Urinary Catheters: Management for the Prevention of Catheter-associated Urinary Tract Infection (CAUTI)

Site Applicability

PHC – All sites

Practice Level

Basic:

- *Within the scope of every nurse (NP, RN, RPN, LPN, ESN)*

Requirements

1. An order is required for insertion of an indwelling urinary catheter.
2. Nurses are authorized to insert intermittent urinary catheters as a **Nurse Initiated Activity** without an order where a nursing diagnosis of urinary retention is made.
   Recommended additional education for Nurse Initiated Activity: Understanding Autonomous Practice and Nurse Independent Activities (NIA) or Nurse-Initiated Protocols (NIP) on Learning Hub
3. An order is required for Lidocaine jelly.
4. An indwelling urinary catheter may be removed at the nurse's discretion except in the following circumstances:
   a. There is documentation of a difficult insertion
   b. Patient underwent bladder / uro-gynecological surgery; or
   c. Patient underwent bowel surgery with low anastomosis
   d. Any time there is an order to the contrary.

Need to Know

- Routine changes of catheters are not recommended
- Catheter irrigation is not recommended, (except irrigation as ordered following urological surgery/procedures).
- Components of care recommended for all patients/residents to prevent or reduce the risk of catheter-associated UTI (CAUTI), encrustation and urethral trauma:

1. Avoid unnecessary urinary catheters
2. Insert urinary catheters using sterile technique. Use smallest catheter size that allows for proper drainage.
3. Ensure daily consideration of catheter necessity and remove promptly.
4. Follow best practice guidelines for maintaining catheters:
    - Regular peri-care,
    - Keep the drainage bag closed and below the level of the bladder,
    - Ensure adequate fluid intake,
    - Use clean, patient specific, single use measuring container to empty bag. Do not re-use.

- A Coude tip catheter is only used for catheterizations where obstruction exists. These are usually inserted by a nurse with additional skills/education (as determined by the unit). Refer to Urinary Catheterization Procedure
- The longer a catheter is kept in place, the greater the risk of biofilm formation, increasing risk of CAUTI.
- Encrustation occurs in approximately 50% of long term catheters. Encrustation occurs from urease forming bacteria causing crystals to attach to the biofilm on the inner and outer surfaces of the catheter. Encrustation is one of the most common causes of catheter occlusion and blockage
- Up to 50% of residents in Long Term Care and 19% of seniors in the community have asymptomatic bacteriuria (ASB) indicating colonization not infection.
    a. ASB is a common finding in some healthy female populations, and in many men and women with abnormalities of the genitourinary tract that impair voiding. There is a high prevalence in persons with spinal cord injuries.
- Sending of routine urine C&S specimens to the lab is not necessary. Specimens should only be sent with provider order based on a clinical assessment

Protocol

Assessment Prior to Catheterization

1. Assess for signs and symptoms of urinary retention:
    a. Palpable bladder
    b. Dull sound with percussion. A dull sound to umbilicus indicates approximately 500 mL of urine. Alternatively assess bladder volume with bladder scanner.
    c. Lower abdominal pain/tenderness

d. Increased blood pressure in absence of pain or without history of hypertension
e. Inability to void even though sensation to void is present
f. Diaphoresis
g. Frequent small voids (less than 50 mL)
h. Incontinence/continuous leakage
i. Restlessness

2. Consider the use of the following nursing interventions to encourage normal voiding:
    a. Encourage increased fluid intake (check for any fluid restrictions)
    b. Ensure privacy
    c. Ensure appropriate pain management
    d. Change patient/resident position (sitting/standing/commode)
    e. Employ the sound of running water or placing hand in warm water
    f. Use a warm bedpan
3. Refer to Appendix B for treatable conditions that may contribute to urinary retention/incontinence. Reverse or eliminate if possible.

Catheterization

See Appendix A for decision to insert catheter guidance:

a. Intermittent Insertion Bladder scan result indicating volume of 200 mL or more **AND** signs and symptoms of urinary retention (above)
    - Repeat in & out catheterization with every urge to void or Q6H, whichever is **less.**
    - There are no specific limits to the number of times intermittent catheterization can be performed.
    - Consult the physician /NP if attempted intermittent catheterization is unsuccessful; or if urinary retention is unresolved after 3 intermittent catheterizations in 24 hours. An indwelling catheter may be required and further investigations warranted.
b. Indwelling catheter insertion
    - With an order (note Lidocaine jelly also requires an order)
    - Plan removal of a short-term indwelling catheter as soon as possible.

Ongoing Assessments and Intervention

1. Ensure daily consideration of in-dwelling catheter necessity. Ensure date and reason for insertion noted. If no clinical indication, remove catheter. See Catheter Removal section below.
2. Ensure the catheter is appropriately secured using Cath-secure to prevent urethral trauma.

3. Ensure drainage bag is positioned below the bladder and free of kinks to maintain gravity drainage and urine outflow. Ideally on an IV pole or the hook on the bottom of the bed. **Do Not** attach to bed rail or leave to lie on the floor.
4. Provide or instruct patient/resident to perform peri-care using skin cleanser or soap and water every shift and PRN. Use of antiseptics is not recommended during the maintenance phase. Inspect Cath-Secure site for irritation/open areas every shift.
5. Encourage fluids to dilute urine and reduce the risk of catheter encrustation and blockage. Recommended fluid intake is a minimum 1500 mL/day when not on fluid restriction.
6. Ensure catheter bag closed at all times unless it is being emptied. Do not disconnect the drainage bag from the catheter unless under extenuating circumstances. Do not take laboratory specimens from the drainage bag – these MUST be collected from the collection port.
7. It is impossible to obtain a "true" sterile C&S specimen from a pre-existing catheter. Consider changing an indwelling catheter in order to collect a sterile urine specimen. Catheters that have been insitu 14 days or more must be changed prior to collection of urine for culture.
8. Use a clean, single use, patient/resident-specific graduated cylinder every time the drainage bag is emptied. Avoid allowing the drainage spigot to touch the cylinder.
9. Avoid catheter irrigation (unless it is CBI). Blocked catheters should be changed, not irrigated, unless contraindicated (e.g. difficult insertion, bladder or urethral surgery).
10. Urinary drainage bags are to be changed whenever a new catheter is inserted.
11. If an indwelling catheter is in place for 6 months, discuss the need for a change with the provider.

Catheter Removal

Refer to Urinary Catheterization DST for procedure to remove catheter

1. If the catheter was inserted by Urologist, or if catheter placement was to aid in urologic or gynaecologic surgery, an order is required prior to removal. If patient has had rectal surgery, discuss removal with physician first.
2. If physician orders the urinary catheter not be discontinued, that order prevails. Continue to collaborate with the physician to ensure prompt removal of the catheter when feasible. Document this in the chart.
3. In all other cases a Registered Nurse may make the decision to remove an indwelling catheter that has no further clinical indication.
4. Proactive attention to transient causes of urinary incontinence/retention as set out in Appendix B may facilitate successful voiding post catheter removal. Encouraging adequate fluid intake and mobilization post catheter removal may also aid in successful voiding.
5. Unless removal time specified in an order, *consider* removal of the catheter as close to 2400 hours as possible for patient/residents who are cognitively intact and mobile (facilitates larger volumes of urine at first void.).
6. Ensure that patient/residents with catheter removal at 2400 hours are reminded to attempt a first void at 0600 if they have not already done so.

7. Continue to assess as per initial assessment & interventions

Documentation

- In iView, narrative note or on paper Interdisciplinary Note (Long Term Care or Cerner downtime), document assessment and all interventions including:
    - bladder scan volume
    - reason for catheterization
    - type and size of catheter (indwelling or intermittent)
    - cleansing solution used; Chlorhexidine or Normal Saline (if allergy to Chlorhexidine)
    - specimens collected
    - peri/catheter care
    - ongoing necessity of catheter considered (at least once per shift)
    - site condition
    - catheter secured
    - urine colour and characteristics
    - drainage bag and location
    - date and time of removal
    - date, time and volume of first void
- In Long Term Care, document date and purpose of insertion in Resident Care Plan.
- In Acute Care, consider documenting date and purpose of insertion in Patient Key Activities component of Shift Report/Handoff tool.
- Implement daily reminder system/cues (e.g. handover) when indwelling catheter inserted as per unit routine.

Patient and Family Education

Explain the purpose of the catheter, the intended duration of the catheter and prevention of infection.

- Provide handout “So you have a urinary catheter? Four steps you can take to prevent infection” (FP.157.Ur3.PHC) as appropriate. Also available in traditional and Simplified Chinese.

Related Documents

1. B-00-12-10099 – Urinary Catheterization
2. B-00-12-10100 – Bladder Scanner Use

References

1. Agency for Healthcare Research and Quality (AHRQ). (2018). Toolkit for reducing catheter-associated urinary tract infections in hospital units: Implementation guide. Retrieved August 8, 2023 from: https://www.ahrq.gov/hai/cauti-tools/impl-guide/index.html.
2. British Columbia College of Nurses and Midwives. (February 2023). Scope of Practice for Registered Nurses. Accessed August 30, 2023 at https://www.bccnm.ca/Pages/Default.aspx
3. British Columbia College of Nurses and Midwives. (November 2022). Scope of Practice for Registered Psychiatric Nurses. Accessed August 30, 2023 at https://www.bccnm.ca/Pages/Default.aspx
4. British Columbia College of Nurses and Midwives. (February 2023). Scope of Practice for Licensed Practical Nurses. Accessed August 30, 2023 at https://www.bccnm.ca/Pages/Default.aspx
5. British Columbia College of Nurses and Midwives. (July 2023). Scope of Practice for Nurse Practitioners. Accessed August 30, 2023 at https://www.bccnm.ca/Pages/Default.aspx
6. C.R. Bard Inc. (2015). A guide for nurses. Comprehensive care management of catheters and collection systems. Accessed August 8, 2023 at https://media.bardmedical.com/media/1679/a-guide-for-nurses.pdf
7. Clayton, J.L. (2017), Indwelling Urinary Catheters: A Pathway to Health Care-Associated Infections. AORN Journal, 105: 446-452. https://doi.org/10.1016/j.aorn.2017.02.013.
8. Fekete, T. (2022). Catheter associated urinary tract infection in adults. In UptoDate. Calderwood, S.B., Bloom, A. (Ed). UpToDate, Waltham, MA, 2023
9. Gould, C.V. Umscheid, C.A. et al. (2009, reviewed Feb 2017) Guideline for Prevention of Catheter-Associated Urinary Tract Infections 2009. *Centers for Disease Control Healthcare Infection Control Practices Advisory Committee*. Retrieved June 7, 2023from http://www.cdc.gov/HAI/ca_uti/uti.html.
10. Hernandez, M., King, A., & Stewart, L. (2019). Catheter-associated urinary tract infection (CAUTI) prevention and nurses' checklist documentation of their indwelling catheter management practices. Nursing Praxis in New Zealand, 35(1), 29–42. https://doi.org/10.36951/ngpxnz.2019.004.
11. Lo, E., Nicolle, L. E., Coffin, S. E., Gould, C., Maragakis, L. L., Meddings, J., Pegues, D. A., Pettis, A. M., Saint, S., & Yokoe, D. S. (2014). Strategies to Prevent Catheter-Associated Urinary Tract Infections in Acute Care Hospitals: 2014 Update. *Infection Control and Hospital Epidemiology*, *35*(5), 464–479. https://doi.org/10.1086/675718.
12. Luu, T., & Albarillo, F.S. (2022) Asymptomatic Bacteriuria: Prevalence, Diagnosis, management and Current Antimicrobial Stewardship Implementations. *American Journal of Medicine, 135(8),* e234-e244. https://doi.org/10.1016/j.amjmed.2022.03.015
13. Meddings, J., Manojlovich, M., Fowler, K. E., Ameling, J. M., Greene, L., Collier, S., Bhatt, J., & Saint, S. (2019). A Tiered Approach for Preventing Catheter-Associated Urinary Tract Infection. Annals of Internal Medicine, 171, S30–S37. https://doi.org/10.7326/M18-3471-
14. Nicolle, L. E., Hooton, T. M., Juthani-Mehta, M., Knight, S. L., Saint, S., Schaeffer, A. J., Trautner, B., Wullt, B., Siemieniuk, R., Gupta, K., Bradley, S. F., Colgan, R., DeMuri, G. P., Drekonja, D., Eckert, L. O., Geerlings, S. E., & Köves, B. (2019). Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update by the Infectious Diseases Society of America. Clinical Infectious Diseases, 68(10), e83–e110. https://doi.org/10.1093/cid/ciy1121.
15. Paterson, C., Dalziell, R., Forshaw, T., Turner, A., & Fraser, G. (2019). Prevention and management of urinary catheter blockages in community settings. Nursing Standard, 34(9), 59–65. https://doi.org/10.7748/ns.2019.e11431.
16. Schaeffer, A.J. Complications of urinary bladder catheters and preventative strategies. In UpToDate. Richie, J.P. Chen, W.(Ed). UpToDate, Waltham, MA, 2023.

17. Simoneaux, C., & Guerra, P. (2022). Implementation of Evidence-based Maintenance Bundles to Reduce Central Line-Associated Bloodstream Infection (CLABSI) and Catheter-Associated Urinary Tract Infection (CAUTI) Rates. American Journal of Infection Control, 50(7), S34. https://doi.org/10.1016/j.ajic.2022.03.057
18. Urinary Catheter: Indwelling (Foley) catheter care. Elsevier Clinical Skills (2023). St. Louis, MO. Elsevier. Retrieved August 8, 2023 at www.elsevierskills.com.

Definitions

Nurse Initiated Activity – a process whereby the RN/RPN/LPN makes a diagnosis of a condition and carries out a focused intervention or activity to ameliorate or resolve the condition. This includes follow up and communication with the MRP. The nurse is solely accountable for all aspects of the intervention or activity including all outcomes.

Appendices

Appendix A – Decision to Insert Catheter

Appendix B - Transient Causes of Urinary Tract Incontinence/Retention

Appendix A: Decision to Insert Catheter

DECISION TO INSERT CATHETER

Signs & Symptoms of Urinary Retention

- Palpable bladder / Dull sound with percussion
- Lower abdominal pain/tenderness
- Increased BP in absence of pain or hypertension
- Inability to void despite urge/ Small frequent voids (less than 50 mL)
- Diaphoresis/restlessness
- Incontinence/leakage

NO CATHETER	INTERMITTENT (IN AND OUT) CATHETER	SHORT TERM CATHETER (0 to 7 DAYS)	LONG TERM CATHETER (MORE THAN 7 DAYS)
	Clear straight	**Lubricath ***	**Lubricath ***
○ Continent ○ Incontinent with intact skin ○ No strict in & outs being recorded (or able to assist with own)	○ Sterile C & S ○ Bladder volume 200 mL or more (bladder scanner) **AND** symptoms of retention / difficulty voiding ○ Unexplained agitation ○ Unexplained bladder distension ○ To determine bladder volume (PVR) when no bladder scanner available ○ As per provider order	○ Acute retention/obstruction ○ Monitoring in & out in Critical Care ○ Aid in surgical procedure ○ Wound healing ○ Specific order (e.g. irrigation)	○ Chronic Retention ○ Management of stage 3 & 4 ulcers ○ Palliative Care ○ Specific order
		* For latex allergy use a silicone uncoated or lubr-sil hydrogel coated catheter For patients with obstruction (e.g. prostatomegaly) consider Coude catheter (advanced nursing skill). For irrigation use 3-way catheter.	

Catheter Insertion

- ○ Choose appropriate catheter type, size and drainage system. Choose smallest catheter appropriate. (Regular Foley; Usually 12 to 14 Fr for females, 14 to 16 Fr for males)
- ○ Perform hand hygiene before & after insertion or any manipulation of catheter
- ○ Perform pericare before & after insertion of catheter
- ○ Use sterile Chlorhexidine 2% aqueous (no alcohol) to cleanse (unless patient has allergy or sensitivity, then use NS)
- ○ Use sterile technique and sterile equipment
- ○ Document all assessments and interventions

Catheter Maintenance

- ○ Ensure daily consideration of need for indwelling catheter, remove if appropriate
- ○ Ensure catheter properly secured – system closed and to gravity drainage
- ○ Catheter Care Q shift and PRN
- ○ Fluid intake 1500 mL/day (unless fluid restricted)
- ○ Avoid irrigation (unless CBI). Catheter change is preferred over irrigation
- ○ Use clean, patient specific graduated cylinder every time bag emptied
- ○ Avoid routine catheter changes.

Catheter Removal

- ○ Obtain order for removal if catheter inserted by a urologist or if uro-gynaecological or rectal surgery
- ○ In the absence of a specific order, other catheter removals are considered a RN initiated activity
- ○ Consider catheter removal as close to 2400 hours as possible
- ○ Consider proactive measures to facilitate voiding and correct transient causes of retention/incontinence
- ○ If patient has not voided 6 hours post catheter removal, consider/ assess for retention – if symptomatic and volume by scanner 200 mL or more, perform in & out
- ○ If in & out required more than 3 times in 24 hours, discuss with physician/NP.
- ○ Use nursing interventions to encourage natural voiding (e.g. privacy, fluid intake, sound of running water, warm bedpan etc)

Appendix B: Transient Causes of Urinary Tract Incontinence/Retention

Transient Causes	Description	Management
Atrophic Vaginitis/ Urogenital Atrophy	Thinning of skin around urethra and vagina.	Refer to physician - use of topical estrogen can improve symptoms
Bowel constipation or fecal impaction	Increased pressure on bladder causes increased urinary frequency and urgency	Assess for constipation or fecal impaction and treat as ordered.
Cognitive changes	Dementia may lead to inability to recognize the need to urinate, communicate the need to urinate or find toileting facilities	Institute toileting program that includes prompts for voiding/toileting
Dehydration	Concentrated urine irritates the bladder and precipitates urinary incontinence	Ensure at least 1500 mL/day fluid intake (unless restricted)
Delirium	Dulls awareness of the urge to void, and recognition of bathroom/toileting facilities	Institute toileting program. Assess and treat the underlying cause of delirium.
Depression	Several researchers have found a link between depression and incontinence, although it is unclear if the incontinence causes the depression or the depression causes the incontinence	Screen for depression symptoms and refer to physician for medical assessment and treatment. Institute toileting program.
Endocrine Disorders	Hyperglycemia increases urine output	Treat underlying cause
Functional changes	Restricted mobility due to surgery, illness or physical restraint can limit the ability to reach the toilet	Ensure easy access to bathroom/toileting facilities institute toileting program. Avoid physical restraints
Medication Use	Diuretics – increase urine volume flow in the bladder and cause urgency, frequency and incontinence Hypnotic, narcotic, analgesic and sedative use – may dull or suppress cognitive and physical functioning, making night time incontinence common Anticholinergic use (including antidepressants, antipsychotics and antihistamines) – can cause incomplete bladder emptying, leading to urinary retention and overflow	Consider time of dose and ensure bathroom/toileting equipment readily available Alter dosage, type of pharmaceutical and time of administration Refer to physician for consideration of dosing modifications
Prostate Enlargement	Obstruction can cause overflow incontinence.	Refer to physician for medical assessment and treatment

Groups/Persons Consulted:

General Surgeons

Urology

Clinical Nurse Specialist, Surgery

Clinical Nurse Specialist Critical Care

Clinical Nurse Specialist, Medicine

Nurse Educator Critical Care

Infection Prevention and Control Committee

Professional Practice

PHC Urinary Catheter Committee

Developed/Revised By:

Nurse Educators, Surgery

PHC Urinary Catheter Committee

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