

CAUTI Prevention – Urine Management and Culture Contamination

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Your life is our life's work.

Disclosures

- I have no disclosures

An Indwelling Urinary Catheter is an Invasive Device

- Duration of catheterization is biggest risk factor for CAUTI?
- PRESENCE of catheter is biggest risk factor for CAUTI
- According to SHEA/IDSA/APIC:
 - Urinary catheters remain one of the most common medical devices experienced by adult in emergency departments and hospitals worldwide. 12-16 % of adult hospitalized patients have an indwelling urinary catheter.
 - **Daily risk** of development of bacteriuria varies from 3% to 7% when an indwelling catheter remains in situ.
 - Infection is only one of several adverse outcomes of urinary catheter use.

An Indwelling Urinary Catheter is an Invasive Device

- Urethral opening provides intrinsic protection against microbial invasion of the urinary tract
- Indwelling catheter forces urethral opening to remain open, allowing microbes to migrate up the outside of the catheter into the urinary tract
- Microbes can also migrate up the inside of the catheter into the urinary tract

Biofilm



Biofilm

- Microbes form a matrix which protects the microbes and allows them to proliferate even in the presence of antibiotics
- Begins forming upon insertion of the catheter
- Contributes to colonization
- By 30 days, 100% of catheters are colonized with bacteria

Pros of Intermittent vs Indwelling Urinary Catheterization

- Allows urethral opening to close once intermittent catheterization is complete
- Cleansing of urethral opening prior to each episode of catheterization
- Allows bladder to fill which helps with bladder function
- Reduces fall risk and allows for easier ambulation—no tubing to trip over, bag is not hooked to bed



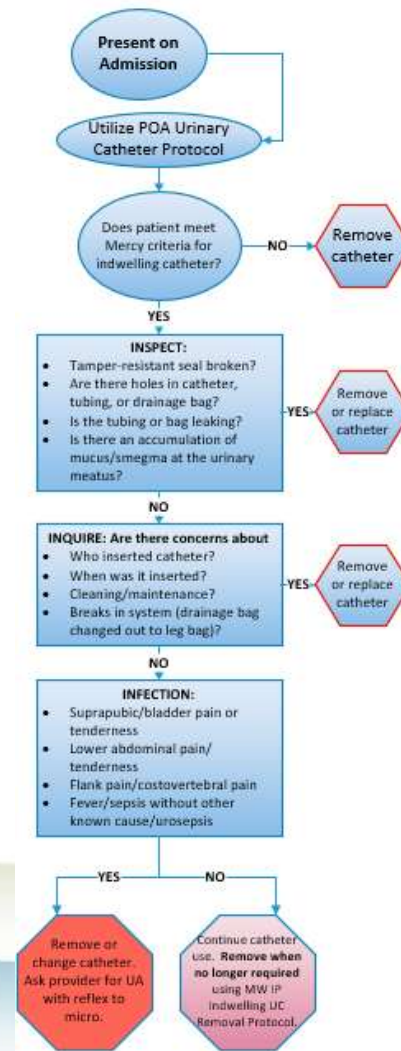
Urine Management Protocols

Coudé Catheter Usage

- Performed review of evidence
- Coudé catheter indicated for the following situations:
 - Males age 40 and over
 - Males with history of urethral or prostate surgery
 - Males with history of difficult catheter insertion
 - Males with provider order for Coudé catheter
- Competency on Coude catheter insertion on hire
- Videos from vendor provided annually with protocol review course
- Units may decide to do competency with annual competencies

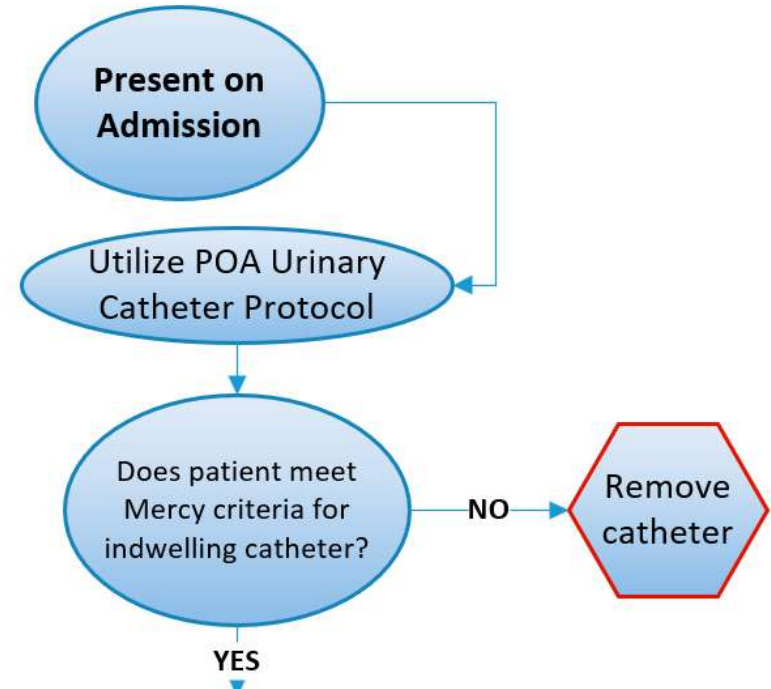
Present on Admission (POA) Catheter Protocol

- Used to determine how to manage a patient with a urinary catheter that is present on admission to the facility
- Requested by nursing during SWARM on CAUTI related to POA catheter
- Based on CDC Guideline for Prevention of Catheter-associated Urinary Tract Infections (2009)
- Remove or replace catheter based on evaluation



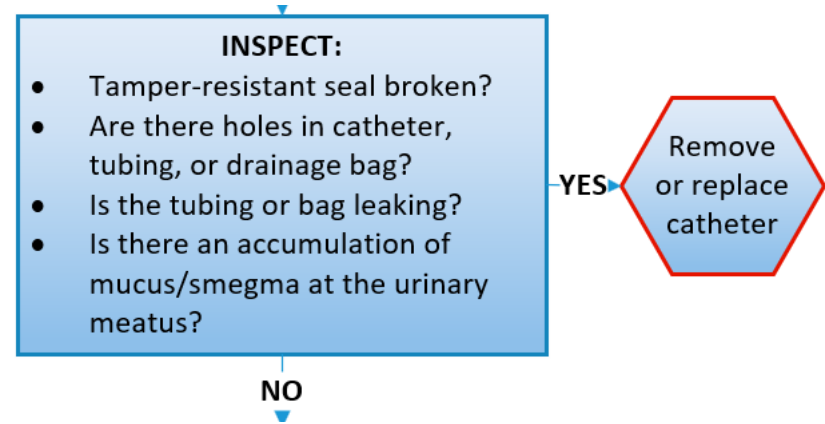
POA Catheter Protocol: Indication

- Does the patient meet criteria for indwelling catheter?
 - Retention or obstruction post-intermittent cath
 - Critical Care patient needing I&O q2hr
 - Pre/Post GU procedure
 - Difficult cath placed by GU provider & under GU care
 - Existing sacral/perineal wound & incontinent
 - Prolonged immobility from unstable pelvic, skeletal &/or thoracic fracture/spine, traumatic injuries
 - End of life care to improve comfort
 - Intraoperative monitoring of urinary output
 - Intraoperative for large-volume infusions or diuretics
- If no, remove catheter
- If yes, proceed to Inspection



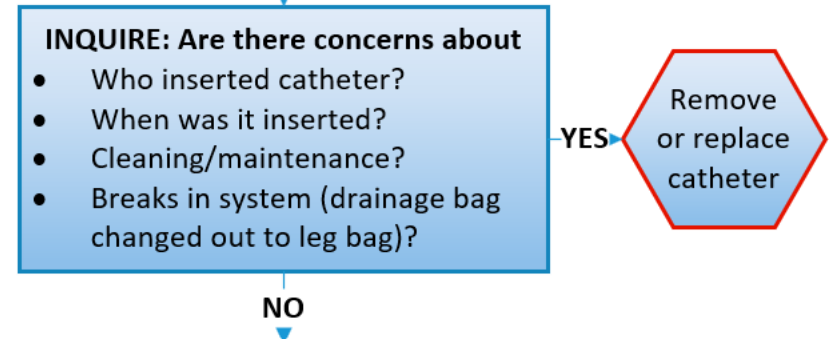
POA Catheter Protocol: Inspect

- Inspect the catheter for integrity
- If present, remove or replace the catheter
- If no concerns, proceed to Inquiry



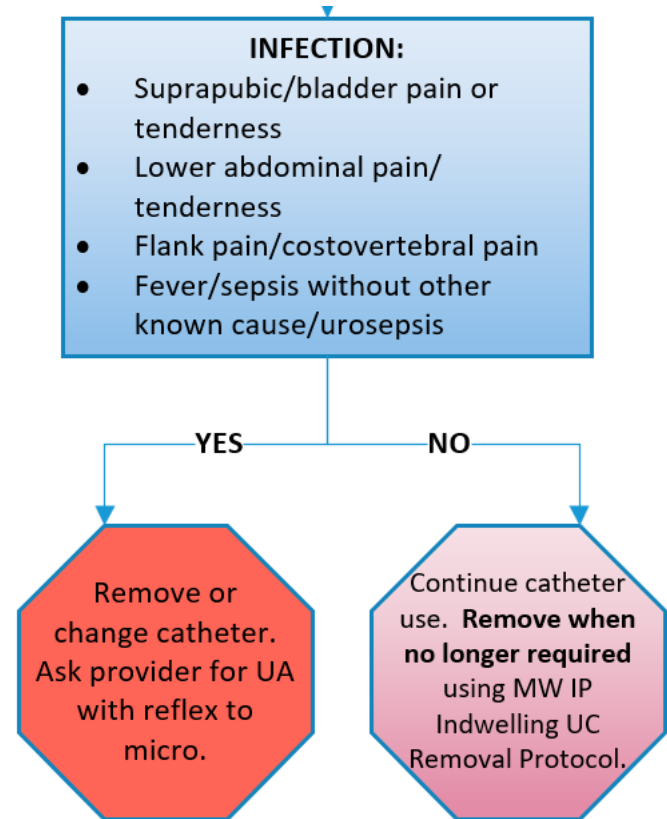
POA Catheter Protocol: Inquire

- Ask questions
- Are there concerns about insertion, maintenance, breaks in the system, duration of catheterization?
- If present, remove or replace the catheter
- If no concerns, proceed to Infection



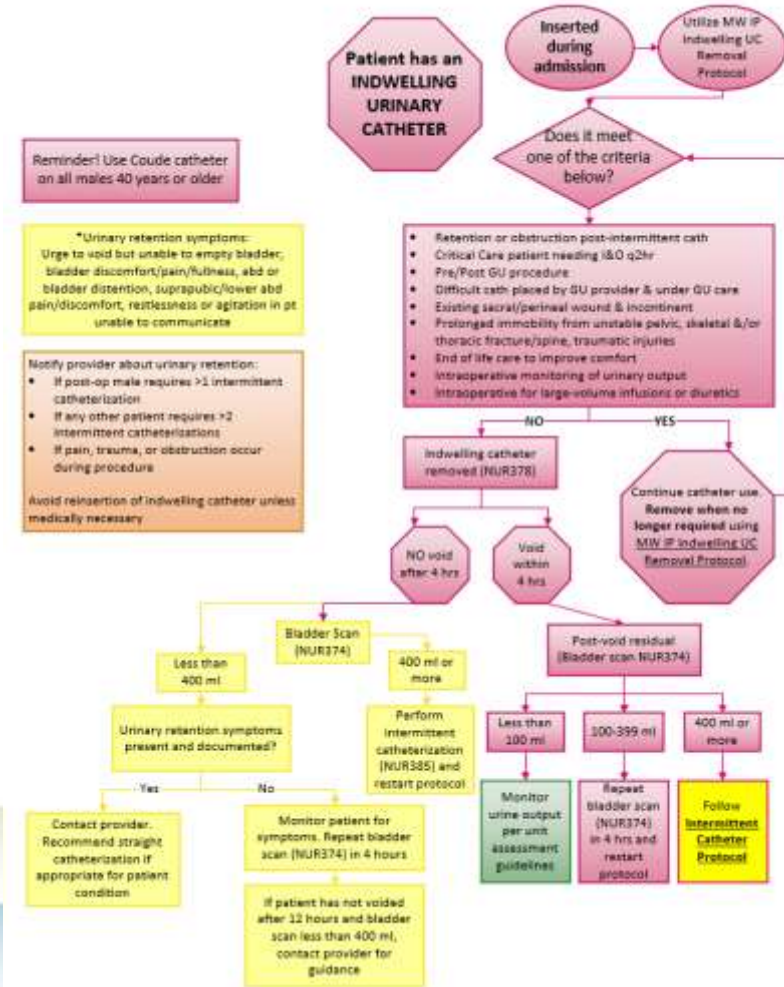
POA Catheter Protocol: Infection

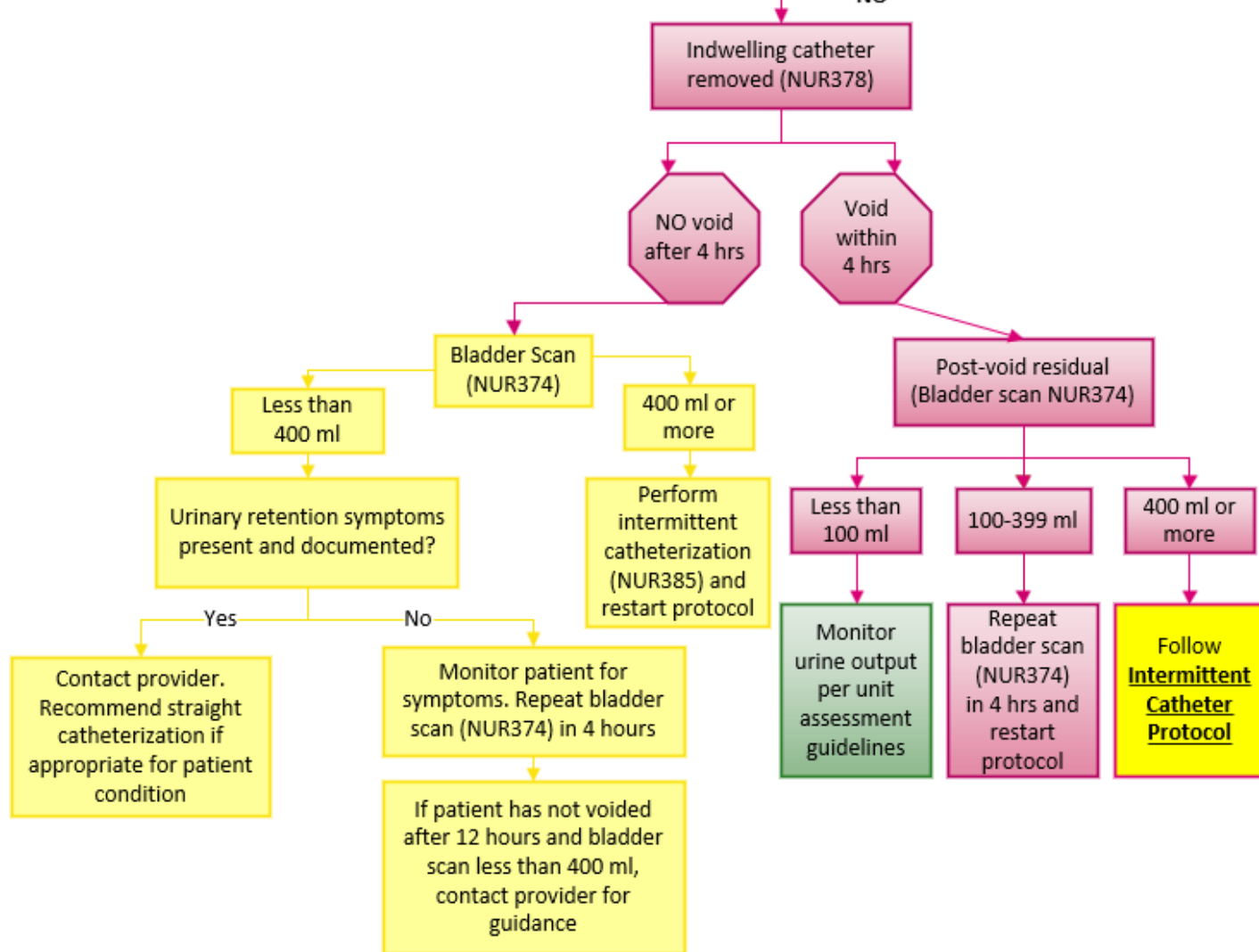
- Does the patient have signs or symptoms of infection?
- If signs or symptoms are present, remove or replace the catheter. Ask provider for UA with reflex to micro.
- If no signs or symptoms, continue current catheter. Remove when no longer required using Indwelling Urinary Catheter Removal Protocol



Indwelling Catheter Removal Protocol

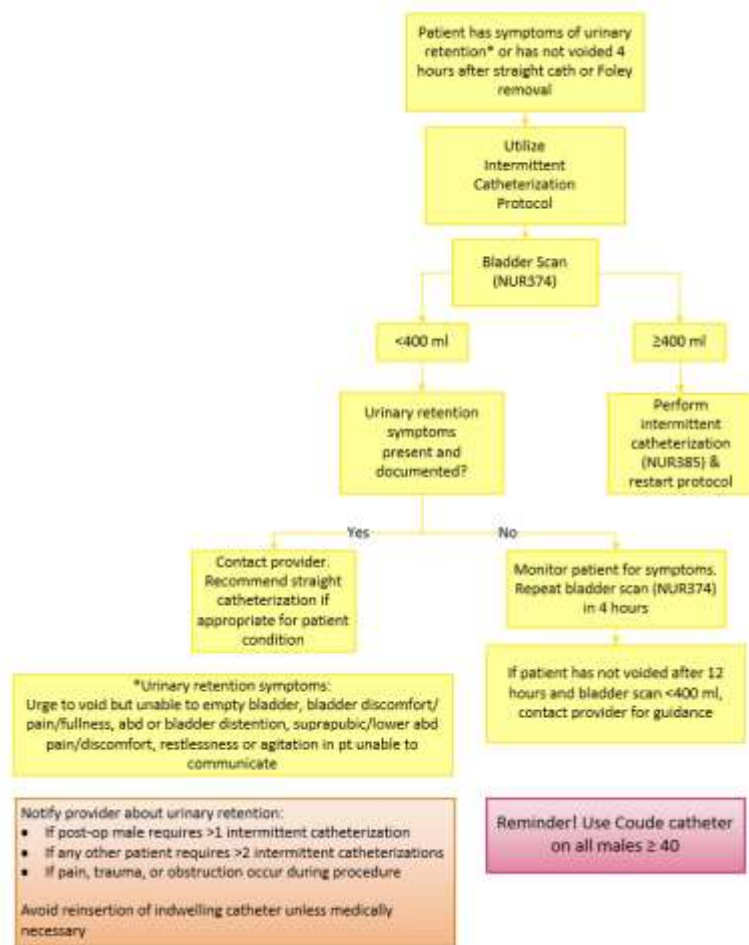
- Nurse-driven protocol used when patient no longer meets criteria for indwelling catheter
- Simplified protocol: 4 hours, 400 cc
- 2 paths:
 - Voiding patient: interventions based on PVR
 - Unable to void: bladder scan and intermittent catheterization based on time and volume
- May continue IC unless pain, trauma, or obstruction occur
- Provider is informed about urinary retention if post-op male requires >1 or any other patient requires >2 intermittent catheterization
- Avoid reinsertion of indwelling catheter unless medically indicated





Intermittent Catheterization Protocol

- Requested by nursing—no protocol for patients who did not already have an indwelling catheter but unable to void
- Patients who have not had an indwelling catheter and have symptoms of urinary retention, have not voided 4 hours after prior IC, or >400 cc PVR after indwelling cath removal
- Based on 4 hours, 400 cc
- May continue unless pain, trauma, or obstruction occur



Initial Implementation

- Attended nursing and provider huddles to inform about the protocols as well as the various external and intermittent catheter options
- Provided training on external catheter and intermittent catheterization
- Attended daily ICU and stepdown rounds to inquire about indwelling catheter necessity, to answer questions about protocols, and to help prompt use when appropriate
- Went to ED huddles and meetings to discuss and provide training on alternatives to indwelling catheters—they were especially excited about the female external catheter
- Rounded on units to discuss indwelling catheters, retention, and answer questions/provide training on external catheters

Annual Education on Protocols

- Assignment to licensed nurses annually through electronic learning system
- Course consists of:
 - Summary page with updates and key elements of protocols
 - Algorithms for protocols
 - Indwelling catheter criteria – what it includes and excludes as well as alternatives to indwelling catheters
 - Bladder Training Tips
 - Links to videos from the vendor of the catheter kits

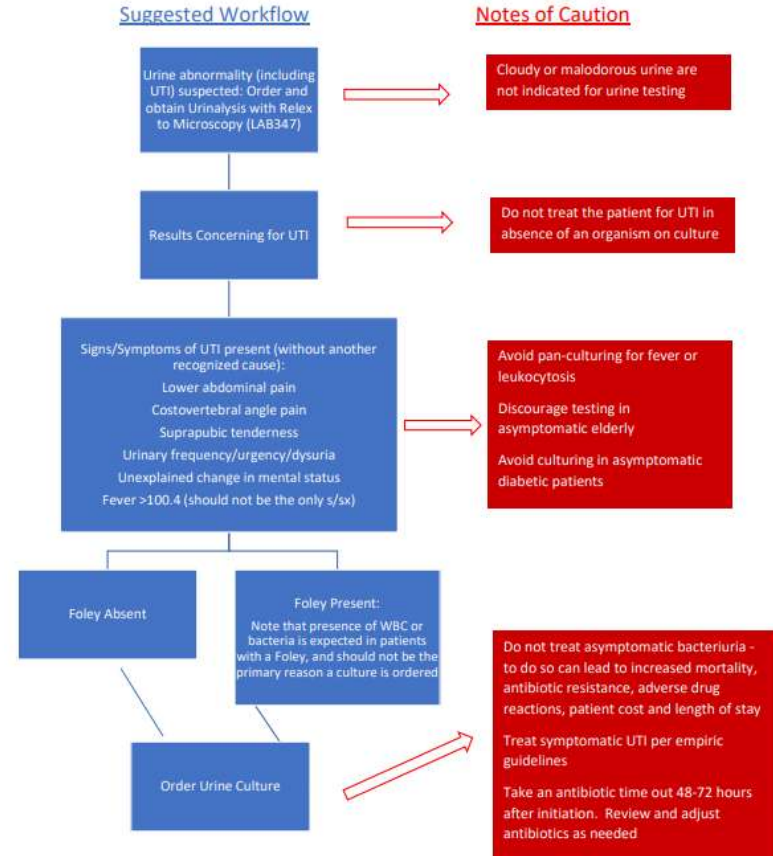


Reducing Urine Culture Contamination

Specimen Ordering

- Aligning with evidence: Change from UA with reflex culture to UA with reflex micro
- UA with reflex culture removed from ED and inpatient orders and order sets
- Providers educated to review UA with reflex microscopy results and patient symptoms/condition to determine if culture is required
- If culture is required, order is placed to be run on specimen in lab
- Decision tree is available in EMR on orders

* Guideline should NOT be applied for these populations (culture should be ordered if concerning clinical picture due to unreliability of urinalysis results): Pregnant women, Neutropenic patients, Renal transplants, Urological procedures



Specimen Collection

- Standardized collection kits to minimize contamination containing:
 - Cleanser (wipes for clean catch, alcohol for catheter collection kit)
 - Vacutainer, cup with integrated vacutainer, or straw
 - Collection tubes:
 - Culture preservative tube
 - Urinalysis preservative tube
 - Non-additive tube for other tests



Intermittent Catheterization for Specimen Collection Protocol

- Nursing can order intermittent catheterization per protocol for patients who are incontinent or unable to provide a midstream/clean catch specimen
- Elements of protocol:
 - Bladder scan patient to determine if there is urine in the bladder
 - If urine is present, perform intermittent catheterization and send urine to lab
 - If urine is not present, encourage fluids if able to take PO or discuss IV fluids with provider if NPO. Repeat bladder scan.

Patient Education on Clean Catch

- Available in various sizes, can be made into a wipeable cling for bathrooms
- Available in English and Spanish

Clean-Catch Instructions for Male Patients



Wash hands thoroughly with soap and water.
Rinse well and dry.



Open the urine container and place the cap down with the inside facing up.
Don't touch any of the inside surfaces of the container or the lid.



Tear open the towelette packages so that the towels can be easily removed with one hand, if necessary.



Cleanse the end of the penis with the first towelette beginning at the head of the penis and working away from it (the foreskin of an uncircumcised male must first be retracted). Repeat using the other towelettes. Allow to air dry.



Begin urinating into the toilet.



Without stopping, move the container into the urine stream and fill the container one-third to one-half full. Finish urinating in the toilet. Replace the lid on the container, making sure the lid is on tight.



Wash hands thoroughly with soap and water, rinse well and dry, and give container to the attending co-worker.

Education to Caregivers on Proper Specimen Collection

- Provides information about specimen collection kits (clean catch, straw kit, catheter kit) and how to collect the specimen
- Identifies inappropriate collection methods including urinals, bedside commode buckets, “hats,” external catheters
- Emphasizes the importance of transferring to the lab tubes immediately after specimen collection

Clinical Practice Bulletin

June 2025

MercyUniversity

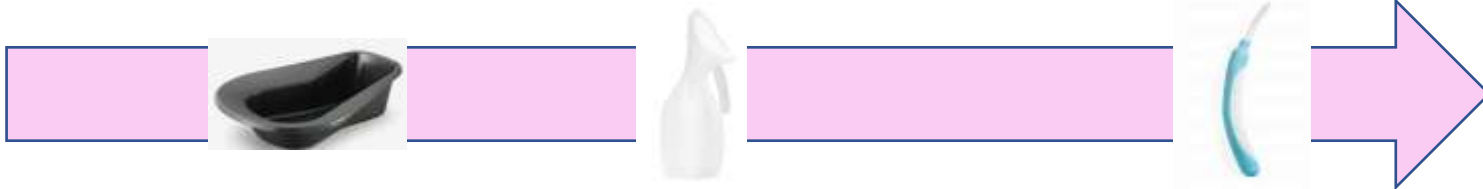
MW Urine Specimen Collection and preparing specimens for lab testing

Resources

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Female External Urinary Devices Selection Guide

Directions: Use this guide to determine which external urinary catheter/device to use for your female patients. Move left to right based on patient's level of incontinence and individual needs.



Clinical considerations	Bedpan	Female Urinal	PureWick (BD)
Level of Incontinence	Continent	Continent	Incontinent
Fit	Fracture or Standard styles	One size fits all	One size fits most
Wear time	N/A	N/A	8-12 hours; change if soiled with menstrual blood or stool
Additional supplies needed	No	No	Suction regulator, cannister, tubing (Minimum 40 mmHg)
Additional Considerations		N/A	Mesh underwear can help hold in place
Availability	If a product is not available in Clean Supply in your department, contact Central Service/Central Supply to request.		

Male External Urinary Devices Selection Guide

Directions: Use this guide to determine which external urinary catheter/device to use for your male patients. Move left to right based on patient's level of incontinence and individual needs.

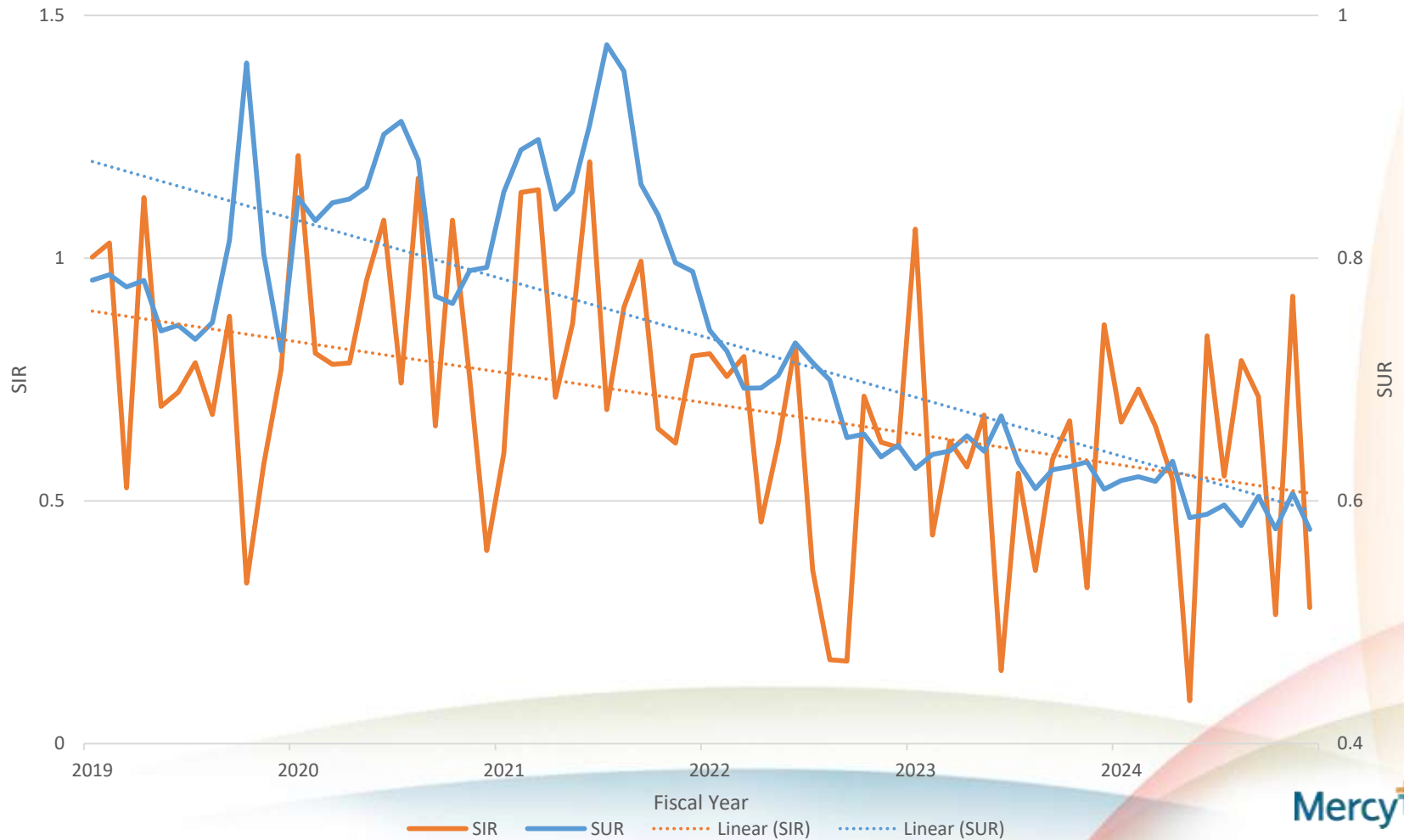


Clinical considerations	Urinal	QuickChange Male Incontinence Wrap	BD Spirit External Catheter (Condom style catheter)	Men's Liberty Acute Male External Catheter	Male PureWick (BD)
Level of Incontinence	Fully Continent	Some dribbling/leakage, partially incontinent	Incontinent	Incontinent	Incontinent
Use with retracted anatomy	No	No	No	No	Yes
Fit	One size fits all.	One size fits all.	Size options: Style 1 = 25, 29, 36 mm (3" long) Style 2 = 25, 29, 36 mm (1.5" long) (Use measuring guide)	One size fits most because it attaches at the glans.	One size fits all.
Use with wound on penis	Yes	Yes	No (if wound is on shaft)	No (if wound is on urethral meatus)	No (If wound under adhesive area)
Wear time	NA	Change daily or when saturated	Change every 24 hours maximum	Change when hydrocolloid turns white color (1 st application 8-12 hrs, up to 3 days)	Change every 24 hours or when soiled/loose
Need skin prep	No	No	Optional	Yes	Clip hair before application.
Need adhesive remover	No	No	No	Yes	No
Additional supplies needed	No	No	Urinary drainage bag/leg bag	Urinary drainage bag/leg bag Recommended: CathGrip securement device	Suction regulator, canister and tubing. Optional : Clippers for hair removal
Additional Considerations		Holds maximum 200mL fluid.	Can ambulate with device. For uncircumcised patients: apply over foreskin	Can ambulate with device. For uncircumcised patients: retract foreskin, apply device, replace foreskin	Suction required for use. (Minimum 40 mmHg)
Availability	If a product is not available in Clean Supply in your department, contact Central Service/Central Supply to request.				

Results



Facility-wide - CAUTI SIR and Urinary Catheter SUR - FY2020-FY2025



Critical Care - CAUTI SIR and Urinary Catheter SUR FY2020-FY2025

