

Preventing Urinary Tract Infections in Skilled Nursing Facilities

Infection Preventionist Training for Skilled Nursing Facilities
Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health

Objectives

- Describe of healthcare-associated urinary tract infections (UTI) in skilled nursing facilities (SNF)
- Review evidence-based clinical practices shown to prevent catheter-associated urinary tract infections (CAUTI)
- Discuss strategies to reduce CAUTI
- Discuss adherence monitoring and feedback

UTI in Skilled Nursing Facilities (SNF)

- UTI is the most common HAI in SNF
 - Accounts for 20% of infections
- Bacteriuria very common (but not an infection)

SHEA/APIC Guideline: Infection Prevention and Control in Long-Term Care, 2008

What is Bacteriuria?

- Bacteria can be present in the bladder, not causing infection
 - Example: E. coli contamination from the rectal area
 - No symptoms of infection
- Bacteriuria alone does not affect survival and **does not require antibiotics!**
- Risk of bacteriuria with catheterization
 - 3%-10% each day
 - By day 30, 100% residents with a urinary catheter will have bacteria in urine

UTI Risk Factors

- Age related changes to genitourinary tract
- Neurogenic bladder
- Diabetes
- Instrumentation required to manage bladder voiding
- Indwelling urethral catheter
- Straight catheterization



NHSN Long-term Care Facility Component
Urinary Tract Infection Updated January, 2018

Urinary Catheters in SNF

- 7-10% of SNF residents have an indwelling urinary catheter
- Catheterization predisposes resident to catheter-associated UTI (CAUTI)
- Catheterized urinary tract most common source of bacteremia, a blood infection that may lead to sepsis

CAUTI Etiology

- Pathogen source
 - Patient's GI or perineal bacteria
 - Bacteria on hands of healthcare personnel (HCP)
- Microbes enter bladder via one of two routes
 - On the external surface of the catheter
 - On the inside of the catheter

Maki D & Tambyah P. Engineering out risk of Infection with urinary catheters. Emerg Infect Dis, 2001

Common UTI Pathogens

- *Escherichia coli* 24%
- *Pseudomonas aeruginosa* 10%
- *Klebsiella pneumoniae/oxytoca* 10%
- *Enterococcus faecalis* 7%

[NHSN Antimicrobial Resistance Report: Distribution of all Pathogens Reported by HAI Type, Appendix to Table 4, 2011-2014 \(EXCEL\)](http://www.cdc.gov/nhsn/xls/reportdatatables/2014-appendix-pathogens.xlsx)

(www.cdc.gov/nhsn/xls/reportdatatables/2014-appendix-pathogens.xlsx)

CAUTI Complications

- Cystitis
- Pyelonephritis
- Bacteremia
- Septic shock
- May result in
 - Functional decline
 - Decreased mobility
 - Hospital admission
 - Death

Preventing CAUTI

- **69%** CAUTI can be prevented with currently recommended infection prevention practices
 - 380,000 infections prevented annually – 40,000 in California
 - 9,000 lives saved - ~1,000 in California

[CDC CAUTI Prevention guidelines 2009](http://www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf) (PDF)
(www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf)

CAUTI Prevention Care Practices

CDC

- Insert catheters only for appropriate indications
- Leave in place only as long as needed
- Ensure only properly trained persons insert and maintain
- Perform hand hygiene
- Use aseptic technique and sterile equipment for insertion
- Maintain closed drainage system and unobstructed urine flow
- Use portable ultrasound devices to assess urinary retention, reduce unnecessary catheterizations (Category II)
- Implement improvement program to achieve appropriate use of catheters

CAUTI Prevention Care Practices - continued

APIC/SHEA

- Use smallest diameter catheter as possible
- Irrigate only if catheter is obstructed
- Keep collecting bag below the bladder
- Ensure adequate nutrition and hydration
- Consider alternatives to indwelling urinary catheters
 - External catheters
 - Intermittent catheterization

Appropriate Indications for Urinary Catheters

- Acute urinary retention or obstruction
- Prolonged immobilization due to unstable spine or pelvic fracture
- Assist healing of perineal and sacral wounds in incontinent patients
- Hospice (end of life), comfort care, palliative care
- Chronic indwelling urinary catheter on admission
 - Necessity must still be evaluated on admission

[CDC CAUTI Prevention guidelines 2009](http://www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf) (PDF)
(www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf)

CAUTI Prevention Bundle Examples

Insertion Bundle

- Verify need prior to insertion
- Insert urinary catheter using aseptic technique
- Maintain urinary catheter based on recommended guidelines

Maintenance Bundle

- Daily assessment of catheter need documented
- Tamper evident seal is intact
- Catheter secured to patient
- Hand hygiene performed before patient contact
- Daily meatal hygiene with soap and water
- Drainage bag emptied using a clean container
- Unobstructed flow maintained

[APIC Preventing CAUTI, Patient-centered Approach 2012](https://www.apic.org/Resource_/TinyMceFileManager/epublications/CAUTI_feature_PS_fall_12.pdf) (PDF)
([apic.org/Resource_/TinyMceFileManager/epublications/CAUTI_feature_PS_fall_12.pdf](https://www.apic.org/Resource_/TinyMceFileManager/epublications/CAUTI_feature_PS_fall_12.pdf))

Not Recommended

No evidence that these practices prevent UTI

- X Complex urinary drainage systems
- X Routinely changing catheters or drainage bags
- X Routine antimicrobial prophylaxis
- X Cleaning the periurethral area with antiseptics
- X Antimicrobial irrigation of the bladder
- X Antiseptic / antimicrobial solutions instilled into drainage bags
- X Routine screening or culturing

[CDC CAUTI Prevention guidelines, 2009](#) (PDF)

(www.cdc.gov/hicpac/pdf/CAUTI/CAUTIGuideline2009final.pdf)

Facility Role in CAUTI Prevention

- Ensure policies and practice reflect current evidence based recommendations
 - HICPAC/CDC 2009 guidelines
 - Ensure staff competency upon hire and at least annually
 - New hire orientation
 - Annual skills fair
 - Return demonstration to ensure competency
 - Establish an adherence monitoring program for core care practices
 - Use standard tools to measure adherence
 - Perform UTI surveillance
 - Provide feedback to frontline staff and leaders
 - Present adherence results with UTI/CAUTI incidence
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Adherence (Process) Measures

Measure catheter use:

- Days with Foley catheter ÷ Patient days for the months (x100)
= ___%

Measure health care provider adherence:

- Hand hygiene
- Documentation of catheter insertion and removal
- Daily assessment of indwelling urinary catheter
- Documentation of indications for use

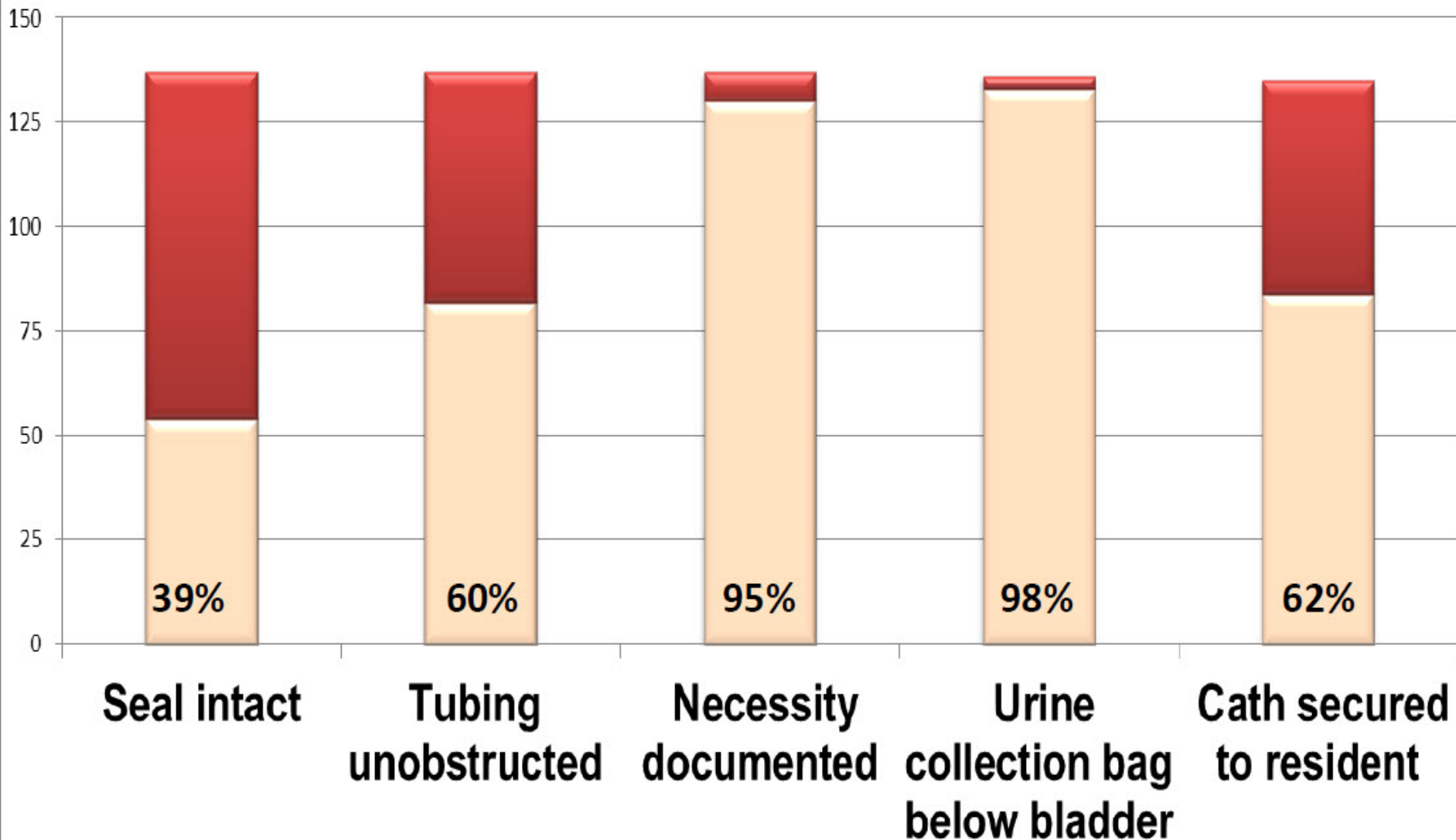
Indwelling Urinary Catheter Adherence Monitoring Tool

Urinary Catheter Care Practices	Indwelling Urinary Catheter Patient/Resident 3		Indwelling Urinary Catheter Patient/Resident 3		Adherence by Task	
	# Yes	# Observed	# Yes	# Observed	# Yes	# Observed
The indwelling urinary catheter is being used for an appropriate indication	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2	2
Necessity for continuing the indwelling urinary catheter is documented in the medical record	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2	2
The seal between the catheter and collecting tubing is intact.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	0	2
The catheter tubing is unobstructed and not twisted, kinked, or looped.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1	2
The urine collection bag is below the level of the bladder.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1	2
The catheter is secured to the patient/resident.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	0	2
#Yes 6 Total # Observations 12 Total #Yes / Total # observations *100 = % 50% Adherence						

[CDPH Adherence Monitoring Tools](#)

(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MonitoringAdherenceToHCPracticesThatPreventInfection.aspx)

CDPH CAUTI Observations, 131 Facilities, 2016



Infection (Outcome) Measure

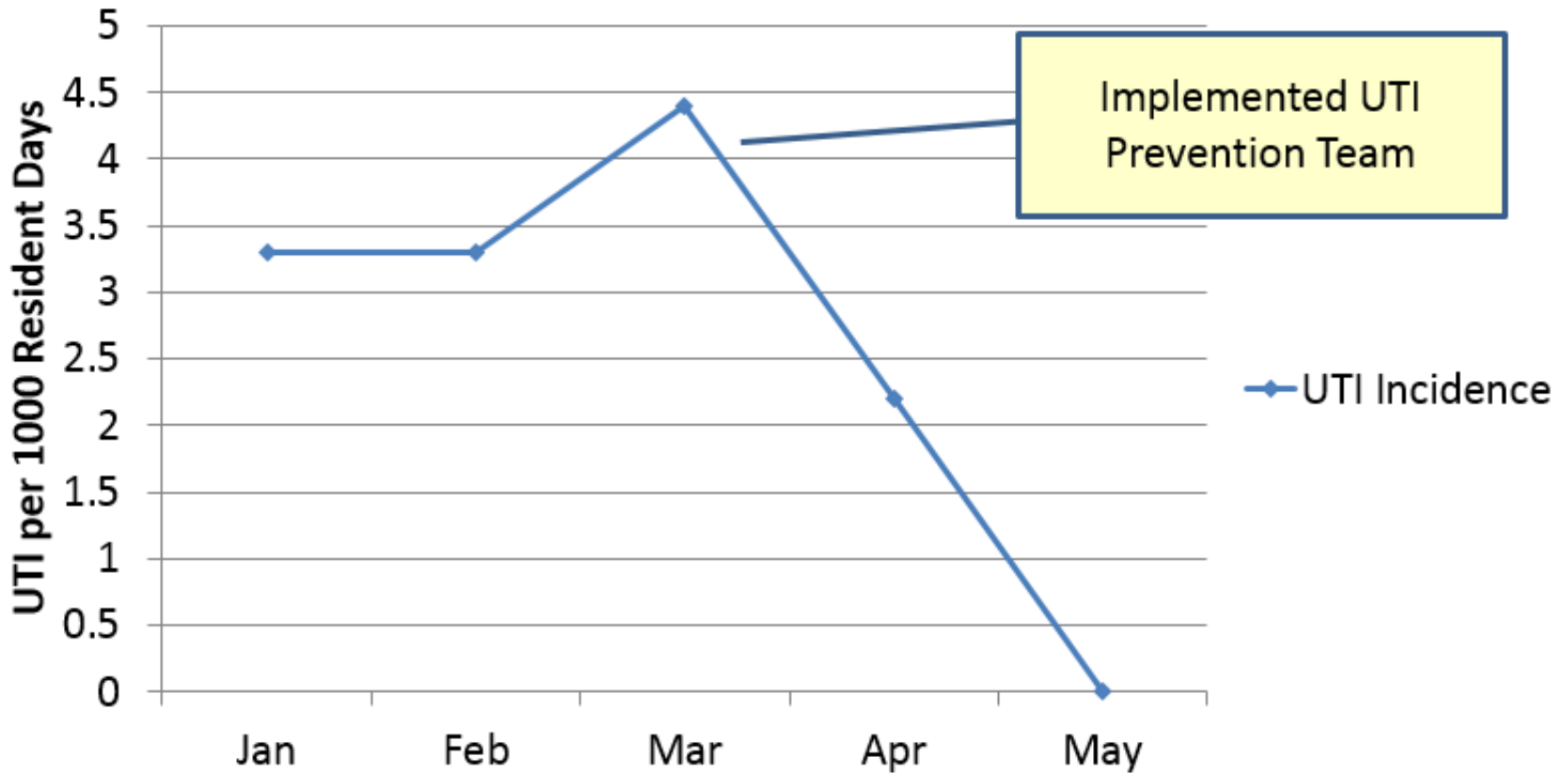
Measure infections:

- Perform UTI surveillance using standardized definitions and protocols
- Bacteria in urine alone is not an infection
 - Must evaluate for other UTI symptoms or have supporting laboratory data

NHSN Patient Safety Module: Chapter 7 Device-Associated Module, CAUTI

UTI Incidence Over Time (Sample Graph)

SNF UTI Incidence 2018



Are CAUTI Prevention Core Care Practices Used Routinely in Your Facility?

- Insert catheters only for appropriate indications
- Leave in place only as long as needed
- Ensure only properly trained persons insert and maintain
- Perform hand hygiene
- Use aseptic technique and sterile equipment for insertion
- Maintain closed drainage system and unobstructed urine flow
- Implement improvement program to achieve appropriate use of catheters

You won't know if you don't monitor!

Summary

- CAUTI can lead to bloodstream infections
- Adherence monitoring to evidence based care practices will reduce CAUTI incidence
- Feedback CAUTI incidence and adherence monitoring results to staff will improve outcomes

Additional CAUTI Prevention References and Resources

- [APIC Preventing CAUTI: A patient-centered approach](http://apic.org/Resource_/TinyMceFileManager/epublications/CAUTI_feature_PS_fall_12.pdf), 2012, apic.org/Resource_/TinyMceFileManager/epublications/CAUTI_feature_PS_fall_12.pdf
- IDSA Guidelines , *Clin Infect Dis* 50:625-63, 2010
- National Quality Forum (NQF) Safe Practices for Better Healthcare, 2010
- Smith, P.W., Bennett, G., Bradley, S., Drinka, P., Lautenbach, E., Marx, J., Mody, L., Nicolle, L., Stevenson, K. SHEA/APIC Guideline: Infection prevention and control in the long-term care facility. *ICHE*, 29(9), 785-814, July 2008

Questions?

For more information,
please contact

HAIProgram@cdph.ca.gov

Include “SNF IP Basics
Class” in the subject line

Post Test

Now that you have
completed this module,
Click on the “Post Test”
link when it pops up

To Return to
Learning Stream
and take the post test

*If the Post Test link does not
pop up, you will be sent a link
via e-mail*