Clinical Intervention Overview:
Preventing Infections to Enhance Resident Safety

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Learning Objectives

1. Identify how to enhance resident safety by preventing infections
2. State the common health care associated infections that occur in nursing homes
3. Describe what a catheter associated urinary tract infection (CAUTI) is
4. Summarize the five components of the “C.A.U.T.I.” bundle
Common Resident Safety Concerns in Nursing Homes

- Physical restraints
- Pressure ulcers
- Pain
- Pharmacologic errors (adverse drug events)
- Psychiatric (difficult behaviors, chemical restraints)
- Poor mobility and falls
- Preventable infections
What are the most common infections?

**HAI** = health care associated infection
- An infection acquired from a health care facility

What are the most common HAIs?

a. Urinary tract infections (UTIs)
b. Lower respiratory tract infections
c. Skin and soft tissue infections
d. Gastroenteritis

Pathway to Nursing Home Infections

Population of residents **NOT infected or colonized** with MDROs

Long-Term Care Facility

- Resident Risk Factors
- Facility Risk Factors
- Colonization
- Infection

Residents develop **infections** (some with acquired MDROs)

- Treated at Facility
- Death
- Hospitalizations
Resident Risk Factors

- Age
- Multiple morbidities
- Impaired immunity/vaccination declination
- Functional impairment
- Indwelling devices
- Antibiotic use
Facility Level Factors

- Prolonged exposure to health care
- Frequent care transitions
- Exposure to recently hospitalized/sick residents
- Diagnosis and therapy delays
- Staff and resident vaccine compliance
- Rapid staff turnover, understaffing, presenteeism
- Poor hand hygiene
- No resident hand hygiene program
- Lack of antibiotic stewardship
- Equipment cleaning challenges
- Environmental hygiene challenges
- Compliance with isolation precautions
Burden of Infections

• Range 1-5 infections/1,000 resident days
  – Single day, point prevalence = 3-5%
    • 25% had devices; 10% of them with infection
  – Prospective study (MI):
    • No device: 5.7/1,000 days
    • Device: 9-11/1,000 device-days
• Nationwide estimates: 765K- 2.8 million/yr
• UTIs, pneumonia, skin and soft tissue, GI infections
  – 12%-30% treated for a UTI annually; more females than males
Consequences of Nursing Home Infections

• Leading cause of mortality and morbidity
• 150,000-300,000 hospital admissions each year
  – 26-50% of transfers due to infections
• Costliest of all adverse event related hospitalization

What this means for you is that your resident might get sick, transfer to the hospital or even die of an HAI.

The goal of infection prevention is to prevent these infections from occurring and promote resident safety.

Stone et al ICHE 2012.
How can we prevent CAUTIs?

PREVENTION
Core CAUTI Prevention Strategies

**Catheter Use**
- Insert catheters for only appropriate indications
- Leave catheters in place only as long as needed

**Resident Considerations**
- Maintenance of hydration
- Bathing: clean to dirty

**Insertion**
- Ensure that only properly trained persons insert and maintain catheters
- Insert catheters using aseptic technique and sterile equipment

**Hand Hygiene**

**Maintenance**
- Maintain a closed drainage system
- Maintain unobstructed urine flow
- Routine catheter changes and urinalysis not required
Disrupt the Catheter Lifecycle

Lifecycle of the Urinary Catheter

1. Catheter Placement
2. Catheter Care
3. Catheter Removal
4. Catheter Re-insertion

C.A.U.T.I. Bundle

Catheter Removal
Think about catheters in any of your residents. Are the catheters really necessary?
Remove the catheter if there is no good indication for it. (See below.)
Every resident deserves a chance to be catheter-free and infection-free.

Aseptic Insertion
Only trained personnel should insert catheters.
Use hand hygiene, and insert using aseptic technique.
Use the smallest catheter size that will work for the resident.
Avoid contamination of the catheter.
Use catheter securement devices.

Use Regular Assessments
Insert new urinary catheters only when there is a good indication.
Consider alternatives to using a urinary catheter.
Use a bladder ultrasound to guide management.
Implement a process to see whether residents need catheters.

Training for Catheter Care
Train staff, resident, and family.
Maintain a closed drainage system, and maintain unobstructed urine flow.
Use routine hygiene. Do not clean the periurethral area with antiseptics.
Routine catheter changes, urinalysis, and cultures are not required.

Incontinence Care Planning
Consider alternatives to using a urinary catheter when developing individual resident care plans and behavioral interventions.
Consider timed and prompted voiding and use of a voiding diary.

Remember: No catheter means no CAUTI!
C.A.U.T.I. Bundle #1: Catheter Removal

Catheters in newly admitted and re-admitted residents should be assessed if needed

- Remove if there is no indication
- Every resident, when clinically possible, deserves a chance to be “catheter free”
Make sure the resident really needs the catheter

Which of the following are appropriate indications?

a. Bladder outlet obstruction
b. Urinary incontinence
c. Incontinence and sacral wound
d. Patient’s request (end-of-life)
e. Transferred from hospital with catheter
C.A.U.T.I. Bundle #2: Aseptic Insertion

- Use smallest catheter size effective for resident
- Only properly trained persons insert catheters
- Insert using aseptic technique
  - Avoid contamination of the catheter
  - Use hand hygiene
- Use gloves and gowns when possible in assisting with intimate (e.g. toileting, bathing) activities of daily living
- Use catheter securement devices
C.A.U.T.I. Bundle #3: **Use Catheters Only If Indicated**

Consider alternatives to the indwelling catheter

- Bladder ultrasound to guide management
- Intermittent catheterization
- External catheters (male and female)

Implement process to routinely assess the need of catheters

- Short-term residents (daily)
- Long-term residents (monthly)
Routine Assessments - Examples

Short-term residents (daily)
Sticker/label nursing can place in daily progress notes to remind physician to justify the urinary catheter:

Foley Catheter Daily Need Assessment

Indication:  
- 1) Acute urinary retention  
- 2) Open sacral/perineal wound in incontinent resident  
- 3) Improve comfort for end of life care

☐ Discontinue Foley (written order is needed)

Date: _______________  Time: _______________

Signature: ___________________________________________
## Routine Assessments - Examples

<table>
<thead>
<tr>
<th>Long-term residents (monthly)</th>
<th>Res/Rm</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Physician order contains the reason for catheter, size of catheter and to change catheter prn blockage or leakage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The reasons for indwelling catheter and its continued use is documented in the care plan.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| The care plan includes documentation of:  
  • Measures to prevent UTI/other complications  
  • Catheter care  
  • Positioning of catheter  
  • Maintenance of adequate hydration  
  • Measures being taken to restore normal urinary function | | |
| Nursing documentation addresses the resident’s tolerance of indwelling catheter. | | |
| If UTI is present, infection signs and symptoms and resident’s response to treatment is documented. | | |
| Presence of indwelling catheter and precautions taken during care are included on the CNA assignment sheet. | | |
C.A.U.T.I. Bundle #4:  **Training for Catheter Care**

- Whom do you train?
  - Staff AND family

- Maintain a closed drainage system

- Both routine catheter changes and urinalysis are not required

- Document device and catheter care
C.A.U.T.I. Bundle #5: Incontinence Care Planning

Develop individual resident care plans
- Behavioral interventions
- Consider timed and prompted voiding

Remember:
No catheter means no CAUTI!
Infections are a leading cause of illness and death in nursing homes.

Remember: C.A.U.T.I. To Prevent CAUTI

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Appropriate Indications for a Urinary Catheter

- To assist healing of stage III or stage IV perineal and sacral wounds in incontinent residents
- Chronic and acute urinary retention or obstruction
- Hospice or palliative care associated with intractable pain

Would you like to know more? Participation in the AHRQ Safety Program for Long-Term Care: CAUTI gives you access to informative resources and events such as educational webinars and state-level training sessions that will help you to provide safer care for your residents. Talk to the project lead in your facility, or visit www.ltcsafety.org (login and password: ltcsafety).

The AHRQ Safety Program for Long-Term Care: CAUTI
Funded by the Agency for Healthcare Research and Quality
What is a CAUTI?

Various definitions exist

• National Healthcare Surveillance Network (NHSN)
• Minimum criteria to diagnose infections
• Clinical definitions
• MDS definitions

This project focuses on NHSN definitions

• Intended for surveillance purposes
• Useful for national comparison
• Soon to be mandatory in long-term care

*Definitions used for different purposes
Defining CAUTI: Bad/Good News

Bad news
• Definitions are complicated
• Chart review required
• Reporting takes time

Good news
• One definition will be used
• Training will be provided
• Monitoring in itself is a resident safety intervention
• You will be ahead of the curve in adopting NHSN definition
Case Studies

APPLYING WHAT WE KNOW
Case Study #1: Mrs. Jones

Mrs. Jones is a 68 year old woman who is admitted from acute care after hip replacement. She still has a Foley catheter. Every day she gets stronger and is approaching her pre-surgical baseline. However, her family notes that the urine in the drainage tube is cloudy. UA shows 120 WBC. Urine culture shows >100,000 *E. coli*.
Case Study #1
Does Mrs. Jones have a CAUTI?

Mrs. Jones has:

a. CAUTI
b. Asymptomatic bacteriuria
c. Swine flu

Answer: B

Persons with indwelling catheters, positive urine cultures and who lack urinary symptoms have asymptomatic bacteriuria. Pyuria (WBC in the urine) alone are not a reason to give antibiotics.
Put the C.A.U.T.I. Bundle to Use

How could this situation have been avoided?

- **C**atheter removal
- **U**se catheters only if indicated
- **T**raining about catheter care
Mr. Peters stopped participating in recreational activities two days ago. Today he refused breakfast, and he was confused about whether he had eaten or not. These are changes from his baseline. Temperature check revealed 101.3°F. He has an indwelling catheter, and his urine culture had >100,000 gram positive organisms (one species).
Case Study #2: Does Mr. Peters have a CAUTI?

Mr. Peters has
A) CAUTI
B) Asymptomatic bacteriuria
C) Bieber-fever

Answer: A.

Persons with indwelling catheters, positive urine cultures, and who have fever meet the definition of CAUTI. Please note—the organism type does not matter, as long as there are 2 or fewer species. More than 2 species are considered contamination.
IMPLEMENTATION
How do we implement the C.A.U.T.I. Bundle?

Engagement in Project Activities

• Needs Assessment
  – # catheters, # catheter days
  – Assessment of health care worker awareness of harmful and useful catheter care practices

• Education
  – Appropriate use and maintenance of urinary catheters
  – When to initiate antibiotics in suspected CAUTIs

• Execution and Evaluation
  – Cultural Measurements
  – Outcome Data
  – Process Data
Infection Prevention & Control Team

- Establish infection prevention & control priorities
- Design & implement plans, policies
- Allocate resources
- Assess program efficiency

Infection Preventionist

- Report to Infection & Prevention Control Team
- Surveillance, data collection & analyses
- Staff education
- Communication with other stakeholders
<table>
<thead>
<tr>
<th>Webinar Title</th>
<th>Date</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Onboarding 1: Building Your Team</td>
<td>Tuesday, September 23</td>
<td>3:30-4:15pm EST/2:30-3:15pm CST/1:30-2:15pm MT/12:30-1:15pm PT</td>
</tr>
<tr>
<td>Onboarding 2: Understanding Definitions &amp; Surveillance for LTC CAUTI</td>
<td>Tuesday, September 30</td>
<td>12:00-12:45pm EST/11:00am-11:45am CST/10:00-10:45am MT/9:00-9:45am PT</td>
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<tr>
<td>Onboarding 3: Data Collection Training</td>
<td>Tuesday, October 7</td>
<td>12:00-12:45pm EST/11:00am-11:45am CST/10:00-10:45am MT/9:00-9:45am PT</td>
</tr>
<tr>
<td>Onboarding 4: Enhancing Your Resident Safety Culture</td>
<td>Tuesday, October 23</td>
<td>1:30-2:15pm EST/12:30-1:15pm CST/11:30am-12:15pm MT/10:30-11:15am PT</td>
</tr>
<tr>
<td>Onboarding 5: Surveillance, Epidemiology &amp; Reporting</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>Training Module 1: Hand Hygiene &amp; Standard CAUTI Prevention</td>
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<tr>
<td>Training Module 2: Environment &amp; Equipment</td>
<td>TBA</td>
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<tr>
<td>Training Module 2: Isolation Precautions</td>
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<tr>
<td>Training Module 3: Antibiotic Stewardship</td>
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</tbody>
</table>
Bonus Outcomes!

Reducing CAUTI will:

- Reduce infection related complications such as transfers to acute care hospitals, urosepsis and antibiotic use
- Help reduce *C. diff*, non-catheter associated UTI, MDROs
  - Improve hand hygiene
  - Promote antibiotic stewardship
  - Promote catheter stewardship
  - Reduce re-hospitalizations
- Enhance resident safety and improve resident satisfaction
Additional Resources

• **AHRQ Safety Program for Long-Term Care: CAUTI**
  Username ltcsafety
  Password ltcsafety

• **C.A.U.T.I. Infographic**

• **Clinical FAQs**

• **Insertion Checklist & Instructions**

• **Maintenance Checklist & Instructions**

• **NHSN Definition Pocket Cards**
Questions?

Any questions or comments from your discussion worksheet?