Medical Devices and Infection Control

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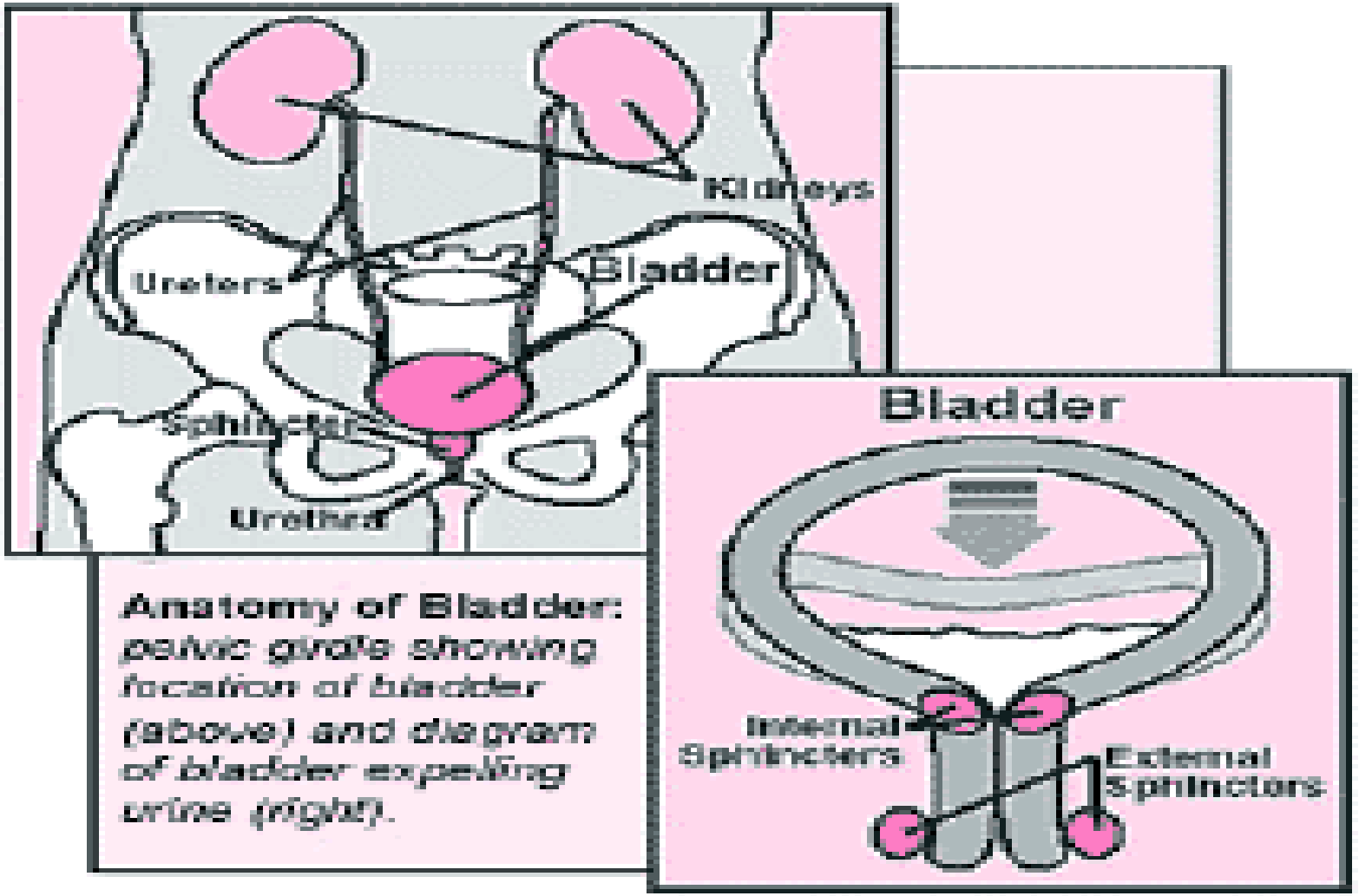
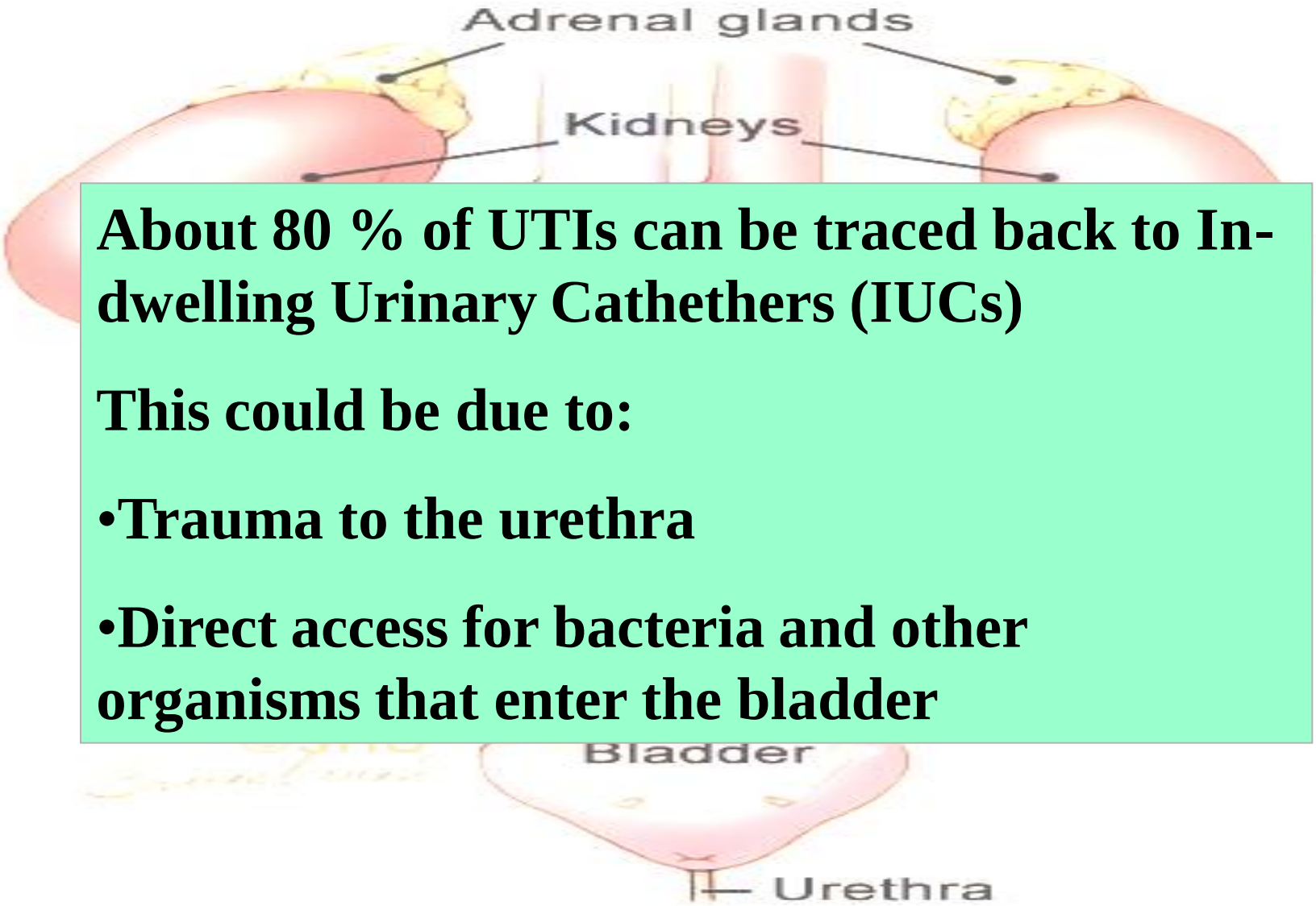
Ghana Lecture, June 2010

Indwelling urinary catheters



Urinary Catheters and Infection

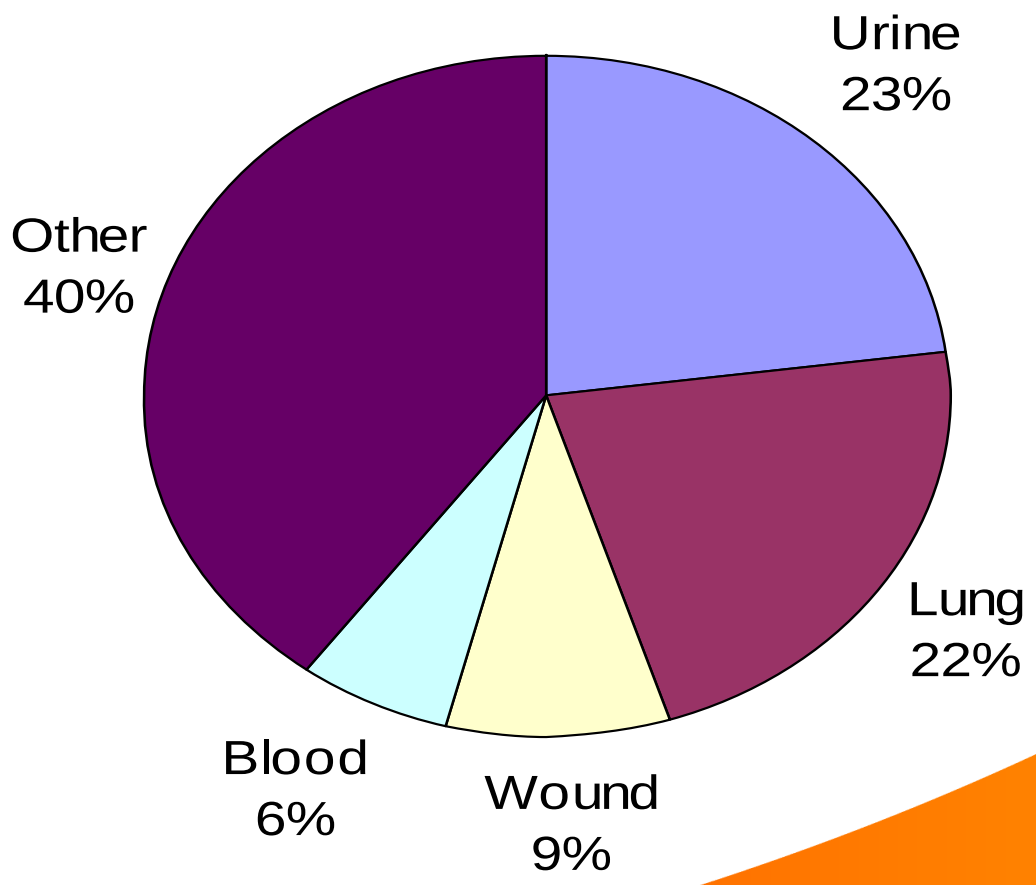


About 80 % of UTIs can be traced back to In-dwelling Urinary Cathethers (IUCs)

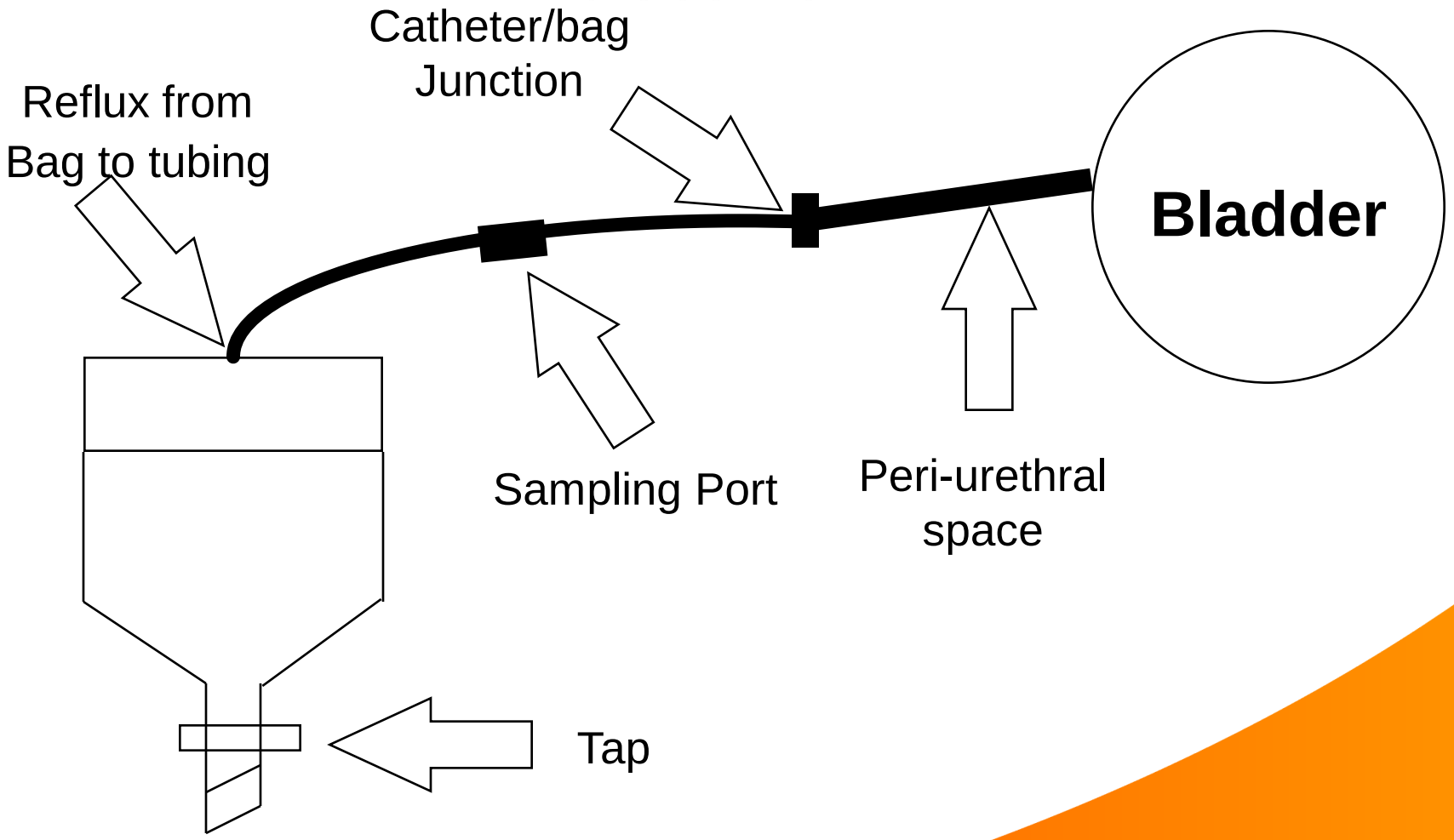
This could be due to:

- **Trauma to the urethra**
- **Direct access for bacteria and other organisms that enter the bladder**

Indwelling Urinary catheters (IUCs) and Infection



Entry sites for Pathogenic Bacteria



Indwelling Catheters

Urinary Tract Infections (UTIs) are common in old age and in patients with bladder or urethra dysfunction

The risk of UTI increases with urinary catheterisation, and especially with in long term catheterisation or repeated catheterisation

Indwelling catheterisation should therefore be used as a last resort after other alternative methods have been considered.

Catheterisation should never be used solely for the management of incontinence

Infection Control – Best Practice

1. Trained and competent staff should insert catheters using strict asepsis
2. IUCs should be used when there is no alternative
3. Catheterisation must be used for the shortest possible time
4. Catheters should be of low allerginicity
5. IUCs must be lubricated before insertion
6. Educate patients and carers
7. Record or Document any finding

Catheter Care/Maintenance

- Always wash hands and wear new pair of clean, non-sterile gloves before manipulating a catheter, wash hands again after removing gloves

- IUC should be connected to a sterile closed urinary drainage system or a catheter valve

- Always take urine samples from a sampling port using aseptic technique

- Use a link system to facilitate overnight drainage and to keep the original system intact

Catheter Care/Maintenance

- The genital area, in males the meatus, should be washed at least daily with soap and water to ensure good personal hygiene.

- Reusable intermittent catheters should be cleaned and stored dry in accordance with manufacturer's instruction

- Catheters should be changed only when it is clinically necessary, or according to manufacturer's current recommendations

- The connection between the catheter and the urinary drainage system should not be broken or interrupted unless for a good clinical reasons, eg changing the bag in line with manufacturer's recommendations.

Catheter care

Handle the catheter system with care to avoid trauma to the urethra - Document any trauma observed

Urinary drainage bags should be positioned below the level of the bladder, and should not be in contact with the floor

Ensure good drainage is maintained by good anchorage system

Report and document changes in the urine

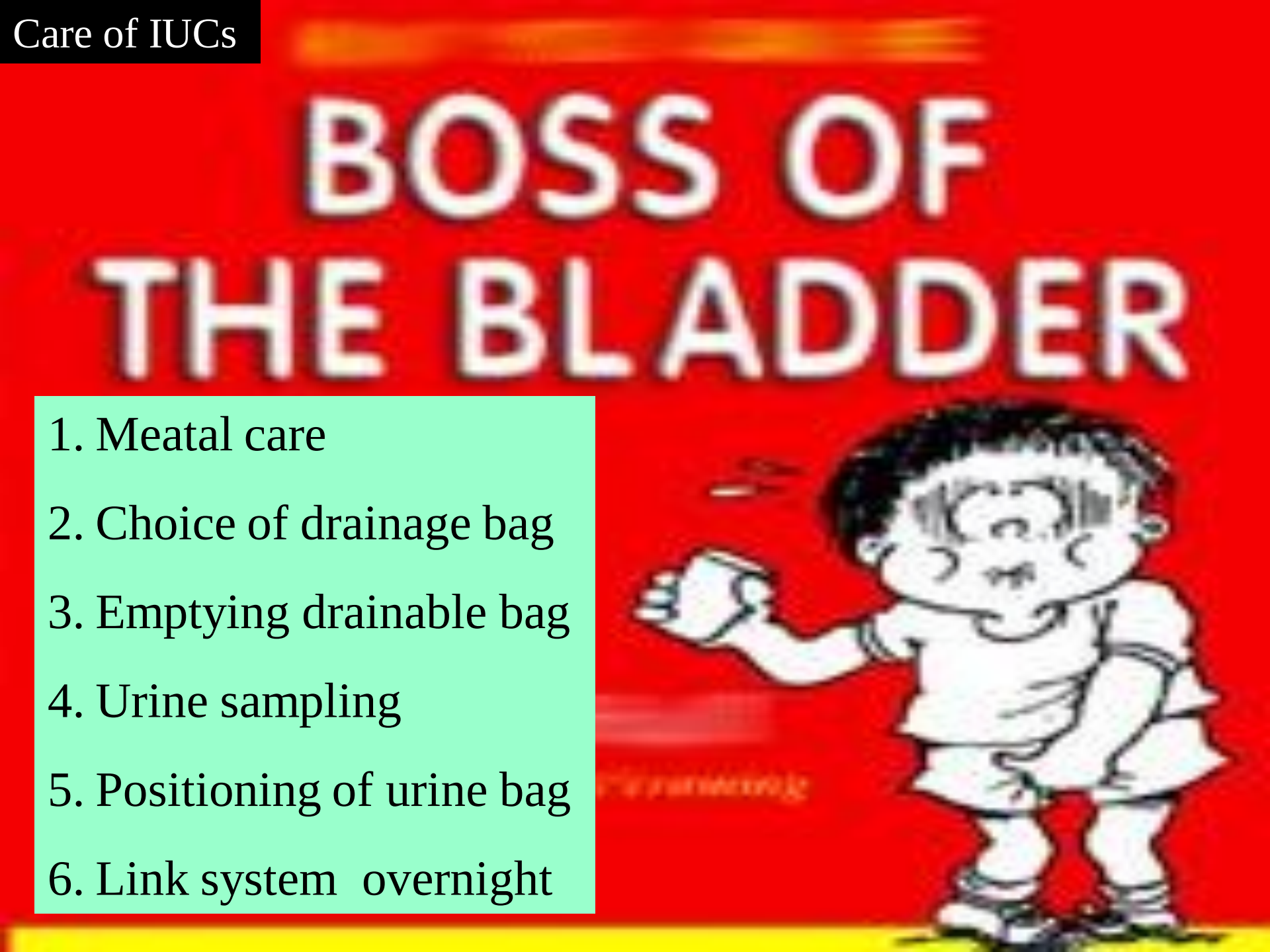
Monitor catheter change dates

Document care given in care plan

Catheter Care/Maintenance

- The drainage bag should be emptied frequently enough to maintain urine flow and prevent reflux, and should be changed when clinically indicated
- Night bag use once - empty contents down the toilet and dispose bag safely
- A care plan designed to minimise catheter blockage and encrustation should be drawn for the patient. The tendency for catheter blockage should be documented in each patient.
- Bladder instillation or washout should not be used routinely to prevent catheter associated infections

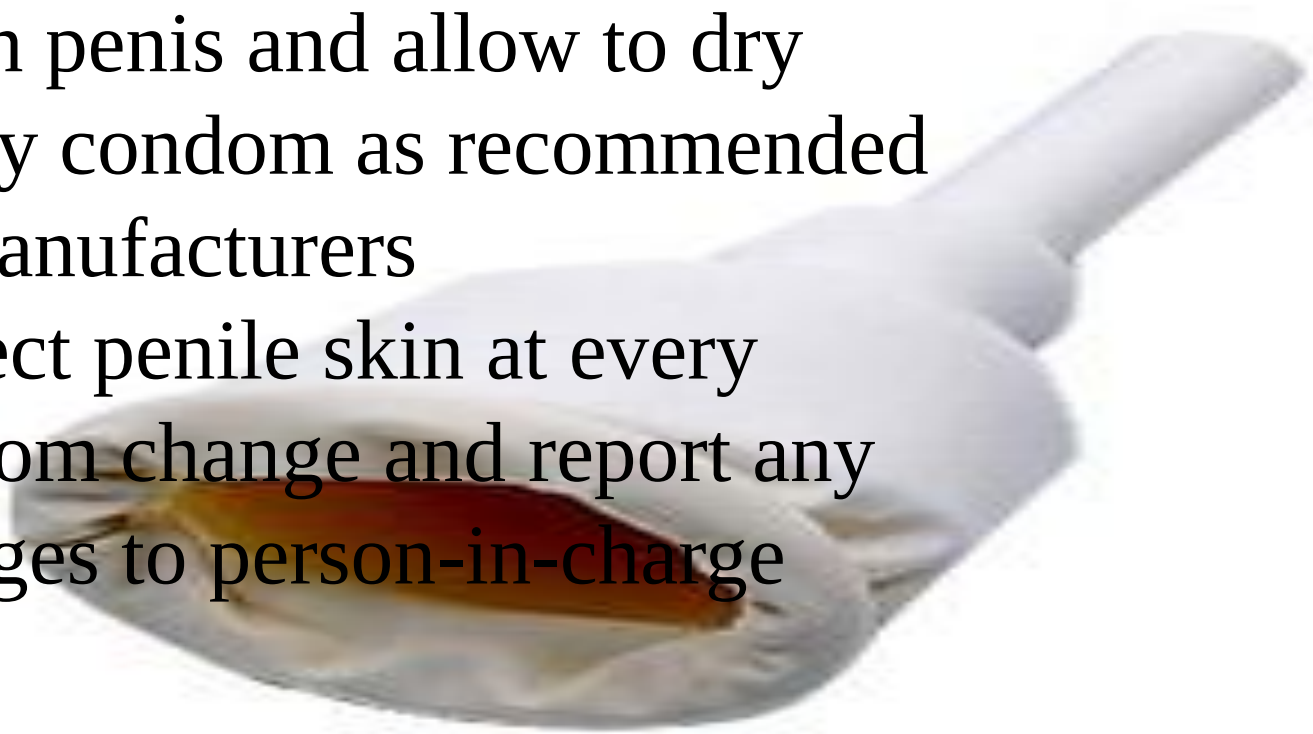
Care of IUCs



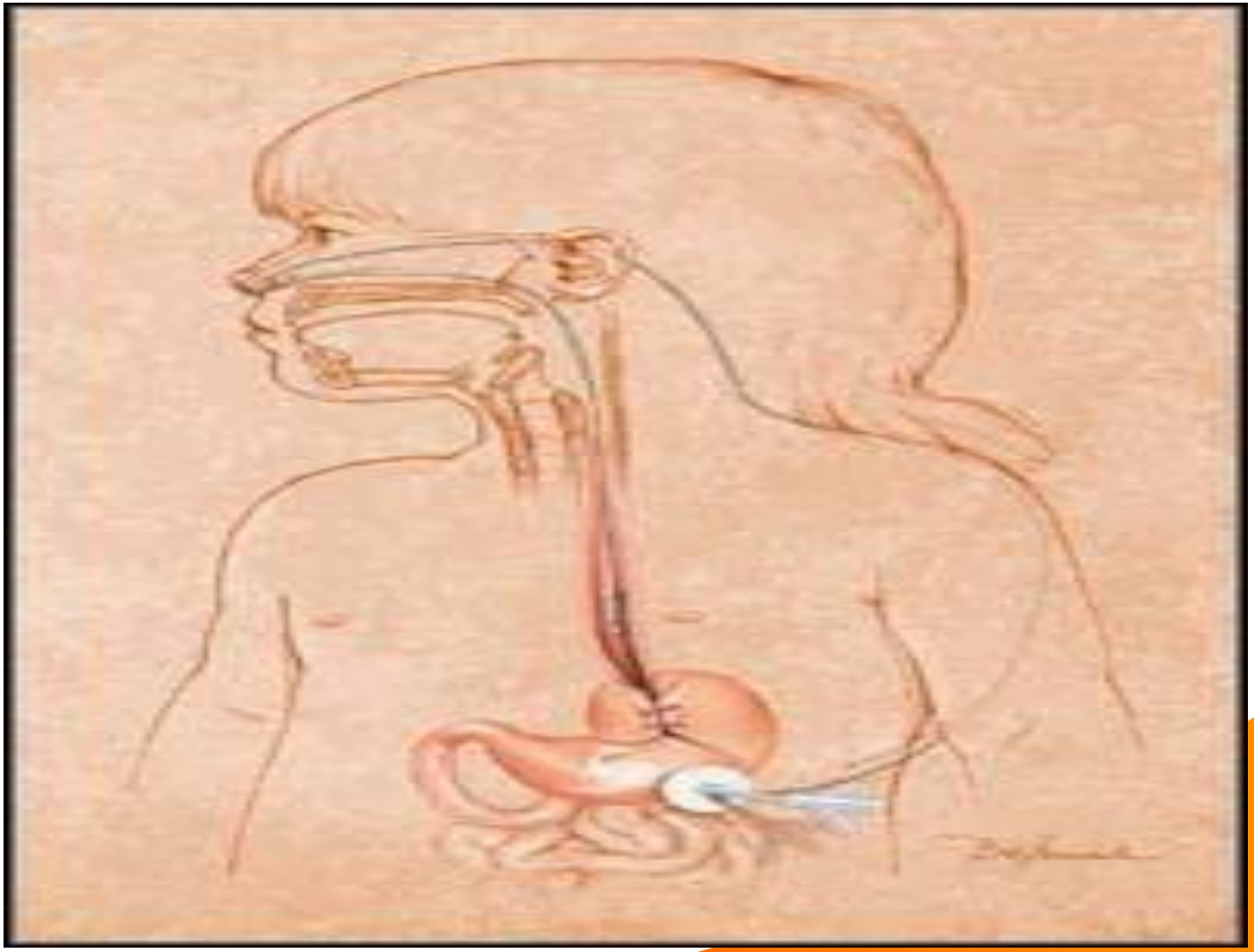
1. Meatal care
2. Choice of drainage bag
3. Emptying drainable bag
4. Urine sampling
5. Positioning of urine bag
6. Link system overnight

Care of Patient with Condom Drainage

1. Hand hygiene
2. Use clean, non-sterile gloves
3. Clean penis and allow to dry
4. Apply condom as recommended by manufacturers
5. Inspect penile skin at every condom change and report any changes to person-in-charge



Enteral Feeding



Enteral Feeding

- **Enteral feeding became common practice in the 1980s leading to inevitable care at home for those requiring prolonged feeding**
- **11,817 patients requiring Artificial Nutrition Support (2000)**
- **Over 50% of adults and virtually all children are cared for in their own homes and 40% of those adults live in Nursing Homes**

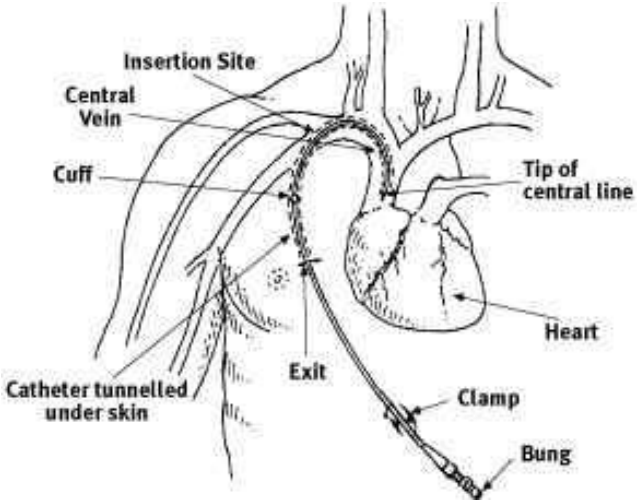
Enteral Feeding and Infection Control

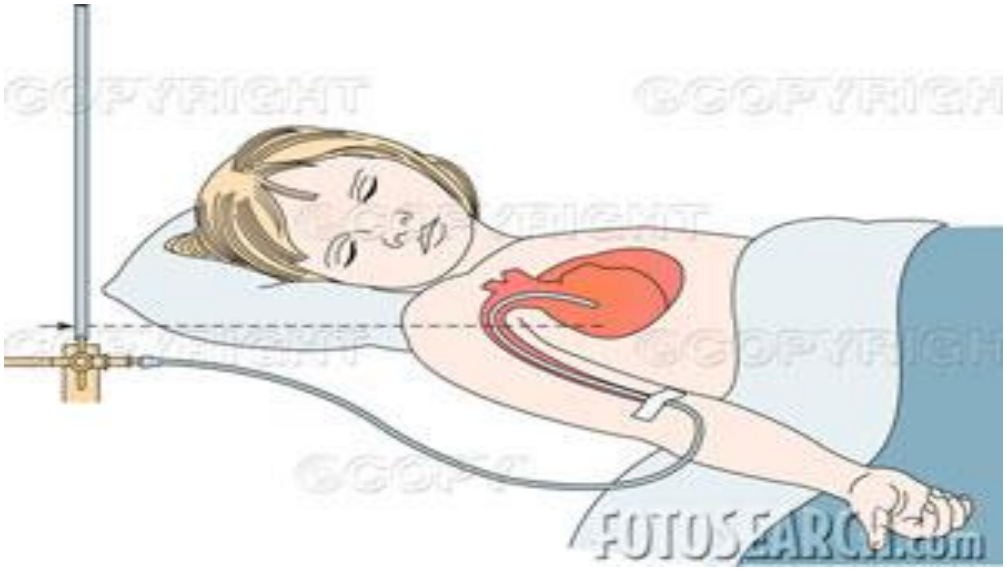
1. Always educate patients and carers
2. Trained and competent staff to should set-up and manage feeding systems
3. Use pre-packaged, ready-to-use feeds
4. There should be minimal handling to assemble
5. Decontaminate the hand before starting the procedure
6. Use aseptic non-touch technique to connect administration system to the feeding tube
7. Store feeds as recommended by manufacturers

Enteral Feeding and Infection Control

8. **Minimise manipulation and connectors**
9. **Change giving set as recommended by manufacturers.**
10. **The administration sets and feed containers are for single use.**
11. **To prevent blockage, flush feeding tube with fresh tap water before and after feeding or administering medication. For immuno-suppressed persons, use cooled freshly boiled or sterile water.**
12. **Wash gastrostomy site daily and report changes to person in charge**
13. **Manipulation of gastrostomy site should be done aseptically**

Central Venous Catheters





Intravenous Feeding Line

Over 60% of blood infections are introduced by intravenous feeding lines, catheters or similar devices. This is because micro-organisms on the patient's skin (either those naturally present or those acquired whilst in hospital) can gain entry to deeper tissues or the bloodstream when a cannula or catheter is inserted into a vein.

Intravenous Feeding Line (IFL) and Infection control

1. Only use IFLs when there is no other alternative
2. Only trained and competent staff should insert, manipulate and remove IFLs
3. Use only dedicated line
4. Additives should only be added in controlled conditions by competent staff
5. Inspect insertion site regularly
6. DO NOT rail-road
7. Use occlusive, transparent dressing to cover site
8. Change CVCs after 7 days unless medically contra-indicated
9. Document insertion and removal date and time in clinical record including operator

Catheter management

Health Protection Agency

Injection port or catheter hub should be cleaned using alcohol or alcoholic chlorhexidine gluconate solution before and after it has been used to access the system

Do not use antibiotic lock solutions routinely to prevent catheter-related bloodstream infections (CRBSI)

Use normal saline (0.9% sodium chloride) to flush and lock the catheter lumen

Do not use systemic anticoagulants routinely to prevent CRBSI

Catheter management

Generally, administration sets in continuous use do not need to be replaced more frequently than at 72 hours intervals unless they become disconnected or CRBSI is suspected

Administration sets for blood and blood components should be changed every 12 hours, or according to manufacturer's recommendations

Sets for total parenteral nutrition infusions should generally be changed every 24 hours. If however the solution contains only glucose and amino acids, sets in continuous use do not need to be replaced more frequently than 72 hours.

Catheter management

Do not give systemic antibiotic routinely to prevent catheter colonisation or CRBSI either before insertion or during the use of a central venous catheter

When needless devices are used, ensure that all the components of the system are compatible and secured to minimise leaks and breaks in the system

Always ensure that the manufacturer's recommendation is followed when using needless devices

Preferably use a single lumen catheter to administer nutrition. If multilumen catheter is used, one port should be dedicated to total parenteral nutrition, and all lumen must be handled aseptically

Catheter Site Care

Health Protection Agency

Preferably, use sterile transparent, semi-permeable polyurethane dressing to cover the catheter site

If patient perspires profusely or site is bleeding or oozing, it is better to use sterile gauze dressing which should be changed when gets damp or soiled. This should be replaced by transparent dressing as soon as possible

For tunnelled or implanted CVC sites, dressing should be changed weekly until the site heals, unless there is an indication to change them sooner

Use alcoholic chlorhexidine gluconate solution to clean the site when changing dressing and allow to air dry

Catheter Site Care

Always ensure that products being used in catheter site care is compatible with catheter materials (tubing, hubs, injection ports, luer connectors and extensions) and check with manufacturer's recommendations.

Transparent dressing should be changed weekly, or sooner if they are not intact or moisture collects under the dressing

Use individual sachets of antiseptic solution or antiseptic-impregnated swabs or wipes to disinfect dressing sites

Peripherally - inserted Venous Cannula (PVC) (Venflon) and Infection Control

Health Protection Agency

Incidence of local or bloodstream infections associated with PVC's is usually low. However serious complications can cause considerable morbidity because of the frequency with which such catheters are used.

3.7 per 1000 surgical patients had bacteraemia (European Multi Centre Study in 1983)

Most commonly isolated organisms are coagulase- negative staphylococci 35%, followed by staphylococcus aureus 25%

To limit these complications,:

1. **Only trained and competent should carry out insertion**
2. **Aseptic technique is required throughout, before, during and when removing the set after the procedure**
3. **Prepare the skin, if visibly dirty, by cleaning with soap and water followed by antiseptic solution like chlorhexidine**
4. **Keep extensions and stopcocks to a minimum**
5. **Regularly inspect site and report changes to person-in-charge**

Peripherally-inserted Venous Cannula (Venflon) and Infection Control

6. Keep in place for the minimum time necessary or every 72 hours irrespective of the presence of infection unless medically contra-indicated
7. Immediately change giving sets after administration of blood, blood products or intravenous feeds
8. For all other clear fluids, change after 72 hours provided there is no break in the circuit.
9. Document insertion and removal date and time in clinical records including operator
10. Dispose venflon as clinical waste

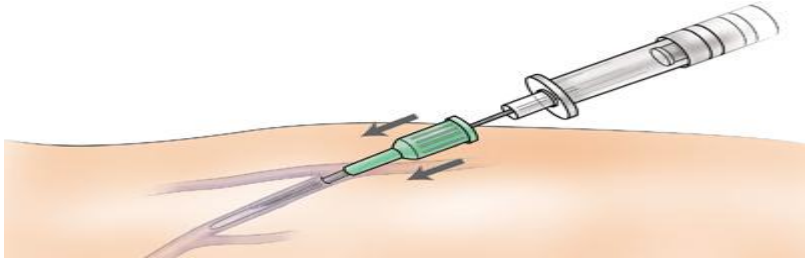
Peripheral Intravenous Cannulation (PIC)

Cannulation

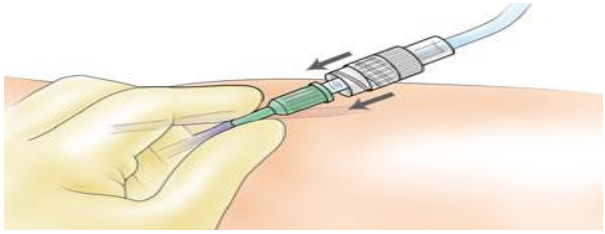
1. Locate vein

2. Decontaminate skin

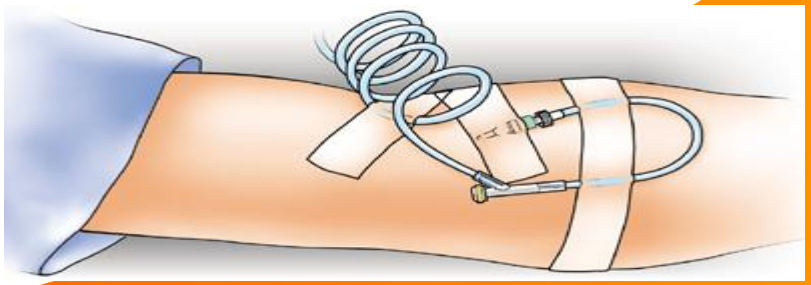
3. Cannulate



4. Remove introducer



5. Attach giving set



6. Secure to prevent trauma

Tracheostomy

Tracheostomy and infection control

Changing Dressing:

- **Decontaminate hand and put on PPE**
- **Use sterile glove**
- **Using aseptic technique remove soiled dressing and clean the site with sterile water**
- **Apply appropriate dressing e.g. Lyofoam**
- **Inspect trachea site and report changes to person-in-charge**
- **If the inner tube is dirty, remove, replace with a clean one and secure in place.**
- **Clean dirty tube using a brush and soapy water. Rinse well under plenty of running water. Store dry.**

Tracheostomy and infection control

Suctioning is required to remove plugs or mucous impeding optimal air exchange

- Hand decontamination before and after and use PPE (including eye protection)
- Sterile vrs clean, non-touch technique
- Sterile single use suction catheter
- Always use a new clean disposable catheter
- Dispose as clinical waste

Thank You

Health Protection Agency

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