

Wisconsin Healthcare-Associated Infections in LTC Coalition



When To Test?

When to Submit a Urine Specimen for Testing?

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When to Test

“Test the urine when there is a reasonable chance of a urinary tract infection being present based on the presence of signs and symptoms localizing to the urinary tract.”

Nace, et. al. JAMDA 15 (2014) 133-139 2



What is a UTI?

- There is no gold standard definition of UTI, but several consensus definitions have been suggested and revised over time
- These definitions differ slightly, but all require the presence of **signs** and **symptoms** localizing to the urinary tract



Urinary Tract Signs and Symptoms Include*

- Dysuria
- New onset
 - Frequency
 - Urgency, or
 - Incontinence
- Flank pain or tenderness
- Suprapubic pain
- Gross hematuria
- Focal tenderness or swelling of testis, epididymis or prostate
- Recent catheter trauma, obstruction, or purulent drainage around the catheter

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What about Non-Communicative Residents?

- Residents frequently have non-specific geriatric symptoms and are unable to tell us what is bothering them
- Non-specific symptoms are:
 - Fever
 - Functional decline
 - Aggressive behaviors
 - Mental status changes
- Unfortunately, these symptoms are just that: **non-specific**

Nace, et.al. JAMDA 15 (2014)133-139 5

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What about Non-Communicative Residents?

- For residents who cannot reliably self-report symptoms, the presence of; fever, leukocytosis, or hemodynamic instability alone (without signs of infection in a site other than the urinary system) may be adequate to justify initiation of antimicrobial therapy, and therefore testing
- AMDA Choosing Wisely Campaign (See Item 3)
(https://www.amda.com/tools/ChoosingWisely_5Things.pdf)

Nace, et. al. JAMDA 15 (2014) 133 - 139 6



Is a Change in Mental Status, Fatigue, or a Fall a Symptom of a UTI?

- Sometimes, but most commonly NOT
- UTI is less likely without specific urinary symptoms
- Non-specific Geriatric Symptoms, such as change in mental status, fatigue, or a fall may be due to a variety of non-infectious causes including:
 - Constipation, Dehydration
 - Depression, Medication Side Effects
 - Pain, Poor Sleep

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Non-specific Geriatric Symptoms May Accompany a UTI but...

Without another localizing urinary symptom or fever or leukocytosis and no other identified source of infection, these non-specific symptoms are unlikely a sign of UTI

AND

A urine specimen should NOT be sent



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Non-Specific Symptoms in Absence of Urinary Symptoms

- Should be evaluated to determine the correct cause of the symptom or behavior. So, update care plan...
 - Monitor vital signs and symptoms for several days
 - Review meds, bowel pattern, social milieu
 - Encourage fluids if appropriate
 - Perform ongoing assessments
 - Watch closely for progression of symptoms or change in clinical status
 - Consider blood work
- Wait and watch and re-evaluate... Notify provider as indicated

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Non-Specific Symptoms in Absence of Urinary Symptoms

It is important to consider a range of possible causes for non-specific geriatric symptoms to prevent missing the real diagnosis because....

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... Under Normal Condition

- The skin surface is not sterile...
- The mouth is not sterile...
- The colon is not sterile...
- ***And in many residents the bladder is not sterile***
- ***Up to 50% of LTC residents have bacteria in their urine but no infection is present***

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Asymptomatic Bacteriuria ≠ UTI

- Asymptomatic bacteriuria is frequently mistaken for a UTI. It is important to understand this to avoid unnecessary testing and the error of inappropriate treatment with antibiotics

Drinka, JAMDA 2009 (2) 516-519 12

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Treating Asymptomatic Bacteriuria: All harm, No Benefit

HIGH PREVALENCE OF ASYMPTOMATIC BACTERIURIA

- > The bladder is normally colonized in many elderly people
- > A positive urinalysis or culture in the absence of symptoms reveals **colonization, which is the presence of bacteria without infection**
- > Treatment of asymptomatic bacteriuria is **not recommended**

↓

IT'S HARD TO IGNORE A POSITIVE TEST

Habitual Testing + Prevalent Colonization = Unnecessary prescriptions & missing the real diagnosis

↓

UNNECESSARY TREATMENT WITH ANTIBIOTICS HARMS PATIENTS

- > Drug-drug interactions
- > Renal & other complications
- > Increase of multi-drug resistant bacteria
- > *C. difficile* infection
- > Nausea and vomiting
- > Drug allergies

0% 100%
Prevalence of Asymptomatic bacteriuria in seniors over 70 (upper estimates)

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No Localizing Urinary Tract Symptoms

DO NOT TEST
DO NOT TREAT

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Do Not Test, Do Not Treat Asymptomatic Bacteriuria

Criteria for Urine Testing

Resident without indwelling catheter

- Acute dysuria alone OR
- Fever + at least one of the symptoms below (**new or increased**) OR
- If no fever, at least two of the symptoms below (**new or increased**)
 - Gross hematuria
 - Urinary incontinence
 - Urgency
 - Suprapubic pain
 - Costovertebral angle tenderness
 - Frequency

Resident with indwelling catheter

- At least one of the symptoms below (**new or increased**)
 - Fever
 - Pelvic discomfort
 - Flank pain (back, side pain)
 - Malaise or lethargy no other cause
 - Costovertebral angle (CVA) tenderness
 - Rigors (shaking chills)
 - Delirium
 - Acute hematuria



No symptoms of UTI

- > Do not test urine
- > Do not treat if a urine test was done by someone else or for "routine"

Weakness, delirium, or fever without a focus

- > Individualize care
- > Be mindful of the prevalence of asymptomatic bacteriuria
- > Seek other causes

Specific UTI symptoms

- > Test or treat as usual

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Urine Characteristics

- Dark concentrated and / or strong smelling urine are **NOT** specific urinary symptoms suggesting UTI
- Without specific urinary tract signs and symptoms, concentrated urine or strong smelling urine **DOES NOT** require urine testing

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When Symptoms are Absent:

- “Positive” urine dip is meaningless
- “Positive” urinalysis is meaningless
- “Positive” urine culture is just Asymptomatic Bacteriuria

Regardless of symptoms:

- Poor urine collection technique causes false-positive urinalysis
- See unit on proper urine collection technique

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In other words...

Don't think urine first in a resident with a change in condition and no localizing urinary tract signs and symptoms

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How Do We Improve?

Sometimes there are systemic triggers to inappropriate urinalysis testing within systems and policies of the nursing home to include but not limited to **standing orders**

It is recommended that all such systemic triggers for inappropriate or automatic urine collection and testing be considered and eliminated



How Do We Improve?

Know the signs and symptoms of a UTI

Educate the Line Nursing Staff about the signs and symptoms of UTI

Develop minimum criteria to collect and test urine



How Do We Improve?

- Consider use of surveillance criteria* to guide the decision to test urine
- Alternatively, create your own consensus-based criteria** to guide decision to test
- Incorporate your criteria into a QAPI project to improve your rate of appropriate urine testing within your facility

*"Revisiting the McGeer Criteria" ICHE
2012;33(10):965-977

**Loeb, et al, ICHE 2001;22(2):120-124

**Nace, et al JAMDA 2014;15: 134-138



For example, working criteria for sending a sample for urinalysis might consist of something like...

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 <h2 style="text-align: center;">Revised McGeer: Without Indwelling Catheter</h2>	
<p>(A) Clinical (At least one of the following must be met)</p> <p>1. Either of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Acute dysuria or <input type="checkbox"/> Acute pain, swelling or tenderness of testes, epididymis or prostate <p>2. If either FEVER or LEUKOCYTOSIS present need to include ONE or more of the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Acute costovertebral angle pain or tenderness <input type="checkbox"/> Suprapubic pain <input type="checkbox"/> Gross hematuria <input type="checkbox"/> New or marked increase in incontinence <input type="checkbox"/> New or marked increase in urgency <input type="checkbox"/> New or marked increase frequency <p>3. If neither FEVER or LEUKOCYTOSIS present INCLUDE TWO or more of the ABOVE (Box #2).</p>	<p>+</p> <p>(B) Lab (At least one of the following must be met)</p> <p>1. VOIDED SPECIMEN: POSITIVE URINE CULTURE ($\geq 10^5$ CFU/ML) NO MORE THAN 2 ORGANISMS</p> <p>2. STRAIGHT CATH SPECIMEN: POSITIVE URINE CULTURE ($\geq 10^2$ CFU/ML) ANY NUMBER OF ORGANISMS</p>
<p>Stone et al. <i>Infect Control Hosp Epidemiol</i> 2012; 33:965-977</p>	

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 <h2 style="text-align: center;">Revised McGeer Resident With Indwelling Catheter</h2>	
<p>(A) Clinical (At least one of the following must be met with no alt. explanation)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fever <input type="checkbox"/> Rigors <input type="checkbox"/> New onset hypotension <input type="checkbox"/> Either acute change in mental status or acute functional decline, with no alternate diagnosis AND leukocytosis <input type="checkbox"/> New onset costovertebral angle pain or tenderness <input type="checkbox"/> New onset suprapubic pain <input type="checkbox"/> Acute pain, swelling or tenderness of the testes, epididymis or prostate <input type="checkbox"/> Purulent drainage from around the catheter 	<p>+</p> <p>(B) Lab (Must be met)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Positive urine culture ($\geq 10^5$ CFU/ML) OF ANY ORGANISM(S)
<p>Stone et al. <i>Infect Control Hosp Epidemiol</i> 2012; 33:965-977</p>	

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Loeb Minimum Criteria

Note: Culture Results Not Part of Decision-Making Without Indwelling Catheter

- Acute dysuria alone OR
- Fever* plus 1 or more of the symptoms below (new or increased) OR
- If no fever, at least 2 of the symptoms below (new or increased)

<input type="checkbox"/> Costovertebral angle tenderness	<input type="checkbox"/> Suprapubic Pain
<input type="checkbox"/> Gross Hematuria	<input type="checkbox"/> Urinary Incontinence
<input type="checkbox"/> Urgency	<input type="checkbox"/> Frequency

*Fever > 100° or 2.4° F above baseline

Loeb et al. *Infect Control Hosp Epidemiol* 2001; 22:120-124 25

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Loeb Minimum Criteria

Note: Culture Results Not Part of Decision Making With Indwelling Catheter

At least one or more of the symptoms below (new or increased)

- Fever > 100° or 2.4° F above baseline
- Costovertebral angle tenderness
- Rigors (shaking chills)
- New onset delirium

Loeb et al. *Infect Control Hosp Epidemiol* 2001; 22:120-124 26



Summary – When to Test

- Establish facility criteria for testing urine
- Test the urine only when there are specific urinary tract signs or symptoms
- Perform assessment of facility rate of appropriate testing
- Improve appropriate testing rate to lower the avoidable harm of inappropriate treatment

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References

- “Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria” Stone, et.al. Infect Control Hosp Epidemiol 2012;33(10):965-977
- “Development of Minimum Criteria for the Initiation of Antibiotics in Residents of Long-Term-Care Facilities: Results of a Consensus Conference” Loeb, et.al. Infect Control Hosp Epidemiol 2001;22(2):120-124
- “Clinical Uncertainties in the Approach to Long Term Care Residents With Possible Urinary Tract Infection” Nace, et.al. JAMDA 15 (2014) 133-139
- “Treatment of Bacteriuria Without Urinary Signs, Symptoms, or Systemic Infectious Illness (S/S/S)” Drinka JAMDA 10 (2009) 516-519

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References

"Challenges Assessing Nursing Home Residents with Advanced Dementia for Suspected Urinary Tract Infections" D'Agata, et.al. J Am Geriatr Soc (2013) 62-66

AMDA Choosing Wisely Campaign, Available at https://www.amda.com/tools/ChoosingWisely_5Things.pdf Accessed May 22, 2015

Massachusetts Coalition for the Prevention of Medical Errors - Improving Evaluation & Treatment of UTI in the Elderly: Antibiotic Stewardship in Long Term Care and Hospitals, Available at <http://www.macoalition.org/evaluation-and-treatment-uti-in-elderly.shtml> Accessed May 22, 2015