Preventing Catheter-Associated Urinary Tract Infection (CAUTI): Making It Happen

Sanjay Saint, MD, MPH
Chief of Medicine, VA Ann Arbor Healthcare System
George Dock Professor of Internal Medicine
University of Michigan Medical School

Hosted by Paul Webber
paul@webbertraining.com
www.webbertraining.com

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Preventing Hospital Infections
Real-World Problems, Realistic Solutions

Sanjay Saint
Sarah L. Klein
www.richardw.stick

Oxford
Consistently Using Evidence-Based Practices Remains a Challenge…

Hand Hygiene Compliance in Healthcare Workers
(Erasmus et al. Infect Control Hosp Epidemiol March 2010)

• Systematic review of 96 studies
• Overall median compliance of 40%
• Lower rates in physicians (32%) than nurses (48%)
• Lower rates “before” (21%) patient contact rather than “after” (47%)
Given this Gap Between What Should Be Done and What Is Done…

• Focus on “implementation science”

• “The scientific study of methods to promote the systematic uptake of research findings into routine practice”


Healthcare-Associated Infections: Common, Costly, & Harmful

~1 million
Americans develop a healthcare-associated infection each year

• ~50% of infections could be prevented
• Preventive practices used inconsistently
Preventing Catheter-Associated Urinary Tract Infection (CAUTI): Making It Happen
Prof. Sanjay Saint, University of Michigan School of Medicine
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Catheter-Associated Urinary Tract Infection (CAUTI)

- One of the most common infections
- 1/4 of inpatients receive catheters
- 1/3 of catheter days unnecessary
- 1/3 of physicians unaware their patient has a catheter
- 1/3 of the time no order for a catheter

Why are some facilities better than others?

What can we learn from successful facilities?

How can we implement change broadly to improve care?

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Catheter-Associated Urinary Tract Infection (CAUTI)

- UTI is a common cause of hospital-acquired infection
- Most due to urinary catheters
- Up to 20% of inpatients are catheterized
- Leads to increased morbidity and healthcare costs

www.catheterout.org
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"Many noninfectious catheter-associated complications are at least as common as clinically significant urinary tract infections."

Disrupting the Lifecycle of the Urinary Catheter

1. Preventing Unnecessary and Improper Placement
2. Maintaining Awareness & Proper Care of Catheters
3. Prompting Catheter Removal
4. Preventing Catheter Replacement

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The Most Common Venue for Foley Placement?

Emergency Department

2009 Prevention of CAUTI HICPAC Guidelines
(Gould et al, Infect Control Hosp Epidemiol 2010; 31: 319-326)

Table 2.
A. Examples of Appropriate Indications for Indwelling Urethral Catheter Use

<table>
<thead>
<tr>
<th>Patient has acute urinary retention or bladder outlet obstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for accurate measurements of urinary output in critically ill patients</td>
</tr>
<tr>
<td>Perioperative use for selected surgical procedures:</td>
</tr>
<tr>
<td>• Patients undergoing urologic surgery or other surgery on contiguous structures of the genitourinary tract</td>
</tr>
<tr>
<td>• Anticipated prolonged duration of surgery (catheters inserted for this reason should be removed in PACU)</td>
</tr>
<tr>
<td>• Patients anticipated to receive large-volume infusions or diuretics during surgery</td>
</tr>
<tr>
<td>• Need for intraoperative monitoring of urinary output</td>
</tr>
<tr>
<td>To assist in healing of open sacral or perineal wounds in incontinent patients</td>
</tr>
<tr>
<td>Patient requires prolonged immobilization (e.g., potentially unstable thoracic or lumbar spine, multiple traumatic injuries such as pelvic fractures)</td>
</tr>
<tr>
<td>To improve comfort for end of life care if needed</td>
</tr>
</tbody>
</table>
Alternatives to Consider

1) Accurate daily weights
2) Urinal/commode/bedpan
3) Condom catheters
4) Intermittent catheterization with bladder scanning

Avoiding Indwelling Catheter Insertion in the ED

2 studies have intervened in the ED to reduce insertion:

1) Gokula et al. ER staff education and use of a urinary catheter indication sheet improves appropriate use of Foley catheters. Am J Infect Control. 2007:
   - 75% fewer indwelling catheters inserted after the intervention

2) Fakih et al. Effect of establishing guidelines on appropriate urinary catheter placement. Acad Emerg Med. 2010:
   - Physicians ordered 40% fewer insertions after the intervention
But if the patient really, really needs a Foley…

Ensure proper aseptic technique is used during insertion

Disrupting the Lifecycle of the Urinary Catheter
1. Preventing Unnecessary and Improper Placement
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4. Preventing Catheter Replacement

(Meddings. Clin Infect Dis 2011)
Proper Maintenance

- Keep the urinary system closed
- Make sure flow is unobstructed:
  - No kinking or coiling
  - Drainage bag should be lower than the bladder
  - Regularly empty the bag

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The Technical:
Timely Removal of Indwelling Catheters

- 30 studies have evaluated urinary catheter reminders and stop-orders
  - Significant reduction in catheter-associated urinary tract infection (53%)
  - No evidence of harm (ie, re-insertion)
  - Will also address the non-infectious harms of the Foley


What about the ICU?

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NHSN Data: Intensive Care vs. General Wards  

- Urinary Catheter Use: ICU > General Units

<table>
<thead>
<tr>
<th>Unit</th>
<th>2006-8 Urinary Catheter Utilization Ratio</th>
<th>2009 Urinary Catheter Utilization Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU (med-surg)</td>
<td>0.79</td>
<td>0.72</td>
</tr>
<tr>
<td>General Wards (med-surg)</td>
<td>0.22</td>
<td>0.19</td>
</tr>
</tbody>
</table>

(Slide courtesy of M. Fakih)

Just because a patient is in the ICU does NOT mean that the patient needs a Foley…

The Key Question is this:

Are hourly assessments of urine output required?

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Trigger Point: ICU To Floor

- ICUs have very high urinary catheter use
- Utilization may be reduced hospital-wide if patients transferred out of the ICU are evaluated for catheter necessity at time of transfer

(Slide courtesy of M. Fakih)

Trigger Point: OR To Floor

- Operating Rooms have very high urinary catheter use
- Utilization may be reduced hospital-wide if patients transferred out of the PACU are evaluated for catheter necessity at time of transfer
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(Meddings, Clin Infect Dis 2011)

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Preventing Infection

Technical

Socio-adaptive

“The hospital is the most complex human organization ever devised…”

Peter Drucker
Implementing Change Across the State of Michigan in 71 Hospitals

CAUTI ↓ by 25% in Michigan hospitals (95% CI: 13 to 37% ↓)
CAUTI ↓ by 6% in non-Michigan hospitals (95% CI: 4 to 8% ↓)

(Saint et al. JAMA Intern Med 2013)

Broad Implementation

• Federally-funded project aimed to reduce CAUTI rates
• 4-year project (Sept 2011 – Aug 2015)
• To date: 40 states, District of Columbia, & Puerto Rico
  – ~1000 hospitals
  – 30% reduction on medical-surgical units (Fakih IDWeek 2014)
• World Health Organization
  – Italy, Japan, Africa, Latin America …
What if you need further help in preventing CAUTI?

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Additional Approaches

1) Tier 1 & Tier 2
2) CAUTI GPS
3) Applying Mindfulness to CAUTI

Tier 1 Protocol: Use of Indwelling Urinary Catheter Kit

- Assess daily the necessity of the indwelling catheter
- Encourage use of alternatives to indwelling catheter
- Use standard indwelling urinary catheter kit with pre-sealed junction
- Ensure proper aseptic insertion technique
- Follow maintenance and removal template for care and removal of the catheter
- Measure CAUTI rates monthly

Monitor CAUTI rates closely. Proceed to Tier 2 if either of the following conditions are met over a period of 6 months:

1. ICU ≥ 9 CAUTIs/10,000 patient days
   2 CAUTIs/1,000 catheter days
2. Non-ICU, Acute Care ≥ 3 CAUTIs/10,000 pt days & 2 CAUTIs/1,000 catheter days


- Assess and document competency of healthcare workers performing insertion
- Consider Root Cause Analysis or Focused Review of CAUTI or catheter use to identify improvement opportunities
- Measure monthly for 6 months; re-evaluate. If rate has dropped below indicated levels proceed back to Tier 1

Sources:
- HICPAC CDC Guidelines on CAUTI Prevention
- www.catheterout.org

(Department of Veterans Affairs, VISN 11)
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Self-Assessment Tool for Hospitals and Units

CAUTI Guide to Patient Safety (“CAUTI GPS”)

• A 1-page (10-item) trouble-shooting guide

• Help identify the key reasons why hospitals may not be successful in preventing CAUTI

• Once the barriers are identified, can then propose and implement solutions

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CAUTI Guide to Patient Safety (GPS)

• On-line tool
• Each question linked to troubleshooting tips

www.catheterout.org

CAUTI GUIDE TO PATIENT SAFETY (GPS)

Question 1: Do you currently have a well-functioning team (or work group) focusing on CAUTI prevention?
  Yes ( ) No ( )

Question 2: Do you have a project manager with dedicated time to coordinate your CAUTI prevention activities?
  Yes ( ) No ( )

Question 3: Do you have an infection control champion for your CAUTI prevention activities?
  Yes ( ) No ( )

Question 4: Do you have a nurse advocate to ensure the indwelling urinary catheter is removed when the catheter is no longer needed (e.g., by contacting the physician or removing the catheter per protocol)?
  Yes ( ) No ( )

Question 5: Do you have an infection control champion for your CAUTI prevention activities?
  Yes ( ) No ( )

Question 6: Do you routinely collect CAUTI-related data (e.g., urinary catheter prevalence, urinary catheter appropriateness, and infection rates) in the unit(s) in which you are implementing?
  Yes ( ) No ( )

Question 7: Do you creatively implement CAUTI-related data to frontline staff (e.g., urinary catheter prevalence, urinary catheter appropriateness, and infection rates)?
  Yes ( ) No ( )

Question 8: Are you aware of the barriers to implementing CAUTI prevention strategies?
  A. Staff resistance to change
  B. Lack of education or training
  C. Lack of time or resources
  D. Patient and family concerns
  E. Staff turnover
  Yes ( ) No ( )

Submit  Close form

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CAUTI Guide to Patient Safety (GPS) Q2

Because the project manager (also referred to as the team leader) is responsible for coordinating and facilitating meetings, team communication, and overseeing that members understand their roles and follow through on their responsibilities, it is imperative that s/he has dedicated time to commit to the project.

1. If nobody has been identified for this role
   - Ask senior leadership for advice about who they recommend and who they can provide with some protected time to do this work.
   - Find someone who has been successful in coordinating a quality improvement initiative.
   - Experience and knowledge of the topic is secondary in importance to leadership skills, enthusiasm, persistence, and credibility. The leader will be expected to reach out to the content experts for guidance related to the technical aspects of the work.

2. If the selected project manager is not as effective as necessary
   - Check to see if s/he has been given dedicated time to work on this particular project. If not, engage leadership to help with this.
   - She may be lacking some of the necessary skills. We have found that coaching him/her on what they can improve upon can be very helpful.
   - She may not be a good fit for the initiative, and it may be time to consider replacing him/her with someone else.

3. For a better understanding of what makes a project manager successful
   - Top 10 Qualities of a Project Manager
   - Top 10 Characteristics of GREAT Project Managers

4. Further reading suggestions

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2) CAUTI GPS
3) Applying Mindfulness to CAUTI

A Dilemma

• Much of what we do in healthcare – especially in the hospital – is reflexive
  – If a patient is hypoxemic: we give oxygen
  – Low BP: IV fluids
  – Positive blood cultures: antibiotics
  – Frequency, urgency, and dysuria: dx UTI
A Dilemma

• These rote responses are usually helpful

• However, this reflex-like approach can lead to problems
  – Pt sick enough to be admitted from the ED: Foley catheter
  – Asymptomatic catheterized patient has a “dirty” urine: antibiotics

One Possible Solution: “Medical Mindfulness”
One Possible Solution: “Medical Mindfulness”

- Being in the moment and considering decisions carefully before jumping to reflexive action
- Daniel Kahneman:
  - Intuition (System 1): fast, automatic, effortless; difficult to alter
  - Reasoning (System 2): slower, effortful, & flexible
- In medicine, we are constantly toggling back-and-forth between the reflexive and the complex
- How can we apply this to everyday practice?

Applying Mindfulness to Bedside Nursing: Catheter-Associated Urinary Tract Infection
(Kiyoshi-Teo et al. Infect Cont Hosp Epid 2013)

- Taking a 5-second “pause” before…
  - Inserting an indwelling catheter
  - Emptying the drainage bag or transporting the patient
- Asking…
  - Is it absolutely necessary to use an indwelling catheter in this patient? Can I use an alternative?
  - Am I using proper technique? Do I need to ask for help? Can the catheter be removed today?
Summary

• CAUTI and indwelling catheter use are important patient safety issues

• There are proven approaches to reduce catheter use and thereby prevent CAUTI

• Both technical and socio-adaptive aspects are important in preventing infection

• Several options if you still have not achieved the results you would like

Conclusion

Preventing CAUTI is a Team Sport!
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Thank you!
saint@umich.edu
@sanjaysaint

Coming Soon

March 11 (Free WHO Teleclass - Europe)
USING THE CORE COMPONENTS OF INFECTION CONTROL DURING THE EBOLA OUTBREAK
Dr. Sergey Eremin, World Health Organization

March 12  INFECTION PREVENTION AND CONTROL IN CORRECTIONAL SETTINGS
Carolyn Herzig, Columbia University Mailman School of Public Health

March 26  PREVENTION OF CLOSTRIDIUM DIFFICILE INFECTION – WHAT WE FIND IN GUIDELINES
Prof. Walter Zingg, University of Geneva Hospitals, and Dr. Maria Martin,
University Medical Center Freiburg

April 09  FAECES MANAGEMENT: TIME TO ADDRESS THE RISKS
Jim Gauthier, Providence Care, Kingston, Ontario
Sponsored by Meiko (www.meiko.de)

www.webbertraining.com/schedule1.php

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