

Sirius Business Services



An Introduction to the Principles and Practice of Safe and Effective Administration of Injections

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Giving an injection safely is considered to be a routine activity.

However it requires knowledge of anatomy and physiology, pharmacology, psychology, communication skills and practical expertise.

Today we will look at methods that encourage best practice when performing this procedure

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Intended Learning Outcomes



- Recognise the five reasons why medication may be given by injection (parenteral route)
- Differentiate between the structures involved and uses of the intramuscular (IM) and subcutaneous (SC)
- Outline factors influencing choice of syringes and needles
- Outline sites, basic preparation and administration techniques for the IM and SC routes
- Recognise the importance of universal precautions when giving injections

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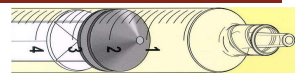
- Equipment
- Route
- Site
- Technique
- Safety

**Sirius Business Services
Equipment**



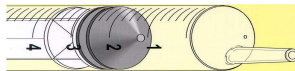
Luer Lok ®

- Allows a secure connection



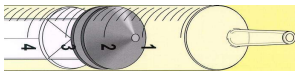
Eccentric Luer slip

- Allows one to get closer to the skin



Concentric Luer slip

- For all other applications



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What Needle**



- 21G or 23G
- Length depends on patient and site



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Blunt Filter/ Fill Needles**



Filter out subvisible particles of glass, rubber, fibre and other residues. The infusion of these particles have been linked with phlebitis,vascular occlusion and subsequent embolism, formation of granulomas and septicemia.



They are for use when withdrawing drugs from vials and glass ampoules

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Reasons for IM Injections**



- Rapid action required
- Drug altered by intestinal secretions
- Drug not absorbed by alimentary tract
- Patient cannot take oral drug
- Drug unavailable in oral form

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Patient Preparation**



- Promote comfort and relaxation
- Explain reason for injection
- Describe the procedure /obtain informed consent
- Check for any allergies/history of anaphylaxis
- Check prescription/drug/patient identify
- Check expiry dates and record lot numbers
- Avoid over exposure of patient
- Positioning of patient

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Procedure for Injections**



- Select site
- Select correct needle length and syringe
- Wash hands and apply gloves
- Prepare injections using aseptic technique
- Check patient identity
- Skin preparation (local policy)
- Inject slowly and remove needle
- Document procedure
- Review the individual as appropriate



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Skin Preparation**




- Little evidence to support the need for disinfection of the skin prior to subcutaneous or intramuscular injection
- If soiled, however, skin should be cleaned by soap and water or can be disinfected by an alcohol swab (if alcohol swab has been used allow the alcohol to evaporate before injecting)
- Refer to local policy

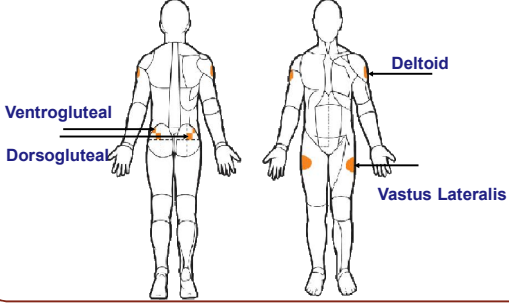
**Sirius Business Services
Site selection**




How many sites can be used to give an I.M. injection?

- The Deltoid.
- The Ventrogluteal site.
- The Dorsogluteal
- The Vastus Lateralis.

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Ventrogluteal
Dorsogluteal
Deltoid
Vastus Lateralis

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Traditionally nurses were told to divide the buttocks into four quadrants

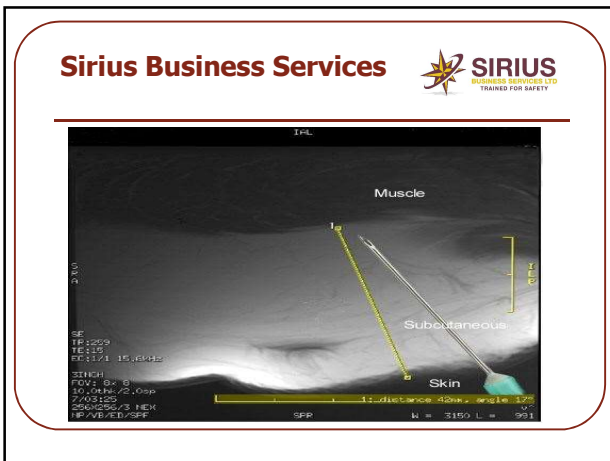



INJECT INTO THE UPPER OUTER QUADRANT

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Variability in subcutaneous tissue thickness

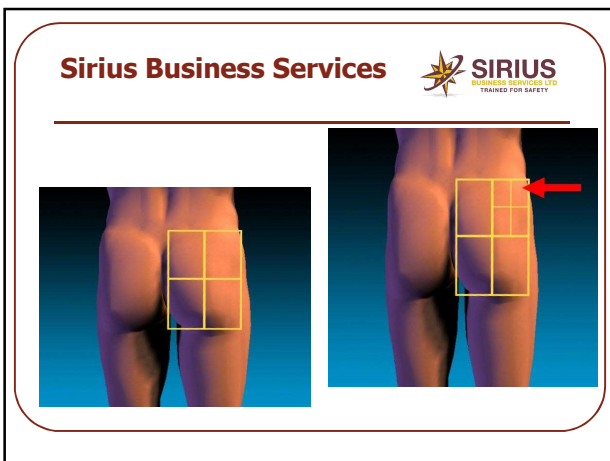
- Clinical study Cockshott, et al. New Engl. J Med, 307 (1982)
 - dorsogluteal injections in 213 adults
 - 1½ inch (or 38 mm) 21g green needle
 - localisation using CT scans
- Conclusions
 - Only 5% of women
 - Only 15% of men actually received IM injections, all other injections went into subcutaneous tissue




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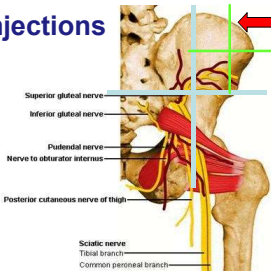
The Double Cross Approach

- The 'Double Cross'
- Divide the buttock with an imaginary cross
- THEN divide the upper outer quadrant by another imaginary cross
- Inject into the upper outer quadrant of the upper outer quadrant




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Injections



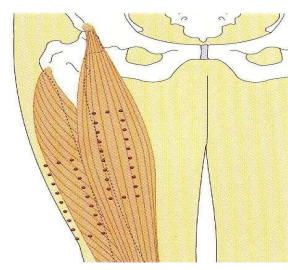
Superior gluteal nerve
Inferior gluteal nerve
Piriformis nerve
Nerve to obturator internus
Posterior cutaneous nerve of thigh
Sciatic nerve
Tibial branch
Common peroneal branch


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Vastus Lateralis

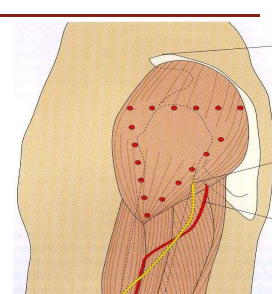
‘Bunch up’ in elderly, emaciated or infants

•Divide thigh into thirds, inject into bottom of top 1/3



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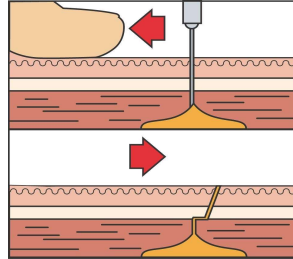
- Identify the Greater Tuberosity
- Move 5 cms below the site
- Rotate arm to confirm site



Sirius Business Services 'Z' tracking Procedure



- Pull skin taut
- Keeping skin taut with heel of hand insert needle at a 90% angle
- Aspirate plunger over 5-10 seconds noting any blood
- If clear inject 1ml every 10 seconds
- Wait 10 seconds before removing needle (Beyea & Nicoll 1995)
- Keep skin taut until needle removed
- Don't massage the site
- Check patient and site (30 minutes)



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- Ventrogluteal** Up to 4ml in a well developed muscle
Up to 2ml in less developed muscle
- Vastus lateralis** Up to 4ml in a well developed muscle
Up to 2ml in less developed muscle
- Deltoid** Up to 1ml in a well developed muscle
Up to 0.5ml in less developed muscle

Sirius Business Services Complications



- Infection
- Incorrect location
- Pain
- Anaphylaxis
- Hitting a blood vessel
- Sterile abscess
- Short and long term nerve damage
- Intramuscular haemorrhage

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Legal and Professional Issues



- Training and direct supervision with mentor
- Carry out procedure in accordance with local policy
- Develop competence
- Practice your skill regularly
- Do not proceed unless confident
- Documentation

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Standard Precautions



Skin

- Cuts or abrasions in any area of exposed skin should be covered.

Gloves

- Well fitting clean gloves must be worn during procedures where there may be contamination of hands by blood/body fluids.

Hand Washing

- The use of gloves does not preclude the need for thorough hand washing between procedures.

Sharps Container

- Needles are not to be resheathed prior to disposal into approved sharps container.

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Needlestick Injuries



- Bleed wound under running water
- Wash with soap and water
- Attend Occupational Health dept – assess risk and take appropriate action
- Identify source of contamination eg patient details
- Document and Report incident

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Any Questions ?

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