Culturing Practices Matter: Spotlight on Asymptomatic Bacteriuria

June 27, 2017
WELCOME AND INTRODUCTIONS
Elizabeth Ross, MPH, Program Manager | HRET
Polling Question

How did you hear about today’s virtual event?

a. HRET HIIN flyer
b. HRET HIIN website
c. HRET LISTSERV
d. State Hospital Association
e. QIN-QIO
f. Your organization/colleague
g. Other, please specify
## Agenda for Today

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Description</th>
<th>Presenter(s)</th>
</tr>
</thead>
</table>
| 11:00-11:05 a.m. | Welcome and Introductions                 | The purpose of this event is to demonstrate the impact of inappropriate ordering of urine specimens and subsequent treatment of asymptomatic bacteriuria.                                                        | Elizabeth Ross, MPH  
Program Manager, HRET |
| 11:05-11:10 a.m. | HIIN CAUTI Data Resources and Update      | Preview HIIN CAUTI data results and hear an overview of our data submission progress.                                                                                                                       | Richard Rodriguez, MPH  
Data Analyst, HRET |
| 11:10 – 11:15 am | Framing                                   | A foundation for the event will be built upon an overview of past and emerging practices to understand why unnecessary urine culturing persists despite the evidence and guidelines. Key drivers from the new change package will be featured. | Barbara DeBaun RN, MSN, CIC  
Improvement Advisors  
Cynosure Health |
| 11:15 – 11:30 am | Urine Culture Management                  | Understand why the collection of unnecessary urine specimens has become widespread. Review the consequences, including unnecessary treatment of asymptomatic bacteriuria and elevated CAUTI rates, and discuss systems that can be put into place to counterbalance the behaviors driving the increase in culturing. | Robert Garcia BS, MT, CIC, FAPIC  
Subject Matter Expert |
| 11:30 – 11:40 am | Hospital Story                            | Hear from a peer hospital that has resisted the temptation to culture on admission to catch POAs. Learn how physician and nurse ordering behaviors were influenced and what structures were put in place to support culture stewardship. | Jackie Conrad, BSN, MBA  
Improvement Advisor  
Cynosure Health  
Dana Stephens MT CIC  
Director of Infection Prevention and Control, KY One Health |
| 11:40 – 11:55 am | Questions, Challenges and Solutions       | The floor will be open for participants to comment, ask questions and engage in a conversation about systems and processes that work to change behaviors.                                                           | Jackie Conrad, BSN, MBA  
Barbara DeBaun RN, MSN, CIC  
Robert Garcia BS, MT, CIC, FAPIC  
Dana Stephens MT CIC |
| 11:55 – 12:00 pm | Bring it Home                             | CAUTI Resources  
Upcoming HRET HIIN Events                                                                                                                                                                                  | Elizabeth Ross, MPH  
Program Manager, HRET |

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American Hospital Association
HIIN CAUTI DATA REVIEW
Richard Rodriguez, MPH, Data Analyst | HRET
CAUTI Rate

HRET HIIN June 2017 Monthly Report
Appendix A3. Evaluation Measure Results

Progress to Date
Data submitted to HRET as of: 6/1/2017

Figure 2a: Catheter-Associated Urinary Tract Infections (CAUTI)

The ICU measure is only applicable for hospitals with an ICU.

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>2016-10</th>
<th>2016-11</th>
<th>2016-12</th>
<th>2017-01</th>
<th>2017-02</th>
<th>2017-03</th>
<th>2017-04</th>
<th>2017-05</th>
<th>2017-06</th>
<th>Relative reduction, baseline to Oct '16 - Mar '17</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI Rate - all except NICUs</td>
<td>0.94</td>
<td>0.88</td>
<td>0.84</td>
<td>0.87</td>
<td>0.88</td>
<td>0.73</td>
<td>0.82</td>
<td>0.77</td>
<td></td>
<td></td>
<td>-11%</td>
</tr>
<tr>
<td>% of hospitals reporting</td>
<td>83%</td>
<td>80%</td>
<td>80%</td>
<td>79%</td>
<td>76%</td>
<td>76%</td>
<td>72%</td>
<td>44%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAUTI Rate - ICUs except NICUs</td>
<td>1.07</td>
<td>0.91</td>
<td>0.98</td>
<td>0.95</td>
<td>0.89</td>
<td>0.72</td>
<td>0.80</td>
<td>0.74</td>
<td></td>
<td></td>
<td>-18%</td>
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<tr>
<td>% of hospitals reporting</td>
<td>87%</td>
<td>85%</td>
<td>84%</td>
<td>84%</td>
<td>81%</td>
<td>81%</td>
<td>77%</td>
<td>46%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data submission represents percentage of hospitals expected to report data for the measure. Relative reduction represents preliminary results for the first six months of reporting.

Results for months where data submission is below 50% should be interpreted with caution.
Catheter Device Utilization

HRET HIIN June 2017 Monthly Report
Appendix A3. Evaluation Measure Results

Progress to Date
Data submitted to HRET as of: 6/1/2017

Figure 2b: Urinary Catheter Utilization (CAUTI)

The ICU measure is only applicable for hospitals with an ICU.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter Utilization - all except NICUs</td>
<td>21.81</td>
<td>20.64</td>
<td>20.84</td>
<td>20.95</td>
<td>20.47</td>
<td>20.47</td>
<td>20.58</td>
<td>20.64</td>
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<td></td>
<td>-5%</td>
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<tr>
<td>% of hospitals reporting</td>
<td>80%</td>
<td>77%</td>
<td>77%</td>
<td>76%</td>
<td>72%</td>
<td>73%</td>
<td>68%</td>
<td>41%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catheter Utilization - ICUs except NICUs</td>
<td>58.34</td>
<td>56.85</td>
<td>57.61</td>
<td>57.15</td>
<td>57.65</td>
<td>57.56</td>
<td>57.16</td>
<td>57.65</td>
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<td></td>
<td>-2%</td>
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<td>82%</td>
<td>81%</td>
<td>78%</td>
<td>78%</td>
<td>75%</td>
<td>45%</td>
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<td></td>
<td></td>
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</tbody>
</table>

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CAUTI SIR

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Figure 2c: Standardized Infection Ratios, CAUTI

The Standardized Infection Ratio (SIR) is available only for those hospitals reporting to NHSN. The ICU measure is only applicable for hospitals with an ICU. The SIR shown here are based on the 2015 baseline, released Jan 2017.

Results based on SIRs should be interpreted cautiously. SIRs may not be available for smaller hospitals. For smaller hospitals with low catheter utilization and infrequent infection events, assessing improvement is challenging.

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>2016-10</th>
<th>2016-11</th>
<th>2016-12</th>
<th>2017-01</th>
<th>2017-02</th>
<th>2017-03</th>
<th>2017-04</th>
<th>2017-05</th>
<th>2017-06</th>
<th>Relative reduction, baseline to Oct '16 - Mar '17</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI SIR - all except NICUs (NHSN only)</td>
<td>0.42</td>
<td>0.16</td>
<td>0.31</td>
<td>0.39</td>
<td>0.38</td>
<td>0.19</td>
<td>0.21</td>
<td>0.22</td>
<td></td>
<td></td>
<td>-25%</td>
</tr>
<tr>
<td>% of hospitals reporting</td>
<td>79%</td>
<td>75%</td>
<td>74%</td>
<td>74%</td>
<td>73%</td>
<td>70%</td>
<td>63%</td>
<td>41%</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAUTI SIR - ICUs except NICUs (NHSN only)</td>
<td>0.91</td>
<td>0.55</td>
<td>0.65</td>
<td>0.50</td>
<td>0.47</td>
<td>0.41</td>
<td>0.39</td>
<td>0.31</td>
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<td>% of hospitals reporting</td>
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<td>84%</td>
<td>83%</td>
<td>83%</td>
<td>81%</td>
<td>78%</td>
<td>71%</td>
<td>45%</td>
<td>--</td>
<td></td>
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</tr>
</tbody>
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LET’S GET FOCUSED!
FRAMING THE DISCUSSION
## CAUTI Change Package – Primary Drivers

<table>
<thead>
<tr>
<th>Prevent CAUTI</th>
<th>Change Idea</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avoid Placement of Urinary Catheters</strong></td>
<td><strong>Insert Catheters for Only Appropriate Indications</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Utilize Alternatives to Indwelling Catheters</strong></td>
</tr>
<tr>
<td><strong>Ensure Reliable Aseptic Technique</strong></td>
<td><strong>Focus on Reliable Hand Hygiene</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Monitor Strict Adherence to Aseptic Insertion Technique</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Follow Proper Catheter Maintenance Protocol</strong></td>
</tr>
<tr>
<td><strong>Optimize Prompt Catheter Removal</strong></td>
<td><strong>Conduct Daily Review of Catheter Necessity</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Empower Nurses to Remove Catheters When Indications No Longer Exist</strong></td>
</tr>
<tr>
<td><strong>Practice Urine Culture Stewardship</strong></td>
<td><strong>Avoid Culturing for Asymptomatic Bacteriuria</strong></td>
</tr>
<tr>
<td><strong>Patient and Family Engagement</strong></td>
<td><strong>Educate Patients and Families Regarding Catheter and Goals of Early Removal</strong></td>
</tr>
</tbody>
</table>
Primary Driver:

PRACTICE
URINE CULTURE
STEWARDSHIP

Secondary Driver > AVOID CULTURING FOR ASYMPTOMATIC BACTERIURIYA (ASB)

"Asymptomatic bacteriuria" (ASB) is the condition of having a specified count of bacteria in an appropriately collected urine sample obtained from a person without clinical signs and symptoms of urinary tract infection. When clinicians order antibiotics to treat ASB, this contributes to an overuse of antibiotics that can potentially cause complications in the individual patient, including C. difficile, in addition to an increase in resistant pathogens that may impact the individual, as well as organization and community patterns of resistance. Lastly, this practice falsely inflates an organization's CAUTI rate as bacteremia is unnecessarily treated.

Change Ideas

> Educate front-line staff about asymptomatic bacteriuria (ASB) and the harm of over-treating ASB.

> Engage physicians in applying the evidence-based guidelines from the Infectious Diseases Society of America (IDSA)\(^\text{24}\), particularly addressing challenges in identifying clinical signs and symptoms of infection. Positive cultures will exist for ASB and CAUTI, so it is not always easy to distinguish.

> Consider implementing algorithms to assist with evaluation of catheterized patients with cloudy, foul-smelling urine for signs of infection before culturing (e.g., fever, acute hematuria, delirium, rigors, flank pain, burning, pelvic discomfort, urgency, frequency, dysuria, suprapubic pain).

> Implement triggers for lab and/or infectious disease review of urine cultures ordered without documented signs of infection.

> Collect and analyze data by ordering provider optimizing opportunities for peer discussion and targeted physician education regarding culturing and the use of antibiotics for ASB.

> Drive out the "culture of culturing" for ASB and link to organizational antimicrobial stewardship programs.\(^\text{29,30}\)

> Increase transparency for CAUTI rates and catheter utilization, emphasizing that unnecessary urine cultures that identify ASB as CAUTI may result in over-counting organizational CAUTI rates.
Topics to be addressed on an upcoming event (pick three)

- "Culture of culturing" vs. "culture of stewardship"
- Balancing indwelling catheter use vs. risks of other harm (falls, DVT, pressure ulcers, etc.)
- Using evidence-based products for perineal cleansing and availability of recommended products
- Having a nurse driven protocol vs. really feeling empowered to use one
- Routine catheter care vs. risks of catheter manipulation
- Time pressures for care vs. ready availability of alternatives and supplies
- Other
Conundrum....sample or not?
Polling Question

I personally feel pressured to confirm healthcare associated infections that are ‘present on admission’

a. Yes
b. No
c. Hmm....sometimes
Polling Question

At our facility, when a patient is observed to have concentrated, smelly urine we tend to:

a. Immediately send a urine for analysis
b. Send a urine for analysis and culture
c. Offer a glass of water or cranberry juice
d. Assess for symptoms of UTI and then send a urine for analysis
e. Do something else (tell us what?)
Back to Basics: Promoting Appropriate Ordering and Collection of Urine for Culture and Analysis to Improve Healthcare Outcomes

Robert A. Garcia, BS, MT(ASCP), CIC, FAPIC
State of the Science Review

Promoting appropriate urine culture management to improve health care outcomes and the accuracy of catheter-associated urinary tract infections

Robert Garcia BS, MT(ASCP), CIC, FAPIC a,*, Eric D. Spitzer MD, PhD b

a Healthcare Epidemiology Department, Stony Brook University Hospital, Stony Brook, NY
b Department of Pathology, Stony Brook University Hospital, Stony Brook, NY
The Effects on Healthcare When Proper Urine Culture Management is Not Implemented

Clinician
- Improper ordering

Nursing
- Improper collection

Laboratory
- False-positive results, workloads

Pharmacy
- Increased costs

ID
- Ineffective antibiotic stewardship

IP
- Inaccurate analysis

Finance
- Increased costs

Patient
- Adverse effects
Evidence for Inappropriate Ordering of UC/UA Testing

- Randomized study of 208 newly admitted patients over 1 year at the University of Michigan Health System
  - 120 (57.7%) did not meet guideline-based criteria for a urine culture
  - Of these, 75 patients (62.5%) had a reason documented that was inconsistent with current guidelines, including for bacteriuria before an orthopedic procedure and altered mental status
  - No documented reason for ordering a UC was found in 37.5% of patients
  - Fever was the sole indication for obtaining a UC in nearly three-quarters

• 212 patients, UA orders: **84.4% lacked symptoms and 198 (79.2%) lacked UTI and acute kidney injury**

Polling Question

We have designed prompts in our EMR that provide guidance for indications/reasons to obtain urine samples for analysis or culture:

a. Yes
b. No
c. No, but we are thinking about it
Intervention: Modifying the EMR

- Incorporated mandatory selection of standardized indications in EMR for ordering a UC in catheterized patients:
  - Suprapubic pain/tenderness
  - Acute gross hematuria
  - Costovertebral angle tenderness
  - New fever/rigors with clinical assessment negative for more likely etiology
  - Acute alteration of mental status with clinical assessment negative for more likely etiology
  - Alteration in medical condition with clinical assessment negative for more likely etiology in patient whom fever may not be a reliable sign
  - Increased spasticity or autonomic dysreflexia in patients with altered neurologic sensation

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Preintervention</th>
<th>Postintervention 1</th>
<th>P Value</th>
<th>Postintervention 2</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter days</td>
<td>1,115</td>
<td>1,088</td>
<td>...</td>
<td>1,113</td>
<td>...</td>
</tr>
<tr>
<td>Catheter UAs, No.</td>
<td>125</td>
<td>90</td>
<td>.03</td>
<td>106</td>
<td>.24</td>
</tr>
<tr>
<td>Rate per 1,000 catheter days</td>
<td>112</td>
<td>83</td>
<td>...</td>
<td>95</td>
<td>...</td>
</tr>
<tr>
<td>Catheter UCs, No.</td>
<td>62</td>
<td>48</td>
<td>.27</td>
<td>41</td>
<td>.049</td>
</tr>
<tr>
<td>Rate per 1,000 catheter days</td>
<td>56</td>
<td>44</td>
<td>...</td>
<td>37</td>
<td>...</td>
</tr>
<tr>
<td>Total patient days</td>
<td>2,141</td>
<td>2,140</td>
<td>...</td>
<td>2,177</td>
<td>...</td>
</tr>
<tr>
<td>Total UAs</td>
<td>310</td>
<td>274</td>
<td>.13</td>
<td>285</td>
<td>.21</td>
</tr>
<tr>
<td>Rate per 1,000 patient days</td>
<td>146</td>
<td>128</td>
<td>...</td>
<td>131</td>
<td>...</td>
</tr>
<tr>
<td>Total UCs</td>
<td>146</td>
<td>132</td>
<td>.44</td>
<td>110</td>
<td>.02</td>
</tr>
<tr>
<td>Rate per 1,000 patient days</td>
<td>68</td>
<td>62</td>
<td>...</td>
<td>51</td>
<td>...</td>
</tr>
</tbody>
</table>

NOTE: UA, urinalysis; UC, urine culture.

*Between the preintervention period and postintervention period 1.
Between the preintervention period and postintervention period 2.

Polling Question

Our Antibiotic Stewardship Program is

a. Not on our radar
b. Just getting started
c. Gaining momentum
d. Firing on all cylinders
Antibiotic Resistance Impact

- More than 2 million people in the US every year
- At least 23,000 deaths
Inappropriate Treatment of Catheter-associated ASB

- Veterans Affairs Hospital, all UC over 3-months, patients with indwelling urinary catheter
- Determined Catheter-associated Asymptomatic Bacteriuria (CAABU) vs. CAUTI
- Results: 164 CAABU vs. 116 CAUTI
- Of 164 CAABU, 32% inappropriate Rx w/antibiotics

Polling Question

My confidence in our urine culturing technique practices is:

a. High
b. Low
c. Somewhere in between
Contamination of the Sample

• If the *gold standard* for diagnosis of a UTI is identification of a pathogen in a freshly collected specimen of urine, then...
• ...it’s critical to avoid contamination by organisms from the urethra, skin, genitals, fecal flora or from the hands of the collector
• **Goals of UC Specimen Collection:**
  – Identify a causative pathogen if present
  – Preserve the organism at a colony count that reflects the patient’s clinical condition at the time of collection
  – Avoid introduction of a contaminant that may overgrow or be interpreted as a pathogen
Effects of UC Contamination

• 1-year randomized, retrospective ED or inpatient study with contaminated UCs (>2 organisms at ≥10,000 CFU/ml)

• 139 complications in 64 of 131 patients:
  – Initiation of antibiotics – 48.8%
  – Urinary catheter removal – 13%
  – Placement of a new catheter – 12%
  – Collection of additional UC – 8.4%

• 1-year extrapolation: 869 unnecessary interventions

Challenges related to collection and transportation of specimens for evaluation are:

a. Really significant
b. A bit of a problem
c. Not an issue
How long does it take to receive specimens from outpatient and inpatient areas?
Unlike intravascular catheters, there is no replaceable connector on indwelling urinary catheters

Best Practice Triad for Urinary Catheter Specimen Collection

- Correct site
- Proper disinfection
- Correct collection

Advantage:
- Direct draw
- Fewest steps
- Fewest items
- Minimizes risk of contamination

Scrub-the-Hub: 5 secs (?)

“If a small volume of fresh urine is needed for examination (i.e. urinalysis or culture), aspirate the urine from the needleless sampling port with a sterile syringe/cannula adaptor after cleansing the port with a disinfectant.”

Polling Question

When we perform a urinalysis that is determined to ‘be positive’, we:

a. Automatically perform a urine culture
b. Hold the specimen and re-evaluate the patient to determine appropriateness for culture
Reflex Testing

- **Reflex or confirmatory testing** is a protocol whereby additional laboratory testing may be performed on a patient sample based on the results of the initial test.
  - **Example**: A urinalysis with elevated WBC signals the potential for a bacterial infection and a confirmatory urine culture is ordered on the same or complimentary specimen.
  - **Ordering**: UA with reflex
  - **Triggers** for reflexive urine cultures:
    - Leukocyte Esterase – moderate to large
    - Nitrite – positive
    - WBC - ≥5-10 per hpf
    - Bacteria - positive
## Reflex Urine Testing Studies (retrospective)

<table>
<thead>
<tr>
<th>Author / Yr</th>
<th>Unit</th>
<th># Pts</th>
<th>LE</th>
<th>WBC/hpf</th>
<th>Bact</th>
<th>Nitrite</th>
<th>UA-, UC- (%)</th>
<th>UA-, UC+ (%)</th>
<th>Source</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones 2014</td>
<td>ED</td>
<td>1546</td>
<td>Y</td>
<td>&gt;10</td>
<td>Y</td>
<td>Y</td>
<td>39.0</td>
<td>3.5</td>
<td>Clean catch Catheterized</td>
<td>Pts w/both UA &amp; UC Pts &gt;5 yrs old UC= ≥10,000 CFU/ml</td>
</tr>
<tr>
<td>Hertz 2015</td>
<td>ED</td>
<td>4849</td>
<td>Y</td>
<td>&gt;10</td>
<td>Y</td>
<td>Y</td>
<td>34.6</td>
<td>4.7</td>
<td>NS</td>
<td>Pts w/both UA &amp; UC Pts &gt;18 yrs old UC= ≥10,000 CFU/ml</td>
</tr>
<tr>
<td>Foc 2010</td>
<td>Male Urology Clinic</td>
<td>874</td>
<td>N</td>
<td>&gt;5</td>
<td>N</td>
<td>N</td>
<td>69.0</td>
<td>7.0</td>
<td>Clean catch</td>
<td>Pts w/both UA &amp; UC UC= ≥10,000 CFU/ml</td>
</tr>
<tr>
<td>Kaylap 2013</td>
<td>Hospital &amp; outpatient</td>
<td>32,998</td>
<td>Y</td>
<td>&gt;4</td>
<td>Y</td>
<td>Y</td>
<td>97.7</td>
<td>---</td>
<td>Clean catch</td>
<td>Pts w/both UA &amp; UC</td>
</tr>
</tbody>
</table>

# Reflex Urine Testing Studies (prospective)

<table>
<thead>
<tr>
<th>Author / Yr</th>
<th>Unit</th>
<th># Pts</th>
<th>LE</th>
<th>WBC/hpf</th>
<th>Bact</th>
<th>Nitrite</th>
<th>Urine Cultures (%)</th>
<th>Other (%)</th>
<th>Source</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarg 2016</td>
<td>Hospital (7 adult ICUs)</td>
<td>500</td>
<td>N</td>
<td>&gt;10</td>
<td>N</td>
<td>N</td>
<td>-30</td>
<td>ASB -28</td>
<td>Catheterized</td>
<td>1st yr: Pts w/both UA &amp; UC; 2nd yr: Reflex Pts &gt;18 yrs old Decrease from 449 DOT/1000 PD to 425 DOT/1000 PD</td>
</tr>
<tr>
<td>Epstein 2016</td>
<td>Hospital (5 adult ICUs)</td>
<td>NS</td>
<td>N</td>
<td>&gt;10</td>
<td>N</td>
<td>N</td>
<td>Decreased ($p = .0012$)</td>
<td>Decrease CAUTI ($p = .04$)</td>
<td>Catheterized</td>
<td>Pts w/both UA &amp; UC Pt ages NS</td>
</tr>
</tbody>
</table>


Alternate Approach: Focus on Ordering Not Test Result (Pts w/IUC)

- KICKING CAUTI Campaign, study at 2 Veterans Affairs health systems
- One multifaceted intervention vs one comparison site

Urine Cultures Decreased 71%  ASB Rx decreased 75%, CAUTI Rx decreased 89%

Figure. Monthly rate of urine culture orders per 1000 bed-days

Process Flow For Reflex Urine Culture Ordering – Pts w/o IUC

Is the patient pregnant, awaiting urologic procedure, neutropenic, or ≤12 mths of age?

- YES: UA and urine culture sent – both specimens run regardless of UA results
- NO: See "Process Flow for Reflex Culture Ordering – Pts w/ IUC"

Does the patient have an indwelling urinary catheter?

- YES: Directed to test: UA with Reflexive Culture
- NO: Clinician orders a Urine Culture

Order screen lists appropriate indications for urine culture for patients without indwelling catheter (CHECK):
- Elderly patient with new-onset acute mental status changes
- Urgency or sensation to urinate
- Gross hematuria
- Suprapubic pain

Is the UA abnormal – at least one of the following:
- + Nitrite
- + LE
- ≥5 WBCs

- YES: Proceed to Urine Culture – Specimen processed
- NO: UA negative – No urine culture processed

Process Flow For Reflex Urine Culture Ordering – Pts w/IUC

Is the patient pregnant, awaiting urologic procedure, neutropenic, or ≤12 mths of age?

YES → UA and urine culture sent – both specimens run regardless of UA results

NO → Does the patient have an indwelling urinary catheter?

YES → Clinician orders a Urine Culture

NO → UA and Urine culture sent – UA run first

See “Process Flow for Reflex Culture Ordering – Pts w/o IUC”

Is the UA abnormal – at least one of the following:

- +Nitrite
- +LE
- ≥5 WBCs

YES → Directed to test: UA with Reflexive Culture

NO → UA negative – No urine culture processed

Proceed to Urine Culture – Specimen processed

Order screen lists appropriate indications for urine culture for patients with indwelling catheter (CHECK):

- New onset or worsening of fever, rigors, altered mental status, malaise or lethargy with no other identified cause
- Flank pain
- Costovertebral angle pain
- Acute hematuria
- Pelvic discomfort


Talbot T. Preventing CAUTI, Partnership for Patients lecture, 1/25/16
Recommendations on Urine Culture Management

1. Establish a **preculture strategy** that directs efforts at how cultures are ordered rather than solely addressing issues after a UA or UC test is finalized:

   - Modify the electronic medical record to include appropriate and inappropriate indications for UAs/UCs that address patient symptomology
   - Eliminate automatic orders in care plans where appropriate
   - Provide education for all clinicians who order UCs with emphasis on appropriate indications for UCs and UTI symptoms in catheterized and noncatheterized patients
   - Carefully evaluate patients with fever and order UCs as appropriate
   - Reflex urine testing should be considered only if used in conjunction with careful clinical evaluation for signs and symptoms of UTI
2. Ensure proper collection and handling of urine specimens:

- Replace catheters in symptomatic patients before collecting a specimen

- Delineate policies and procedures and educate personnel on the proper methods to collect UCs, particularly for catheterized patients, emphasizing disinfection of the sampling port and limiting collection of specimens from the port and never from the collection bag

- Standardize the use of refrigeration or preservative tubes in all health care settings, including ambulatory clinics and EDs.
Recommendations on Urine Culture Management

3. Incorporate into the facility’s quality monitoring process adherence to UC ordering and collection policies

   • number of UCs ordered per month
   • adherence to protocol on proper indications for ordering UCs
   • ASB and antibiotic treatment
   • adherence to protocol on UC handling, i.e. proper refrigeration or preservative use
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Hospital Story
Aiming for Zero with a Patient Focus

Dana M. Stephens, MT, CIC, FAPIC
Director of Infection Prevention and Control
Kentucky One Health
Saint Joseph East/Saint Joseph Hospital

Multi-campus system located in Lexington, Kentucky serving Central and Eastern Kentucky

- Saint Joseph Hospital is a 446 bed tertiary care hospital with 5 ICU's with 60 critical care beds
- Saint Joseph East is a 166 bed community hospital with 1 adult ICU; 1 neonatal level III critical care unit
Our Philosophy on Culturing

• Strive for ZERO
• The patient is more important than our “track record”
Influencing Behavior

Clinician attitudes and beliefs

Systems and processes
Our Results

<table>
<thead>
<tr>
<th>CAUTI Rates</th>
<th>MDRO Rates</th>
<th>CDI Rates</th>
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Focus on Culture Stewardship
Advice for others
CAUTI Resources

More resources on the [HRET HIIN website](http://www.hret-hin.org/resources/display/catheterassociated-urinary-tract-infections-cauti-change-package)

**CAUTI Change Package**

CAUTI Resources

More resources on the HRET HIIN website

CAUTI Top 10 Checklist

Join the LISTSERV®

- Ask questions
- Share best practices, tools and resources
- Learn from subject matter experts
- Receive follow up from this event and notice of future events

Sign up at http://www.hret-hiin.org/engage/listserv.shtml
HRET HIIN | MOST WANTED: Guidance to Prevent Surgical Site Infections in the Era of “Unresolved Issues”

June 29, 2017 11:00 a.m. - 12:00 p.m. CT | Register here.

Are you struggling with providing your surgical team with practical and evidence-based guidance? The recently released CDC HICPAC Guidelines for the prevention of SSI's is the first update since publication of the 1999 SSI prevention guidelines. These new guidelines are based upon randomized controlled trials that were published prior to 2015, and as a result, many practices are listed as 'unresolved' or 'no recommendation.'

Seeking to assist front line staff, The Wisconsin Division of Public Health (WDPH) convened content experts. These experts developed a guideline document to enhance, not replace, the CDC HICPAC SSI Prevention Guidelines.

We are extremely fortunate that one of these experts, Gwen Borlaug, MPH, CIC, will be featured during the HRET HIIN SSI webinar on June 29th from 10am-11am CT. We suggest you review the comprehensive and highly practical guidance tool in advance of the session so that you will be prepared to participate in the open-mic portion of the webinar. Come with your questions and comments. Let's have an "intellectual food fight!"
HRET HIIN Sepsis | Life After Sepsis: Post-Sepsis Syndrome
July 6, 2017 12:00 p.m. - 1:00 p.m. CT | Register [here](#).

Please join us for the HRET HIIN Sepsis Virtual Event “Life After Sepsis: Post-Sepsis Syndrome” presented by the HRET HIIN on July 6, 2017. HIINformation about Post-Sepsis Syndrome, which affects up to 50 percent of sepsis survivors and causes life-changing challenges, will be presented by Dr. Elizabeth Scruth, PhD, a subject matter expert for sepsis. Suzanne Fletcher, RN, CMSRN, from Wesley Memorial Hospital will then discuss strategies to assist patients who have Post-Sepsis Syndrome. Gather your sepsis teams, your quality personnel, physicians and nursing leaders and get HIINspired to decrease harm from sepsis.

It’s not just about keeping them alive...it’s about helping them return to their normal life!
Upcoming Events

HRET HIIN Falls | Hit the Wall on Falls? Time to Recalibrate!
Webinar: July 11, 2017 2:00 p.m. - 3:00 p.m. CT | Register here.

What do you do when you have hit the wall, plateaued or experienced an increase in falls? Join the July 11th Falls Virtual Event to learn how to dissect your falls program to regroup and re-calibrate. Amy Hester PhD, RN, BC, Director of Nursing Research and Innovation at UAMS Medical Center, and Chief Scientific Officer for HD Nursing, will review the common sense key elements that need to be examined to determine how to intervene to revive a stagnant falls and how care planning can fall short. She will shine light on common mistakes that make a program unsustainable. Dr. Hester will challenge participants to go back to the basics to evaluate the effectiveness of current tools and work-flows, rather than adding more interventions that further dilute the effectiveness of their work. Participants will share which risk and care planning tools, as well as electronic health record systems, they are currently using to promote peer sharing.
Upcoming Events

HRET HIIN Readmissions | Reduce Readmissions Fishbowl Series
July 13, 2017 11:00 a.m. - 12:00 p.m. | Register here.

Does your organization have an opportunity to gain new insights and test strategies to reduce readmissions? Join the HRET HIIN on May 25th for the first reducing readmissions "Fishbowl" event where you will watch the process improvement journey of five HRET HIIN hospitals. Listen in as the hospitals create reduction aim statements, focus on their target population and develop their first small test of change to implement in their readmissions reduction efforts.

Upcoming Readmissions Fishbowl Series dates:
   – August 10, 2017 11:00 a.m. - 12:00 p.m. | Register here.
   – September 14, 2017 11:00 a.m. – 12:00 p.m. | Register here.
Thank You!

Find more information about CAUTI and HRET HIIN upcoming events on our website: www.hret-hiin.org

Questions or Comments: HIIN@aha.org