

YEAR 4 – PRACTICAL SKILLS

BACK TO CAMPUS: Cannulation introduction

Learning Objectives

- To revise the process of cannulation
- Improve confidence in IV cannulation
- To identify ways to minimise pain and troubleshoot difficulty

MATERIALS NEEDED

Cannulation equipment

- cannulas - gauge 14x2, 16x2, 18x2, 20x50, 22x20, 24x2,
- cannula j-loops x 50
- Gauze square or cotton bud X100
- paper tape x10
- tourniquets x6
- syringes 10ml x 50
- alcohol swabs x50
- sharps bin x2
- kidney dish x 6
- rubbish bins

Activity
Introduction: <ul style="list-style-type: none">● Contraindications<ul style="list-style-type: none">○ appropriate therapy can be provided by a less invasive route○ try to avoid a limb with significant motor or sensory deficits.\○ try to avoid a <i>limb known/risk lymphoedema, or unilateral limb swelling (potential lymphoedema)</i>
Procedure <ul style="list-style-type: none">● Prepare.<ul style="list-style-type: none">○ Consent○ Collect equipment, make yourself comfortable, consider getting a chair○ Your first shot is your best shot - find the best vein. Check both arms starting distally, avoid feet (Annoying for patient & staff, infection risk)○ Consider approaches to finding an appropriate vein<ul style="list-style-type: none">i. tapping overlying skin[locally venodilate due to mechanical histamine release]ii. Alcoholic skin prep [skin contraction makes vein more prominent]

<ul style="list-style-type: none"> iii. apply/release/reapply tourniquet [hyperaemia], iv. warm packs(take time) v. make sure arm is below heart, vi. “No cannula is ever that urgent and if it really is you should be asking for help” vii. Ultrasound guided is also an option in specific cases. <ul style="list-style-type: none"> ● Pick an appropriate cannula size <ul style="list-style-type: none"> ○ 22g(blue) primarily for infants ○ Adults best suited to 20g(pink). It doesn't hurt more, but has better skin traction and is less likely to need rapid replacement ○ Use local for big sizes, (until you get a lot better, and then the local pain will be the same as the cannula pain) ○ Point out the cannula bevel and the difference between needle insertion vs cannula insertion.
<ul style="list-style-type: none"> ● Insertion <ul style="list-style-type: none"> ○ Hand hygiene & PPE ○ Tourniquet for the least amount of time possible ○ Clean ○ Skin traction is really important. Don't blame the vein for rolling away - hold it in place. This also makes skin puncture less painful. ○ Bevel up, approach at 30-45 degrees ○ Confidently puncture the skin quickly then slowly advance until flash back. Don't puncture the skin slowly! - this hurts more. ○ Redirect angle to almost flat with skin. This lifts bevel off the back wall of the vein and prevents it going through the back of the vein. Advance the needle slightly into vein to ensure cannula tip is also in vein. Different sized cannulas have different length bevels, and therefore need differing amounts of needle advancement before cannula insertion. ○ Needle stays where it is. Gently advance cannula into the vein. ● Securing <ul style="list-style-type: none"> ○ Remove tourniquet, place finger pressure over the proximal tip of the cannula (under the skin) to stop blood flow, remove needle and attach bung. ○ Cover with clear dressing. Fix the cannula in place well with adhesives. <ul style="list-style-type: none"> i. Discard sharps ii. Consider if blood collection is required before flushing iii. Flush with normal saline to ensure patency and check surrounding tissue for extravasation ○ Hand hygiene

Complications

- During
 - Bleeding. The most important pieces of equipment are the bung(success) and cotton ball/gauze(non-success) - else blood everywhere!
 - Pain. Remember skin traction and speed/angle of skin puncture. Consider emla prior (especially children) or intradermal local anaesthetic but these can make veins harder to see.
 - Needlestick injury
 - Unlikely with good technique/site selection- air emboli, nerve injury, tendon injury, arterial injury.
- After
 - Infection(more likely in emergency insertion, replace after 3 days)
 - Cannula is pulled out - fixation, location
 - Haematoma/bruising,
 - Thrombophlebitis,
 - Extravasation of fluid(ie iron infusion pigmentation)

RESOURCES

Insertion and Management of Peripheral Intravenous Cannulae in Western Australian Healthcare Facilities Policy: Department of Health.

<https://ww2.health.wa.gov.au/About-us/Policy-frameworks/Public-Health/Mandatory-requirements/Communicable-Disease-Control/Infection-Prevention-and-Control/Insertion-and-Management-of-Peripheral-Intravenous-Cannulae>

Competency checklist Appendix A

Appendix A

Competency checklist

Introduces themselves, greets patient, obtains patient name	
Recognises error in sterile field if occurs	
Preparation	
Performs hand hygiene appropriately throughout	
Explains purpose of cannulation to, and obtains verbal consent from, the patient or nominated representative	
Palpates veins and selects appropriate site – related to location, size & condition of vein	
Selects the appropriate cannula based on type & duration of procedure, and quality of site.	
Wipes down trolley with a disinfectant wipe	
Collects and prepares required supplies, checking integrity of packaging and expiry dates	
Applies apron	
Patient Zone	
Performs hand hygiene appropriately throughout	
Positions patient's arm on drape and pillow	
Applies single-use tourniquet, palpates veins and selects appropriate site – related to location, size & condition of vein, releases tourniquet	
Opens and assembles equipment using a non touch technique	
Prepares flush & primes extension set using a non touch technique	
Applies gloves. Uses sterile gloves if key parts or key sites may be touched during the procedure	
Cleans site with appropriate solution	
Anchors the vein below puncture site & insert cannula using non-touch technique	
Inserts cannula at 10-30 degrees	
Checks for blood flashback. If present, proceeds to lower the cannula to 0 degrees and advance the cannula approximately 3 millimetres.	
Threads the cannula off the needle, into the vein.	
Releases tourniquet	
Occludes vein away from the cannula whilst retracting the stylet out of barrel	
Disposes used sharp into an appropriate sharps container immediately	
Attaches leur lock and confirms patency	
Applies semi permeable dressing, fixation device	
Performs hand hygiene	
Decontamination Zone	
Correctly disposes of equipment and sharps as per organisational policy	
Disposes glove	
Performs hand hygiene	