The Importance of Multi-disciplinary Collaboration to Prevent and Manage Urinary Tract Infections

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Medical Director of the Year 2022

ASSOCIATE CHIEF MEDICAL OFFICER, RAINMAKERS SOLUTIONS
MEDICAL DIRECTOR, ALLIANT HEALTH SOLUTIONS
SENIOR MEDICAL DIRECTOR, POST-ACUTE CARE, NORTHEAST GEORGIA MEDICAL CENTER

- Past chair of an Infection Advisory Committee during the COVID-19 pandemic
- Created and issued guidance to a COVID-19 task force
- National and international speaker on infection prevention and control issues in nursing homes
- Board certified in internal medicine, geriatrics, and hospice and
- palliative medicine
- Masters in business administration from Georgia Institute of Technology

Erica Umeakunne, MSN, MPH, APRN, CIC

INFECTION PREVENTION SPECIALIST

Erica is an adult gerontology nurse practitioner and infection preventionist with experience in primary care, critical care, health care administration and public health.

She was previously the interim hospital epidemiology director for a large Atlanta health care system and a nurse consultant in the Centers for Disease Control and Prevention's (CDC) Division of Healthcare Quality Promotion. At the CDC, she served as an infection prevention and control (IPC) subject matter expert for domestic and international IPC initiatives and emergency responses, including Ebola outbreaks and, most recently, the COVID-19 pandemic.

Erica enjoys reading, traveling, family time and outdoor activities.

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Objectives

- Highlight the importance of multi-disciplinary collaboration between the infection preventionist (IP) and the medical director.
- Discuss the medical director's role in UTI quality improvement initiatives.
- Review protocols and procedures medical directors and IPs can implement to prevent and manage UTIs.
- Share resources to support nursing facility infection prevention and control programs.

IPC Program: Collaborative Roles of IP & MD

- Promote a culture of safety and impact the health of patients, workers, staff and community members
- Conduct surveillance using standardized methodologies for case identification, data collection, and reporting
- Prepare reports and presentations for committees
- Investigate outbreaks and implement IPC interventions
- Plan and conduct education programs
- Develop and review policies and procedures and monitor their use to support optimal staff compliance
- Ensure compliance with regulatory standards

- Promote a culture of safety and impact the health of patients, workers, staff and community members
- Resident and clinical staff training and education
- Incorporating IPC into clinical routines
- Develop policies and protocols to support daily decision making
- Support IPC priorities, data collection, reporting
- Review HAI reports and trends
- Align IPC and antimicrobial stewardship with clinical practices
- Expert clinical and infectious disease consultation

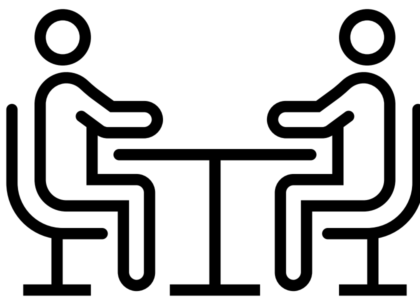
UTI Quality Improvement: Multi-Disciplinary Collaboration With Clinical Leadership

A strong Medical Director is essential to successful infection prevention and antimicrobial stewardship:

- Improves access to and relationships with doctors, nurse practitioners, and physician assistants to ensure appropriate antibiotic use, especially for UTIs
- Helps empower prescribers and team
- Facilitates ongoing communication
- Progresses your UTI-related quality initiatives

Tips for engaging medical directors and clinicians:

- Review case studies and perform GAP and root cause analyses on UTIs
- Make room for the MD and other clinicians at committee meetings
    - They offer invaluable perspectives
    - Clinician input critical for successful IPC interventions
    - "We need your help with…"



Case Study

Case Study

Mrs. A is an 80-year-old frail woman with dementia, adult failure to thrive, uncontrolled type II diabetes, nephropathy, and hypertension. She is a long-term care resident.

Over the last 3 days, the nurse reports resident is constantly pushing the call light for assistance to the bathroom, which is new compliant for Mrs. A. On further questioning, she does not report burning and discomfort when urinating. Vitals are WNL. No suprapubic pain or CVA tenderness noted.

What would you do?

A. Start empiric antibiotics immediately
B. Request a UA and reflex culture
C. Start resident on active monitoring (surveillance) protocol

Case

What would you do?

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B. Request a UA and reflex culture
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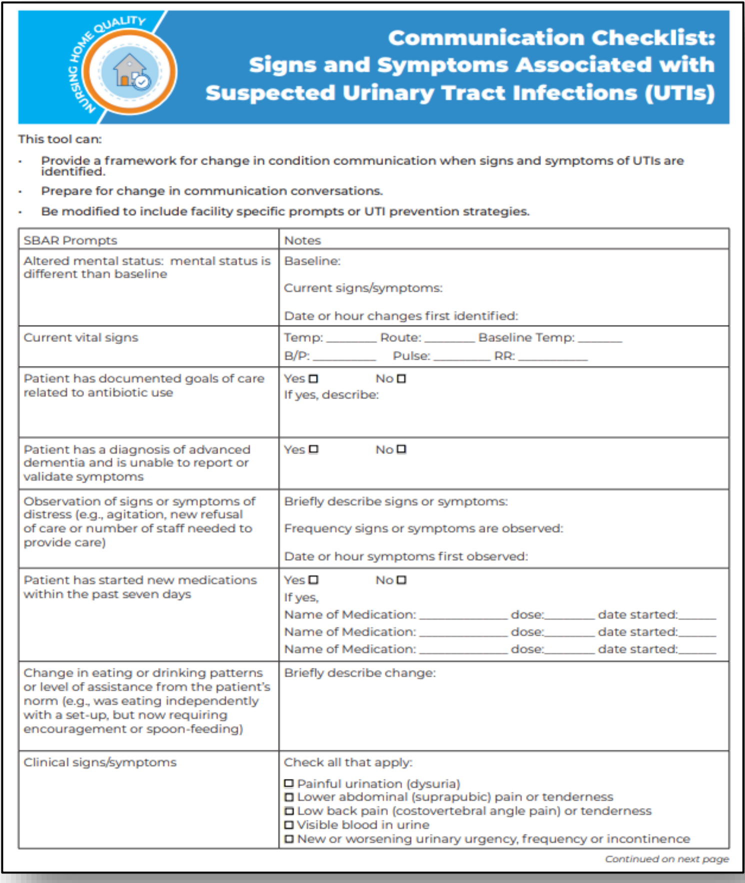
Infection Preventionist/Medical Director Collaboration
• Training and education related to urine culture stewardship, UTI s/s, and documentation and communication of UTIs for clinical and bedside staff • Implement tool to facilitate timely change in condition communication • Development of an active monitoring (surveillance) protocol

SBAR Communication Checklist: Suspected UTIs



Communication Checklist: Signs and Symptoms Associated with Suspected Urinary Tract Infections (UTIs)

This tool can:

- Provide a framework for change in condition communication when signs and symptoms of UTIs are identified.
- Prepare for change in communication conversations.
- Be modified to include facility specific prompts or UTI prevention strategies.

SBAR Prompts	Notes
Altered mental status: mental status is different than baseline	Baseline: Current signs/symptoms: Date or hour changes first identified:
Current vital signs	Temp: _____ Route: ______ Baseline Temp: ______ B/P: ______ Pulse: ______ RR: ________
Patient has documented goals of care related to antibiotic use	Yes ☐ No ☐ If yes, describe:
Patient has a diagnosis of advanced dementia and is unable to report or validate symptoms	Yes ☐ No ☐
Observation of signs or symptoms of distress (e.g., agitation, new refusal of care or number of staff needed to provide care)	Briefly describe signs or symptoms: Frequency signs or symptoms are observed: Date or hour symptoms first observed:
Patient has started new medications within the past seven days	Yes ☐ No ☐ If yes, Name of Medication: __________ dose:______ date started:_____ Name of Medication: __________ dose:______ date started:_____ Name of Medication: __________ dose:______ date started:_____
Change in eating or drinking patterns or level of assistance from the patient's norm (e.g., was eating independently with a set-up, but now requiring encouragement or spoon-feeding)	Briefly describe change:
Clinical signs/symptoms	Check all that apply: ☐ Painful urination (dysuria) ☐ Lower abdominal (suprapubic) pain or tenderness ☐ Low back pain (costovertebral angle pain) or tenderness ☐ Visible blood in urine ☐ New or worsening urinary urgency, frequency or incontinence

Continued on next page

Patient has history of urinary symptoms and urinary tract infections	Yes ☐ No ☐ If yes, Date of most recent episode: __________ Number of episodes in last x months: __________ What did the prior culture grow? __________ What did the susceptibilities show? __________
Patient has history of MDROs	Yes ☐ No ☐ If yes, Date of most recent treatment: _____ Organism: __________
Patient is currently receiving dialysis	Yes ☐ No ☐ If yes, type: ☐ Hemodialysis ☐ Peritoneal Does the patient have any urine output? Yes ☐ No ☐
Patient has an indwelling catheter? How often changed? Diagnoses? Due for change?	Yes ☐ No ☐ Diagnosis for indwelling catheter: ________ Date of most recent catheter change: ________
Request initiation of facility hydration protocol. (e.g., encourage______ fluids x ____ HRS and monitor for a change. Send a urine specimen if change in baseline temp over 2.0 degrees or change in urine)	
Request order to send urine specimen via straight catheterization or clean catch	
If antibiotic ordered, request a review of antibiotic order when microbiology specimen results are ready (e.g., three days from order date)	

Resources:

AHRQ Suspected UTI SBAR Toolkit :
https://www.ahrq.gov/nhguide/toolkits/determine-whether-to-treat/toolkit1-suspected-uti-sbar.html

Interact® 4.5 Symptoms of UTI Care Path:
https://pathway-interact.com/tools/

SBAR Tool: Guidelines + Worksheet:
http://forms.ihi.org/tools/sbar-toolkit?utm_referrer=http%3A%2F%2Fwww.ihi.org%2F

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- Provides a framework for change in condition communication when signs/symptoms of UTI identified
- Helps nursing home staff and prescribing clinicians communicate about suspected UTIs and facilitates appropriate antibiotic prescribing
- Agency for Healthcare Research & Quality (AHRQ Toolkit) includes:
  - Suspected UTI SBAR form
  - A clinician letter
  - *Not All "Infections" Need Antibiotics*
  - Urinalysis and UTIs: Improving Care

https://quality.allianthealth.org/wp-content/uploads/2021/10/Communication-Checklist_-Signs-and-Symptoms-Associated-with-Susptected-Urinary-Tract-Infections-UTIs.pdf

Active Monitoring for UTI

- May be indicated for residents who do not meet clinical criteria for UTI (and do not have warning signs) but for whom clinical concern for UTI still exist
- Also known as "watchful waiting" or "careful observation"
  - Frequent monitoring of vital signs
  - Paying attention to hydration status (e.g., Recording fluid intake, stimulating fluid intake)
  - Repeated physical assessments by nursing home staff
- Supportive care, including hydration, offered in the meantime may resolve the clinical concerns and obviate the need for antibiotics
- Physician/NP/PA should be notified if signs and symptoms worsen or do not resolve, if new signs and symptoms arise, or if fluid intake is less than a certain predefined amount

Active Monitoring Protocol Example

- ☐ Obtain vital signs (BP, Pulse, Resp Rate, Temp, Pulse Ox) every ____ hours for ____ days.
- ☐ Record fluid intake each shift for ______ days.
- ☐ Notify physician if fluid intake is less than _______ cc daily.
- ☐ Offer resident _____ ounces of water / juice every _____ hours.
- ☐ Notify physician, NP, or PA if condition worsens, or if no improvement in ______ hours.
- ☐ Obtain the following blood work ____.
- ☐ Consult pharmacist to review medication regimen.
- ☐ Contact the physician, NP, PA with an update on the resident's condition on _________.

Ashraf, M. S., Gaur, S., Bushen, O. Y., Chopra, T., Chung, P., Clifford, K., ... & Medicine, L. T. C. (2020). Diagnosis, treatment, and prevention of urinary tract infections in post-acute and long-term care settings: A consensus statement from AMDA's Infection Advisory Subcommittee. *Journal of the American Medical Directors Association*, *21*(1), 12-24.

Sepsis Screening & Monitoring

ACT FAST!

Early detection of SEPSIS requires fast action

If resident has suspected infection AND two or more:

- Temperature >100°F or <96.8°F
- Pulse >100
- SBP <100 mmHg or >40 mmHg from baseline
- Respiratory rate >20/SpO2 <90%
- Altered mental status

Plan for:

- Review advance directive
- Contact the physician
- Contact the family

If transferring resident to hospital:

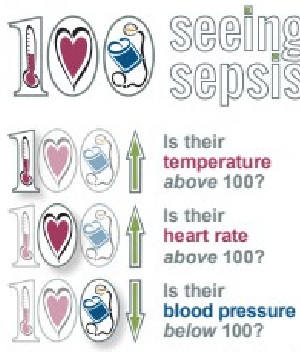
- Prepare transfer sheet
- Call ambulance
- Call in report to hospital
- Report positive sepsis screen

If resident stays in facility, consider options below that are in agreement with resident's advance directives:

- Labs: CBC w/diff, lactate level (if able)
- UA/UC, blood cultures, as able from 2 sites, not from lines
- Establish IV access for IV 0.9% @ 30ml/kg
- Administer IV, PO or IM antibiotics
- Monitor for worsening in spite of treatment, such as:
  - Urine output <400ml in 24 hours
  - SBP <90 despite IV fluids
  - Altered mental status
- Comfort care:
  - Pain control
  - Analgesic for fever
  - Reposition every 2-3 hrs
  - Oral care every 2 hrs
  - Offer fluids every 2 hrs
  - Keep family informed
  - Adjust care plan as needed
- Consider transferring to another level of care such as palliative care, hospice or hospital

Every hour a resident in septic shock doesn't receive antibiotics, the risk of death increases 7.6%

Call the doctor!



Is their **heart rate** *above* 100?

look right? Tell the nurse,

https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf

Case Study (continued)

Active monitoring (surveillance) protocol was initiated, and Mrs. A subsequently developed a fever (101.5 F) and suprapubic discomfort within 24 hours. UA was positive and reflex culture was performed, which indicated pan-sensitive *E. coli*.

What should we do now?

A. Start antibiotics according to the facility UTI treatment protocol
B. Request another UA and reflex culture to ensure UTI diagnosis
C. Restart resident on active monitoring (surveillance) protocol

Case Study (continued)

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Suspected Urinary Tract Infection (UTI) in Long-Term Care Residents

Signs & Symptoms of a UTI

For Residents Without a Urinary Catheter

- ☐ Dysuria

OR

- ☐ Fever (>100°F or >2°F above baseline)

AND at least one of the following symptoms that is new or worsening:

- ☐ Urgency
- ☐ Frequency
- ☐ Suprapubic pain
- ☐ Gross hematuria
- ☐ Costovertebral angle tenderness
- ☐ Urinary incontinence

For Residents With a Urinary Catheter or if Nonverbal

One or more of the following ***without another recognized cause:***

- ☐ Fever (>100°F or a 2°F increase from baseline)
- ☐ New costovertebral angle tenderness
- ☐ Rigors
- ☐ New-onset delirium*

**If adequate workup for other causes of delirium has been performed and no other cause for delirium is identified*

- ☐ Send a urinalysis (UA) & urine culture (UCx)
- ☐ Increase hydration
- ☐ Start antibiotics before UA and UCx results, if resident appears ill
- ☐ If UA & UCx are positive and the resident has ongoing UTI symptoms, modify antibiotics or start antibiotics (if not receiving active antibiotics)

Loeb Minimum Criteria Checklist

Suspected Infection Syndrome	Minimum Criteria for Starting Antibiotic Therapy
Urinary tract infection	
without catheter	Either one of the following criteria ☐ Acute dysuria, OR ☐ Temp >37.9 °C (100 °F) or 1.5 °C (2.4 °F) above baseline, AND ≥1 of the following new or worsening symptoms ☐ Urgency ☐ Frequency ☐ Suprapubic pain ☐ Gross hematuria ☐ Urinary incontinence ☐ Costovertebral angle tenderness
with catheter	At least one of the following criteria ☐ Rigors ☐ Temp >37.9 °C (100 °F) or 1.5 °C (2.4 °F) above baseline ☐ New onset delirium ☐ New costovertebral angle tenderness

Note: *Residents with intermittent catheterization or condom catheter should be categorized as 'without catheter'*
Urine culture should be sent prior to starting antibiotics
Antibiotics should not be started for cloudy or foul smelling urine

https://www.health.state.mn.us/diseases/antibioticresistance/hcp/ltcabxcard.pdf
https://asap.nebraskamed.com/wp-content/uploads/sites/3/2017/07/Loeb-minimum-criteria-for-initiating-antibiotic-therapy-checklist.docx

Case Study (continued)

Active monitoring (surveillance) protocol was initiated, and Mrs. A subsequently developed suprapubic discomfort within 24 hours. UA was positive and reflex culture was performed, which indicated pan-sensitive *E. coli*. Mrs. A was successfully treated with 5 days of nitrofurantoin per protocol.

After a retrospective chart review, the IP shared with the MD that the resident had 2 similar episodes of burning and discomfort in last months 8 months. One month later, Mrs. A now complains of the same symptoms of burning and discomfort. The nurse notified the medical director, and active monitoring protocol initiated. However, her symptoms did not improve. A urinalysis was ordered and is negative. **What should we do now?**

A. Restart antibiotics
B. Start local estrogen cream
C. Refer to urology
D. Obtain an abdominal X-ray

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Case Study (continued)

After review of UTI surveillance data, the IP shared with the MD that the resident had 2 similar episodes of burning and discomfort in last months 8 months. One month later, Mrs. A now complains of the same symptoms of burning and discomfort. The nurse notified the medical director, and active monitoring protocol initiated. However, her symptoms did not improve. A urinalysis was ordered and is negative. What should we do now?

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Infection Preventionist Role	Medical Director Role
• Discuss HAI Surveillance Data with MD • Identify trends in UTI cases or facility-wide data • Ensure documentation aligns with rationale for UA order (urine culture stewardship) (i.e., dysuria vs. vaginal burning/itching) • Educate staff about the relationship between atrophic vaginitis and recurrent UTI risk	• Review HAI surveillance data with IP • Review clinical documentation to ensure orders align with urine culture stewardship • Treat the resident for atrophic vaginitis, which is known reduce vaginal irritation, discomfort, incontinence, and UTI risk in post-menopausal women

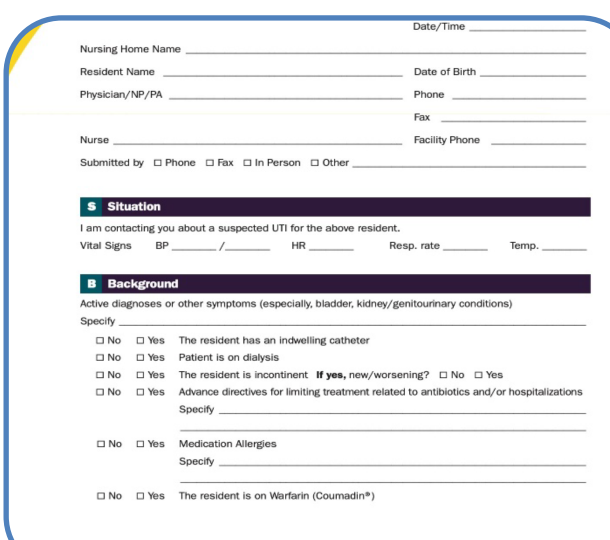
Christmas, M. M., Iyer, S., Daisy, C., Maristany, S., Letko, J., & Hickey, M. (2023). Menopause hormone therapy and urinary symptoms: a systematic review. *Menopause (New York, N.Y.)*, *30*(6), 672–685.
https://doi.org/10.1097/GME.0000000000002187

GU Tract	
	Acute Uncomplicated Cystitis in Women (with presence of symptoms) Cephalexin 500 mg PO BID x 7 days **OR** Nitrofurantoin ER (Macrobid) 100 mg PO BID x 5 days **OR** Sulfamethoxazole/Trimethoprim DS (800/160 mg) 1 tab PO BID x 7 days
	Acute Complicated UTI/Pyelonephritis/Catheter-associated UTI/Prostatitis **(Prostatitis-Consider longer duration of therapy)** Ceftriaxone 1 gm IV every 24 hours x 10 days **OR** *IF life-threatening penicillin allergy* Ciprofloxacin 500 mg PO q 12h x 10 days **OR** *IF life-threatening penicillin allergy* Sulfamethoxazole/Trimethoprim DS (800/160 mg) 1 tab PO BID x 10 days ***OR*** *IF history of resistant organisms in past 6 months* Ertapenem 1 gm IM every 24 hours x 10 days

Drug expertise: Pharmacist Collaboration

Infection Preventionist Role	Medical Director Role
• Ensure access to antibiogram • Urine culture stewardship • Antimicrobial stewardship: Inquire about antibiotic use, duration, and indication if not appropriately documented; share related HAI surveillance data • HAI Surveillance data: UTI rates, *C. diff* infections, Multidrug-resistant organism (MDRO) infections, etc. • Educate nursing staff to ensure antibiotic use documented appropriately (dose, duration, and indication)	• Review facility antibiogram • Consult with pharmacist to develop facility-specific UTI treatment recommendations • Require documentation of dose, duration, and indication for all antibiotic prescriptions • Routinely review antibiotic therapies for appropriateness of administration and/or indication • Urine culture stewardship

Collaborative Action: Make a Toolbox



Date/Time ____________

Nursing Home Name ____________

Resident Name ____________ Date of Birth ____________

Physician/NP/PA ____________ Phone ____________

Fax ____________

Nurse ____________ Facility Phone ____________

Submitted by ☐ Phone ☐ Fax ☐ In Person ☐ Other ____________

S Situation

I am contacting you about a suspected UTI for the above resident.

Vital Signs BP ______ / ______ HR ______ Resp. rate ______ Temp. ______

B Background

Active diagnoses or other symptoms (especially, bladder, kidney/genitourinary conditions)

Specify ____________

☐ No ☐ Yes The resident has an indwelling catheter

☐ No ☐ Yes Patient is on dialysis

☐ No ☐ Yes The resident is incontinent **If yes,** new/worsening? ☐ No ☐ Yes

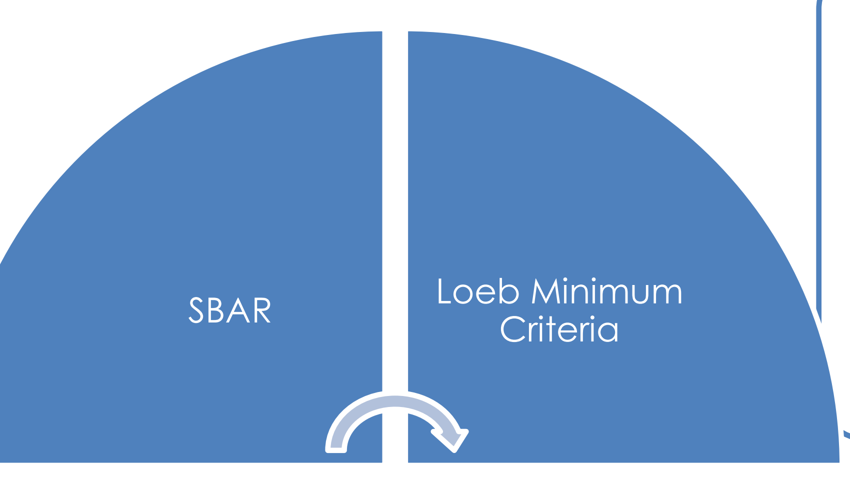
☐ No ☐ Yes Advance directives for limiting treatment related to antibiotics and/or hospitalizations

Specify ____________

☐ No ☐ Yes Medication Allergies

Specify ____________

☐ No ☐ Yes The resident is on Warfarin (Coumadin®)



of Antibiotics in Long-Term Care Residents

Suspected Urinary Tract Infection

NO indwelling catheter:

- Acute dysuria

or

- Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
  and at least one of the following:
  New or worsening:
  - Urgency
  - Frequency
  - Suprapubic pain
  - Gross hematuria
  - Costovertebral angle tenderness
  - Urinary incontinence

WITH indwelling catheter (Foley or suprapubic):

- *At least one* of the following:
  - Fever (>37.9°C [100°F] or a 1.5°C [2.4°F] increase above baseline temperature)
  - New costovertebral tenderness
  - Rigors
  - New onset of delirium

Acute Uncomplicated Cystitis in Women (with pr

Cephalexin 500 mg PO BID x 7 d

OR

Nitrofurantoin ER (Macrobid) 100 mg PO B

OR

Sulfamethoxazole/Trimethoprim DS (800/160 mg) 1

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(Prostatitis-Consider longer duration of

Ceftriaxone 1 gm IV every 24 hours x 1

OR

IF life-threatening penicillin allerg

Ciprofloxacin 500 mg PO q 12h x 10

OR

IF life-threatening penicillin allerg

Sulfamethoxazole/Trimethoprim DS (800/160 mg) 1 t

OR

IF history of resistant organisms in past 6

Ertapenem 1 gm IM every 24 hours x 1

, Pulse, Resp Rate, Temp, Pulse Ox) every _____ h

each shift for ________ days.

fluid intake is less than ________ cc daily.

____ ounces of water / juice every ______ hours.

NP, or PA if condition worsens, or if no improvemen

ing blood work ____________

st to review medication regimen.

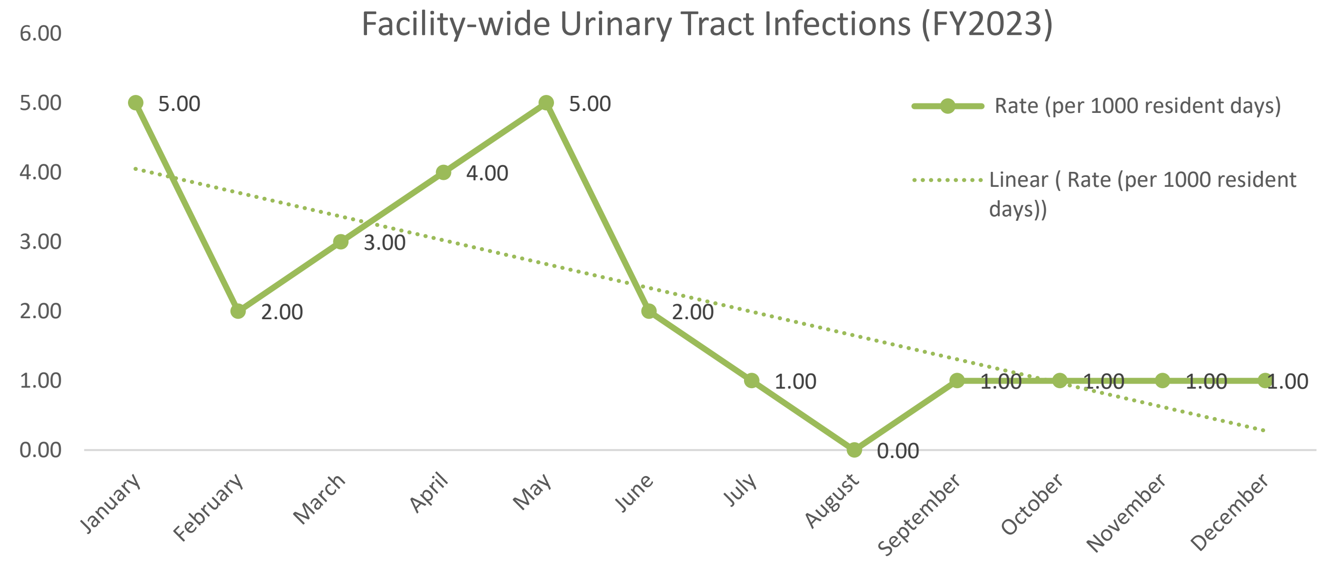
cian, NP, PA with an update on the resident's condit

Track and Report

- **Infection Prevention and Control Committee meeting**
  - HAI surveillance Data
    - UTI rates
    - Indwelling urinary catheter utilization rates
    - MDROs rates
    - *C. diff* rates

- **Antimicrobial stewardship meeting**
  - Clinical pharmacist
    - Number of ABX starts
    - Number started inhouse
    - Average days of ABX
    - Number that met criteria

- **Quality Assurance Performance Improvement (QAPI) meeting**



Example of Individualized Feedback

Metric	Facility	Dr. A
Antibiotic prescription with dose, duration & indication	27 of 42 (64%)	8 of 8 (100%)
Urine culture ordered for residents indication of UTI	16 of 20 (80%)	2 of 4 (50%)

Reviewed and discussed:
- Antibiotic Use Protocols
- Antibiotic Stewardship Policy
- Antibiotic Use

Dr. A,
Sign and Date: ______________
Medical Director,
Sign and Date: ______________

Length of Therapy

Facility

Dr. A

1 to 7 days
15 - 28 days
8 - 14 days
>28 days

Education

Clinicians

- UTI signs/symptoms
- Sepsis signs/symptoms
- SBAR communication
- Antibiotic prescribing/stewardship best practices
- Clinical interventions to prevent UTIs
- IPC strategies to prevent UTIs (e.g., hand hygiene, pericare, cath management, cleaning and disinfection, etc.)

Nursing Staff

- UTI signs/symptoms
- Sepsis signs/symptoms
- SBAR communication
- Antibiotic documentation
- IPC strategies to prevent UTIs (e.g., hand hygiene, pericare, cath management, cleaning and disinfection, etc.)

Resident & Families

- UTI signs/symptoms
- Appropriateness of antibiotics
- Sepsis signs/symptoms
- IPC practices (e.g., hand hygiene)

Case Study Review

Mrs. A is an 80-year-old frail woman with dementia, adult failure to thrive, uncontrolled type II diabetes, nephropathy, hypertension. She is a long-term care resident.

Over the last 3 days, **the nurse reports resident is constantly pushing the call light for assistance to the bathroom, which is new compliant for Mrs. A.** On further questioning, she does not report burning and discomfort when urinating. Vitals are WNL. No suprapubic pain or CVA tenderness noted.

- SBAR communication

Active monitoring (surveillance) protocol was initiated, and Mrs. A subsequently developed a **fever and suprapubic discomfort** within 24 hours. **UA was positive and reflex culture** were performed, which indicated pan-sensitive *E. coli*. Mrs. A was successfully **treated with 5 days of nitrofurantoin per protocol**.

- Active monitoring protocol
- Appropriate urine culture stewardship (testing when UTI s/s present)
- Antibiotic initiated per protocol and facility antibiogram
- UTI and antibiotic documentation appropriate

After review **of UTI surveillance data**, the **IP shared with the MD** that the **resident had 2 similar episodes of burning and discomfort in last months 8 months**. One month later, Mrs. A now complains of the same symptoms of burning and discomfort. The nurse notified the medical director, and active monitoring protocol initiated. However, her symptoms did not improve. **A urinalysis was ordered and is negative**. She was **treated for atrophic vaginitis, and her symptoms improved.**

- IP HAI surveillance review and attribution (using Revised McGeer Criteria)
- Clinical treatment initiated based on reported data and assessment
- Opportunity to improve assessment and documentation to support urine cx stewardship

Revised McGeer Criteria (Stone)

Used For Surveillance

(A) Clinical (Must satisfy one of the following scenarios)
1. Either of the following: ☐ Acute dysuria or ☐ Acute pain, swelling or tenderness of testes, epididymis or prostate
2. If either FEVER or LEUKOCYTOSIS present need to include ONE or more of the following: ☐ Acute costovertebral angle pain or tenderness ☐ Suprapubic pain ☐ Gross hematuria ☐ New or marked increase in incontinence ☐ New or marked increase in urgency ☐ New or marked increase frequency
3. If neither FEVER or LEUKOCYTOSIS present INCLUDE TWO or more of the ABOVE (Box #2).

+

(B) lab (at least one of the following must be met)
1. Voided specimen: positive urine culture (> 10^5 cfu/ml) no more than 2 organisms
2. Straight catheter specimen: positive urine culture (> 10^2 cfu/ml) any number of organisms

Loeb Minimum Criteria

Used For Clinical Decision

(A) Clinical (Must satisfy one of the following scenarios)
1. Acute dysuria
2. FEVER (Temp >37.9 ºC (100 ºF) or 1.5 ºC (2.4 ºF) above baseline) plus ONE or more of the following: ☐ New or worsening urgency ☐ New or worsening frequency ☐ Suprapubic pain ☐ Gross hematuria ☐ Costovertebral angle tenderness ☐ Urinary incontinence

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[Approaches to Prevent & Manage UTIS in Nursing Facilities: Antimicrobial Stewardship Webinar]

Thank You for Your Time!

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