CATHETER SELECTION & CATHETERISATION

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BAUN Study Day

8th May 2015

PRINCIPLES OF CARE

- NHS Quality Improvement Scotland Best Practice Statement Urinary Catheterisation & Catheter Care Continence Adults with Urinary Dysfunction www.nhshealthquality.org
- RCN Catheter Care – www.rcn.org.uk
- Local NHS Urinary Catheterisation & Catheter Care Guidelines & Catheter Leaflets
- NES – Urinary Catheterisation, Management, Care & Prevention of Infection www.nes.scot.nhs.uk/hai/osc
- MHRA – Medicines and Healthcare products regulatory body – a medical device can be defined as any instrument, apparatus, appliance, material or healthcare product, excluding drugs, all catheter products require a CE mark.
- BS 1695 – Balloon size to fully inflate the balloon
- Report problems – Incident Forms Acute & Community
- Knowledge and Skills Framework
- Scottish Tariff www.isdscotland.org

PRINCIPLES OF CARE

- SIGN 88 – Management of Suspected Bacterial Urinary Tract Infections in Adults www.sign.ac.uk
- Health Protection Scotland Preventing Catheter Associated Urinary Tract Infection acute/community www.documents.hps.scot.nhs.uk
- European Association of Urology Nurses Catheterisation – Indwelling Catheters in Adults February 2012 – www.eaun.uroweb.org
- Local Acute & Hospital Catheter Formulary

NMC THE CODE 2015

- Maintain the knowledge and skills you need for safe and effective practice
- Keep to and promote recommended practice in relation to controlling infection
- Take all reasonable personal precautions necessary to avoid any potential health risks to colleagues, people receiving care and the public
- Record keeping – NMC

PRODUCT LIABILITY

- All catheters and equipment must be used within the manufacturers recommendations
- Any deviation from this will create liability on the part of the nurse

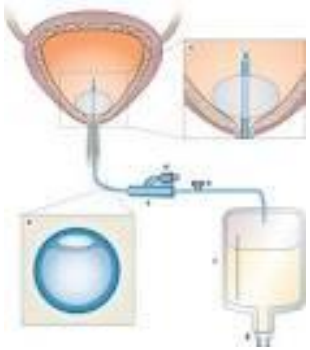
AIMS OF CATHETER CARE

- Promote patient comfort and dignity
- Recognise and minimise risk of CAUTI
- Assist patients achieve independence and self-care
- Able to provide cost effective service

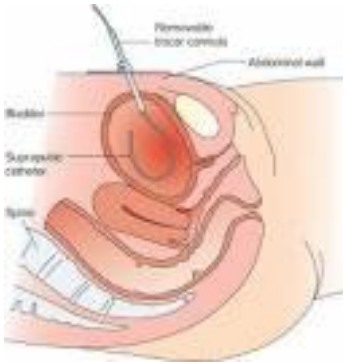
TYPES OF URINARY CATHETERISATION

- Intermittent self catheterisation

- Indwelling catheterisation – catheter inserted into urethra

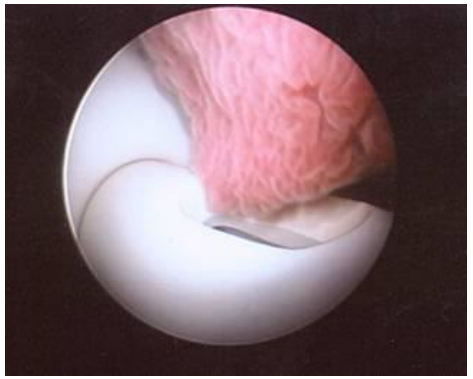


- Supra-pubic catheterisation – inserted into bladder surgically

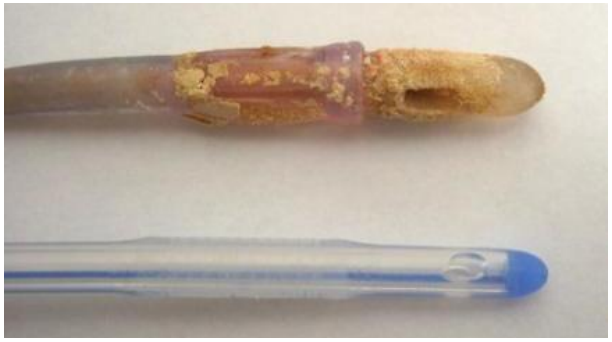


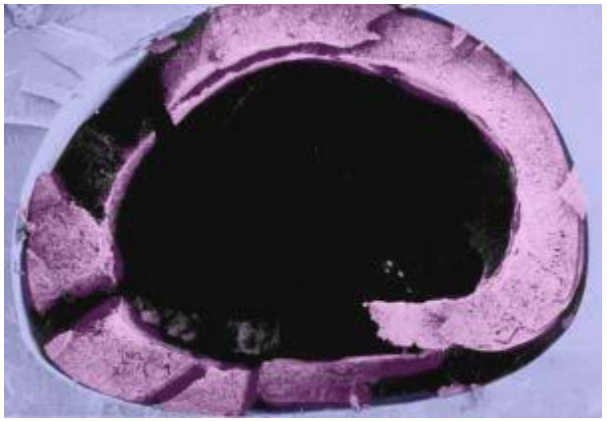
CATHETERS

- A catheter is a thin hollow tube which can be inserted into the bladder through the urethra or supra-publically
- Used by Romans, Chinese, Egyptians, material used reeds, gold, silver
- Allows for bacteria to enter the bladder
- Following insertion a biofilm forms on the surface of the catheter within hours and bacteria at the rate of 5% per day
- Within one month the bladder is fully colonised by bacteria
- Apart from trauma, infection accounts for virtually all complications of long term catheterisation



CATHETERS





CATHETER TYPES

- One way catheter – No balloon/intermittent – one channel for drainage, used for undertaking ISC or for treatment of urethral stricture
- Two way catheter – Balloon (Foley 1932) two internal channels, one for drainage and one to inflate the balloon (most commonly used)
- Three way balloon – Balloon (Foley) three channels – third to facilitate continuous bladder irrigation e.g. following urological surgery or if bleeding from bladder/prostate surgery

TYPES OF INTERMITTENT CATHETERISATION

- I.S.C. – Intermittent self catheterisation
- I.S.D. – Intermittent self dilation
- Via a cystostomy to drain urine

INTERMITTENT CATHETERISATION

- Insertion of a single use catheter into the bladder via the urethra to achieve regular and effective bladder emptying
- Preferred alternative to indwelling catheters when bladder emptying is incomplete – dependent on clinical assessment

INTERMITTENT CATHETERISATION

- Protects the kidneys, detrusor muscle & sphincter, prevents incontinence and decreases the number of urinary tract infections
- Improves quality of life and wellbeing – no indwelling catheter or legbag
- Allows patients to express their sexuality
- Should always be used in preference to indwelling catheter if clinically appropriate

REASON FOR INTERMITTENT SELF-CATHETERISATION

- Previous retention of urine
- MS
- CVA
- Parkinson's Disease
- Post Surgery

PATIENT CONSIDERATION

- Need to be prepared to do procedure
- Need compliance and ability
- Take equipment when you go out
- If not undertaking ISC can have increased incontinence/UTI – bladder overfills, back pressure, detrusor & sphincter damage
- Information available – DVD'S etc.
- Different types of catheters available

SELECTION OF INDWELLING CATHETER

- Reasons for catheterisation e.g. retention
- Patient consent, informed choice
- Individual needs of patient – who cares for catheter – patients/carer
- Sexually active/body image
- Allergy e.g. latex
- Length of time to remain in situ

SELECTION OF INDWELLING CATHETER

- Gender
- Size – smallest to allow drainage
- Comfort – easy to insert/remove – (silicone) prevent stricture
- Tissue compatibility
- **All catheters to be used within the manufacturers recommendations/ information**

INDWELLING CATHETERS – POINTS TO CONSIDER

- Material?
- Catheter size?
- Length of catheter?
- Balloon inflation volume?

TIP DESIGN

- Standard tip is round with two drainage eyes called a Nelaton catheter
- For routine catheterisation, a straight-tipped catheter should be used
- Tiemann has a covered tip, designed to negotiate the male prostatic curve, useful for difficult insertions
- Coude tip catheter has a curved tip like the Tiemann catheter, but has one, two or three drainage eyes situated in the curved tip

CATHETER MATERIAL

SHORT TERM P.T.F.E.

- Short/medium term – up to 28 days
- Refer to manufacturers instructions for urethral/supra-pubic use
  - Polytetrafluoroethylene Coated Latex (PTFE)
  - Do not use if any latex allergies
  - Smoother than plain latex which helps to prevent encrustation and irritation
  - Absorption of water is reduced due to the Teflon coating

CATHETER MATERIAL LONG TERM – HYDROGEL COATED

- Hydrogel coated latex – Up to 12 weeks
- Follow manufacturers guidelines for urethral or supra-pubic use
- Soft highly biocompatible
- Resistance to bacterial adherence
- Improved patient comfort
- Hydrophilic absorbs fluid to form a soft cushion around the catheter and reduces friction and urethral irritation, beneficial on insertion & removal

CATHETER MATERIAL LONG TERM – SILICONE

- All silicone (100% silicone, hypoallergenic – uncoated, latex free) – up to 12 weeks
- Follow manufacturers guidelines for urethral or supra-pubic use
- Reduced tendency to encrustation
- While silicone causes less tissue damage, catheter has tendency to lose fluid, which increases risk of displacement in bladder
- Larger D shaped smooth wide lumen
- Greater risk of developing a cuff when deflated which can result in uncomfortable catheter removal or trauma

ANTIMICROBIAL & SILVER CATHETERS – COMMENTS

- Research has shown there is no clinical benefit in the use of these
- EUA state silver alloy and antibiotic impregnated catheters may decrease the risk of catheter associated bacteriurea in hospitalised patients
- No evidence that antibiotic-impregnated catheters decrease symptomatic infection and therefore they cannot be recommended routinely
- Cochrane review did not find sufficient evidence to determine the best type of catheter

CROSS SECTION OF CATHETER

- The inner lumen of the catheter varies quite a lot between catheter materials e.g. latex and a silicone catheter, so inserting a larger charriere catheter does not necessarily ensure a wider drainage channel

CATHETER SIZE

- Charriere – 19th century French instrument maker devised first sizing system
- One charriere unit is 1/3 of a mm
- A catheter marked 12ch has a 4.0mm external outer diameter
- Larger size more risk of urethral irritation and bypassing
- Catheters colour coded
- 6-10ch for paediatrics

CATHETER SIZE

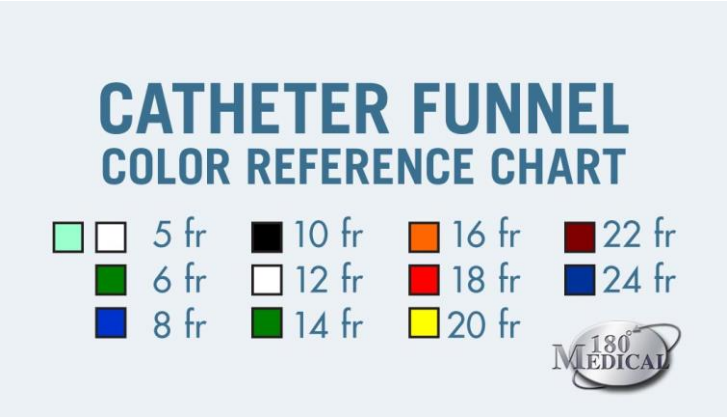
- Routine drainage in an adult select smallest size which will effectively drain urine
- 12-14ch for normal urethral drainage – drain clear urine, no debri
- 14-18ch can be used for supra-pubic drainage – usually size 16fg or if debris/blood
- Size 20-24 – used for heavy haematuria, need for flushing (advice of urologist)
- Large sizes may be used for urine containing debris but will cause more urethral irritation and risk of bypassing

CATHETER LENGTH

- Paediatric length 30-31cm
- Consider sighting of legbag
- Female length 20-26cm (urethra 4-5cm) NOT TO BE USED FOR MALE CATHETERISATION
- Standard length – 40-45cm (male urethra 18-22cm) – also for supra-pubic, wheelchair/chair bound/overweight patient

INFLATION CHANNEL MARKINGS

- Product description
- Logo of company
- CE mark
- Balloon amount
- REF number
- Charriere (ch) size
- Outer diameter (mm)



CATHETER BALLOON SIZE

- When catheter is in bladder, the balloon is inflated with sterile water/or glycerine to inflate balloon to keep catheter in bladder
- Balloon capacities are indicated by the inflation volume documented on the manufacturers instructions
- Some companies provide sterile pre-filled syringes with sterile water or glycerine 10%
- Fill with correct amount to stop distortion in bladder
- Under or over inflation can cause deflection of catheter tip and occlusion of eyelets of bladder mucosa, irritate the bladder wall and lead to bladder spasms
- Over inflation can cause stress on balloon
- Silicone catheters can lead to water loss from balloon over time

CATHETER BALLOON SIZE

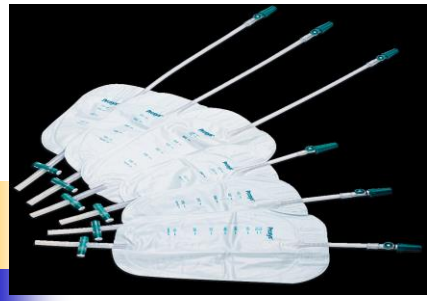
- For paediatric patients – 1.5ml, 3ml and 5ml
- 10ml – routine drainage (weighs 17gm)
- 30ml (weighs 48.2gm) – post prostatic surgery, can cause irritation of bladder lining, spasms, increased risk of infection due to drainage eyes sitting higher allowing for possible residual urine
- Use of larger balloon size will not prevent bypassing of urine
- Larger balloons tend to sit higher in the bladder with potential for increased residual urine volumes to collect below the catheter eyes

SELECTING A DRAINAGE SYSTEM/VALVE

- **Catheter Valves**
  - **Catheter valves & drainage bags of all types should be considered to suit the patients needs**
  - **Refer to local NHS guidelines**
  - **Alternative to legbags**
  - **Catheter valves are not always suitable for patients with detrusor instability, lack of bladder sensation or confused**
  - **Small device which fits onto end of catheter**
  - **Allows urine to be stored and drained from the bladder without the need for a permanently attached drainage bag**
  - **Requires to be released at regular intervals to prevent over distension of bladder which may lead to UTIS of dilation of upper renal tract**
  - **Can be used over 24 hours**
  - **Can be attached to a night bag on free drainage**

DRAINAGE BAGS

- Assess patients dexterity, mobility, preference, cognitive function, lifestyle
- Ensure product concealed under clothing
- Who is going to empty/change leg/night bag
- Different materials/backings acute and community
- Must be emptied often enough to maintain urinary flow and prevent reflux
- A separate container must be used for each patient and contact between the tap and container avoided – follow local guidelines



DAYTIME DRAINAGE BAGS

- Anti reflux valve or anti-reflux chamber to prevent reflux of contaminated urine from the bag into the bladder
- Provide a closed drainage system, minimising risk of CAUTI
- Do not disconnect from catheter unless undertaking catheter maintenance solution or becomes contaminated
- Needle free sample port to obtain urine specimens
- Bag capacity can range from 150ml to 1000ml, the main capacity leg bags used are 350ml, 500ml, 750ml, empty according to patients daily routines
- Short/long tube this can vary from 5cm to 60cm, dependent on manufacturers
- Lever/t-tap/barrel

DAYTIME DRAINAGE BAGS

- Some companies pack contain pair of non latex gloves
- Straps come with leg bags
- Change every 7 days in line with manufacturers guidelines
- Never wash urine bags, do not add antiseptic or antimicrobial solutions to drainage bags

NIGHT DRANAGE BAGS

- Single use 2 litres non-return twist off valve – connect to leg bag at night
- Drainable – if urine volumes require to be recorded or urinmeter 2 litre or 3 litre
- Some companies e.g. LINC do a 2,600ml and Manfred Sauer 2,600mls
- Use of night stand – reduce risk of dislodging and improved drainage

SPECIALIST DRAINAGE BAGS

- **Manfred Sauer**
  - **Bendi bags, for wheelchair use**
  - **Discreet attached to thigh 450mls**
  - **Comfort range of bags, 600ml and 1000ml**
  - **700-1330ml capacity**

- **Rusch belly bags – body worn bag for urethral and supra-pubic use or nephrostomy, has an anti-reflux valve behind the catheter port which prevents reflux urine flow which allows positioning of this bag above level of bladder**

CATHETER SECUREMENT DEVICES

- **Prevents excess traction of catheter against bladder neck**
- **Securement of the catheter reduces catheter movement, infection risk and improves patient comfort**

NON-ADHESIVE DEVICES

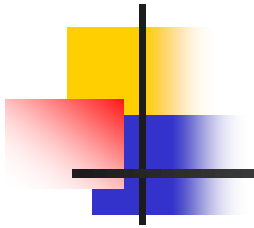
- **Leg straps – follow manufacturers instructions**
- **Sleeves – measure thigh circumference**
- **G-straps/Comfrasure – follow manufacturers instructions**

CATHETER SECUREMENT – ADHESIVE DEVICES

- Statlock – adhesive foam pad with swivel clip and locking device
- Clinifix – hydrocolloid strip – can be fixed or allows some movement
- Follow manufacturers guidelines
- On prescription or PECOS

DOCUMENTATION

- Peelable record labels that record catheter material, manufacturer, lot/batch number, size of catheter
- Amount of water in balloon
- Problem with insertion/removal
- Reason for catheterisation/re-catheterisation
- Instillagel used amount, expiry date, lot/batch number
- Catheter information leaflet give
- Signature of nurse



Any Questions

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