NUTRICIA LEARNING CENTER

Modern Clinical Strategies to Tackle Urinary Tract Infections in Post-Acute Care Settings

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Objectives

- Discuss the clinical significance of urinary tract infections (UTI) across the continuum of care
- Review current evidence-based strategies for improving outcomes associated with infection control efforts to manage urinary tract infections
- Discuss the correlation between the CDC Core Elements for Antibiotic Stewardship and urinary tract infections

Focus on CAUTI Management

Causative Pathogens of CAUTI

- *Enterococcus* species
- *Escherichia coli*
- Staphylococcus aureus
- Enterobacter species
- Coagulase-negative staphylococci
- *Pseudomonas aeruginosa*
- Proteus mirabilis
- Serratia species
- *Klebsiella* pneumonia
- *Candida* species

Indications for Catheters

- According to the CDC, as many as 25% of hospitalized patients have catheters, and not all of them are necessary.
- The CDC's Healthcare Infection Control Practices Advisory Committee (HICPAC) recommends indwelling catheters be used for the following conditions:
  - Acute urinary retention or bladder obstruction
  - Accurate intake and output measurements in critically ill patients
  - Perioperative use—urologic procedures, prolonged surgical duration (should be removed in post anesthesia care unit), patients receiving large volume infusions or diuretics during surgery, need for intraoperative urinary output monitoring
  - Assist healing of open sacral or perineal wounds in incontinent patients
  - Prolonged immobilization (e.g., unstable spine, multiple traumatic injuries)
  - End-of-life comfort care

Goal

Reduce:

- Complications
- CAUTIs
- Unnecessary catheters
- Costs
- Mortality and morbidity

Key Implementation Steps

- Identify champions and gather a team
- Conduct a readiness assessment
- Plan for implementation
- Introduce new policies and procedure to staff

Insertion

- Eliminate unnecessary insertion
- Provider indication for insertion
- Consider alternatives
- Practice aseptic technique
- Hand hygiene
- Skin and site antisepsis

Care and Removal

- Timely discontinuation of unnecessary indwelling catheters
- Regular assessment
- Automated reminders
- Adherence to aseptic technique
- Nurse-driven protocol
- Reduce use of antibiotics
- Consider alternative treatments

Daily Necessity Review

- Driven by Nursing
- Collaborate with Medical Staff/Providers and Infection Prevention and Control
- Document in resident's chart
- Support with SOP

Building a Coalition

Antibiotic Stewardship is a Team Sport

- Administrators
- Medical Directors
- Prescribers
- Consulting Pharmacists
- Director of Nursing
- Infection Preventionists
- Medical Laboratory Leaders
- Resident

Understanding Physicians

- Play a significant role in shaping care in the facility
- Tend to be fairly autonomous; may not be employed by the facility
- Primarily interested in treating illness – typically not trained to focus on improving safety and preventing harm
- Likely unaware of safety efforts in the facility; most have limited time to volunteer for supporting the safety agenda
- Change may not be readily embraced

How to Engage Physicians and Providers

1. Develop a common purpose (patient safety, efficiency)
2. View physicians as partners (not barriers)
3. Identify physician champions early
4. Standardize evidence-based processes
5. Provide support from leadership for the efforts of the physician champion

How to Engage Nurses

1. Develop a common purpose (patient safety)
2. View nurses as partners (not barriers)
3. Identify nurse champions early
4. Standardize evidence-based processes (and make the right thing to do, the easy thing to do)
5. Provide support from leadership for the efforts of the nurse champion

Collaboration Yields Success

Infection Preventionists	Case Managers
• Reduce CAUTI • Reduce antibiotic use • Reduce potential of increased resistance and *Clostridium difficile* disease	• Less complications (mechanical or infectious) = lower cost • Early removal of catheter may reduce length of stay
Nurse Educator/Unit Manager/Director of Nursing (DON)	**Physical Therapists**
• Leader and supporter to the bedside nurse • Makes appropriate urinary catheter use a priority and a safety issue • Helps to address any barriers encountered by the bedside nurse	• The urinary catheter reduces mobility in patients: "one-point restraint" • Rapid recovery (improvement in ambulation) may be hampered by the catheter

Communication Vehicles

- Suspected Urinary Tract Infection SBAR:
  - Situation
  - Background
  - Assessment
  - Recommendation

- Helps guide communications between nursing home staff and prescribing clinicians

Situation

- Who you are and unit
- Resident's name
- Reason for contacting the Provider
- Previous antibiotic history
- Current non-medication therapies

Background

- Provide a comprehensive but focused background on the resident's pertinent medical history
- Mention any key comorbidities
- Share other concerns

Assessment

- Provide your clinical assessment based on objective facts and clinical observation
- Review the current medication listing
- Assess for potential antibiotic-related adverse events

Recommendation

- State your recommendation to the provider
- Ask for clarification on any further details
- Document the discussion and repeat back any orders given

CDC Core Elements of Antibiotic Stewardship Implementation

CDC Core Elements for Antibiotic Stewardship

- Leadership Commitment
- Accountability
- Drug Expertise
- Take Action Through Policy & Practice Change to Improve Antibiotic Use
- Tracking and Reporting Antibiotic Use & Outcomes
- Education

Six Goals of Antibiotic Stewardship Programs

1. Reduce antibiotic consumption and inappropriate use
2. Reduce risk for *Clostridium difficile* infections
3. Improve patient outcomes
4. Increase adherence/utilization of treatment guidelines
5. Reduce adverse drug events
6. Decrease or limit antibiotic resistance
   - Hardest to show
   - Best data for health-care associated gram negative organisms

Tamma PD, Cosgrove SE. Infect Dis Clin North Am. 2011 25:245
Ohl CA, Luther VP. J. Hosp. Med. 2011;6:S4

Nine Factors to Consider When Selecting an Antibiotic

1. Spectrum of coverage
2. Patterns of resistance
3. Evidence or track record for the specified infection
4. Achievable serum, tissue, or body fluid concentration (e.g. cerebrospinal fluid, urine)
5. Allergy
6. Toxicity
7. Formulation (IV vs. PO); if PO assess bioavailability
8. Adherence/convenience (e.g. 2x/day vs. 6x/day)
9. Cost

Principles of Antibiotic Therapy

Empiric Therapy (85%)

- Infection not well defined ("best guess")
- Broad spectrum
- Multiple drugs
- Evidence usually only 2 randomized controlled trials
- More adverse reactions
- More expensive

Directed Therapy (15%)

- Infection well defined
- Narrow spectrum
- One, seldom two drugs
- Evidence usually stronger
- Less adverse reactions
- Less expensive

Why So Much Empiric Therapy?

- Need for prompt therapy with certain infections
  - Life or limb threatening infection
  - Mortality increases with delay in these cases
- Cultures difficult to do to provide microbiologic definition (i.e. pneumonia, sinusitis, cellulitis)
- Negative cultures
- Provider beliefs
  - Fear of error or missing something
  - Not believing culture data available
  - "Patient is really sick, they should have 'more' antibiotics"
  - Myth of "double coverage" for gram-negatives e.g. pseudomonas
  - "They got better on drug X, Y, and Z so I will just continue those"

To Increase Use of Directed Therapy for Outpatients:

- Define the infection 3 ways:
  - Anatomically, microbiologically, pathophysiologically
- Obtain cultures before starting antibiotics
  - Often difficult in outpatients (acute otitis media, sinusitis, community-acquired pneumonia)
- Narrow therapy often with good supporting evidence
  - Amoxicillin or amoxicillin/clavulinate for AOM, sinusitis and CAP
  - Penicillin for Group A Streptococcal pharyngitis
  - 1st generation cephalosporin or clindamycin for simple cellulitis
  - Trimethoprim/sulfamethoxazole or cipro/levofloxacin for cystitis

Tenets of Proper Stewardship

Tenet 1: Manage bacterial infection, not colonization

Tenet 2: Do not treat sterile inflammation or abnormal imaging without infection (i.e. suspected CAUTI without symptoms)

Tenet 3: Do not manage viral infections with antibiotics

Tenet 4: Limit duration of antibiotic therapy to the appropriate length

Tenet 1: Manage Bacterial Infection, not Colonization

- Many patients become colonized with potentially pathogenic bacteria but are not infected
  - Asymptomatic bacteriuria or foley catheter colonization
  - Tracheostomy colonization in chronic respiratory failure
  - Chronic wounds and decubiti
  - Lower extremity stasis ulcers
  - Chronic bronchitis
- Can be difficult to differentiate
  - Presence of WBCs not always indicative of infection
  - Fever may be due to another reason, not the positive culture

Other Tenets of Antibiotic Stewardship

- Limit duration of surgical prophylaxis to <24 hours perioperatively
- Use rapid diagnostics if available

  (e.g. respiratory viral PCR)
- Solicit expert opinion if needed
- Manage infection
  - Use good hand hygiene and infection control practices
  - Remove catheters

Conclusions

- Antibiotic resistance is one of the largest threats to public health of our time
- It takes ongoing and transparent collaboration to reduce risk and improve prescribing practices
- You don’t have to have a prescription pad to influence change and practice
- Engage the **RESIDENT**

Key References

- Centers for Medicare and Medicaid Services (CMS). Catheter Associated Urinary Tract Infection Prevention tracker.
- Centers for Disease Control and Prevention. CAUTI Prevention. Electronically accessed from www.cdc.gov/hai, 2017.
- Gould, CV, et al. Guideline for the Prevention of Catheter-Associated Urinary Tract Infections.

Questions and Answers

For additional information, contact Dr. Garrett:

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3) Enter the webinar code obtained

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