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# PROCEDURAL SKILLS COURSE

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# *Procedural Skills Course*

## **SURGICAL SKILLS**

### **STANDARD PRECAUTIONS**

#### **WEAR PROTECTIVE EYE WEAR WHEREVER POSSIBLE**

Eye shields are available for use at any or all times during practical sessions.

#### **WEAR STERILE GLOVES WHENEVER ANY ORGANIC TISSUE IS BEING USED**

Sterile gloves fit better and give improved performance during a surgical procedure.

#### **ALWAYS WEAR A PLASTIC APRON WHEN HANDLING ORGANIC TISSUE**

#### **USE INSTRUMENTS, NOT FINGERS, TO HANDLE SHARPS**

#### **HYPODERMIC NEEDLES**

Should not be handled by fingers alone, or be resheathed using fingers. Use an artery forceps to remove the needle at its hub and place it in the yellow receiver supplied if it is to be reused, or place it permanently in the yellow sharps container on the station.

#### **KNIFE BLADES**

Knife blades are to be opened into the yellow receiver. Use a dissecting forceps in the non-dominant hand to hold the blade near its base with the sharp edge pointing to the left. Use an artery forceps or needleholder to clamp the top of the blade above the centre hole and without touching the sharp edge, and then position it into the knife handle by sliding it into the grooves at the edges of the handle. Always place the knife in the yellow container when not in use.

To remove the blade, ensure that the blade is under the handle in the non-dominant hand. Clamp the artery forceps at the lower right edge of the blade, bend the blade downward and slide it off the handle. This will minimise any risk of the blade springing upward and causing damage.

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## **NEVER HANDLE SUTURE NEEDLES WITH FINGERS**

Two instruments must be used in handling suture needles safely.

1. The **needleholder** should be the correct size and weight for the needle. Arm the needleholder by opening the suture package correctly (follow manufacturer's directions). This will open the pack to expose the needle sitting in its nest. The tip of the needleholder is positioned on the needle 1/3<sup>rd</sup> of its length from the swage (where the material joins the needle) and clamped **only** to the first ratchet. If the needleholder is in good condition, this will hold the needle securely.
2. The **dissecting forceps** used at the Centre all have tungsten carbide platforms behind the working tip. This will allow the needle to be held quite safely in the non-dominant hand when suturing or when manipulating the needle to better position it in the needleholder.

If sutures are to be reused, place them temporarily in the yellow receiver. If they are to be thrown away, hold the needle in a needleholder or dissecting forceps cut off the suture material near the needle then place the needle in the sharps container.

If the length of suture material becomes too short to handle safely prior to knot tying cut off the needle to prevent a needlestick injury.

## **USE BLUNT NEEDLES WHEREVER POSSIBLE**

They are required for closure of fascia/muscle layers, e.g. laparotomy, thoracotomy, perineal wound.

*PROTECT YOURSELF,  
YOUR PATIENTS  
& YOUR COLLEAGUES*

## **PROCEDURAL SKILLS KEY POINTS**

### **THE CONTAMINATED WOUND**

#### **Explore & Debride**

**Wear protective clothing and eye shield.**

#### **Equipment required: -**

Sharps container (yellow kidney dish)

No 3 Knife Handle

No 15 Blades

Crile Artery Forceps

Strabismus Scissors, (curved)

Jarrit Forceps (or other toothed forceps)

Irrigation pump or 60 ml Syringe

Saline

18G blunt needle

Gauze swabs

Explore the wound and using toothed forceps remove large debris e.g. stones, grass, glass etc.

Use saline to irrigate the wound until clean. Always flush the wound at an angle so that no dirt is forced into clean tissue.

Using a scalpel or curved scissors debride tissue that is compromised ensuring that no harm comes to underlying structures e.g. nerves, tendons etc. Use knife blade to cut skin as it is tough tissue. Knife or curved scissors may be used for underlying soft tissue.

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## LOCAL ANAESTHESIA

### Local Anaesthetic Doses

DRUG	PLAIN	WITH ADRENALINE
Lignocaine	4mg / kg	7 mg / kg
Bupivacaine	2-3 g / kg	3-4 mg / kg
Prilocaine	6mg / kg	9 mg / kg
Ropivacaine	7.5mg / ml Up to 25mls or 200-300mg	

### TOXICITY

CNS- central stimulation followed by depression, restlessness, hysteria, vertigo, tremor, convulsions and respiratory failure.

CVS- hypotension, acute collapse and primary cardiac failure

RESPIRATORY – depression

Allergic phenomena-rare, but may include bronchospasm, urticaria or angioneurotic oedema.

### TOXICITY MANAGEMENT

Oxygen

Elevate legs

Artificial ventilation

Diazepam

Rapid intravenous infusion

Cardiac massage

Adrenaline

Hydrocortisone

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## **SUTURING**

### **Equipment required:**

Trolley with rubbish bag

Yellow kidney dish for sharps

Sterile suture tray opened

Sutures of choice

LA, 5ml syringe, 18G needle and 25G needle

Extra guards as needed

Skin prep

Dressings of choice

Protect yourself by wearing a plastic apron and/or gown, gloves and eye wear

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## WORKSHOP - DRUG ADMINISTRATION:

### Safe Drug Handling: IM & SC administration

#### **1. Safe Drug Handling**

Particular care required with **hazardous drugs** (genotoxic, carcinogenic, teratogenic, impair fertility) – follow specific policies. Examples include cytotoxics, antivirals, immunosuppressants. Care must be taken through all **3 stages of drug handling** – preparation, administration, and disposal. May use closed system drug transfer devices. Medication Order – medication chart or computerised system – must be fully/legibly completed. Orders may be standing orders, PRN orders, single orders, or stat orders. All persons administering drugs must adhere to the “**6/7/8**” **rights of drug administration** – right medication (**triple check**), right person, right dosage, right route, right time, right to refuse, right documentation, right reason etc . Ensure minimal disruption, and do not leave drugs unattended at any time. If you are administering a drug you must know: why, what it is used for, the side-effects, and any contraindications.

You must use an **aseptic technique** in the preparation/administration of injectable medicines. You must also choose the **appropriate equipment** (needles [length, gauge], syringes, skin cleansing agents, dressings etc). Consider: route of administration, solution viscosity, quantity to be administered, body size, medication type. Needles/glass must always be disposed of in a designated “sharps” disposal device.

#### **2. Preparing Medications for Administration by Injection**

Drugs may come as aqueous/oily solutions, suspensions, or as powders for reconstitution. Be sure to reconstitute (if required) in the appropriate diluent. They may come in ampoules, vials, prefilled syringes, or prefilled cartridges. **Ampoules** are often glass, and contain single doses of medication – any unused medication must be discarded. **Vials** may be single-dose or multi-dose. Multi-dose vials must be discarded after a certain period of time (often 24 hours) and should be labelled with the date/time of initial opening. The rubber stopper is cleaned with an alcohol swab after the first opening. Some **pre-filled syringes** (Enoxaparin) contain air that should not be expelled prior to injection.

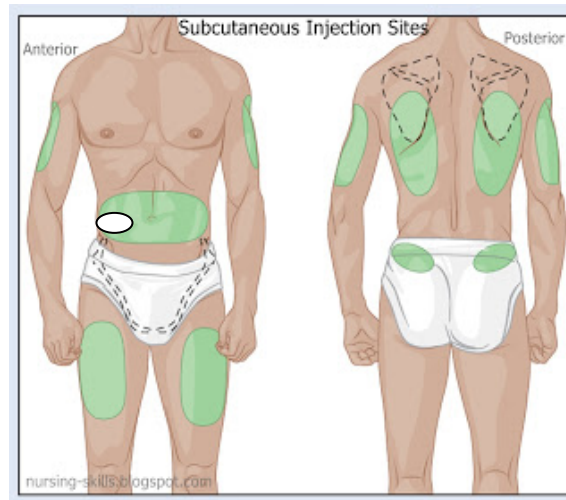
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Make sure you have all the **equipment** you will need before you go to the patient – this may include:

**Medication chart; disposable gloves; syringe; needles; alcohol swab; kidney dish; gauze swab; medication.**

### 3. Administering a Subcutaneous (SC) Injection (between epidermis & muscle)

- Used for insulin, certain anticoagulants & immunisations
- Collect equipment – insulin in an insulin syringe, anticoagulants often in pre-filled syringes
- 25 – 30 gauge needle, usually no more than 1ml injected by this route
- Check the prescription, medication, and patient
- Explain procedure, then hand hygiene & apply non-sterile gloves
- Draw up medication (if required) – filter needle if glass ampoule
- Choose appropriate site and position patient accordingly
- Consider cleaning the injection site with alcohol swab (not for insulin)
- Remove needle cap (non-dominant hand) and grasp/bunch tissue around injection site
- With dominant hand insert needle quickly – 45 - **90° angle**, depending on size of patient/amount of subcutaneous tissue/needle length
- Stabilise lower end of syringe (non-dominant hand), and inject slowly with dominant hand
- Withdraw needle quickly (same angle as insertion), and discard appropriately - do not massage injection site
- Make patient comfortable, remove gloves, hand hygiene
- Chart administration



#### 4. Administering an Intramuscular (IM) Injection

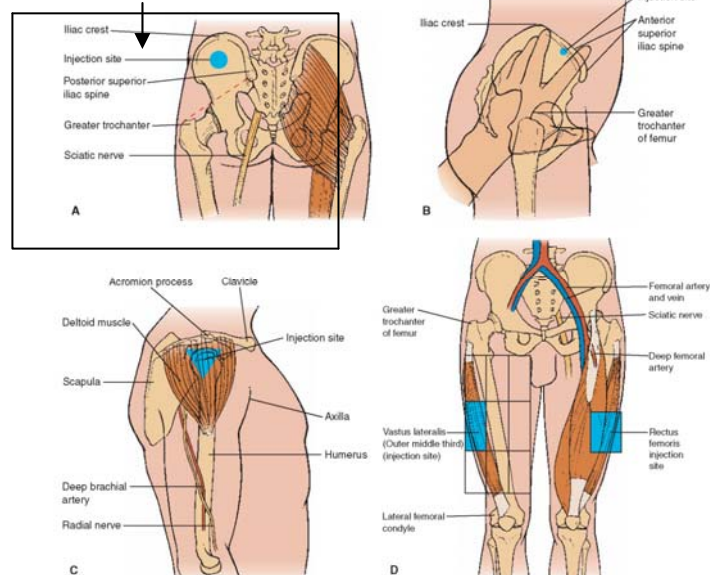
IM has faster absorption than subcutaneous route. It is good for irritant drugs as few nerve endings in deep muscle. Choose muscle carefully (non-tender), and inject maximum of 5ml to one site. When choosing a site you must avoid large nerves, bones, & blood vessels. The *ventrogluteal* (hip) site, *vastus lateralis* muscle (outer, middle third of thigh), or *deltoid* muscle (rarely) are used. The *deltoid* should be limited to small volume injections in adults only. The *dorsogluteal* site is no longer recommended. A 21 to 23 gauge needle is used, with a needle length that will allow the injection to reach the belly of the muscle. An approximately 90° angle is usually used. The Z-track technique is often used, particularly for irritant solutions. The first few steps are as for SC injections:

- Collect equipment, check prescription, medication & patient, explanation, hand hygiene, gloves, draw up, choose site, position patient
- Clean area thoroughly with alcohol swab – allow to dry
- Remove needle cap
- Spread skin at site with non-dominant hand OR move the skin to one side by about 2.5cm with non-dominant hand (Z-track technique)
- Quickly dart the needle into chosen site at 90° angle
- Aspirate plunger slowly (for 5 seconds) and look for blood entering syringe (discard everything and start again if blood is aspirated)
- If no blood aspirated, inject solution slowly (10 seconds/ml)

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- Remove needle slowly/steadily
- Release displaced tissue (if using Z-track technique)
- Apply gentle pressure at site, until no signs of bleeding or ooze
- Discard needle & syringe
- Make patient comfortable, remove gloves, hand hygiene
- Chart administration

No longer recommended



Always remember to check injection sites later, and observe for effects/side-effects of medications at appropriate time points.

# *Procedural Skills Course*

## **EARS & NOSES**

Use a head light if possible e.g. Lumiview.

Don't do anything if not under direct vision.

Be very gentle.

Tell the patient when you are about to touch them and what you are about to do.

### **Ear Examination & Cleaning**

Have a tray ready for use before commencing the procedure containing: -

- 1 x Receiver or kidney dish
- 1 x Gallipot with Cotton Wool Balls
- 1 x Gallipot with water
- Otoscope with insufflator & a selection of speculae
- Jobson Horne Probe
- Fine Ear Forceps
- Tuning Fork (512)

### **Nasal Packing**

**PROTECT YOURSELF** wear apron, gloves and eye protection!

Have a tray ready for use before commencing the procedure containing: -

- 1 x Receiver or kidney dish
- 1 x Gallipot with Cotton Wool Balls
- 1 x Gallipot with water
- Nasal Speculum
- Nasal packing forceps
- Fine Suction
- Heavy Scissors
- Rapid Rhino Nasal Tampon
- 10ml syringe
- Cophenylcaine Spray
- Silver Nitrate sticks

# *Procedural Skills Course*

## **PLASTERING TECHNIQUES**

Have everything opened, cut to size and ready for use before commencing the procedure.

Bucket of cold water

Rubbish bag

Inco sheets.

Towel & facecloth

1 x Plaster Scissors

Have Plaster shears or Plaster saw available.

### **Back Slab**

1 x 10cm roll Soffban with wrapping removed

Length of slab plaster cut & shaped to size. If unavailable make a slab 6 to 8 lengths thick using a roll of POP 15 cm.

1 x 10cm Conforming Bandage

Tape or POP to secure

### **Full Cast (Arm)**

1 x 10cm roll Soffban

2 x 10cm rolls POP

A smooth well fitting well moulded and comfortable plaster is great advertising.

Ensure that the Soffban is applied evenly and smoothly. This will then help you achieve a smooth plaster.

When moulding POP use the palms of the hands only. Do not use fingers, as this will create ridges and pressure points inside the plaster.

# *Procedural Skills Course*

## **EXAMINATION OF THE MALE PELVIS**

**All patients admitted to hospital should have a PR. All GP's should do a PR at regular intervals on all of their patients. Conditions picked up early are treatable.**

### **Rectal Exam & Proctoscopy**

Have equipment ready, checked and in good working order before commencing.

Have a chaperone present.

Having taken a thorough case history and done an abdominal examination give a full explanation of the procedure to the patient. Some cultures will not allow a PR to be performed.

Position the patient in the Simms position with the buttocks slightly over the edge of the bed.

Have Inco sheets under patient

Use drapes or body blanket for modesty

Always tell the patient when you are about to touch them and what you are about to do.

Wear protective gloves. One glove on the non dominant hand and two gloves on the dominant hand. Remove the second glove when the manual examination is finished. You are now ready to proceed with the Proctoscopy.

### **Equipment required:**

Green gauze swabs

KY Jelly

Proctoscope with all attachments

Kidney dish to put used proctoscope into

Rubbish bag

## **URINARY CATHETERISATION**

### **Indications-**

- Urinary Retention
- Obstruction
- Bladder Dysfunction
- Urine Output Measurement
- Diagnostic Procedures
- Urinary Incontinence

### **Contra-Indication-**

- Urethral Stricture
- Urethral False Passage
- Herpes Zoster of the Urethra
- Prostatitis
- Long Term Placement

### **Patient History-**

It is important to take a thorough patient history. This may help you select the catheter to insert. If haematuria is present a larger catheter or a 3 x way catheter may be required. A 3 x way catheter has a channel for irrigation.

Explain the procedure carefully and let the patient know that some discomfort may be felt.

### **Choose your catheter-**

Most catheters are Silicone Elastomer coated. These can be left in for up to 3 months at a time.

Latex catheters are for short term use only.

Check the packaging for Type, material, size of catheter, size of balloon and sterility.

Ensure that you have sufficient sterile H<sub>2</sub>O for the balloon e.g. 5ml, 10ml, 30ml.

### **Equipment-**

Sterile trolley with rubbish bag attached

Sterile Catheter pack

Extra cotton wool swabs if required

Skin prep solution

Lignocaine 2% Gel with Chlorhexidine 0.05%

10ml Syringe with sterile H<sub>2</sub>O for catheter balloon

16FG Foley catheter for male catheterisation

Sterile surgical gloves

On the bottom of the trolley have extra 14FG Foley & 18FG Foley catheters in case required, Urine bag and tape.

**After the patient has been prepped and guarded apply the Lignocaine Gel and wait for the local to work. Watch the patient's face and give more local if required.**

This is a sterile procedure.

Do not start the procedure until everything has been opened and assembled ready for use.

Have an assistant when possible to open equipment etc and stay with the patient.

Position the patient. Protect the bedding using Inco sheets.

# *Procedural Skills Course*

## **When prepared-**

Glove up. Prep the patient with a chlorhexidine solution. Begin at the pubic bone and work downward. When anterior and lateral wall of penis swabbed, place a swab around the foreskin and draw it back. Remember to advance the foreskin when the procedure is finished. Continue to hold the penis and complete the skin prep – meatus, posterior wall of penis, both sides of groin, scrotum and the leg area on to which you will place the penis prior to draping. Place the drape. Apply lubricating gel to the meatus – leave for 1 to 2 minutes to numb the area. Insert the nozzle into the meatus and inject the gel gently. Grasp the penis above and beneath the glands & occlude the urethra to keep in the gel. Use 2 sets of gel if required. Place catheter tray in position and insert the catheter in a sterile way. If resistance is felt at the external sphincter apply gentle pressure. Insert the catheter fully. Urine should flow now. If not withdraw urine using the nozzle on the gel syringe. Inflate the balloon with sterile water and snug the catheter back. Attach the catheter bag. Tape the bag tubing securely to the thigh.

If there is a urethral stricture present a smaller catheter may be required. If the catheter is getting caught on the external sphincter a more rigid larger diameter catheter may be required.

Use the smallest catheter possible. Males usually a 16FG. Females usually a 12 or 14FG. If difficulties occur call for help.

The principles for female catheterisation are the same. Some differences are described below.

Prep by swabbing across the pubic bone to the edge of the labia using a paint brush technique. Swab from the cleaned edge at the inner thigh to the rectum using a new swab each time you reach the rectum. Several swabs will be needed to reach the labial lips. Place two fingers of your non-dominant hand to hold open the labial lips, then swab inside the labia. **DO NOT REMOVE THE FINGERS HOLDING THE LIPS OPEN. This means that you are entirely one handed for the rest of the procedure.**

Place the previously opened drape between the legs and place the catheter tray with catheter in it on the drape.

# *Trainee Intern Procedural Skills Course*

## **NASOGASTRIC INTUBATION**

- Keep a 14Fr and a 12Fr nasogastric tube in the freezer. This makes them more rigid and less likely to curl up in the back of the patient's throat.
- Choose the tube that looks like it will fit i.e. a 12Fr for a woman, a 14Fr for a man.
- Before you begin, get the patient on board with you. NGT's are far easier to insert when the patient knows what to expect and co-operates with you.
- Have the patient sitting bolt upright if at all possible.
- Work out how far to insert the tube by measuring the distance from the nose to the stomach with the NGT.
- Ask the patient if they have ever had a broken nose or if one side of their nose blocks more than the other.
- Wear gloves.
- Have a vomit carton handy.
- Use plenty of K-Y jelly.
- Enter the nose very slowly. Trying to find the nasal passage isn't always easy, and it is possible to cause tissue trauma and bleeding.
- Allow the patient to sip some water – this makes it easy for them to swallow as the tube is being passed.
- If they don't swallow, there is a risk of it entering the trachea or of having the tube curl up in the back of the throat.
- Once you have passed through the nasal passage, get the patient to swallow and quickly pass the tube further into the oesophagus.
- If you dally around in the back of the throat, the patient will gag / vomit constantly, and may even refuse to have the tube passed again.
- If you pass the NGT into the trachea, the patient will immediately become stressed – fighting for breath and desaturating. Pull the tube out completely and start again.
- Pass the tube to the mark that you have measured to. Once past the back of the throat, it is OK to rest for a bit if the patient requests.
- If the patient has a full stomach, the contents will immediately come up the tube. Be ready for this – keep that vomit carton handy.
- If no contents come up the tube, aspirate using a 50ml catheter tipped syringe. Test the aspirate on Litmus paper. (Not available in all wards).
- Another test to ensure correct placement is to pass 30-40mls of air into the stomach via the NGT. If the tube is correctly placed, you should hear bubbling noises.
- If this is to be a feeding tube, and you are unsure of placement, you must get an X-ray prior to starting the feed.
- To secure the tube, wipe the bridge of the nose with Skin prep or similar and use steristrips to hold the tube in place.
- Avoid using other types of tape to secure NGT's – particularly brown/red tape. It stretches easily and the tube often slips through the tape.
- Have fun.