The CAUTI Can-Can

Hennepin County Medical Center
August 2017
Background:

Been There. Done That.

- Catheter orders in Epic
- Nurse driven protocol
- Insertion Training
- Care and maintenance training
- Proper UC collection training
- 2 person insertion requirement (and documentation)
- Care audits: pericare and bundle practices
- Third party point prevalence surveys
- Evaluated and modified products
- Moved non diagnostic catheter insertions out of ED
What didn’t work for us

- Nursing protocol
- Nursing documentation of catheter continuation
- Providers in a passive role
- General education sessions, newsletters, or “just do its”
- Separate provider and nursing work groups
- Passive expectation for providers to use UC algorithm
What’s in the CAUTI gap?

- Some unpreventable CAUTIs
- Many preventable CAUTIs
  - Catheter insertion technique
  - Catheter cares
  - Foley indication
  - Urine culture indication
Where is the gap? How was it determined?

- A3 Problem analysis
- Device Utilization (DU):
  - High device utilization when comparing unit to NHSN DU median
  - Internal DU static or trending upward
Where is the gap? How was it determined?

- A3 Problem analysis
- Urine Culturing Practices:
  - Reviewed sample of UC’s to learn why ordered
  - UC guidelines not understood or adopted by providers
  - Lack of understanding of a clinical UTI
  - Lack of consistent practice between hospital and rehab
Mobilizing the levers:

Catheter Utilization

- **Test of Change #1:**
  - If we discuss Foley days on MDR rounds daily
    - then Foley utilization will go down

- **2 unit focus**

- **Gaps:**
  - Started with nursing: some improvement but not what was expected
  - Daily rounds discussion focus was on foley “yes” or “no”

- **Implementation:**
  - Incorporated discussion into multidisciplinary rounds
  - Changed the conversation from “do they have a Foley” to “how long have they had the Foley and what is the indication”
  - “The Richardson” event
Test of Change #1
Results:
Process Measure: % pts with foley discussed on MDR
Reducing Catheter Use
Additional Activities:

• Products:
  • Condom cath updated
  • Female urinal implemented
  • Periwipe kit implemented
  • Bladder scanners, additional purchased

• Straight Cath Indications:
  • Developed protocol for all admissions to clarify

• Early Mobility initiative:
  • Reducing urinary catheter use aligns with mobilizing the patient
Mobilizing the levers:

**Appropriate Urine Cultures**

- **Test of Change #2**
  - *If* we implement best practices for clinically appropriate UC’s
    *then* CAUTI cases will be reduced

- 20-30% of 2016 CAUTI were not clinical CAUTI, but had inappropriate (not clinically indicated) urine cultures ordered.

- Worked in conjunction with Antimicrobial Stewardship Program

- **Gaps:**
  - Lack of understanding of colonization
  - PAN culturing practices
  - Staff not engaged to use UC algorithm

- **Implementation:**
  - A3 team reviewed UC’s to check for gaps
  - Daily UC list provided to unit champion for review of appropriateness per algorithm and feedback within 48 hours to ordering provider
When to obtain a urine culture (UCx) on a catheterized febrile INPATIENT >5 yrs of age, admitted >3 days

Responsive Patient

Clinically Stable OR Unstable Patients (Clinical Signs of Sepsis)

Do they have symptoms of a UTI?

Yes

Order UA / UCx, Rx based on UCx.

If no other cause found for symptoms.

UTI Symptoms:
- Altered mental status, Malaise / Lethargy, Flank pain, CVA tenderness, Acute hematuria, Pelvic discomfort.
- If spinal cord injury patient: Increased spasticity, Autonomic dysreflexia.

No

Initially avoid UA / UCx, examine patient & work up for other causes of fever.

Unresponsive Patient

Stable Patient (Fever W/O Signs of Sepsis)

High risk for UTI?
1. Urinary Obstruction / anatomic abnormality.
2. Recent urologic manipulation or surgery.
3. Renal transplant.
4. Pregnancy

Rule out other sites of infection AND do UA / UCx.

Not high risk for UTI

Other sites of infection SUSPECTED:
- Respiratory
- Wounds
- Bloodstream
- GI

Work up for other causes of fever.

If no other cause found for symptoms.

UA / UCx.

Do not do UA / UCx solely for the following:
- Cloudy or dirty urine in the catheter bag.
- Foul smelling urine.

Myths vs Truths:
Urinary Tract Infections in Adults

What is the significance of “abnormal” urine?

◇ **MYTH:** Cloudy, smelly or dark urine are indicative of a UTI.
   **TRUTH:** These characteristics do NOT correlate with the presence of a UTI and should NOT be used as a criteria to obtain a urine culture.

◇ **MYTH:** Bacterial growth in a urine culture is diagnostic of a UTI and should always be treated.
   **TRUTH:** Up to 25% of diabetic women and 50% of nursing home residents have bacteria colonizing their urine at baseline; in the absence of urinary symptoms most do not require treatment. Treating asymptomatic bacteriuria only increases risk of medication side effects and antibiotic resistance! It does NOT decrease the likelihood of having future UTIs or urinary bacterial colonization.

◇ **MYTH:** Altered mental status (AMS), delirium, and falls in nursing home residents are often due to UTIs and patients should receive antibiotic treatment in bacteria is seen on a urine culture.
   **TRUTH:** The evidence that falls or delirium in nursing home residents are due to UTIs is virtually nonexistent! Treating asymptomatic bacteriuria has no effect on incidence of delirium or falls in nursing home residents.

What are the effects of a catheter on the urinary tree?

◇ 15-20% of hospitalized patients have a urinary catheter placed during hospitalization.

◇ Bacteriuria incidence in catheterized patient is 3-8% per day.
   → After 7 days, nearly 50% of patients will have bacteria in their urine.
   → After 1 month of catheter use, nearly ALL patients will have bacteria in their urine.

◇ Bacteremia is a rare complication of catheter associated bacteriuria in <1% of cases and <1% of hospital deaths are due to bacteremic UTIs.

When is it appropriate to treat asymptomatic bacteriuria?
The only times you should treat asymptomatic patients with bacteria in their urine:
1) Pregnant
2) Having urologic surgery
3) Having prostate surgery

References: IDSA CAUTI (2009) and Asymptomatic Bacteriuria (2005) guidelines

For more information or questions regarding this content, please contact the Antimicrobial Stewardship Program
Versions: December 2016
Test of Change #2

Results:

Feedback performed

Inappropriate Urine Culture Trends: MICU/SICU 2017
Test of Change #2

Results:

<table>
<thead>
<tr>
<th>SICU</th>
<th>Year total</th>
<th>Admit Day 1,2</th>
<th>Admit Day&gt;2</th>
<th># CAUTI</th>
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<td>55</td>
<td>134</td>
<td>16</td>
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<tr>
<td>2017H1</td>
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<table>
<thead>
<tr>
<th>MICU</th>
<th>Year total</th>
<th>Admit Day 1,2</th>
<th>Admit Day&gt;2</th>
<th># CAUTI</th>
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<tr>
<td>2016</td>
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<td>184</td>
<td>235</td>
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</tr>
<tr>
<td>2017H1</td>
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<td>80</td>
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What happens when there is a positive urine culture?
### 2017 Test of Change Goal:

#### All new CAUTIs have all green

<table>
<thead>
<tr>
<th>Event Date</th>
<th>Unit</th>
<th>Foley indicated</th>
<th>UC indicated?</th>
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<tbody>
<tr>
<td>1/17/2017</td>
<td>STN</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>2/11/2017</td>
<td>MICU</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>2/16/2017</td>
<td>BURN</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>2/17/2017</td>
<td>Med</td>
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<td>NO</td>
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<td><strong>3/2/2017</strong></td>
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<td>NO</td>
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<tr>
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<td>YES</td>
</tr>
<tr>
<td>3/5/2017</td>
<td>MSO</td>
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<td>YES</td>
</tr>
<tr>
<td>3/5/2017</td>
<td>MICU</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>3/13/2017</td>
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<td>NO</td>
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<tr>
<td>3/25/2017</td>
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<td>3/26/2017</td>
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<tr>
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<tr>
<td>6/6/2017</td>
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<tr>
<td>6/6/2017</td>
<td>MSO</td>
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<td>NO</td>
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<tr>
<td>6/11/2017</td>
<td>MICU</td>
<td>NO</td>
<td>NO</td>
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</tbody>
</table>

#### No more CAUTIs with reds

- **1/17/2017 STN NO NO**
- **2/11/2017 MICU NO YES**
- **2/16/2017 BURN YES YES**
- **2/17/2017 Med NO NO**
- **3/2/2017 MICU YES NO**
- **3/3/2017 Med YES YES**
- **3/5/2017 MSO YES YES**
- **3/5/2017 MICU YES YES**
- **3/13/2017 MICU NO NO**
- **3/25/2017 PEDS n/a n/a**
- **3/26/2017 SICU YES YES**
- **4/24/2017 STN YES YES**
- **4/30/2017 Med YES YES**
- **5/6/2017 SICU YES NO**
- **5/23/2017 SICU YES NO**
- **6/6/2017 STN YES YES**
- **6/6/2017 CaRe YES YES**
- **6/6/2017 MICU NO NO**
- **6/11/2017 MICU NO NO**
Daily/Weekly Responsibilities

Spreading the Work

Engaging Providers

Leadership

• Barrier busting
• Going out and talking to end users working with them they are asking changes

Patient care staff (nursing, HCA)

• Increased daily patient care work
• Challenging providers for cath need
• Cost – need more bladder scanners
• Changed from pericare 2/day to 1/day and after each fecal incontinence

Unit Manager/Unit lead

• Daily management boards
  • Daily device utilization
  • Rounds discussion
  • Misses
• Challenge nursing when they want to leave the cath in
• Daily huddle messages to staff

Providers

• Incentivized to pull them to the “believer” group
• Engage into daily rounds
• Educate residents
• Move away from PAN cultures (feedback education)
Using EPIC as a tool to guide practice

- Changed Reflex UA/UC Order
  - **Inpatients** no longer can have reflex UA/UC ordered
  - Provider must UA and UC separately
    - Goal: providers will review UA before deciding if UC needed

- Foley Change Prior to UC alert
  - If UC ordered on a patient with a foley >5 days, the order includes a remove/replace order prior to collecting the UC (if the foley is safe to change out)

- Urine culture algorithm built into Orders
  - Building cascading questions from the UC algorithm within the UC order

- Foley duration and UC review columns on Patient lists
**EPIC as a tool example on patient list**

<table>
<thead>
<tr>
<th>Admit Date</th>
<th>MRN</th>
<th>Name/age/sex</th>
<th>Unit</th>
<th>Service</th>
<th>Infection</th>
<th>Isolation</th>
<th>Foley Duration</th>
<th>UC Review</th>
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</table>
Next Steps

- Spread to all units
- Develop sustainment measures – who what where when
Continued Challenges

• Spread of information –
  • Big system – new providers, residents
  • Expanding work to new units with different daily operations (closed units vs open units, provider oversight different, different rounding practices)
  • Motivating providers in an already busy day with competing priorities, significant burnout