Guideline on Indwelling Urinary Catheter Management for Adults

Cork Kerry Community Healthcare

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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 have been associated with unnecessary antimicrobial use, increasing risk of increased prevalence 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
- Via the jug

Entry points for bacteria
Key Points in Preventing Urinary Catheter Infection

• Ensure the closed drainage system is not broken.
• Always clean your hands and put on clean disposable gloves before touching any part of the urinary catheter or drainage bag.
• Daily washing, showering or bathing is all that is required for hygiene around the catheter.
• Ensure client is assisted to maintain good personal hygiene.
• Always clean from front to back using single strokes.
• When cleaning the tube, wash away from the body in single strokes.
• The catheter tube must always be free from kinks or twists to allow drainage.
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 rule out 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
Guideline- Practice change

• 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
Survey of IUC use in one Cork Community Carer Area (1)

- 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)

<table>
<thead>
<tr>
<th>Patient variables</th>
<th>n (%)</th>
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<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 65</td>
<td>19 (22)</td>
</tr>
<tr>
<td>66–75</td>
<td>16 (18)</td>
</tr>
<tr>
<td>76–85</td>
<td>25 (29)</td>
</tr>
<tr>
<td>&gt; 85</td>
<td>27 (31)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61 (70)</td>
</tr>
<tr>
<td>Female</td>
<td>26 (30)</td>
</tr>
<tr>
<td><strong>Urethral urinary catheter</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>22 (25)</td>
</tr>
<tr>
<td>Female</td>
<td>11 (13)</td>
</tr>
<tr>
<td><strong>Suprapubic urinary catheter</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39 (45)</td>
</tr>
<tr>
<td>Female</td>
<td>15 (17)</td>
</tr>
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</table>
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>
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<tbody>
<tr>
<td>All urinary catheters (n = 80)</td>
<td>39/80 (49)</td>
<td>27/80 (34)</td>
<td>36/80 (45)</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 (n = 50)</td>
<td>28/50 (56)</td>
<td>19/50 (38)</td>
<td>23/50 (46)</td>
</tr>
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</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.
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
My Urinary Catheter Passport

Looking after my urinary catheter

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 Infirmary 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 staff.

All nurses and doctors should record this information in the client's medical passport and also in the client medical records. This information does not replace standard professional documentation 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

### Other details of catheter

- Suprapubic
- Date of first catheterisation
- Venue of first catheterisation
- Catheter type and size

### 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 health care 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

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<tr>
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<tbody>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Type of catheter</td>
<td>APPLY</td>
</tr>
<tr>
<td>Size</td>
<td>STICKER</td>
</tr>
<tr>
<td>Batch number</td>
<td>HERE</td>
</tr>
<tr>
<td>Expiry date</td>
<td></td>
</tr>
<tr>
<td>Reason for catheter change</td>
<td></td>
</tr>
<tr>
<td>Volume of water removed</td>
<td>(Maybe less than volume inserted)</td>
</tr>
<tr>
<td>Volume of water inserted into balloon</td>
<td></td>
</tr>
<tr>
<td>Any problems experienced during catheterisation</td>
<td></td>
</tr>
<tr>
<td>Date of next planned catheter change</td>
<td></td>
</tr>
<tr>
<td>Signature</td>
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### 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.

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<tr>
<th>Details</th>
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<tbody>
<tr>
<td>Date</td>
<td></td>
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<tr>
<td>Joint action agreed</td>
<td></td>
</tr>
<tr>
<td>Signature</td>
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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.
Resources

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

Aseptic Non Touch Technique
• www.hseland.ie
• Search for ANTT in Keywords under the “Search Learning Catalogues”
References

  www.eaun_paris_guideline_2012_lr_online_file.pdf

• Eriksen S.T. and Bing-Jonson, P.C. (2017) Can we trust urine dipstick? Available at

  www.hpsc.ie/publications/guidelines

• Hooton TM, Bradley SF, Cardenas DD, et al. Diagnosis, prevention, and treatment of catheter-associated urinary tract infection in adults:

• McCann M. Hennigan M, Hawshaw S. Nurse’s knowledge of infection control measures preventing urinary tract infections in catheterised patients.
  Proceedings of the 26th International Nursing and Midwifery Research Conference, Dublin, February 2007

  Available at https://www.abena.dk/Files/Images/abena/denmark/inkontinens/Temadage/Temadag-dokumentation-6-Claus-Oestergaard-okt-16.pdf

  www.antt.org.uk

• Scotland Intercollegiate Guidelines Network (2012) Management of Suspected Urinary tract Infection in Adults Available at

• Infectious Disease Society of America (2010) Diagnosis, Prevention, and Treatment of Catheter- Associated Urinary Tract Infection in Adults:
  2009 International Clinical Practice Guidelines from the Infectious Diseases Society of America Available at