

# Injection Technique



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## Introduction

Giving an injection safely is considered to be a routine activity in clinical practice.. However it requires knowledge of anatomy and physiology, pharmacology, psychology, communication skills and practical expertise.

Today we will emphasise the research based practices that are known to encourage clinicians to incorporate best practice into an everyday procedure.

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## Intended Learning Outcomes

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

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## Considerations

- Equipment
- Route
- Site
- Technique
- Safety

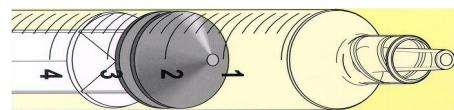
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## Equipment

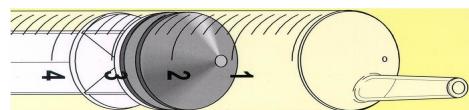
### Luer Lok®

- For secure connections



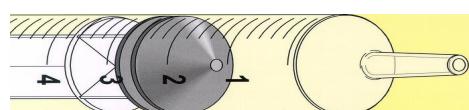
### Eccentric Luer slip

- Allows one to get closer to the skin



### Concentric Luer slip

- For all other applications



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## NEEDLE FOR INTRAMUSCULAR INJECTIONS

- What needle should I use for IM injections?
- 21G or 23G
- Green or blue hub
- Length depends on patient and site



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## NEEDLE FOR SUBCUTANEOUS

- What needle should I use for SC injections?
- 25g or 26g
- Orange or brown hub
- Length depends on patient and site

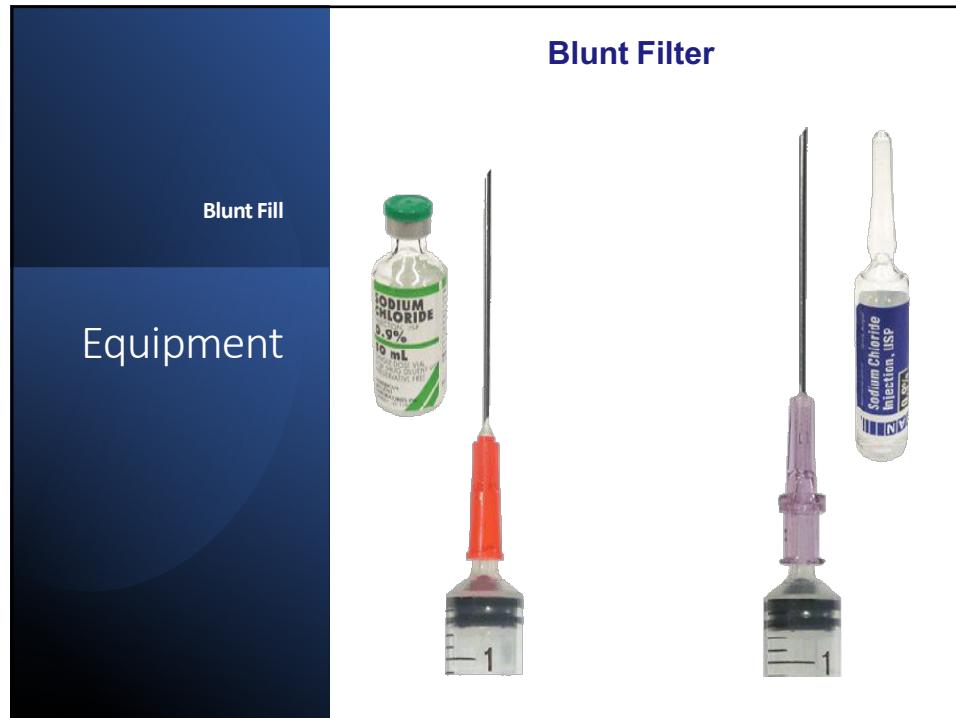


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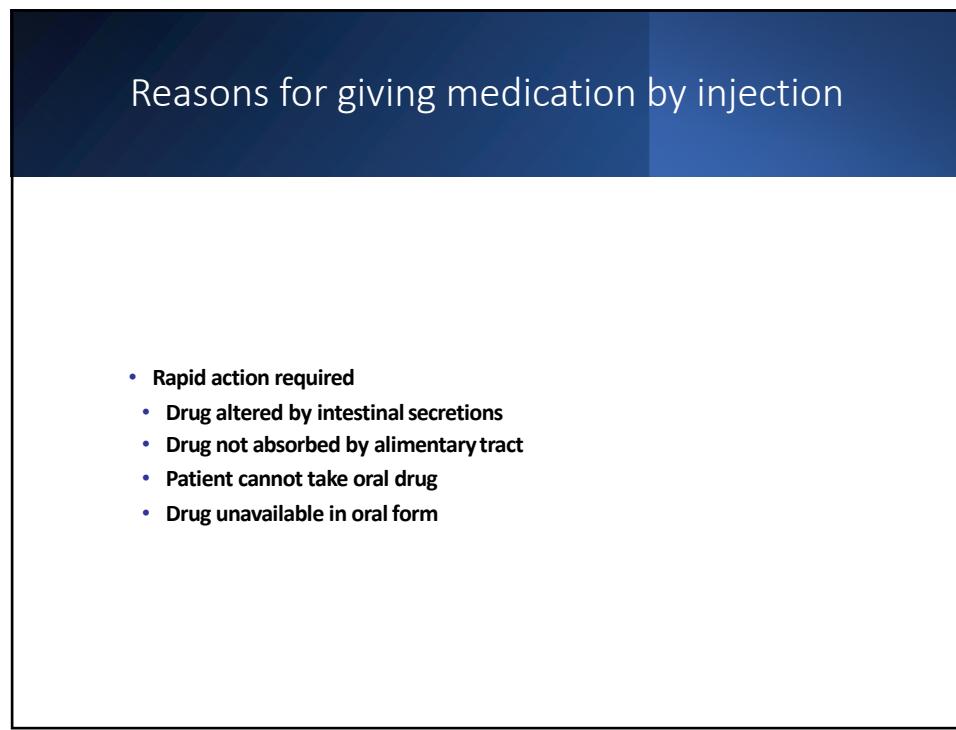
## PARTICLE CONTAMINATION

- Blunt Filter/ Fill Needles
- Filter out subvisible particles of glass, rubber, fibre and other residues. The infusion of these particles has been linked with phlebitis, vascular occlusion and subsequent embolism, formation of granulomas and septicaemia.
- They are for use when withdrawing drugs from vials and glass ampoules.

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## Preparation of Patient

- 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 overexposure 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**

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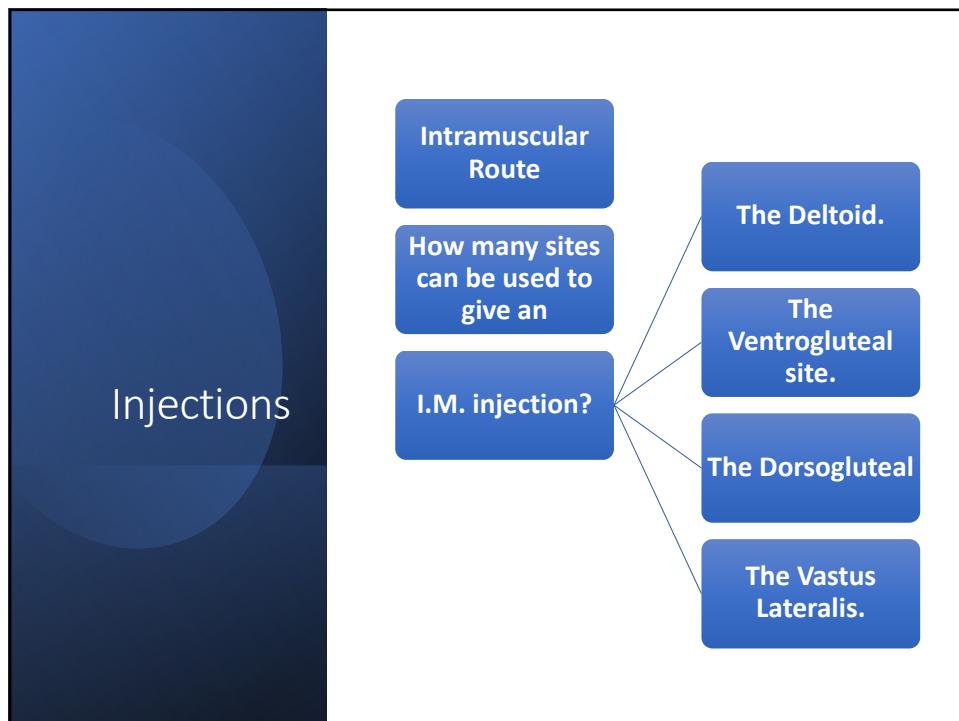
## Procedure for Injections



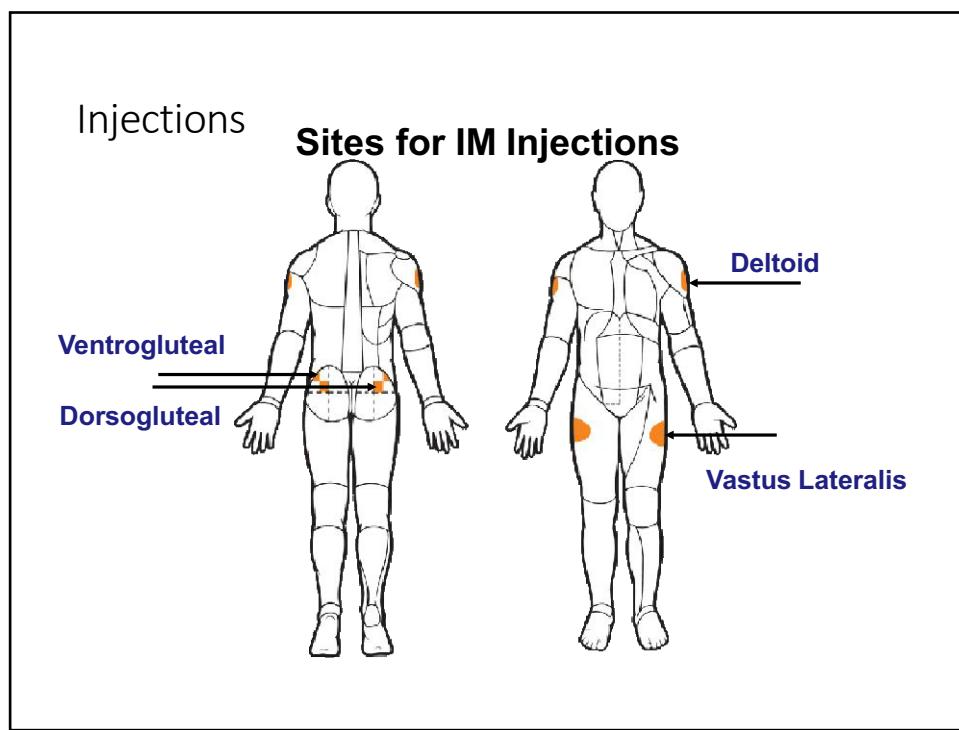
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- Preparation of skin prior to Injections
  - Little evidence to support the need for disinfection of the skin prior to subcutaneous or intramuscular injection
  - If soiled, however, skin should be cleaned by soap and water or can be disinfected by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

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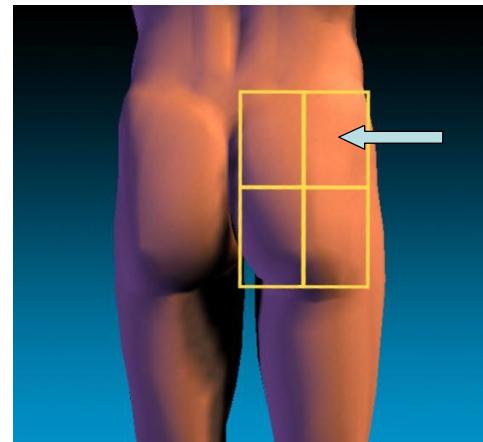


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## Injections

**Traditionally nurses were told to divide the buttocks into four quadrants**

**INJECT INTO THE UPPER OUTER QUADRANT**

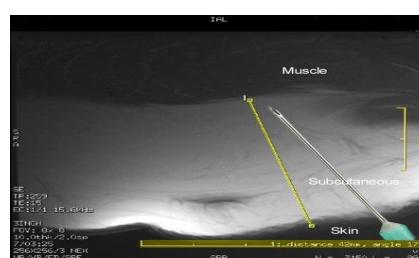


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- Intramuscular Injections

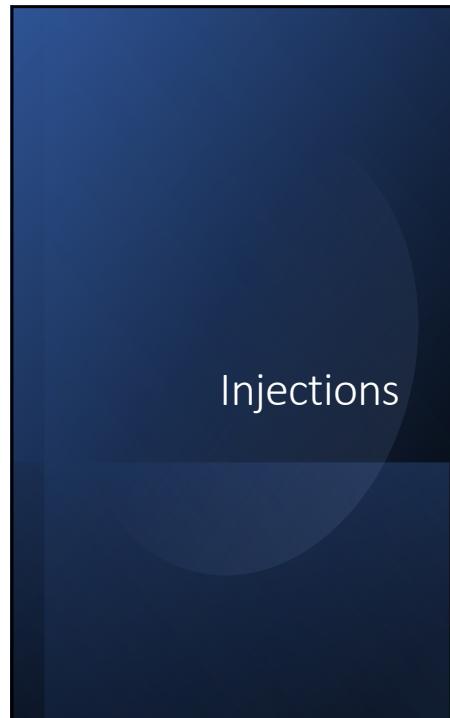
- MRI close up scan of the buttocks

- The distance from skin to muscle in this patient (line marked 1) is 42mm
- An injection given with a 38mm (1 1/2") needle stayed in the fatty SC tissue



## Injections

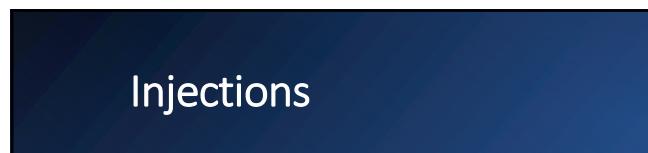
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Injections

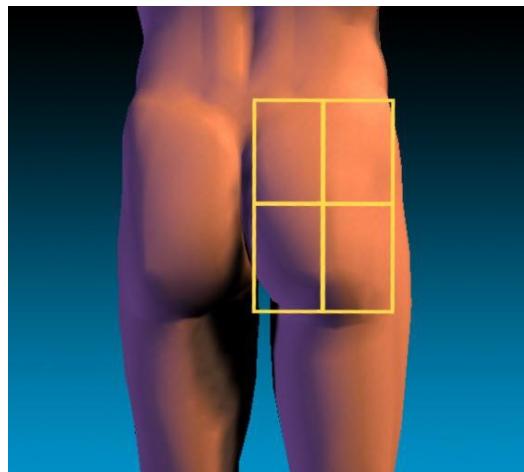
- A Recent Adaptation of this Approach
- The 'Double Cross'
- Divide the buttock with an imaginary cross
- THEN divide the upper outer quadrant by another imaginary cross
- Inject into the upper outer quadrant of the upper outer quadrant

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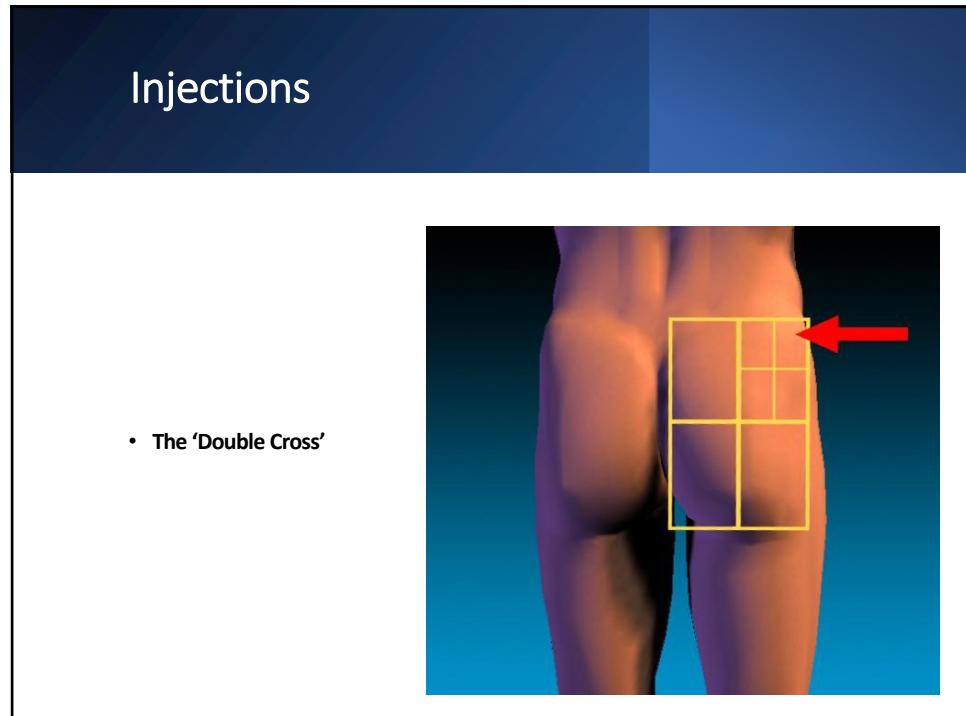


Injections

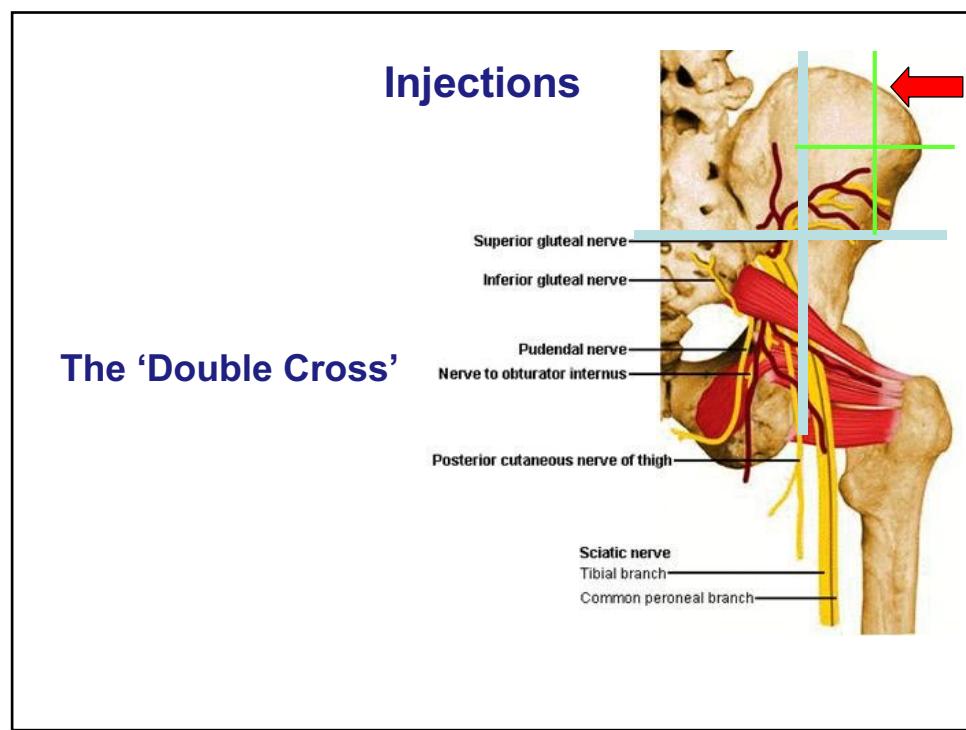
- The 'Double Cross'



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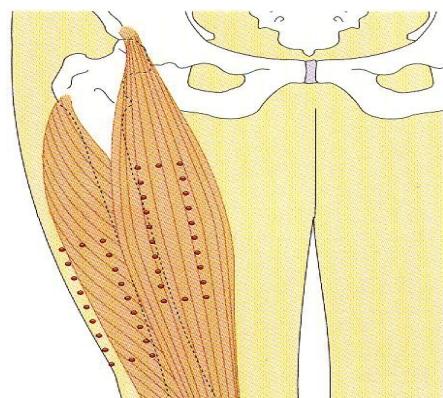


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## Intramuscular Injections

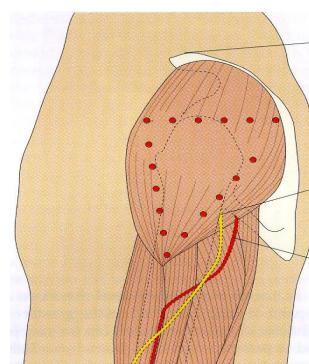


- **Vastus Lateralis**
- ‘Bunch up’ in elderly,
- Emaciated or infants
- Divide thigh into thirds, inject into bottom of top 1/3

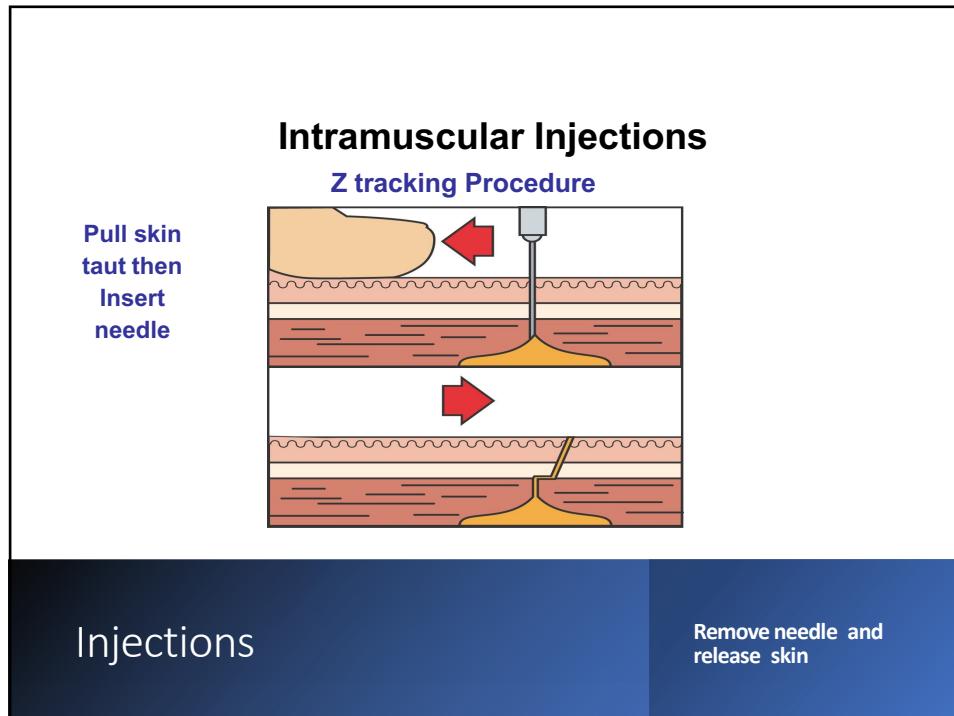
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## Injections

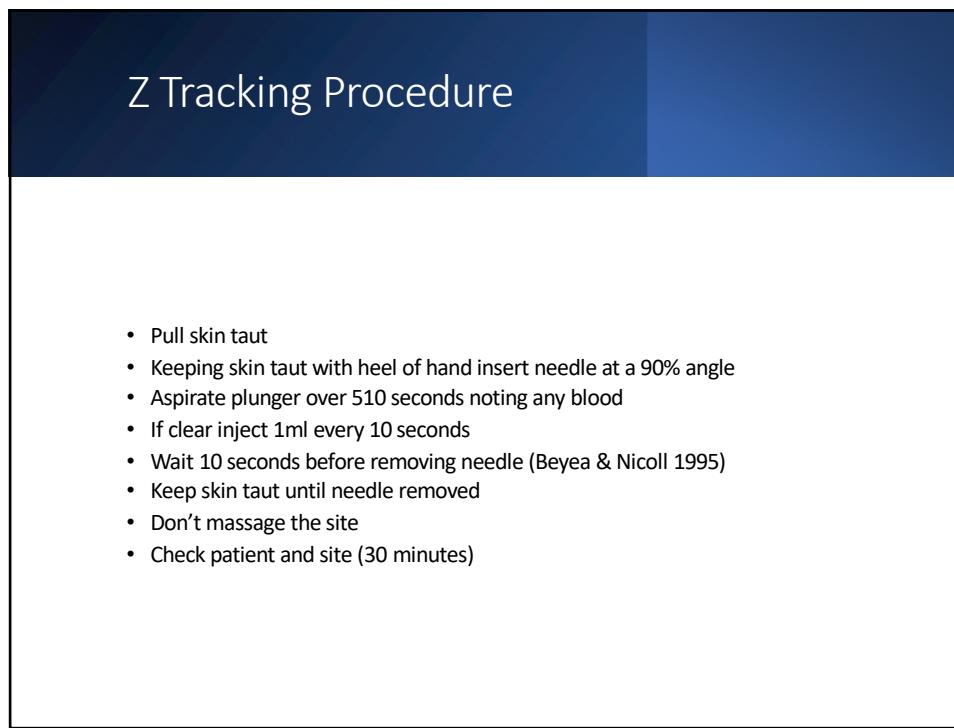
- **Intramuscular Injections**
- **Deltoid**
- **Identify the Greater Tuberosity**
- **Move 5cms (12 inches) below the site**
- **Rotate arm to confirm site**



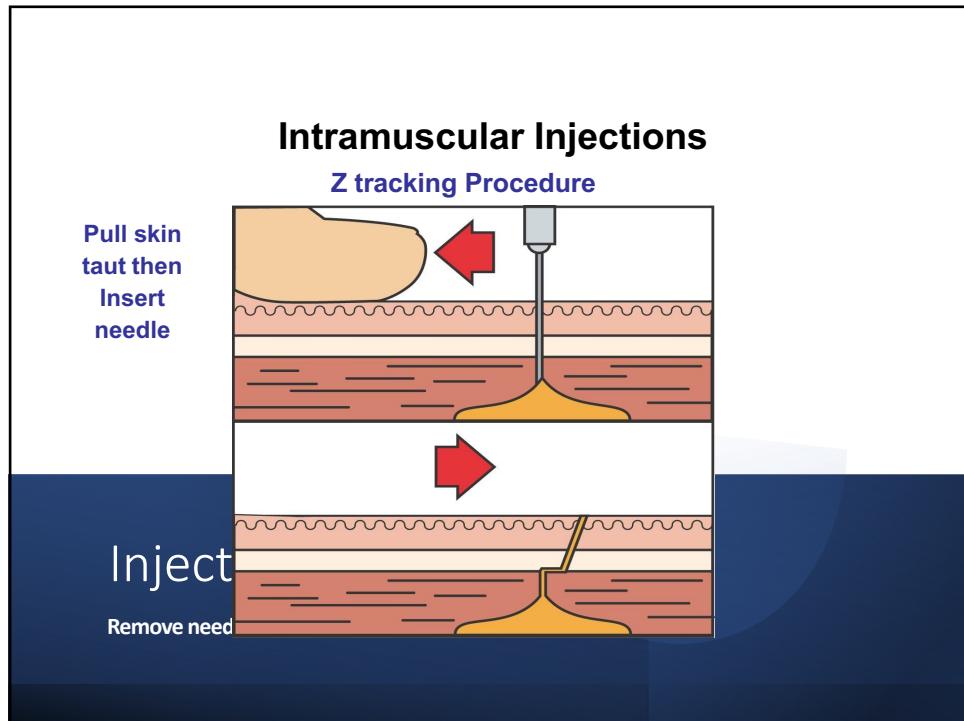
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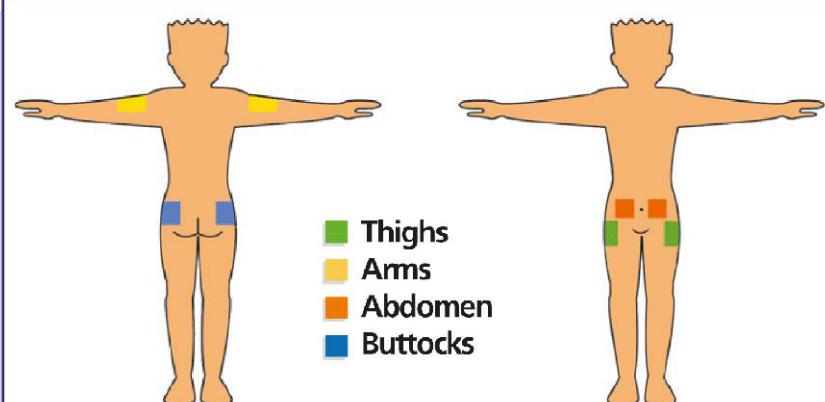


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<b>Recommended medication volumes per muscle site</b>	
Ventrogluteal	Up to 4ml in a well developed muscle Up to 2ml in less developed muscle
Vastus lateralis	Up to 4ml in a well developed muscle Up to 2ml in less developed muscle
Deltoid	Up to 1ml in a well developed muscle Up to 0.5ml in less developed muscle

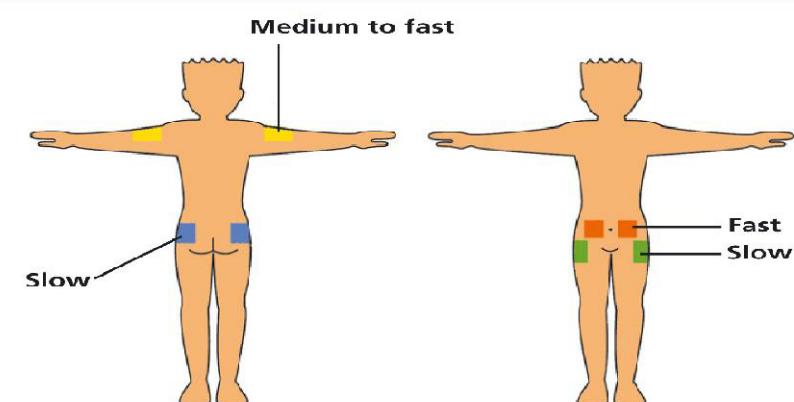
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## Subcutaneous Injections



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## Speed of Absorption in Injection Sites



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## Procedure for Subcutaneous Injections

- Lift skin fold
- Puncture skin at 90 degrees
- Do not aspirate
- Inject slowly and remove needle
- Release lifted skin fold

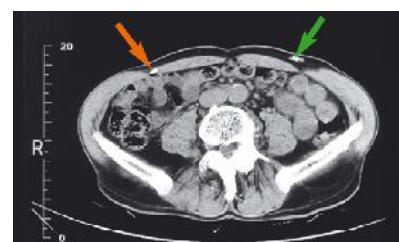
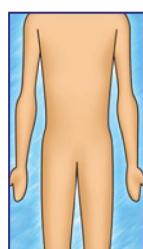
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### Scan: Thin Patient

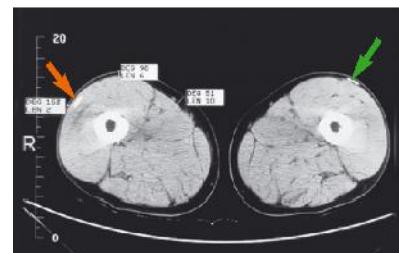
Injections performed  
with an 8mm needle,

Without a lifted skin  
fold (left) 

With a lifted skin fold  
(right) 

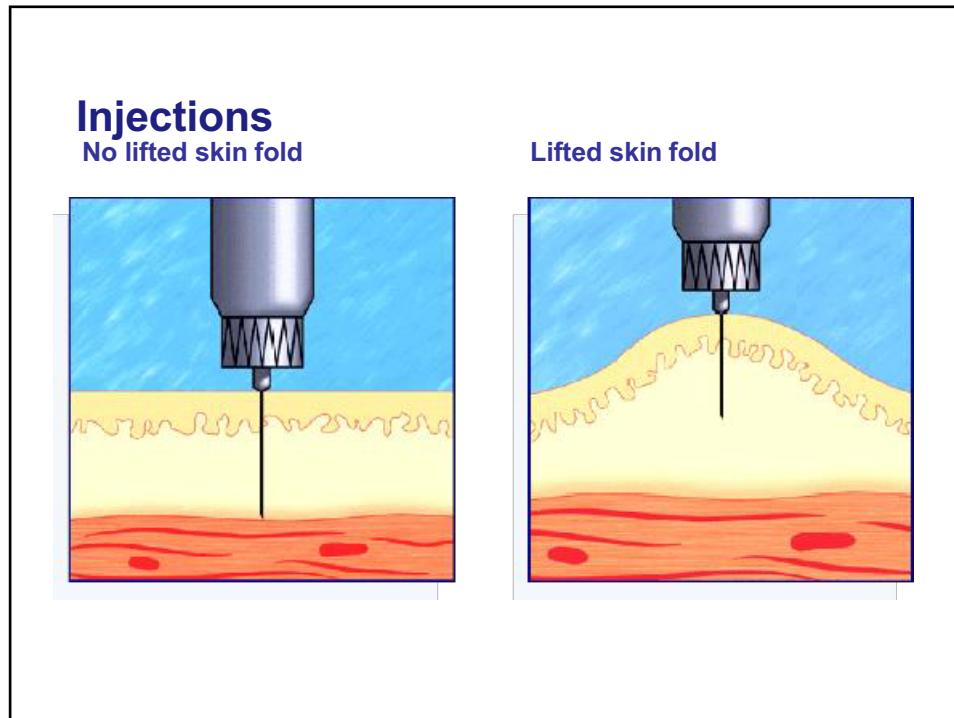


Abdomen

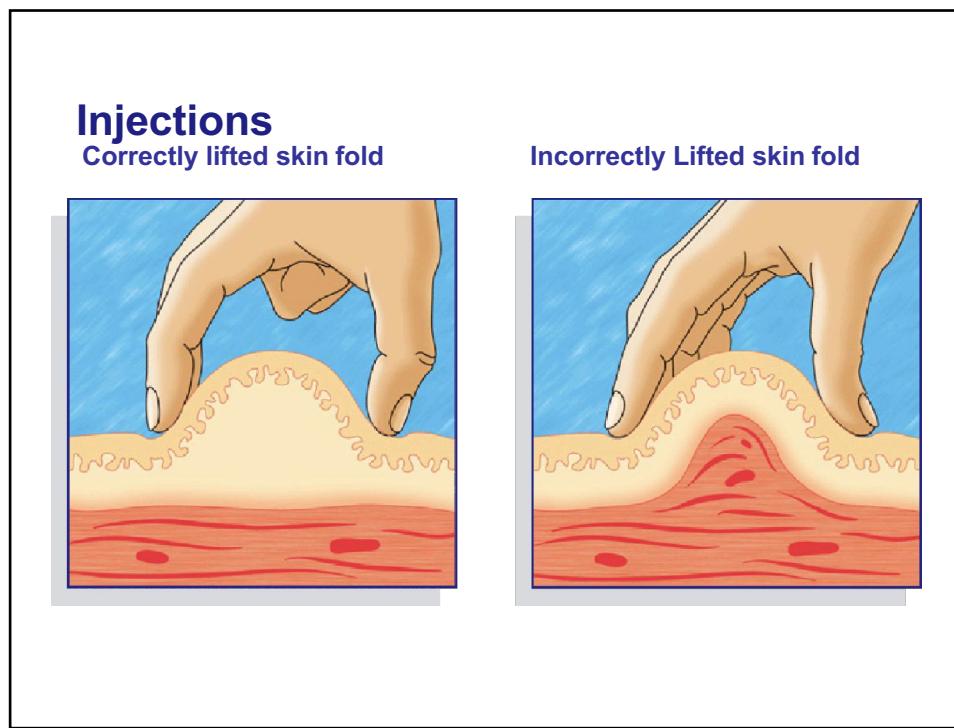


Thigh

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## Injections

- Potential Complications
- Infection
- Incorrect location of injectate
- Pain
- Anaphylaxis

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## Potential Complications

- Long and short term nerve damage
- Intramuscular haemorrhage
- Hitting a blood vessel
- Sterile abscess
- Lipodystrophy

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Legal and Professional

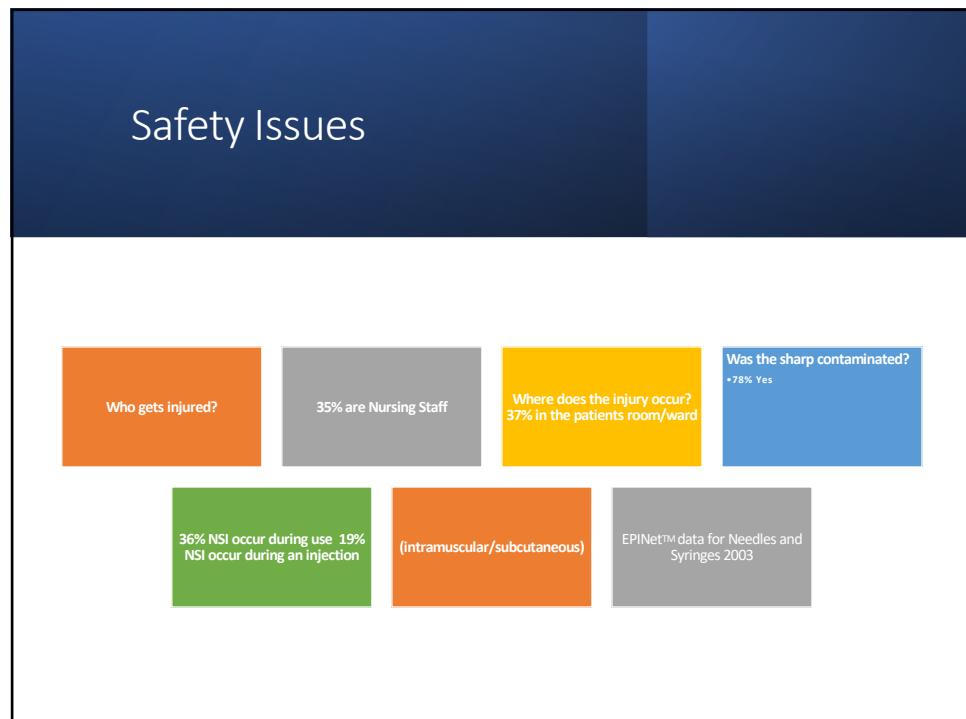
- Understand the legal & professional responsibilities when administering an injection.

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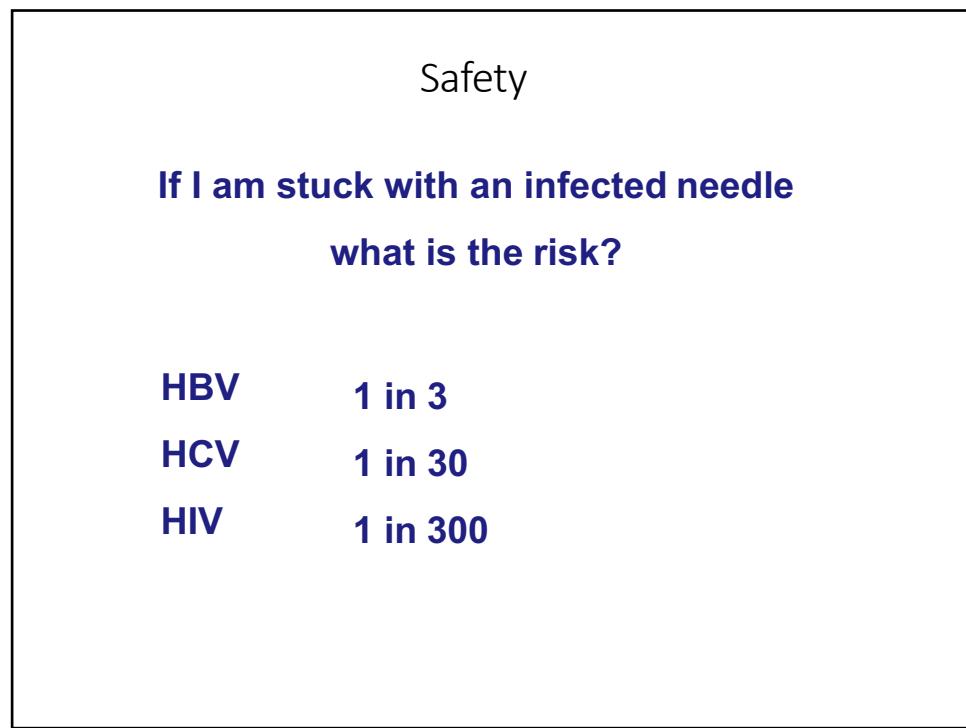
Legal and Professional

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

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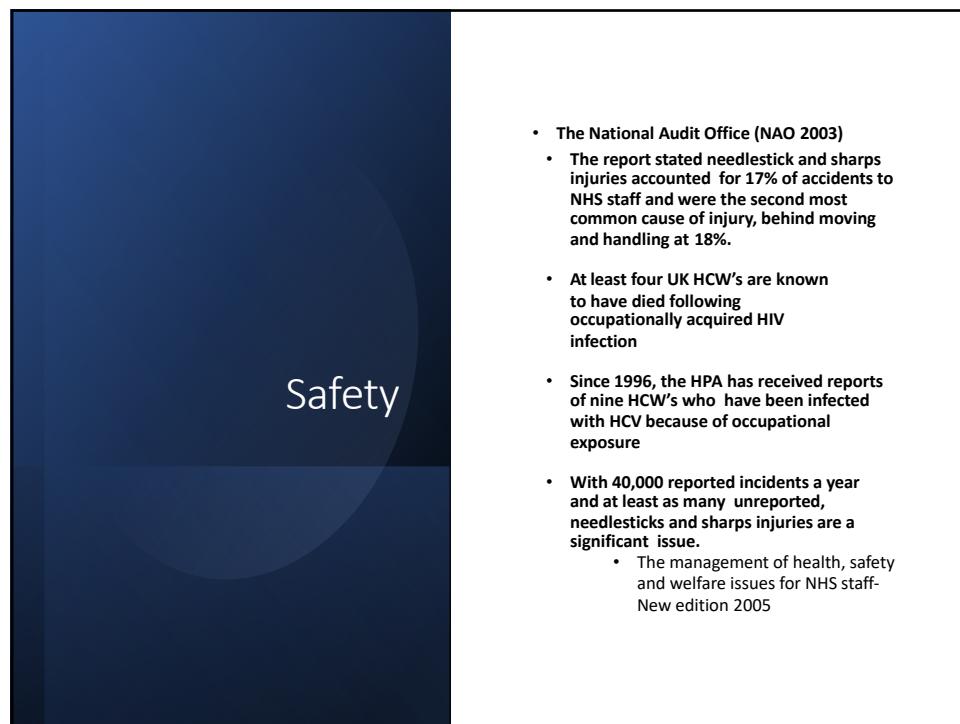
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## Safety

- 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.
- Aprons
  - Where there is a possibility of blood spillage.
- Eye Protection
  - Where there is a danger of flying blood splashes .
- Sharps Container
  - Needles are not to be resheathed prior to disposal into approved sharps container.

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## Safe Disposal of Sharps

- Immediately after use
- Never resheathe or bend needles
- If possible, dispose of needle and syringe as a single unit
- Don't overfill sharps boxes
- Report any accidents/incidents in accordance with your local hospital policy

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## Management of Needlestick injury

- 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