Guideline on Indwelling Urinary Catheter Management for Adults

Cork Kerry Community Healthcare

Liz Forde, Infection Prevention and Control, Cork PHN Services
Indwelling Urinary Catheter (IUC)

- How prevalent are IUCs in patients living at home?

- What are the infection risks? (A recap)
  - Catheter associated urinary tract infection (CAUTI)
  - Multidrug resistant organisms (MDRO)
  - To dipstick or not to dipstick?

- Prevalence and Appropriateness of IUC in one Community Care Area

- My urinary catheter passport
IUC use—some facts and figures

- Between 6% and 13% of patients in the community have an IUC (Royal College of Physicians (RCP), 2012, Miliani et al, 2015).
- IUCs are the most common indwelling device in use in the community (Royal College of Physicians (2012)).
- Patients with an IUC receiving home care
  - Prevalence varied across 11 European countries from 0% to 23%.
  - 6.5 times more likely to develop infection than those without (Sorbye et al, 2005).
- CAUTIs associated with unnecessary antimicrobial use, increasing risk of antimicrobial resistance, increased healthcare use and costs.
How does the IUC increase infection risk?

- Residual urine collects in bladder – reservoir for bacteria
- Urine is an excellent culture medium
- The body’s normal defence mechanism is bypassed i.e. flushing out of microorganisms during micturition
- Indwelling urinary catheter allow microorganisms gain direct entry to the bladder
  - contamination of catheter tip during insertion (extra-luminal)
  - break in closed drainage system or contamination of sample port, or urine in collection bag (intra-luminal)
How does the IUC increase infection risk?

- Biofilms form as:
  - organisms gain entry to and adhere to catheter material and
  - provide protection to bacteria within, enable survival and these bacteria are resistant to antimicrobials

- The biofilm on long term IUC can contain multiple species up to as many as 16 different strains
Where do the microorganisms come from?

- **Endogenous:**
  - From patient’s own flora (meatal, rectal or vaginal contamination)
  - High source in females – proximity to anal region and shorter urethra

- **Exogenous:**
  - Cross transmission e.g. from contaminated hands of HCW during insertion or manipulation of the collecting system
How do the microorganisms get in?

- Catheter/bag junction
- Drainage tap
- Outside of catheter
- Sampling port
- Meatal junction

Entry points for bacteria
IUC - What are the Infection Risks?

- Clients with long term indwelling urinary catheters will have bacteria (bacteriuria) in their urine within 20 days of having a catheter in place.

- The longer the catheter is in place, the greater the likelihood of infection

- All patients with a long term IUC are bacteriuric, often with two or more organisms
  - Scottish Intercollegiate Guidelines Network (2012)
Bacteriuria

- The presence of bacteria in urine signifies either colonisation or infection (HPSC, 2011)

- Colonisation is the presence of bacteria in urine without symptoms

- Infection is the presence of bacteria with associated signs and symptoms

- Bacterial colonisation with catheterisation is inevitable.
  - It is estimated that approx 90% of catheter-associated bacteriuria reflects colonisation rather than infection.
Is urine dipstick reliable tool to diagnose infection in catheterised patients?

- A urine dipstick will tell us whether there are leucocytes or nitrites in urine.
- But a urine dipstick cannot distinguish between infection and asymptomatic bacteriuria.

SIGN 2012 Do not use dipstick testing to diagnose UTI in patients with catheters

**Guideline - Evidence base practice change**
Urinalysis should not be routinely performed on long term catheterised patients as virtually all patients will have bacteria present in their urine (HPSC, 2011).
Has your patient got a catheter associated urinary tract infection (CAUTI)?

- Clinical signs and symptoms of CAUTI include
  - Fever (>38°C),
  - Chills or rigor
  - loin pain,
  - new onset confusion or worsening of pre-existing confusion, agitation
  - Nausea/vomiting or malaise,
  - renal angle or supra-pubic pain.

- Fever is the most common symptom, however the absence of fever does not out rule infection (HPSC, 2011).

- Smell or appearance of urine is not helpful in diagnosing infection.

- The presence of signs and symptoms of infection will prompt the need for a catheter specimen of urine (CSU) to be taken.
Catheter Specimen of Urine (CSU)

- Smelly or cloudy urine alone are *not* considered signs of CAUTI and are *not* indications for CSU for culture and analyses (HPSC, 2011).

- Obtain a CSU (from where?)
  - Before starting antibiotics
Taking catheter specimen of urine

- Irish survey reported that only 53% of HCW identified the sample port as the correct place from where to take a sample.

Procedure – Appendix 8

- Wipe sampling port with isopropyl alcohol & allow to dry
- Needle free sampling port system
  - Using single use syringe, withdraw 5mls urine from sampling port using an ANTT
- A minimum of 1ml is required for routine culture if sent in clean sterile leak proof specimen container.
- A minimum of 5 mls is essential for boric acid (preservative) samples.
  - Use red topped boric acid containers if samples may be delayed to the lab (>24hrs )
Catheter Specimen of Urine (CSU)

- Obtaining a CSU when there is no clinical evidence of CAUTI may lead to a false positive result, unnecessary treatment with antibiotics and promotion of antibiotic resistance.

- The CSU will help guide antimicrobial treatment but does not help in establishing a diagnosis.
If the indwelling catheter has been in place for more than 2 weeks and is still indicated, the catheter should be changed.

The urine sample should be collected from the new catheter so the sample is representative of the microorganisms really present in the bladder and not the microorganisms that have adhered to the interior wall of the catheter (EAUN, 2012).
Evidence base

- Prospective, randomised controlled trial
- 21 male, 33 female NH residents
- Residents were randomised to
  - IUC replacement before initiating antimicrobial treatment
  - No catheter replacement
- Outcome – Catheter replacement was associated with
  - Improved clinical status in 72 hrs (25 v 11 residents)
  - Lower rate of relapse at 28 days (3 v 11)

Antibiotic treatment

- Signs and symptoms of infection determine the need for antibiotic therapy
- The lab result will guide the choice of the most appropriate agent
- Review positive lab report in conjunction with signs and symptoms of infection before treatment
- Routine use of prophylactic antibiotic administration is not recommended because of concern for selection of antimicrobial resistance.
What are Multi Drug Resistant Organisms?

- MDROs are microorganisms that are resistant to one or more classes of antimicrobial agents

- The presence of an IUC is a recognised risk factor for colonisation or infection with MDROs (Wilson et al, 2016)

- UTIs are increasingly caused by MDROs including strains that are resistant to all available therapeutic agents, therefore preventing CAUTI may help patients avoid MDRO colonisation or infection (Meddings et al, 2014)
Strategies to reduce inappropriate antibiotic use

- Do not routinely dipstick catheterised patients as bacteriuria is inevitable

- Taking a CSU without S&S of infection may lead to a false positive result and unnecessary antibiotic treatment

- Only obtain a CSU when the patient has S&S of infection
  - Take the CSU from the newly replaced catheter if the catheter has been *in situ* for more than 2 weeks
Preventing CAUTI

You can’t get a CAUTI if you don’t have a catheter

- Avoid catheter use
  - use only when necessary and
  - for the shortest possible time
Prevalence was 1.9%
  - (87 of 4,674 patients)

Mean age 76
  - range 34 to 98

Length of time *in situ*
  - 1 month to 20 years (mean 4 years)
Survey of IUC use in one Cork Community Carer Area (2)

<table>
<thead>
<tr>
<th></th>
<th>Documented indication, n (%)</th>
<th>Nursing care plan, n (%)</th>
<th>Review continued clinical need for IUC, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All urinary catheters</td>
<td>39/80 (49)</td>
<td>27/80 (34)</td>
<td>36/80 (45)</td>
</tr>
<tr>
<td>(n = 80)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urethral catheter (n = 30)</td>
<td>11/30 (37)</td>
<td>8/30 (27)</td>
<td>13/30 (43)</td>
</tr>
<tr>
<td>Suprapubic catheter</td>
<td>28/50 (56)</td>
<td>19/50 (38)</td>
<td>23/50 (46)</td>
</tr>
<tr>
<td>(n = 50)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Routine IUC changes

<table>
<thead>
<tr>
<th>Catheter changes</th>
<th>Nurse, n (%)</th>
<th>General practitioner, n (%)</th>
<th>Acute hospital, n (%)</th>
<th>Other, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUC catheter changes (n = 80)</td>
<td>42/80 (52)</td>
<td>16/80 (20)</td>
<td>20/80 (25)</td>
<td>2/80 (3)</td>
</tr>
<tr>
<td>Urethral catheter changes (n = 30)</td>
<td>8/30 (27)</td>
<td>7/30 (23)</td>
<td>14/30 (47)</td>
<td>1/30 (3)</td>
</tr>
<tr>
<td>Suprapubic catheter changes (n = 50)</td>
<td>34/50 (68)</td>
<td>9/50 (18)</td>
<td>6/50 (12)</td>
<td>1/50 (2)</td>
</tr>
</tbody>
</table>

This survey was completed in a Cork Community Care Area (August 2015)

Thank you to all the nurses who facilitated this study by meeting with me at their health centre and completing questionnaires
Urinary Catheter Care - Discharge Documentation

History of Falls: No [ ] Yes [X] Admitted to with fall on 27/03/16 with increasing confusion, polypharmacy, UTI.

Personal Cleansing & Dressing: Independent [ ] Dependant [ ] Requires Assistance [X]

Oral Hygiene / Dentition: Satisfactory [ ] Unsatisfactory [ ] Dentures: Upper [X] Lower [ ]

Skin Integrity on transfer: Intact [ ] Pressure Sore Risk: Low [ ] Medium [ ] High [ ]

Special mattress used: [ ] Pressure on nurse order. Pressure areas intact [X] Red [ ]

Wound: [ ] Grade: [ ] Location: [ ] Treatment: [ ]

Nutrition: Good [ ] Fair [ ] Poor [X] Nutritional Supplements [ ] Weight:

Diet: Normal [ ] Soft/Semi-solid (A) [ ] Minced-moist (B) [ ] Smooth Puree (C) [ ] Special [ ]

Fluids: Normal [X] Syrup consistency [ ] Custard consistency [ ] Refer to SLT careplan [ ]

Mealtimes: Independent [ ] Assistance Required [X]

Gastrostomy Feeding [ ] Poor to drink PO, fluids may require PEG scl fluids.

Urinary Continence: Continent [ ] Incontinent [X] Occasional Accident [ ]

Continence Product: None [ ] Mini Pad [ ] Slip Pad [ ] Full taped Pad [ ]

Catheter: No [ ] Yes [X] Type: [ ] Size: [ ] Date Inserted: [ ] Reason:

Bowel Function: Satisfactory [ ] Constipation [ ] Faecal Incontinence [ ] Laxatives [ ]

Sleep Pattern: Good [X] Fair [ ] Sedation Required [ ] Type: [ ]

Breathing: Normal [X] Dysspnoea [ ] Oxygen [ ] % [ ] Cough [ ] Hx of LTBI 15/04/16
<table>
<thead>
<tr>
<th>NAME</th>
<th>Catheter in place on admission Brocath suprapubic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Catheterisation Date</td>
<td>catheter in place on admission</td>
</tr>
<tr>
<td>Catheter Type</td>
<td>Brocath suprapubic</td>
</tr>
<tr>
<td>Catheter Size</td>
<td>Size 16 cm</td>
</tr>
<tr>
<td>Make and Order No</td>
<td>Long term Foley cath. M44KB 32</td>
</tr>
<tr>
<td>Leg Bag Capacity</td>
<td>550 mlS</td>
</tr>
<tr>
<td>Short/Long Tube</td>
<td>Long</td>
</tr>
<tr>
<td>Make and Order No</td>
<td>WiFi, 05M, NG205143</td>
</tr>
<tr>
<td>Night Bag Type</td>
<td>Great Bear Single EVE. 2000mls</td>
</tr>
<tr>
<td>Night Bag Code</td>
<td>Code GB3 10303V</td>
</tr>
</tbody>
</table>
Nursing & Medical Discharge

Describe patient's usual Urinary Elimination pattern:

Continence Aids: Yes □ No □ Specify

- Catheterized: Yes ☒ No □ Date inserted: / / Type__________ Size_____

- Fluid balance since 8am on the day of transfer (If applicable): Input___________ mls Output___________ mls

Comment (If applicable):

MEDICAL DISCHARGE SUMMARY

above. He had 2 episodes of acute delirium while on the wards with reports of increased agitation and aggression. He completed a course of 7 days of co-amoxiclav PO. He received extensive input from physiotherapy and occupational therapy throughout admission. □ FAX □ was catheterised during admission for acute urinary retention. Trial without catheter failed and he has been discharged with indwelling catheter for review in 6/62. Mr.
Why was the passport developed?

- To provide a consistent, standard of care for patients with a long term indwelling urinary catheter

- A patient held passport
  - contains both guidance and information on catheter care
  - serves as a checklist for patient education and
  - as an on-going record of catheter care that will enhance the safety and continuity of care

- For the passport to be effective,
  - Patients need to carry it to appointments/hospital
  - HCPs need to update it at every interaction
This passport has been developed by Cork and Kerry Community and Disability Infection Prevention and Control in conjunction with the Public Health Nursing Service and Cork North Lee Continence Nurse Advisers. We would like to acknowledge Urology Nurse Specialists, Nurse Practice Development and Infection Prevention and Control across a range of services including Bantry General, Cork University, Kerry University, Mallow General Hospitals, Mercy University, South Inifirmary Victoria University Hospital and Bons Secours Hospital, Tralee for reviewing this passport. Thanks also to the patients and GPs who reviewed the passport.

We hope you find the information helpful.

This is a shared record between the patient and the healthcare professional.
My Urinary Catheter History
To be filled in by medical and/or nursing.

All nurses and doctors should record the catheter in the client medical passport and also in the client medical record. This does not replace standard professional discharge planning on catheter care and management.

Reason for catheterisation
- To relieve urinary retention □
- To relieve bladder outlet obstruction □
- To assist healing of an open sacral or perineal wound □
- Other □ If ‘Other’ please explain

Other details of catheter
- Suprapubic □
- Date of first catheterisation
- Venue of first catheterisation
- Catheter type and size

Catheter length Standard
- Were there any problems during catheterisation? If ‘Yes’, please describe them here

Urinary Drainage Collection System Details
(Please select one option by ticking one box, and then fill in the bottom two boxes.)

1. Two-litre sterile drainable urine collection bag
   Code

2. Link system – sterile, drainable leg bag (500-750mls), which is attached to a two-litre single-use, sterile, drainable bed-bag.
   Leg bag code
   Bed bag code

3. Catheter valve
   Code
   Single use, sterile, drainable bed bag
   Bed bag code

Details of how to obtain catheter equipment

Prescription given for ongoing supplies
Anchor the catheter securely
Make sure the catheter is anchored to your thigh or abdomen (tummy) using a device such as a strap that goes around or a pad that is placed on your thigh or waist. These devices have clips that your catheter can be clipped into to prevent the catheter pulling at the entry site.

Use straps or a leg sleeve
Make sure if you wear a leg bag that it is held firmly on your leg. Use either straps (not too tight) or a leg bag sleeve.

When attaching the leg bag to your leg, the straps should be at the back of the leg bag and not across the front of the bag.

Connecting the bed bag
When you get into bed, loosen or remove the leg straps on your leg bag. Make sure that your catheter remains secure in the catheter stabilisation device. Attach a new bed bag to the leg bag or valve every night which prevents you having to empty the leg bag or valve overnight.

1. First wash and dry your hands.

2. Remove the protective cover from the bed-bag connection and avoid touching it.

3. Insert the bed bag into the outlet tube of the leg bag securely.

4. Open the tap from your leg bag or valve to allow urine to drain into the bed bag.

5. Make sure the bed drainage bag is attached to a suitable stand so that the drainage bag or tap does not touch the floor (check with your nurse if you’re unsure).

6. Wash and dry your hands.
Is it still possible to have intercourse with a urinary catheter?

Yes. Even if you use a catheter all the time, sexual activity is still possible. If your catheter is normally connected to a drainage bag, a catheter valve may be considered so that you can leave the bag off for a while. Ask your nurse or doctor if this is a suitable option for you.

If you prefer to leave the catheter connected to a drainage bag, think about the type of bag to use, where to place it and remember to empty the bag before intercourse (sex).

**Women with a urethral catheter** may find it helpful to tape their catheter into a comfortable position on their lower tummy using surgical tape. This will help keep the catheter out of the way and prevent it from being pulled.

**Men with a urethral catheter** can bend the catheter back along the penis and hold it in place using either surgical tape or a condom - or both.

**Suprapubic catheters** are probably the best option if you are (or intend to be) sexually active. Suprapubic catheters do not get in the way but you may find it more comfortable to tape it to your tummy during intercourse.

**After intercourse** it is a good idea to wash around the catheter with unperfumed soap and water.

If you experience any pain or discomfort during intercourse, you should talk to your nurse or doctor.
Catheterisation change records
(To be completed by your healthcare professional.)

Your nurse or doctor should record details of catheter changes in this passport. Standard professional documentation for patient nursing or medical care must also be recorded in the patients' notes. Please return the booklet to the owner after documenting care provided.

Details of catheter change

Date
Type of catheter
Size
Batch number
Expiry date
Reason for catheter change

Volume of water removed *(Maybe less than volume inserted)*
Volume of water inserted into balloon
Any problems experienced during catheterisation

Date of next planned catheter change
Signature

Problems and follow-up actions
For the client and healthcare professional

This section is a space for you to **record any problems** you have with your catheter. Write down any problems you have experienced or any issues you would like to discuss.

The next time you meet your healthcare professional, discuss the problem and agree together how this will be resolved. This space allows you to record the actions as it may influence your future care.

Date

What problem would you like to discuss with your healthcare professional?

Joint action agreed

Signature
Patients Experiences...

In the below link you can find out about the experience of living with a urinary catheter by seeing and hearing people share their personal stories on film. Researchers from the University of Oxford travelled all around the UK to talk to forty four people (including four carers) in their own homes.

Find out what people said about different types of catheters and issues such as infection (UTIs), travel and intimate relationships.

Click on http://www.healthtalk.org/home. Under “Topics A-Z”, click on “U” for “Urinary Catheter”

How to wash your hands properly

1. Wet your hands under running water.
2. Lather with soap.
3. Cover all parts of your hands.
4. Rinse well under running water.
5. Dry thoroughly.

It should take around 30 seconds to wash your hands properly.
Conclusion

As the risk of infection increases the longer an IUC is in place, adhering to the guideline aims to ensure that all patients with an IUC

- Have an appropriate documented indication according to guidelines
- Have a care plan to reduce the risks associated with an IUC
- Have a documented review of the continued need for the IUC
- Have an “IUC Change Record” to provide a catheter history to inform care
- Are changed using ANTT procedure for insertion

Documentation is needed to ensure

- an IUC is used appropriately and,
- when used, that there is a plan of care documented to decrease their associated risks.
References

Point prevalence survey of indwelling urinary catheter use and appropriateness in patients living at home and receiving a community nursing service in Ireland

Liz Forde¹ and Fiona Barry²

- This survey was completed in a Cork Community Care Area (August 2015)
- Thank you to all the nurses who facilitated this study by meeting with me and completing questionnaires
Suby G – Manufacturers instructions

https://www.youtube.com/watch?v=U0Go-P-H7-g

How to look after your catheter

http://www.beaumont.ie/kidneycentre-aboutus-urology-urinarycatheter