Implementation of Urine Culture with Reflex

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A Strategy to Address CAUTI: Our Journey to Appropriate and Meaningful Urine Cultures

- From both a patient safety and institutional quality/penalty perspective, unacceptably high HAI rates need to be addressed and suppressed in our acute care hospitals.
- CAUTI’s have been a difficult issue for years, not only because of device utilization (foleys) in an increasingly more complex patient environment, but also due to the definition of CAUTI by NHSN that does not link a urine culture to documented pyuria.
<table>
<thead>
<tr>
<th>Criterion</th>
<th>Urinary Tract Infection (UTI)</th>
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<tbody>
<tr>
<td>SUTI (Symptomatic UTI)</td>
<td>Must meet at least one of the following criteria:</td>
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<td>Patient must meet 1, 2, and 3 below:</td>
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<td>1. Patient had an indwelling urinary catheter that had been in place for &gt; 2 days on the date of event (day of device placement = Day 1) AND was either:</td>
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<td>* Present for any portion of the calendar day on the date of event*,</td>
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<td></td>
<td>* OR</td>
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<td></td>
<td>* Removed the day before the date of event*.</td>
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<td>2. Patient has at least one of the following signs or symptoms:</td>
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<td>* fever (&gt;38.0°C)*</td>
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<td></td>
<td>* suprapubic tenderness*</td>
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<td></td>
<td>* costovertebral angle pain or tenderness*</td>
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<td></td>
<td>* urinary urgency*</td>
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<td></td>
<td>* urinary frequency*</td>
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<tr>
<td></td>
<td>* dysuria*</td>
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<td></td>
<td>3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of ≥10³ CFU/ml (See Comments). All elements of the UTI criterion must occur during the Infection Window Period (See Definition, Chapter 2: Identifying HAIs in NHSN).</td>
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<td></td>
<td>↑ When entering event into NHSN choose “INPLACE” for Risk Factor for Urinary Catheter</td>
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<tr>
<td></td>
<td>↑ When entering event into NHSN choose “REMOVE” for Risk Factor for Urinary Catheter</td>
</tr>
<tr>
<td></td>
<td><em>With no other recognized cause (see Comments)</em></td>
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<td></td>
<td><em>These symptoms cannot be used when catheter is in place. An indwelling urinary catheter in place could cause patient complaints of “frequency” “urgency” or “dysuria.”</em></td>
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<td></td>
<td>Note:</td>
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<td>* Fever is a non-specific symptom of infection and cannot be excluded from UTI determination because it is clinically deemed due to another recognized cause.*</td>
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January 2017
Positive Urine Culture: Is it Truly a UTI?

- Through Antibiotic Stewardship Program, we have encountered many instances of antibiotic therapy for “UTI” when urine culture is NOT associated with pyuria from urinalysis; in some cases no linked U/A is even sent.
- Disconnect between both U/A and Urine Culture as tests done is separate labs (Chemistry and Microbiology).
- CAUTI incidence clearly affected as no associated U/A is needed to define a CAUTI; simply a positive culture.
- Via auditing, many of our CAUTI (25%) have unremarkable U/A.
Urine Cultures without Urinalysis: What’s the Problem?

- Increase in contaminated urines/confusion for providers
- Increase in Laboratory Resources.
- Increase in unnecessary antibiotic utilization.
- Increase in cost to the hospital.
- High CAUTI SIR
Linkage of U/A with Culture

- Based on precedent of going forward with Sputum cultures only when dictated by a positive Gram’s stain.
- With reflex testing, an order for Urine Culture will only be processed when triggered by U/A with significant pyuria (greater than 10 wbc/hpf) from chemistry lab screening.
- Providers may still order an exclusive Urine Culture if one of five (5) criteria met.
Urine Cultures for Special Indications Not Requiring Reflex from U/A

- Pregnant women for screening
- Urologic procedures
- Neutropenic patients
- Infants up to 6 mos. of age
- Outpatient ordering
Criteria for Urine Cultures

Patient populations who do not require a UA prior to culture:
- Outpatients
- Pregnant Females
- Urological Procedures
- Neutropenia
- Children Under 6 months

Urinalysis Criteria for reflex to Urine Culture:
- > 10 WBC
- + Nitrates
Bringing in the Experts
Before our Go-Live

Bringing Research to the Bedside and Sustaining the Gains:
A Conversation with
Dr. Sanjay Saint & Pat Posa, BSN, MSA

May 7, 2015
2:30 - 3:30pm
Mercy Conference Rooms

Target Audience:
Department Chiefs, Physicians,
Mid-Level Providers, RNs
& Clinical Educators across SPHP

Light Refreshments Served
Please RSVP: 525-1253 or
jennifer.ryan@sphp.com

This exciting opportunity is brought to you by St. Peter's Hospital's
Infection Control Program, Patient Safety & Quality Improvement,
in collaboration with VITAS
New Urine Culture orders in Soarian
Go-Live May 12, 2015

St Peter's Hospital
St Peter's Health Partners
Urine Culture with Reflex Test Code (Inpatients)

Culture with Reflex (URFXC) vs. Urine Culture (URC)

- **07-2017**
  - URFXC: 600
  - URC: 200

- **06/2015**
  - URFXC: 600
  - URC: 200

- **01/2015**
  - URFXC: 0
  - URC: 1000
Cost Savings Due to Decrease in Urine Culture Volume

- Reduction in unnecessary inpatient urine cultures: 400 per month
- Annual Savings: $33,600
Urine Culture Contaminants

- With the introduction of Urine Culture with Reflex, the number of “contaminant cultures” decreased by 65%!

- 5/12/2015-5/12/2016  323

- Annual Savings: $4284
Have the Decreases Been Sustained?....YES

- Hard Coding in CPOE
- Monthly Report Generated Depicting those Cultures Ordered with Reflex and those Ordered as a Single Test
- Allows Follow-up with Ordering Provider
- Utilization Management Initiatives
Device Utilization Rounds: An Additional Strategy to Reduce HAI

- Beginning in **March 2015** (2 mos. before switch to U/A Reflex testing), SPH Leadership Team engaged the Infection Prevention Specialists and Infectious Disease Physician to round 2-3 days per week to:
  - Review all CVC’s and Foley catheters that have been in place for at least 5 days, to determine if they meet device criteria.
  - Focus discussions with bedside RN, Team Leaders, and medical providers to seek D/C orders for devices that are not indicated.
Evidence Based Medicine: Criteria for a Foley Catheter for In-Patients

- Based upon a multitude of Quality Improvement Organizations (HANYS, IPRO, HICPAC) and CUSP initiatives, our Infection Prevention Team and Nurse Educators moved a hospital-wide initiative for indications for Foley catheters to remain in for > 24 hrs.
- These indications are the basis for our Device Rounds, twice per week.
EBM Indications for Foley Catheters for More than 24 hrs

- Urinary Retention/Obstruction
- Measurement of urine output in critically ill (pressor support)
- Stage III or IV sacral decubiti for incontinent patients
- Post Op for select surgeries (Urologic/Lumbar drains/Prolonged surgeries with high volume infusions/diuresis)
- Chronic Foley upon hospital admission
- End of Life care.
CAUTI Rate 2014-2017 (YTD)
CAUTI SIR 2014-2016
## Pre and Post U/A Reflex to Culture and Device Utilization Rounding

<table>
<thead>
<tr>
<th>Date</th>
<th>CAUTI</th>
<th>Foley Days</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>41</td>
<td>20718</td>
<td>62 CAUTI 54,342 Foley Days</td>
</tr>
<tr>
<td>2014</td>
<td>13</td>
<td>26175</td>
<td></td>
</tr>
<tr>
<td>2015 (Jan-May)</td>
<td>8</td>
<td>7449</td>
<td>40 CAUTI 40,431 Foley Days</td>
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<tr>
<td>2015 (May-Dec)</td>
<td>13</td>
<td>10070</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>16</td>
<td>17450</td>
<td></td>
</tr>
<tr>
<td>2017 YTD</td>
<td>11</td>
<td>12911</td>
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Going Forward vs. CAUTI

● Continue to insure appropriate utilization of Foley catheters, via education and Device Rounding.
● Maintain our Antibiotic Stewardship Program attention regarding appropriate antibiotic utilization vs. UTI
● Move towards a Nurse Driven Protocol, based upon adherence to our EBM checklist, that would empower RN’s to remove Foley catheters without a provider order