fill line.
- Be taken to the point of use for the subsequent disposal of each sharp item.
- Be marked with the ward/department/unit name or number, the name of the person who assembles it, the name of the person who locks it and finally the name of the person who disposes of it.
- Locked sharps containers must be stored/ disposed of securely in designated areas and be accessible only to authorised handlers.
- An adequate number and size of sharps bins should be available in clinical areas.
- No attempt should be made to retrieve items from sharps container.
- Staff are aware of how to deal with a needle stick injury (inoculation injury). (RCN, 2005).

In the event of a needle stick or contaminated sharps injury, or contamination with blood or blood stained body fluids staff should refer to CPFT Sharps Policy and Occupational Health Guidance.

Action in the event of any sharps (inoculation) injury:

- Encourage bleeding, squeeze the site of injury, do not suck
- Wash the skin thoroughly with water and soap, do not scrub
- Irrigate contaminated mucous membranes, e.g. mouth and eyes with quantities of water or use splash kits where provided
- Cover the injury with a waterproof dressing
- Inform the Nurse in charge or Line Manager
- Report to Occupational Health or if Out of Hours contact the local A&E who will discuss appropriate procedure and Post Exposure Prophylaxis
- Complete Datix.

6 Authorisation to administer an injection

A clinician may only administer an injection in accordance with a valid authorisation (see Medicines policy). Within CPFT this will usually be one of:

- Prescription chart – this includes in-patients (e.g. rapid tranquillisation, Pabrinex®) and out-patients (e.g. end-of-life medications, depot antipsychotics).
- GP prescription (e.g. hydroxocobalamin)
- Protocol or Patient Group Direction (e.g. influenza vaccine). Staff using PGDs need to ensure they are competent to administer under a PGD, and have read, understood, and completed the Agreement to Practice attached to the individual PGD.
- In a life-threatening emergency (e.g. adrenaline for anaphylaxis)
- Medicines exemption act (e.g. registered chiropodists list)

a. Preparation – general

- Check the prescription/authorisation to ensure that the correct medication has been selected, and that the prescription is valid and in date (if applicable).
- For any medication check that an Injectable Medicines Risk Assessment has been completed and that you are familiar with any additional documentation that is identified in the risk assessment. If the Injectable Medicines Risk assessment has not been undertaken this needs completing in accordance with MMSOP040.
- All medicines should be administering in accordance with MMSOP010 Administration of Medicines by Registered Health Care Professionals.
- Check patient's physical and mental health and document on patient's record.
- Check and be aware of recent injections as this may influence the administration of the current dose and medication to be administered.
- Discuss rationale for administration and any concerns regarding treatment, side effects and benefits.
- Check medication has not already been administered.
- Check allergy status is recorded on prescription and in patient's record and verbally clarify if patient is able to.
- Confirm and document the patient has capacity to consent to treatment.
- Wash hands and prepare aseptic non touch technique (ANTT) field using a dressing pack or ensuring there is a sterile field to prepare and administer.
- Prepare injection by following manufacturer's instructions.
- Take time to ensure any dose calculations are correct and double check with another member of staff if possible.
- Where a product is pre-packed and is supplied with own needles, these should always be used – taking in to account the intended injection site.
- Where syringes and needles are required to draw up medication and administer the injections, use clinical judgement to determine correct size of needle and syringe, considering patient's body-mass index (BMI) and chosen injection site (Public Health England, 2006):

- For **IM injections**, consider the length of the needle required to reach the chosen muscle of administration allowing a quarter of the needle to remain external. The most common size of needle is 21G (green), in lengths of 25mm and 38mm; patients over 90kg in weight may need a 50mm needle. A 23G needle (blue) may be more appropriate in a thin patient. Signs of inappropriate needle length may include pain at injection site, bruising at the injection site or localised abscesses.
- For **SC injections,** a 16mm 25G (orange) needle is commonly used.

- Check the name, strength and form of medication and the dose, route and frequency.
- Check the expiry date of all medicines and equipment and whether it has been stored correctly.
- Prepare the injection site: if the skin is visibly dirty it should be washed with soap and water and dried. If skin appears clean use a 70% alcohol wipe in a cross-hatch motion to clean the intended site of injection for 30 seconds and allow drying for 30 seconds.

b. IM injection sites

The choice of IM injection site will depend on the product licence, the patient's preference, the clinical circumstances, and site of any previous injections.

c. Sites for IM injection

Site		**Max volume that can be injected**	**Absorption**	**Comments**
	Deltoid	1mL	Rapid	Easily accessible. Small area. Used for vaccines and some antipsychotic depots.
Gluteal	Ventrogluteal	2.5mL	Good	Little used, as unfamiliar, but has advantages. Good site for rapid tranquillisation; also Suitable for many antipsychotic depots.
	Dorsogluteal	4mL	Poorest	Historically used for RT and depots. May have significant subcutaneous fat (need long needle to reach muscle).
Thigh	Vastus lateralis	5mL	Good	Less subcutaneous fat than gluteal sites. Preferred site for adrenaline (anaphylaxis).
	Rectus femoris	5mL		*Mostly used by patients who self-inject. Not routinely used in CPFT.*

d. Licensed routes and sites for IM injections commonly used in CPFT Mental Health

Injection	Route as specified in license	Comments
Rapid tranquillisation		
Aripiprazole short-acting	IM	Recommended: deltoid, or deep within gluteus maximus
Haloperidol	IM	
Lorazepam	IM	
Olanzapine short-acting	IM	
Promethazine	Deep IM	
Depot antipsychotics		
Aripiprazole LAI (Abilify Maintena®)	IM	Deltoid or gluteal
Flupenthixol decanoate (Depaola®)	Deep IM	Upper outer buttock or lateral thigh
Haloperidol decanoate (Haldol®)	IM	Gluteal
Olanzapine LAI (Zypadhera®)	IM	Gluteal
Paliperidone LAI monthly (Xeplion®)	IM	First 2 doses into deltoid, then deltoid or gluteal
Paliperidone LAI 3-monthly (Trevicta®)	IM	Deltoid or gluteal (use manufacturer's needle as supplied)
Risperidone LAI (Risperdal Consta®)	IM	Deltoid or gluteal (use manufacturer's needle as supplied)
Zuclopenthixol acetate or decanoate (Clopixol®)	Deep IM	Upper outer buttock or lateral thigh
Miscellaneous		
Pabrinex IM high potency	IM	Gluteal. Mix amp 1 and amp 2 before injection. Total volume = 7mL, so common practice to divide this between 2 sites
Procyclidine	IM	

- Injections should be administered into the recommended licenced site where specified, see manufacturer's information leaflet. In the event of a patient refusing, but accepting an alternative unlicensed site, this should be discussed with the prescriber and pharmacy, and the rationale for any decision documented in the patient's notes.
- Use of an alternative site may affect the absorption of an injection, leading to higher or lower plasma levels of medication.
- The injection technique depends on the site and the assessment of the individual patient.

e. Other commonly used injections

Other commonly used injections		
Injection	**Route as specified in license**	**Comments**
Adrenaline 1:1000 (for anaphylaxis)	IM	Recommended: anterolateral aspect of the middle third of the thigh
Dalteparin	SC	
Erythropoietins (EPO)	SC	
Influenza vaccine	IM	Deep SC may be used in bleeding disorders – see PGD/protocol
Insulin	SC	
Hydroxocobalamin	IM	
Leuprorelin Prostap®	SC	
Goserelin Zoladex®	SC	
End of life care injections (EOLC)		
Injection	**Preferred routes for EOLC**	**Comments** If not used for EOLC refer to manufacturer's SPC or PIL for route of administration
Cyclizine	SC*	
Dexamethasone	SC	
Glycopyrronium	SC *	
Haloperidol	SC *	
Hyoscine butylbromide	SC *	
Levomepromazine	SC	
Metoclopramide	SC *	
Midazolam	SC *	
Morphine	SC	
Oxycodone	SC	

Note: Many of the commonly prescribed injections used in end of life care have an established route of administration outside of the manufacturer's license supported by authoritative clinical guidance.
The * indicates where the preferred route of administration is unlicensed.

7 Injection sites and technique

a. Z-track Intramuscular injection technique guidance:

- Pull the skin of the target taut and to one side with either the thumb or side of the non-dominant hand pulling the skin downwards or laterally of the injection site, maintaining this throughout the procedure.

- Insert the needle with a dart-like motion at 90 degree angle to skin Keep graduation markings on the syringe barrel visible at all times. For dorsogluteal injections only, draw back the plunger slightly to see if blood evident in syringe. If bloods apparent in syringe withdraw whole needle and syringe and re start the whole procedure again. Inform the doctor/nurse in charge and patient of reason why the procedure has been restarted.
- Depress the plunger slowly (1ml every 10 seconds) to allow the muscle fibres to expand to allow deposit the medication. Once the total volume of required medication has been inserted, wait a further 10 seconds before removing the needle, whilst releasing the retracted skin at the same time - this seals off the puncture track.

b. Mid-deltoid site

- This site has the advantage of being easily accessible whether the patient is standing, sitting or lying down. Owing to the small area of this site, the number and volume of injections which can be given into it are limited.
- If injecting by this route, follow the general preparation and ‘Z’ track guidance given above and:
  - Ask the service user to sit down and expose the arm and shoulder.
  - Ask the service user to position their arm across their body and to relax the arm.
  - Locate the correct site by its relative position to the acromion process and axilla.

c. Dorsogluteal site

- This is used for deep intramuscular and Z-track injections. This muscle group has the lowest drug absorption rate. The subcutaneous layer thins, and muscle mass is also likely to have atrophied in older people, non-ambulant and emaciated Patients. This site carries with it the danger of the needle hitting the sciatic nerve and the superior gluteal arteries.
- If injecting by this route, follow the general preparation and ‘Z’ track guidance given above, and:
  - Ask the service user to lie down and to loosen clothes to allow the injection site to be exposed. A position taken with the femur internally rotated will minimise administration pain.
  - Locate the injection site within the upper right portion of the upper right quadrant of the buttock.
  - When the needle has been inserted pull back the plunger slightly to ensure that no blood comes back into the syringe. Do not continue if blood is seen in the syringe; otherwise continue with injecting in the medication.

d. Rectus femoris and vastus lateralis sites

- These sites are also able to be used for some intramuscular injections. Both sites are located on the quadriceps. If injecting by one of these routes, follow the general preparation and 'Z' track guidance given above, and:
  - Ask the service user to lie down and loosen clothing to expose the hip area for the injection site to be used.
  - Locate the injection site by the relative location to the greater trochanter and anterior superior ileac spine. Be particularly careful to avoid needlestick injury by administration by this route.

e. Ventrogluteal site

- This can be used for a variety of medicines. This is considered by some to be the site of choice for intramuscular injections as up to 2.5 ml can be safely injected. Injecting by this route should follow the general preparation and 'Z' track guidance given above, and:
  - Ask the service user to lie down and loosen clothing to expose the hip area for the injection site to be used.
  - Locate the injection site by the relative location to the greater trochanter and anterior superior ileac spine. Be particularly careful to avoid needlestick injury by administration by this route.

f. SC Injection sites

- There are six injection sites preferred for SC administration:
  - The abdomen under the level of the umbilical, about two inches away from the navel.
  - The arms include the lateral aspect of the lower part of the upper arm and posterior aspect of the upper arm.
  - The thighs.
- Best practice is to rotate injection sites to reduce painful sites and lipodystrophy which can affect the drug absorption.

8 Post administration general guidance:

- If necessary, a dry dressing may be applied to the injection site. A plaster may also be used if wanted by the service user, and they are not allergic to one.
- Dispose of equipment immediately, safely disposing of broken ampoules and needles into a labelled sharps bin.
- Remove gloves and other personal protective equipment and wash hands thoroughly.
- Complete all sections of the appropriate chart/card to record the administration, including the day and time of the administration, the dose given, and the route (to include which site of the body was used).
- Ensure the patient is aware of what to do should any complications arise before their next consultation and offer help with any questions that they may have in relation to their treatment.
- If any significant issues arise from the administration, the clinician should inform the patient's doctor(s) as soon as it is appropriate to do so.

9 Education and Training Requirements

Registered Practitioners:

- Registered practitioners undertaking administration of IM/SC injections must be band 4 and above and competent to administer injections via these routes.
- Registered practitioners who are not competent must attend the CPFT IM/SC injection training session and read appropriate documentation in the Royal Marsden Manual.
- The clinical practitioner should also be aware of the medication being administered and the product literature recommendations prior to administration.
- The practitioner should also discuss the medication with the service user/patient if they are able to understand the rationale for administration.
- Written/verbal information should be given to the patient/service user and documented alongside consent in patient records.
- Clinical practitioners must complete yearly competencies to ensure proficiency in practice.
- Information from 'Choice and Medication' is available for mental health medicines on the Trust's intranet.

Non-registered healthcare staff:

- Non-registered staff undertaking administration of medication via SC injection under delegation from a registered nurse must have completed the face to face medicines management training and completed their medicine competencies.
- They must then attend the IM/SC training session and read the appropriate documentation in the Royal Marsden Manual.

10 Useful websites

- www.medicines.org.uk/emc
- www.medicinescomplete.com
- www.choiceandmedication.org/cambridgeshire-and-peterborough

11 Monitoring Compliance

- Attendance of training will be recorded on CPFT Academy by the Learning & Development team.
- Competency Assessment documents are to be kept by the individual for reference and uploaded onto Academy to complete the clinical pathway.
- Staff that are deemed competent in administering IM and SC injections are responsible for ensuring that they follow the guidelines outlined in the document and report any near misses/risks via the Datix system.
- Managers and senior clinicians are responsible for the on-going monitoring of this Policy.

- Formal review of the policy will occur every 3 years by the Clinical Skills Lead.
- Any issues relating to the non-adherence of the Intramuscular and subcutaneous guidelines must be reported using the Incident Reporting System (Datix)

12 Links to Other Documents

- Datix Incident reporting Guidelines
- Health and safety Policy
- CPFT Infection Prevention and Control
- CPFT Medicines Policy
- CPFT Clinical Record Keeping Policy

13 References and Acknowledgements

Beyea, S. C., & Nicholl, L. (1995). Administration of medications via the Intramuscular Route: an integrative review of the literature and research based protocol for the procedure. *Applied Nurse Res,* 5(1), pg. 23 – 33.

Dougherty, L., Lister, S (2015) 9th ed. *The Royal Marsden Hospital Manual of Clinical Nursing Procedures*. London. Wiley Blackwell Publishing

Feetam C. & White J. 4th eds (2014) *Guidance on the Administration to Adults of Oil based Depot and other Long-Acting Intramuscular Antipsychotic Injections*

Greenaway, K. (2004). Using the ventrogluteal site for intramuscular injection. *Nursing Standard*. 18 (25), 39 – 42.

Health and Safety Executive (2013) Health and Safety (Sharp Instruments in Healthcare) Regulations 2013 – Guidance for employers and employees. Available at http://www.hse.gov/pubns/hsis7.pdf

Mac Gabhann, L (1996). A Comparison of two depot injection techniques. *Nursing Standard.* 12 (37), pg. 39 – 41.

Nesbit, Andrew Charles. Intramuscular gluteal injections in the increasingly obese population: retrospective study. *BMJ* 2006; 332: 637-638

Public Health England (2006). *Immunisation Against Infectious Disease: The Green Book*. Available at: www.gov.uk/government/publications/yellow-fever-the-green-book-chapter-35

Rodger, M. A., & King, L. (2000). Drawing Up and Administering Intramuscular injections: A Review of the Literature. *Journal of Advanced Nursing*, 31 (3), pg. 574– 582

Workman, B. (1999). Safe Injection Techniques. *Nursing standard* 13 (39), pg 47 – 53.