Clinical Overview:
Preventing Infections to Enhance Resident Safety

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Learning Objectives

1. Learn how to enhance resident safety by preventing infections
2. Learn about common infections in nursing homes
3. Be able to define CAUTI
4. Become familiar with the 5 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
HAI means health care associated infection
- An infection acquired from a health care facility

Most common HAIs in nursing homes: can you name them?
- Urinary tract infections (UTIs)
- Lower respiratory tract infections
- Skin and soft tissue infections
- Gastroenteritis

Pathway to Nursing Home Infections

**Individual Level Factors**
- Age
- Multiple morbidities
- Impaired immunity/declining vaccinations
- Functional impairment
- Indwelling devices
- Antibiotic use

**Population of residents** NOT infected with MDROs

**Long-Term Care Facility**
- Colonization
- Infection

**Residents become infected** (some with MDROs)
- Death
- Hospitalizations
- Treated at Facility

**Facility Level Factors**
- Prolonged exposure to health care
- Frequent care transitions
- Exposure to recently hospitalized/sick patients
- Diagnosis and therapy delays
- Staff and resident vaccination compliance
- Rapid staff turnover, understaffing, and/or sick staff
- Suboptimal hand hygiene compliance
- Empiric antibiotic use
- Equipment cleaning and environmental hygiene challenges
- Resident family attitude towards isolation
Consequences of Nursing Home Infections

- Leading cause of mortality and morbidity
  - 1.6-3.8 million infections / year
  - 1.8-13.5 infections per 1,000 resident-care days
  - Mortality: 0.04-0.71 / 1,000 resident-days

- 12%-30% of residents have a UTI annually; more females than males

- 150,000-300,000 hospital admissions each year
  - 26-50% of transfers due to infections

- Infection prevention is a key component of quality of care

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

Stone et al ICHE 2012.
Core CAUTI Prevention Strategies

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

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

Hand Hygiene

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

Maintenance
- Maintain a closed drainage system
- Maintain unobstructed urine flow
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

The Clinical Intervention:

- Catheter removal
- Aseptic insertion
- Use catheters only if indicated
- Training about catheter care
- Incontinence care planning
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 deserves a chance to be “catheter free”
Make sure the resident really needs the catheter

Which of the following are appropriate indications?

– Bladder outlet obstruction
– Urinary incontinence
– Incontinence and sacral wound
– Patient’s request (end-of-life)
– Transferred from hospital with catheter

Communication on transfer – assess if catheter still needed
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
  – Condom catheter

• Implement process to routinely assess the need of catheters
  – Short-term residents (daily)
  – Long-term residents (monthly)
Short-term residents (daily)
Sticker nursing can place in daily progress notes to remind physician to justify the urinary catheter:

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<table>
<thead>
<tr>
<th>Foley Catheter Daily Need Assessment</th>
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<tr>
<td>Indication:</td>
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<td>□ 1) Acute urinary retention</td>
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<td>□ 2) Open sacral/perineal wound in incontinent resident</td>
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<td>□ 3) Monitor strict I &amp;O in critically ill resident</td>
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<td>□ 4) Improve comfort for end of life care</td>
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<td>□ Discontinue Foley (written order is needed)</td>
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## Routine Assessments - Examples

### Long-term residents (monthly)

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<td>taken during care</td>
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C.A.U.T.I. Bundle #4: Training in Catheter Maintenance

• Maintain a closed drainage system
• Maintain unobstructed urine flow
  – Free of kinks
  – Collecting bag below the bladder and not touching floor (place in a basin if it must rest on floor)
  – Resident not lying on catheter or tubing
  – Empty the bag regularly
• Use routine hygiene
  – Do not clean the periurethral area with antiseptics
• Whom do you train?
  – Staff AND family

• Routine catheter changes and routine urinalysis are not required

• Document device and catheter care
  – Urine collection device should have resident’s name and date it was placed into service; note how often they should be changed
Develop individual resident care plans
• Behavioral interventions
• Consider timed and prompted voiding

Remember:
No catheter means no CAUTI!
Review: What is the C.A.U.T.I. Bundle?

- Catheter removal
- Aseptic insertion
- Use catheters only if indicated
- Training about catheter care
- Incontinence care planning
Defining CAUTI in Your Residents

- Various definitions exist
  - National Healthcare Surveillance Network (NHSN)
  - Minimum criteria to diagnose infections
  - Clinical definitions
  - MDS definitions

- These definitions are used for different purposes

- This project will focus on the NHSN definitions
  - Intended for surveillance purposes
  - Useful for national comparison
  - Soon to be mandatory in long-term care
Defining CAUTI: Bad news/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
Case Study #1:
Does this resident have a CAUTI?

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*.
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—surprise!
Case Study #2: 
Does this resident have a CAUTI?

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 101.3F. He has an indwelling catheter, and his urine culture had >100,000 gram positive organisms (one species).
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.
How do we implement the C.A.U.T.I. Bundle?

- Engagement
- Needs Assessment
  - Number of catheters, catheter days
  - Assessment of health care worker awareness of harmful and useful catheter care practices
- Education about the appropriate use and maintenance of urinary catheters
- Education about when to initiate antibiotics in suspected CAUTIs
- Execution and Evaluation
  - Monitoring and Feedback (a.k.a. Data Collection)
## Suggested Team Structure

### Infection Prevention and Control Team

<table>
<thead>
<tr>
<th>Core Members:</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td>Administrator</td>
<td><strong>Infection Prevention and Control Team:</strong></td>
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<tr>
<td>Infection Preventionist</td>
<td>Establish infection prevention and control priorities</td>
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<tr>
<td>Director of Nursing</td>
<td>Design plans</td>
</tr>
<tr>
<td>Frontline Staff</td>
<td>Implement plans, policies</td>
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<td>Medical Director</td>
<td>Allocate resources</td>
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<tr>
<td>Clinical Educator</td>
<td>Assess program efficiency</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ad Hoc Members:</th>
<th><strong>Infection Preventionist:</strong></th>
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<tbody>
<tr>
<td>Engaged resident</td>
<td>Surveillance</td>
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<tr>
<td>Family member</td>
<td>Data collection and analyses</td>
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<tr>
<td>Resident Safety Officer</td>
<td>Staff education</td>
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<tr>
<td>Food services</td>
<td>Report to Infection Prevention and Control Team</td>
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<tr>
<td>Housekeeping and maintenance</td>
<td>Communications with other stakeholders</td>
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<td>Laundry services</td>
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<td>Clinical services</td>
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<td>Resident services</td>
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<td>Employee health</td>
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<td>Pharmacy</td>
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Reducing CAUTI will:

- Reduce infection related complications such as transfers to acute care hospitals, urosepsis and antibiotic use
- Also 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
Any questions or comments from your discussion worksheet?