



Acacium Group

Intramuscular Injection (IM) (Adult and Child)

Procedure Reference | SOP MEDS 06

Version | V4.0

Procedure Name	Intramuscular Injection (IM) (Adult and Child)
Purpose of Document	To ensure that the correct preparation, procedures & outcomes are achieved by implementing a consistent and systematic approach to undertaking intramuscular injections
Target Audience	All Healthcare Professionals
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Equality Impact Assessment (EIA) Form	Acacium Group is committed to Equality, Diversity and Inclusion and in line with our values, we strive to ensure that everyone that is part of the Acacium community is not disadvantaged or discriminated against given their individual need or characteristics. To support this, an Equality Impact Assessment has been undertaken on this policy/procedure. This information is held centrally and can be requested from the Clinical Governance Team.
About Acacium Group	Details of all Acacium Group trading companies that this policy applies to are detailed within Appendix A

Document History			
Version	Date	Changes made/comments	By whom
V1	Dec 2016	Implementation of document history page	KNF/VM
V1	Apr 2018	Updated front sheet to include new review frequency date	KMS/VM
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Table of Contents

1. Introduction	5
2. Aim	5
3. Availability of medications and injection consumables.....	5
4. Storage	5
5. Sites of administration	6
6. Before administration	6
7. Equipment.....	9
8. Procedure.....	9
9. Aftercare	15
10. Complications.....	15
11. Associated Policies / SOPs.....	15
12. References.....	15
Appendix A: About Acacium Group.....	17
Appendix B: Sites of administration	18

1. Introduction

Injections are sterile solutions, emulsions or suspensions. They are prepared by dissolving, emulsifying or suspending the active ingredient and any added substance in water for injections, in a suitable non-aqueous liquid or a mixture of these vehicles (British Pharmacopoeia 2007).

Injections may be required as frequently as four to six hours or as infrequent as monthly.

An intramuscular injection is given into the central area of a muscle. The intramuscular route offers a faster rate of absorption than the subcutaneous route, and muscle tissue can often hold a larger volume of fluid without discomfort. Maximum volume of fluid for adults is 5mls and 3mls for children (see **section 6.7**).

Where prescribed Adrenaline should be available for nurses in case of a rare anaphylactic reaction. Please refer to the resuscitation policy and allergy policy.

The six rights: Prior to administering any medications it is important to consider the six rights:

- Right drug
- Right time
- Right dose
- Right route
- Right client
- Right to Refuse

As well as the six rights it is also important to consider the right position and the right documentation.

2. Aim

The medication is safely and effectively delivered to the client via intramuscular injection without signs of complications or discomfort, taking care to protect the person administering the medication too.

3. Availability of medications and injection consumables

Whoever has responsibility (Client, Family or Worker) must ensure that medicines and the equipment required to administer them, are suitable and available for use.

4. Storage

Please read the Medicines Management policy however the majority of medicines for intramuscular injection are stored at **fridge temperature – between 2 and 8°C**. Clients and their carers or relatives should be advised of the importance of storing these medicines within the correct temperature range. If these are to be stored in the fridge, request that the carers or relatives keep an eye on the fridge temperature by using a fridge thermometer and checking this every day. This would form part of the client safety check lists.. The fridge should be closed after use as quickly as possible and the fridge should not be over filled. Medication should **NEVER** be stored in or near the ice compartment.

If medicines are to be stored at **room temperature** this means **between 15 and 25°C and out of direct sunlight**.

Medicines for injection must always be stored in their original packaging and as per manufacturers guidelines.

Please also refer to the Controlled drugs section of the Medicines Management policy.

5. Sites of administration

There are four usual sites of administration:

- Deltoid (Upper arm)
- Rectus femoris (thigh)
- Vastus lateralis (thigh)
- Ventrogluteal (buttock)

Refer to Appendix B for diagrams

The uptake of drugs from the thigh region is slower than from the arm but faster than from the buttock, thus facilitating better drug serum concentrations than is possible with the gluteal (buttock) muscles.

The anterolateral aspect of the thigh is suitable for infants and the deltoid for older children.

The main recommended sites for administration are the:

- Ventrogluteal
- Anterolateral aspect of the thigh for children under 1 years old

If more than one injection is to be given, these should be given in separate limbs or the same limb but at least 2.5cm apart.

The buttocks, dorsogluteal sites are NOT recommended.

6. Before administration

Consideration should be given to:

- Needle size – **see section 6.5**
- Volume of medication to be injected – See **section 6.7**
- Medications to be given
- Site selection
- Equipment
- Reducing pain during administration for children – **section 6.3**
- Preparation if a glass ampoule – **section 6.4**

Other considerations are Client's weight/build, Client's age, and pre-existing conditions such as bleeding disorders.

Also check that there are no contraindications to the drug to be injected such as pregnancy, allergy, interactions with other drugs and bleeding disorders.

Consent

Valid consent should be gained before commencing the procedure. Risks and benefits to the procedure should be explained along with the risks of not having the procedure and any possible alternatives to the proposed procedure.

Acacium Group employed staff should be aware that carers and relatives do not have the right to give consent on behalf of the Client however staff may be able to act as long as they are able to demonstrate that any

actions are in the best interest of the Client. There may be a representative legally appointed to provide consent on the Client's behalf.

Please read Acacium Group policy on consent thoroughly and ensure valid consent has been gained.

Use of topical anaesthesia prior to injection

Topical anaesthetics reversibly block nerve conduction near their site of administration, thereby producing temporary loss of sensation in a limited area. This is helpful when you need to keep pain to a minimum during the administration of injections, especially for babies and young children. Lidocaine patches are more effective than anaesthetic gel. Emla Cream takes up to one hour to work but lasts for several hours, ametop takes up to 20 minutes to work but lasts for several hours. The length of time it takes to start working must be taken into consideration when planning the injection.

The GP or hospital specialist should prescribe these and any Acacium Group nurse or carer must use them as directed in the drug information leaflet, usually known as a Summary of Product Characteristics (SPC) and as detailed on the MAR chart.

Preparation of injection if injectate is in a glass ampoule

Evidence suggests when drawing up from glass ampoules glass particles may be present that are not visible to the naked eye. In a study conducted in 2004 it was found that a minimum of 22% of ampoules had glass particles present in the medication when unfiltered needles were used. When 19G filter needles were used no glass was aspirated into the syringe. Therefore, Acacium Group requires that Acacium Group nurses and competent carers use filter needles when drawing up injections from glass ampoules. The needle MUST be changed after to a suitable size for injection administration.

Tissue depth and choice of needles

Injectates must be delivered to the correct tissue layer. Correct delivery associated with use of a needle length that penetrates the muscle layer has been shown to reduce complications of abscess, pain and bruising.

Using a longer needle length within the anterolateral aspect of the thigh muscle results in significantly fewer adverse reactions compared with the deltoid. Use of the ventrogluteal site is associated with fewer adverse effects than the thigh.

Longer needles are indicated due to increased fat layer depth at all sites including ventrogluteal.

The success rate for IMIs in women is consistently lower than in men as women typically have more adipose tissue around the buttocks. This also applies to deltoid fat pad, with 50% of injections not reaching IM depth in women.

Recommendations for longer needles include – **25mm for women weighing between 60–90kg and 38mm for women who weigh over 90kg** to penetrate the deltoid muscle.

Current DH (2006) recommendations are that needle length must be sufficient to penetrate the subcutaneous fat layer using at least 25mm (23 gauge) blue needles or 38mm (21gauge) green needles for adults.

For children 16mm (25 G), **orange** is recommended although blue may be used and decisions depend on other factors such as age and subcutaneous fat.

The needle should be changed from the one used to draw up the injection before injecting the patient.

Skin cleansing

Cleaning the skin with an alcohol wipe before injection is not necessary, however the skin should continue to be cleaned & allowed to dry for 30 seconds prior to administration if a Client is immunosuppressed.

Volumes to be administered

The maximum volume to be administered depends on the muscle to be used with larger muscles tolerating larger volumes. As a guide:

- Deltoid – 1ml
- Ventrogluteal – 2.5ml
- Rectus femoris – 5ml adults, 1–3ml children
- Vastus lateralis – 1ml - 5ml
- Dorsogluteal (not recommended) – 4mls

Taken from Dougherty & Lister 2015

Large volumes need to be administered into large muscles however if a volume larger than 3ml is to be given to children or infants, or 5ml for older children and adults, these must be divided into smaller amounts and given into different sites. The use of the buttocks is NOT recommended.

Administration rate

Administration should be at a rate of 10 seconds per ml.

Intramuscular injections and pain

There are a number of factors that cause pain:

- The needle
- Chemical composition of the drug/solution
- Technique
- Speed of injection
- Volume of drug.

Client information

As part of obtaining valid consent the risks, benefits and alternatives to the injection will be discussed. However, especially where the injection is new to the Client, the Client should be offered written information that they may refer to. The SPC usually fulfils this requirement.

When an injection is given routinely to a Client, you can expect that the same level of information is required each time.

Clients should also be advised that if they are concerned about any side effects that they should contact their GP, or if considered serious to attend the local accident and emergency department. Client specific care plans should be followed for any concerns

If side effects are expected following administration, the Client and/or their relatives/carers should be advised how best these could be managed, for instance by reducing pain and swelling by taking paracetamol at appropriate intervals or as directed and detailed on their MAR chart.

Client and relatives/carers involvement

Initially the Client may wish their injection to be administered by a nurse. In time, they may wish to be taught how to do it themselves or they may wish a relative or carer to do so. Community staff do not have the responsibility to train clients or their families and if requested, should direct to the District Nursing team or appropriate specialist nurses.

7. Equipment

- Disposable syringe of appropriate size for amount of drug to be given
- Needle – 19 or 21 G to ease reconstitution and drawing up, 23 G if from a glass ampoule
- Filter needle if a glass ampoule
- Needle for administration, see **section 6.5**
- Prescribed medication
- Alcohol swab (not always required)
- Sterile topical swab if drug is presented in ampoule form
- Bactericidal soap or hand rub
- MAR sheet
- Sharps container
- Daily records/Records of events
- Appropriate PPE as per current guidance

Please note:

- See separate procedures at the end of this section regarding ampoule and vial preparation. (**Sections 8.1, 8.2, 8.3**)

8. Procedure

	Action	Rationale
1.	Explain the procedure to the Client and or their relatives and carer.	To ensure understanding and obtain valid consent.
2.	Check before commencing procedure that Client is not allergic to any of the ingredients of the medicine for injection.	To ensure drug is not administered if Client has any known allergy to any of the ingredients in the injection. NB: People can become intolerant or allergic to medicines even after years of use.
3.	Check that the Client also does not have a bleeding disorder, takes blood thinning drugs or other contraindications to administration such as pregnancy or immunosuppression.	Clients with haemophilia should be administered the injection deep subcutaneously to avoid the risk of bleeding. (Green Book 2012). If the Client has haemophilia or taking meds to thin their blood, ensure to wear gloves and put pressure on the site post administration.
4.	Check that the packaging of all equipment is intact. If the seal is damaged, discard.	To ensure sterility.

5.	Wash hands with bactericidal soap and water or bactericidal alcohol hand rub and dry.	To minimise risk of contamination.
6.	Prepare needle/s, syringe/s etc maintaining asepsis.	To contain all items in a clean area.
7.	Inspect all equipment. If damaged, discard and report to Medicines and Health Care Regulatory Agency.	To ensure that only safe equipment is used. Reporting to the MHRA ensures that difficulties with equipment can be monitored.
8.	<p>Consult the Client's MAR Chart, and ascertain the following:</p> <ul style="list-style-type: none"> a) Client identification including name & DOB b) Drug c) Dose d) Date and time of administration e) Route and method of administration f) Expiry date g) Validity of prescription h) Signature of prescriber & date i) Check when last given the medication j) Allergy <p>Check for any other relevant medical history.</p>	<p>To ensure that the Client is given the correct drug in the prescribed dose and that the drug has not expired.</p>
9.	<p>Select the drug in the appropriate volume, dilution or dosage and check the expiry date(s) as per manufacturer's instructions and as prescribed.</p> <p>Check the colour and composition.</p>	<p>To reduce wastage. To ensure drug is efficacious and not administered out of license.</p> <p>To ensure the drug looks like it should according to the drug information leaflet. If in doubt discard the drug.</p>
10.	<p>Prepare the fluid for injection as recommended by the manufacturer, withdrawing the appropriate amount of solution in relation to the prescribed dose.</p> <p>Use protective clothing if advised by manufacturer or authority policy.</p>	<p>To minimise risk of error.</p> <p>To protect health personnel during preparation.</p>
11.	Ensure Client's privacy.	To maintain Client's privacy and dignity.
12.	Assist the Client into the required position.	To allow access to the appropriate injection site.
13.	<p>Expose the site for injection.</p> <p>Assess the injection site for signs of inflammation, oedema, infection, previous surgery or stroke and skin lesions.</p>	<p>To promote effectiveness of administration.</p> <p>To reduce the risk of infection</p> <p>To avoid skin lesions and possible trauma to the Client.</p>
14.	Place a new appropriately sized needle on the syringe with the injection that is ready for use.	To prepare for administration.

15.	<p>Administer the drug as prescribed. Using the non-dominant hand, stretch the skin over the injection site.</p> <p>With the dominant hand, introduce 2/3 of the needle at a 90-degree angle to the skin.</p> <p>Pull back the plunger.</p> <ul style="list-style-type: none"> - If no blood is aspirated, depress the plunger at approximately 1 ml every 10 seconds and inject the drug slowly. - If blood appears, withdraw the needle completely, discard it, replace it and begin again. Explain to the Client what has occurred. <p>Wait 10 seconds before withdrawing the needle.</p>	<p>To facilitate the insertion of the needle and to reduce the sensitivity of nerve endings.</p> <p>To ensure that the needle penetrates the muscle.</p> <p>To confirm that the needle is in the correct position and not in a vein. This allows time for the muscle fibres to expand and absorb the solution. To prevent pain and ensure even distribution of the drug.</p> <p>To allow the medication to diffuse into the tissue.</p>
16.	Withdraw the needle smoothly and quickly and apply pressure to the site if bleeding occurs.	To prevent haematoma formation.
17.	Place syringe safely away from the Client DO NOT RESHEATH THE NEEDLE and discard in sharps container as soon as possible.	To ensure needle is not accidentally re-used.
18.	Dispose of all equipment safely in a sharp's container.	To ensure others are not put at risk due to unsafe disposal.
19.	Wash hands with bactericidal soap and water or bactericidal alcohol hand rub and dry.	To minimise risk of contamination.
20.	<p>Record the following information in the care notes:</p> <ul style="list-style-type: none"> • Drug name, product name, batch number and expiry date • Dose administered • Site(s) used – including, clear description of which injection was administered in each site, especially where two injections were administered in the same limb • Date of administration • Name and signature of administrator. • Adverse reactions, advice and treatment <p>Ensure MAR sheet is completed.</p>	To maintain accurate records, provide a point of reference and prevent any duplication of treatment. To highlight any concerns.

Ampoule Preparation

Single Dose Ampoule: Solution Preparation

Action	Rationale
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1.	Inspect the solution for cloudiness or particulate matter. If this is present, discard and use new ampoule. If all ampoules are the same inform Acacium Group line manager and if necessary, obtain new urgent prescription from GP. Also check the expiry date on the ampoule to ensure the drug is in date.	To prevent the Client from receiving an unstable or contaminated drug.
2.	Tap the neck of the ampoule gently.	To ensure all the solution is in the bottom of the ampoule.
3.	Cover the neck of the ampoule with a sterile topical swab and snap it open. If there is any difficulty, an ampoule cutter may be required.	To minimise the risk of contamination. To prevent aerosol formation or contact with the drug, which could lead to sensitivity reaction. To reduce the risk of injury to health personnel.
4.	Inspect the solution for glass fragments, if present, discard.	To minimise the risk of foreign matter into the Client.
5.	Withdraw the required amount of solution, tilting the ampoule if necessary.	To avoid drawing in any air.
6.	<p>Replace the sheath on the needle and tap the syringe to dislodge any air bubbles. Expel air.</p> <p>Note: Replacing the sheath should not be confused with re-sheathing used needles</p> <p>An alternative to expelling the air with the needle sheath in place would be to use the ampoule or vial to receive any air and/or drug.</p>	<p>To prevent aerosol formation.</p> <p>To ensure that the correct amount of drug is in the syringe.</p> <p>To prevent Needlestick injury.</p>
7.	Attach a new needle (and discard used needle into appropriate sharps container) or attach a plastic end cap.	To reduce the risk of infection. To avoid tracking medications through superficial tissues. To ensure the correct size of needle is used for the injection. To reduce the risk of injury to health personnel.

Single Dose Ampoule: Powder Preparation

Action		Rationale
1.	Tap the neck of the ampoule gently.	To ensure all the solution is in the bottom of the ampoule.
2.	Cover the neck of the ampoule with a sterile topical swab and snap it open. If there is any difficulty, a file may be required.	To minimise the risk of contamination. To prevent aerosol formation or contact with the drug, which could lead to sensitivity reaction. To reduce the risk of injury to health personnel.
3.	Inject the correct diluent as per the manufacturer's instructions slowly into the powder within the ampoule.	To ensure that the powder is thoroughly wet before agitation and is not released into the atmosphere.
4.	Agitate the ampoule.	To dissolve the drug.

5.	Inspect the content for glass fragments or other particle matter. If present, continue agitation or discard as appropriate.	To minimise the risk of injection of foreign matter into the Clients.
6.	When the solution is clear, withdraw the required amount, tilting the ampoule if necessary.	To ensure the powder is dissolved and has formed a solution with the diluent. To avoid drawing in any air.
7.	Replace the sheath on the needle and tap the syringe to dislodge any air bubbles. Expel air.	To prevent aerosol formation. To ensure that the correct amount of drug/dose is in the syringe.
8.	Attach a new needle and discard used needle into appropriate sharps container or attach a plastic end cap.	To reduce the risk of infection. To avoid tracking medications through superficial tissues. To ensure the correct size of needle is used for the injection. To reduce the risk of injury to health personnel.

Multidose Vial: Powder Preparation

	Action	Rationale
1.	Remove the tamper evident seal and clean the rubber septum with the chosen antiseptic and let it air dry for at least 1 minute.	To prevent bacterial contamination of the drug, as the plastic lid prevents damage and does not ensure sterility. (NPSA 2007)
	Use either of these methods for reconstitution: Reconstitution method A: (2 – 6)	
2.	Insert a 21G needle into the cap to vent the bottle.	To prevent pressure differentials, which can cause separation of needle and syringe. (NPSA 2007).
3.	Inject the correct diluent as per the manufacturer's instructions and as prescribed, slowly into the powder within the ampoule.	To ensure that the powder is thoroughly wet before it is shaken/rolled and is not released into the atmosphere. (NPSA 2007).
4.	Remove the needle and syringe.	To enable adequate mixing of the solution.
5.	Place a sterile topical swab over the venting needle and shake to dissolve the powder. <i>Note:</i> Health personnel may encounter other presentations of drugs for injection e.g. vials with a transfer needle and should follow the manufacturer's instructions in these instances.	To prevent contamination of the drug or the atmosphere. To mix the diluent with the powder and dissolve the drug.
6.	Inspect the solution for cloudiness or particulate matter. If this is present, discard. Use another vial. If all vials the same – inform line manager and the MHRA. Ask Client, carers or appropriate responsible person, to obtain new prescription from GP – urgently if required.	To prevent Client from receiving an unstable or contaminated drug.

Reconstitution method B: (7 -13)		
7.	With the needle sheathed, draw into the syringe a volume of air equivalent to the required volume of solution to be drawn up.	To prevent bacterial contamination of the drug.
8.	Remove the needle cover and insert the needle into the vial through the rubber spectrum being careful not to touch the rubber septum.	To gain access to the vial.
9.	Invert the vial. Keep the needle in the solution and slowly depress the plunger to push the air into the vial.	To create an equilibrium in the vial.
10.	Release the plunger so that the solution flows back into the syringe (if a large volume of solution is to be withdrawn, use a push/pull technique.	To create an equilibrium in the vial.
11.	Inject the diluent into the vial. Keeping the tip of the needle above the level of the solution on the vial, release the plunger. The syringe will fill with air which has been displaced by the solution.	This 'equilibrium method' helps to minimise the build-up of pressure in the vial.
12.	With the needle and syringe in place, gently swirl the vial to dissolve all the powder.	To mix the diluent with the powder and dissolve the drug.
13.	Inspect the solution for cloudiness or particulate matter. If this is present, discard. Follow local policy guidelines on what action to take.	To prevent Client from receiving an unstable or contaminated drug.
Withdrawal of medication from vial:		
14.	Withdraw the prescribed amount of solution and inspect for pieces of rubber which may have been 'cored out' of the cap. <i>Note: coring can be minimised by inserting the needle into the cap, bevel up, at an angle of 45 to 60 degrees. Before complete insertion of the needle tip, lift the needle to 90 degrees and proceed.</i>	To ensure that the correct amount of drug is in the syringe. To prevent the injection of foreign matter into the patient.
15.	Remove air from the syringe without spraying into the atmosphere by injecting air back into the vial or replace the sheath on the needle and tap the syringe to dislodge any air bubbles. Expel air.	To reduce risk of contamination of practitioner. To prevent aerosol formation.
16.	Attach a new needle and discard used needle into appropriate sharps container or attach a plastic end cap.	To reduce the risk of infection. To avoid possible trauma to the Client if the needle has barbed. To avoid tracking medications through superficial tissues. To ensure that the correct size of needle is used for the injection.

9. Aftercare

Monitor for signs of localised redness, swelling, bleeding, or inflammation at injection site. Observe the client following the injection for signs of reaction to the drug. If concerned, seek advice from Community Nurse or GP. If it is the first administration, monitor for reaction and document.

10. Complications

Most complications of intramuscular injections are a result of the drug injected and not the procedure. However, it is possible that localised trauma of the injection site may result as part of the process. Minor discomfort and pain is common for a short period following the injection, but usually resolves within a few hours.

Wrong site injection – may have the potential to cause injury e.g. to Sciatic Nerve.

Complications that are above what would be expected should be reported to your Line manager.

NB: If the medication label or packaging you are administering has a black upside-down triangle, all side effects or complications from administration should be reported to the Clinical Director.

If a medication error should occurs please refer to the medication management policy.

11. Associated Policies / SOPs

Policies

CLIN 03 Medicines Management Policy
CLIN 06 Consent Policy
CLIN 12 Safe Use of Medical Devices Policy
CLIN 07 Infection Control Policy
CLIN 19 Resuscitation Policy
ORG 04 Incident Policy
CLIN 07 Infection Prevention Policy

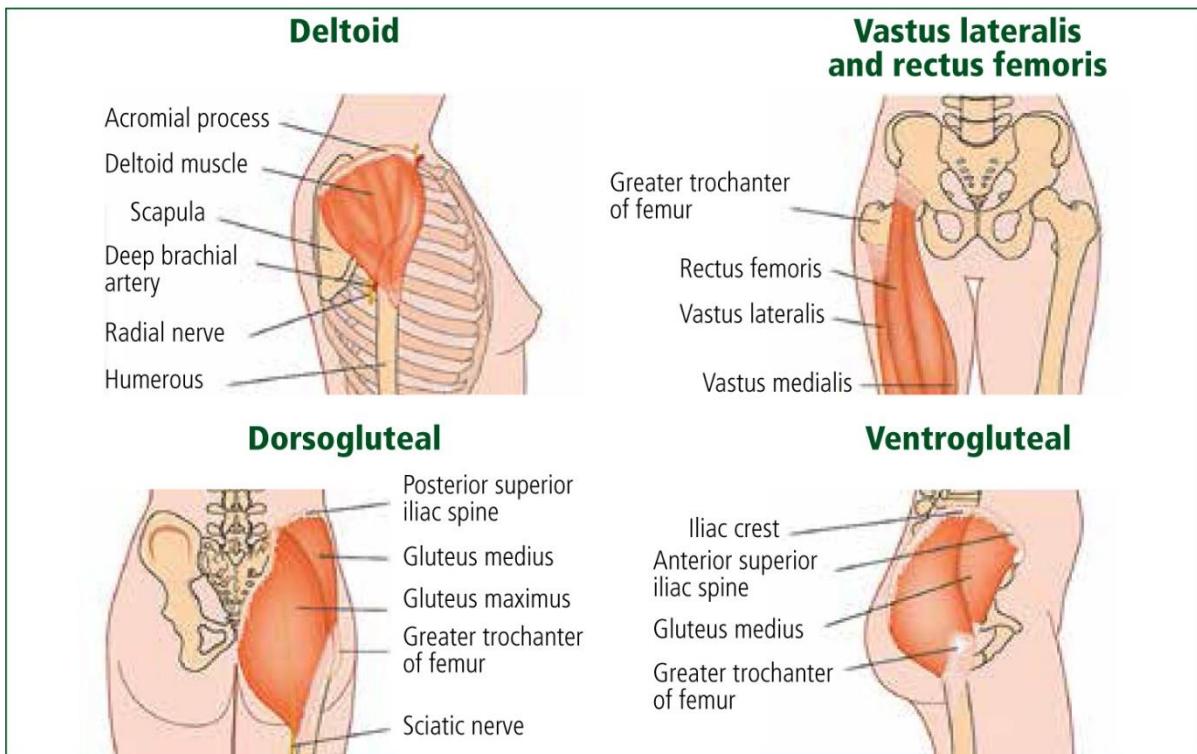
SOPs

SOP Meds 04 Subcutaneous Administration of Medicines
SOP Meds 07 Peripheral Intravenous Administration
SOP Meds 08 Administration via Central Line (Hickman, PIC and Porta Cath)
SOP Meds 09 Removal of Medicines from Client's Home
SOP Meds 18 Administration of Epi-Pen, Anapen and Emerade
SOP Meds 19 Self Administration of Medicines
SOP Meds 20 Oxygen Therapy: Adult and Child

12. References

- NMC 2018 Guidelines for records and record keeping (this is updated version) Procedure no 4
- The Royal Marsden 2015 Manual of Clinical Nursing procedures 9th Edition (this is updated version)

- CQC Medicines training and competency in adult social care settings – this relates to appropriate training, support and competencies making care safe, high quality and consistent (Training is referred to in all SOP's)
- NICE Guidance NG67 Managing medicines for adults receiving social care in the community March 2017 – this relates to general medicines management and details all processes
- The Green Book, Department of Health, 2012



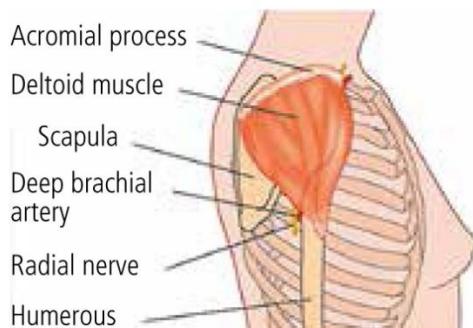
Appendix A: About Acacium Group

Acacium Group consists of a number of trading companies, each providing services within core niche areas of the health and social care industries. Therefore, as this document is a Group Policy, the Policy herein applies to all trading companies detailed below:

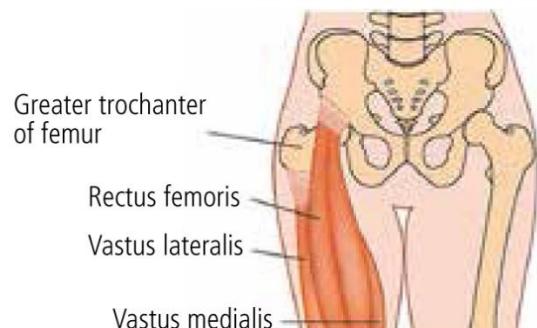
 Part of Acacium Group	 Part of Acacium Group
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Appendix B: Sites of administration

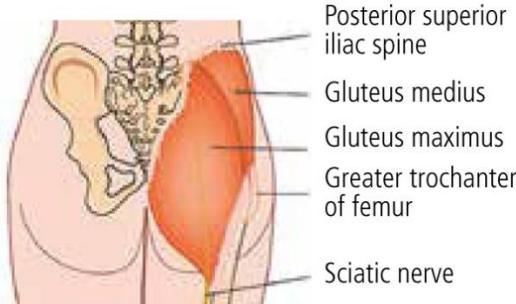
Deltoid



Vastus lateralis and rectus femoris



Dorsogluteal



Ventrogluteal

