Qualifying Diagnosis

Urinary Tract Infection
(maximum benefit duration 7 days)

THIS + ONE or more of THESE

>100,000 colonies of bacteria growing in the urine with no more than 2 species of microorganisms

* Fever > 100 F (oral) or two degrees above baseline
* Peripheral WBC count > 14,000.
* Symptoms of: dysuria, new or increased urinary frequency, new or increased urinary incontinence, altered mental status, gross hematuria, or acute costovertebral angle pain or tenderness

Facility Code: G9684  Practitioner Acute Nursing Facility Care Code: G9685
Diagnosis – Stone criteria

- >100,000 colonies of bacteria growing in urine with no more than 2 species of microorganisms
- Dysuria OR
- Fever AND 1 of following:
  - Frequency
  - Urgency
  - Suprapubic pain
  - New/worsening urinary incontinence
Reasons for over diagnosis of UTI

- Prevalence of asymptomatic bacteriuria
- Poor collection processes
- Incorrect diagnostic approach
- Willingness to call anything a UTI
- Belief that antibiotics are harmless
# Catheter-Associated UTIs (CAUTIs)

≥ 10³ cfu/mL of ≥ 1 bacterial species & a symptom:

<table>
<thead>
<tr>
<th>Clinical Symptoms</th>
<th>Context for Interpretation</th>
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<tbody>
<tr>
<td>Fever</td>
<td>With no other identified cause</td>
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<tr>
<td>Rigors</td>
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<td>Change in mental status</td>
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<td>Malaise</td>
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<td>Lethargy</td>
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<td>Flank pain</td>
<td>Signs or symptoms referable to the urinary tract</td>
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<td>Costovertebral angle tenderness</td>
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<td>*Acute hematuria</td>
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<td>Pelvic Discomfort</td>
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<tr>
<td>Dysuria</td>
<td>Within 48 hours of catheter removal</td>
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<tr>
<td>Urgency or Frequency</td>
<td></td>
</tr>
<tr>
<td>Suprapubic pain or tenderness</td>
<td></td>
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Hooton et al. CID 2010:50 625 [www.IDSociety.org]
Recurrence, Relapse, and Reinfection

- **Recurrent UTIs**
  - 3 or more UTIs in 12 mos.

- **Relapse**
  - Incompletely treated and exacerbates within 2 weeks with same organism

- **Reinfection**
  - New infection 4 weeks or more after clearing
Asymptomatic Bacteriuria

- No signs or symptoms of infection
- Very common in elderly, especially LTC
- 100% after 1 month of catheterization
Complicated UTIs

- Functional, metabolic, structural abnormalities
- Males
- Immunocompromised
Common Uropathogens

• E Coli
• Klebsiella
• Proteus
• Enterobacter
• Enterococcus
• Staphylococcus
• Pseudomonas
Preventing UTIs

- Catheter Removal
- Aseptic Insertion
- Use Regular Assessment
- Training for catheter care
- Incontinence Care planning
Infections are a leading cause of illness and death in nursing homes.

Remember CAU.T.I. to prevent CAUTI

Catheter Removal
- Think about catheters in any of your residents. Are the catheters really necessary?
- Remove the catheter if there is no good indication for it. (See below.)
- Every resident deserves a chance to be catheter-free and infection-free.

Aseptic Insertion
- Only trained personnel should insert catheters.
- Use hand hygiene, and insert using aseptic technique.
- Use the smallest catheter size that will work for the resident.
- Avoid contamination of the catheter.
- Use catheter securement devices.

Use Regular Assessments
- Insert new urinary catheters only when there is a good indication.
- Consider alternatives to using a urinary catheter.
- Use a bladder ultrasound to guide management.
- Implement a process to see whether residents need catheters.

Training for Catheter Care
- Train staff, resident, and family.
- Maintain a closed drainage system, and maintain unobstructed urine flow.
- Use routine hygiene. Do not clean the perineal area with antiseptics.
- Routine catheter changes, re-orientation, and cultures are not required.

Incontinence Care Planning
- Consider alternatives to using a urinary catheter when developing individual resident care plans and behavioral interventions.
- Consider timed and prompted voiding and use of a voiding diary.
- Remember: No catheter means no CAUTI!

Appropriate Indications for a Urinary Catheter
- To assist healing of stage III or stage IV perineal and sacral wounds in incontinent residents
- Chronic and acute urinary retention or obstruction
- Hospice or palliative care associated with intractable pain

Would you like to know more? Participation in the AHRQ Safety Program for Long-Term Care: CAUTI gives you access to informative resources and events such as educational webinars and state-level training sessions that will help you to provide safer care for your residents. Talk to the project lead in your facility, or visit www.lcsafety.org (login and password: lcsafety).

The AHRQ Safety Program for Long-Term Care: HAI/CAUTI
Funded by the Agency for Healthcare Research and Quality
Prevention

- Don’t rinse out catheter bags
- Don’t use non-sterile gloves to place catheters
- Bladder scanners determine if bladder emptying or not
Probiotics

• No significant benefit was demonstrated for probiotics compared with placebo or no treatment,
• Data were few, and derived from small studies with poor methodological reporting.
• There was limited information on harm and mortality with probiotics and no evidence on the impact of probiotics on serious adverse events.

Cranberry Juice?

- Prior to the current update it appeared there was some evidence that cranberry juice may decrease the number of symptomatic UTIs over a 12 month period, particularly for women with recurrent UTIs.
- Addition of 14 further studies suggests that cranberry juice is less effective than previously indicated.
  - No statistically significant differences when the results of a much larger study were included.
  - Large number of dropouts/withdrawals from studies (mainly attributed to the acceptability of consuming cranberry products particularly juice, over long periods).
- Other preparations (such as powders) need to be quantified using standardized methods to ensure the potency, and contain enough of the 'active' ingredient, before being evaluated in clinical studies or recommended for use.

Topical estrogen

• Both Estring (1999) and estriol cream 0.5 mg (2005) have been shown to reduce incidence of symptomatic bacteriologically confirmed UTI in postmenopausal women.
• Effect only lasts for the duration of treatment.
• Supportive evidence for reducing the prevalence of recurrent UTI comes from the third report of the Hormones and Urogenital Therapy (HUT) Committee
  – a meta-analysis of 5 randomized, controlled trials, 2 case–control studies and 3 self-control series (2001)

Vaginal Estrogen and recurrent UTIs

- Moderate-quality evidence that UTIs were less frequent with use of **vaginal estrogen** in women with vulvovaginal atrophy.
- Few studies including patients with recurrent UTI were relatively small and used different types of estrogen application therefore no meta-analysis.
- Community dwelling postmenopausal women
Collecting a Clean Catch UA

- Cleanse
- Cleanse again
- Hold labia part/retract foreskin
- Start to urinate
- Stop urinating
- Position container
- Start to urinate again and collect urine
- Put lid on container without touching sides
Urine collection

- Left at room temp > 2 hrs. or
- Left in refrigerator > 24 hrs. – false positive
Collecting Catheterized specimen

- Change the catheter
- Don’t collect from the bag
Interpreting a UA

- **WBCs**
  - Absence (0-5 WBC) excludes a UTI
  - Presence 5-10 suggests a UTI in pts w/ sx

- **Nitrite classically indicates gram-negative organism (E Coli, Klebsiella, Proteus)**

- **Leukocyte esterase – breakdown of WBC, may indicate a UTI**
Treatment Uncomplicated Cystitis
- First line

- Nitrofurantoin 100mg BID x5 days
  - CrCl >40
- TMP-SMX DS BID x 3 days
- Fosfomycin 3gm PO x1 dose
  - Potential option for ESBL organisms
Treatment Uncomplicated Cystitis
- Second line

- Beta-lactam (5-7 days of therapy)
  - Augmentin 500-875 PO BID
  - Cephalexin 500 PO 3-4x’s daily
  - Cefdinir 100mg PO BID

- Fluoroquinolones
  - Cipro 500-750 BID x3 days
  - Levofloxacin 500-750 daily x3 days
FDA Recommendation 2016: Fluoroquinolones

- Should not be used for first line treatment in uncomplicated cystitis unless no other options (allergies)
- High rates of resistance with E Coli
- Associated with C diff, tendinopathy, arthropathy, QT prolongation
Observation Order Set

- Obtain vital signs (BP, Pulse, Resp Rate, Temp, Pulse Ox) every ___ hours for ___ days.
- Record fluid intake each shift for _____ days.
- Notify physician if fluid intake is less than ______ cc daily.
- Offer resident _____ ounces of water / juice every _____ hours.
- Notify physician, NP, or PA if condition worsens, or if no improvement in _____ hours.
- Obtain the following blood work ____________________________.
- Consult pharmacist to review medication regimen.
- Contact the physician, NP, PA with an update on the resident’s condition on ________.
Algorithm for Diagnostic Evaluation & Treatment of Suspected UTIs in NHs

1. Resident change in condition
   - Yes
     - Localizing urinary signs/sxs
       - Yes
         - Obtain UA & UCx
         - Warning signs?
           - Yes
             - Empiric Therapy for UTI
           - No
             - Target Therapy based on UCx
       - No
         - No consider holding tx until Ucx resulted
   - No
2. Non-urinary signs/sxs
   - Yes
     - Workup/Treat other Cause
   - No
3. Warning signs?
   - Yes
     - Obtain UA & UCx
     - Empiric Therapy for UTI
     - Target Therapy based on UCx
   - No
4. Resident Status after 48 hrs. obs
   - Yes
     - Non-urinary signs/sxs
     - Workup/Treat other Cause
   - No
     - No antibiotics necessary
     - Obtain UA & UCx
     - Empiric Therapy for UTI
     - Target Therapy based on UCx
References

- Cranberry Products or Topical Estrogen-Based Therapy for the Prevention of Urinary Tract Infections: A Review of Clinical Effectiveness and Guidelines - Ottawa (ON): Canadian Agency for Drugs and Technologies in Health; 2016 Oct 27


• Nace, Drinka, Crnich. Clinical Uncertainties in the Approach to Long Term Care Residents With Possible Urinary Tract Infection. *JAMDA* 15(2) 2014: 133–139

• Nace, Drinka. Cranberry capsules reducing the incidence of what? *JAGS* 2014;62(8):1616-7


OPTIMISTIC

A Demonstration Project in the CMS Initiative to Reduce Avoidable Hospitalizations Among Nursing Facility Residents

Visit our website for supportive resources and FAQs

optimistic-care.org