UTI Toolkit – Module 3
When to Test a Urine Specimen?
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What is a Urinary Tract Infection (UTI)?

• There is no gold standard definition of UTI, but several consensus definitions have been suggested and revised over time\textsuperscript{1,2}

• These definitions differ slightly, but all require the presence of signs and symptoms localizing to the urinary tract

\textsuperscript{1} Loeb et al. ICHE 2001; 22(2): 120-4  
\textsuperscript{2} Stone et al. ICHE 2012; 33(10): 965-77
Signs and Symptoms Specific for UTI

- Dysuria
- New onset
  - Frequency
  - Urgency
  - 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

Nace, et.al. JAMDA 2014; 15(2): 133-39
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 include:
  - Functional decline
  - Changes in mental status
  - Altered behaviors
  - Falls
- Unfortunately, these symptoms are non-specific and often triggered by other (for example, non-infectious) causes.

Nace, et.al. JAMDA 2014; 15(2): 133-39
Are Changes in Mental Status, Behavior, or a Fall Symptoms 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:

<table>
<thead>
<tr>
<th>Medications (e.g., opiates)</th>
<th>Sleep deprivation</th>
<th>Low oxygen (CHF, COPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dehydration</td>
<td>Hypoglycemia</td>
<td>High carbon dioxide (COPD)</td>
</tr>
<tr>
<td>Pain</td>
<td>Electrolyte imbalance</td>
<td>Stroke</td>
</tr>
<tr>
<td>Constipation</td>
<td>Depression</td>
<td>Seizure</td>
</tr>
</tbody>
</table>
In other words…

Don’t think testing urine first in a resident with a change in condition and no localizing urinary tract signs and symptoms
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
What about Non-Communicative Residents?

“A patient with advanced dementia may be unable to report urinary symptoms. In this situation, it is reasonable to obtain a urine culture if there are signs of systemic infection such as fever (increase in temperature of equal to or greater than 2°F [1.1°C] from baseline) leukocytosis, or a left shift or chills in the absence of additional symptoms (e.g., new cough) to suggest an alternative source of infection.”

*AMDA Choosing Wisely Campaign (See Item 3, https://paltc.org/choosing-wisely)
Change in the Character of the Urine ≠ UTI

- Dark, concentrated and/or strong smelling urine can be caused by several factors, including dehydration, diet, medication, or the presence of specific bacteria.

- Changes in the character of the urine WITHOUT specific urinary symptoms do not indicate the presence of UTI.

- Without specific urinary tract signs and symptoms, DO NOT TEST.
Bacteria in the Urine ≠ UTI

- The skin surface is not sterile...
- The mouth is not sterile...
- The colon is not sterile...
- And in many nursing home residents the bladder is not sterile

Up to 50% of LTC residents have bacteria in their urine without any signs of infection*

* Massachusetts Coalition for Patient Safety
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 Module 2 for how to collect urine properly
Positive Urine Culture Without Localizing Urinary Tract Symptoms

DO NOT TREAT