Nursing Home Patient Safety Series: Preventing and Managing Urinary Tract Infections in Nursing Facilities

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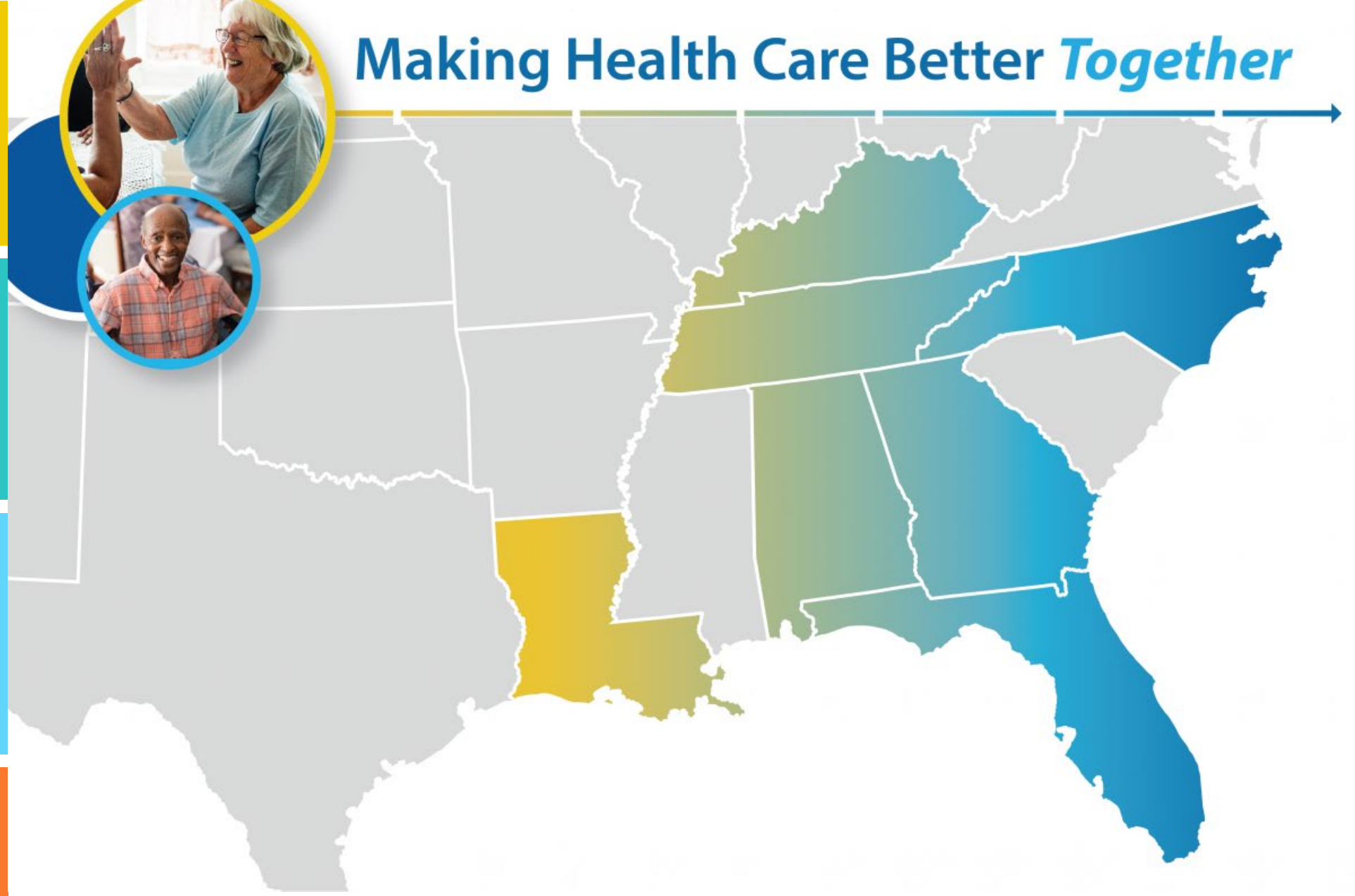

About Alliant Health Solutions

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INFECTION PREVENTION SPECIALIST

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

She previously served as the interim hospital epidemiology director for a large health care system in Atlanta and as a nurse consultant in the Center 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

- Review strategies to reduce healthcare-associated urinary tract infections (UTIs) in residents.
- Discuss infection prevention strategies to prevent UTIs.
- Learn about the infection preventionist's role in collaborating with facility administration and clinical leadership to improve UTI rates.
- Introduce the future regulatory changes and implications for readmission for healthcare-associated infections (HAIs) such as UTIs.
- Share Alliant Health Solutions quality improvement resources to support UTI prevention initiatives.

UTI Prevention and Treatment Strategies: Questions and Answers

Are there any UTI prophylactics?

Is peri-care effective?

Does wiping from front to back really matter?

Is hydration effective for UTI prevention?

Do you have any suggestions for facilities without an antibiogram?

Should you wait for the urine culture results before starting clinical treatment?

We are treating all *Pseudomonas* UTIs as MDROs. Is this best practice?

Are UTI Prophylactics Available to LTC Residents?

Cranberry formulations

- Current evidence does not support the use of cranberry products to prevent UTIs.

Vaginal estrogens

- Decrease vaginal irritation and atrophic vaginitis.
- Improves dysuria, frequency, urge and stress incontinence, and recurrent UTI in menopausal women (Christmas et al., 2023).

Methenamine salts

- Effectiveness is not well studied in LTC patients. It requires an acidic pH (<5.5) to be effective, so often given with high doses of Vitamin C.
- Efficacy also depends on the time the drug remains in the bladder, so it is generally considered to have limited effectiveness in catheterized patients.

Prophylactic antibiotics

- May reduce recurrent UTIs, but they are associated with several risks (adverse effects, drug interactions, increased risk of C. Difficile, increased risk of multi-drug resistant organisms).
- Due to the potential harms associated with long-term use, long-term antibiotics are not recommended.
- Consider consulting with an Infectious Disease physician if a resident has recurrent UTIs.

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.

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

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Is Peri-Care Effective?

- Crowson et al. (2023) conducted a gap analysis and found significant variability in peri-care
  - Implemented a multi-faceted approach to reduce variability in peri-care practice
  - **Observed a 56% decrease in catheter-associated UTIs**
    - Provided materials and supplies to standardize the practice of performing peri care (i.e., implemented the use of prepackaged perineal cleansing cloths)
    - Promoted accountability to ensure that peri-care was provided per policy (i.e., initiated a report of peri-care compliance by unit at daily leadership safety huddle)
    - Engaged hospital leadership (i.e., unit leadership provided education and just-in-time coaching for overdue peri-care)

- Sansone & Bravo (2022) implemented a novel care bundle for UTI prevention in residents without indwelling urinary catheters
  - **Observed a 79% reduction UTIs & a reduction in facility costs by ~$34,000**
    - Hand hygiene monitoring
    - Residents' hydration status
    - Effective incontinence and perineal care
    - In-house UTI treatment

CDC CAUTI Prevention Guidance

American Urological Association

American College of Obstetrics & Gynecology

Society for Post-acute Care & Long-term Care Medicine (AMDA)

Agency for Healthcare Research & Quality

Crowson, A., Gonzalez, L. M., Alvarez, S. E., Manos, O. O., Oliveras, K., Macedo-Rea, M., & Sams, K. (2023). Standardization of Perineal Care Practice to Reduce Catheter-Associated Urinary Tract Infections. *American Journal of Infection Control*, *51*(7), S58.

Sansone, G. R., & Bravo, E. (2023). Novel care bundle of established basic and practical approaches greatly reduces urinary tract infections in nursing facility residents without indwelling catheters. *American Journal of Infection Control*, *51*(6), 699-704.

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Establishing Peri-Care Standards and Competency

Federal competency standard

- **§ 483.35 Nursing services**
  - The facility must have sufficient nursing staff with the appropriate competencies and skill sets to provide nursing and related services to assure resident safety and attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident, as determined by resident assessments and individual plans of care and considering the number, acuity and diagnoses of the facility's resident population in accordance with the facility assessment required at § 483.70(e).

State guidance

- Nursing scope of practice varies by state
- Ensure you are following state or local regulatory guidance

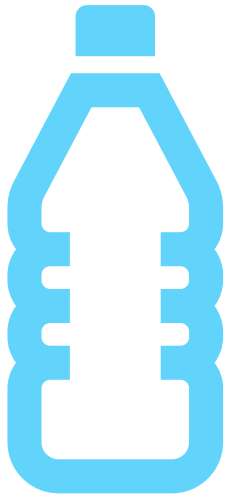
Evidence-based resources

- Nursing care manuals
- Peer-reviewed journals
  - Consideration of new interventions

Is Hydration Effective for UTI Prevention?

- Increasing daily water intake protects against recurrent UTIs in premenopausal women experiencing recurrent UTIs who drink low volumes of total fluid daily (Hooton et al., 2018).

- Hydration intervention (seven structured drink rounds every day accompanied by staff training and raising awareness) (Lean et al., 2019)
  - UTIs requiring antibiotics reduced by 58%
  - UTIs requiring hospital admissions reduced by 36%
  - Low-cost intervention
  - Easy to implement for staff



Hooton, T. M., Vecchio, M., Iroz, A., Tack, I., Dornic, Q., Seksek, I., & Lotan, Y. (2018). Effect of Increased Daily Water Intake in Premenopausal Women With Recurrent Urinary Tract Infections: A Randomized Clinical Trial. *JAMA internal medicine*, *178*(11), 1509–1515. https://doi.org/10.1001/jamainternmed.2018.4204

Lean, K., Nawaz, R. F., Jawad, S., & Vincent, C. (2019). Reducing urinary tract infections in care homes by improving hydration. *BMJ open quality*, *8*(3), e000563. https://doi.org/10.1136/bmjoq-2018-000563

Does Wiping From Front To Back Matter?

- Persad et al. (2006) examined the incidence of urinary tract infections and the method of perineal hygiene used after urination
  - Wiping back to front is associated with a greater risk of developing UTI than wiping front to back
- Other considerations
  - UTIs are often due to the colonization of the urogenital tract with rectal and perineal flora
    - Urogenital flora vs. intestinal/rectal flora
  - Infection Prevention Cleaning Principle
    - Move from "cleaner" areas to "dirtier" areas

Persad, S., Watermeyer, S., Griffiths, A., Cherian, B., & Evans, J. (2006). Association between urinary tract infection and postmicturition wiping habit. *Acta obstetricia et gynecologica Scandinavica*, *85*(11), 1395-1396.
https://www.cdc.gov/hai/prevent/resource-limited/cleaning-procedures.html
https://www.aorn.org/outpatient-surgery/article/2017-January-surgical-skin-antisepsis-done right#:~:text=A%20circular%20application%20has%20traditionally,moving%20to%20the%20most%20contaminated

Any Suggestions for Facilities Without an Antibiogram?

- Review local resistance rates.
- Contact local hospitals and inquire about their antibiograms.
- Look at prior resident cultures to guide empiric treatment or available treatment guidelines.
- CDC Core Elements of Antibiotic Nursing Homes

Antibiograms and Empiric Treatment

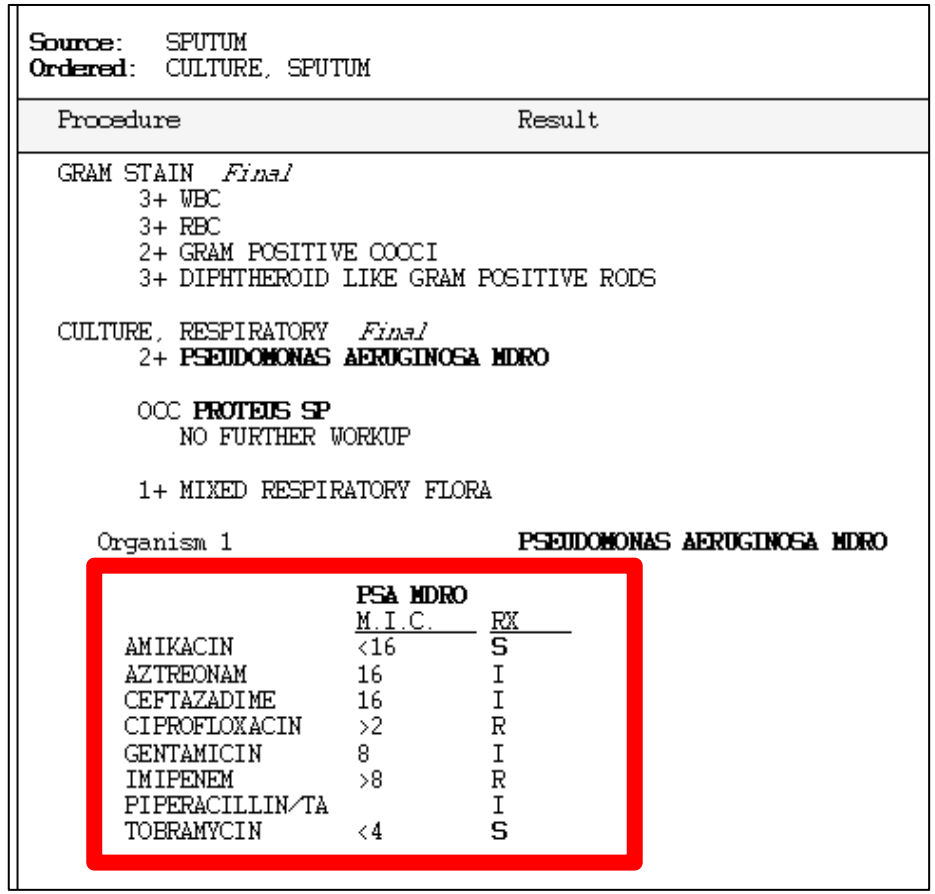
Percent of Non-Duplicate Patient Isolates Susceptible Serum Levels

ORGANISM	No. of Non-duplicate Isolates	Amikacin	Gentamicin	Tobramycin	Ampicillin	Amoxicillin-Clavulanate	Ampicillin-Sulbactam	Penicillin	Piperacillin/Tazobactam	Oxacillin	Imipenem	Meropenem	Ertapenem	Aztreonam	Cefazolin	Cefipime	Ceftriaxone	Vancomycin	Linezolid	Erythromycin	Clindamycin	TMP-SMZ	Ciprofloxacin	Moxifloxacin	Nitrofurantoin[a]	Tetracycline	Tigecycline
E. coli	68	100	95	100	48		69		98		100	100	100	92	86	100	90					90	65		100		100
Kleb. pneumoniae	28	100	90	100	0		78		92			100	100	71	89	100	88					100	82		94		100
Proteus mirabilis	48	100	95	93	79		89		97		100	100	100	95	93	100	93					85	77				
Ps. aeruginosa	24	100	100	100					100		91	95		94		100							91				
Staph aureus	16		100			43		18		43					43			100	100	43	62	87		21	100	100	100
Enterococcus faecalis	20		88[b]		100			100										100	100						95	40	100

[a]Susceptible to achievable levels in urine only [b]Susceptible to high level gentamicin

We Are Treating All *Pseudomonas* UTIs as MDROs. Is This a Best Practice?

- No. There should be evidence supporting the clinical management of a multi-drug resistant organism (MDRO)
  - Culture and sensitivity report
  - Antibiogram
- Inappropriate antibiotic prescribing
  - Increases risk for adverse events
    - Side effects
    - Drug interactions
    - Drug events
    - C. difficile infections
    - Contributes to more MDROs in your facility
- Unnecessary implementation of transmission-based precautions (without appropriate indications)
  - Increased risk for resident isolation
  - Increased cost of PPE use



Source: SPUTUM
Ordered: CULTURE, SPUTUM

Procedure	Result

GRAM STAIN *Final*
3+ WBC
3+ RBC
2+ GRAM POSITIVE COCCI
3+ DIPHTHEROID LIKE GRAM POSITIVE RODS

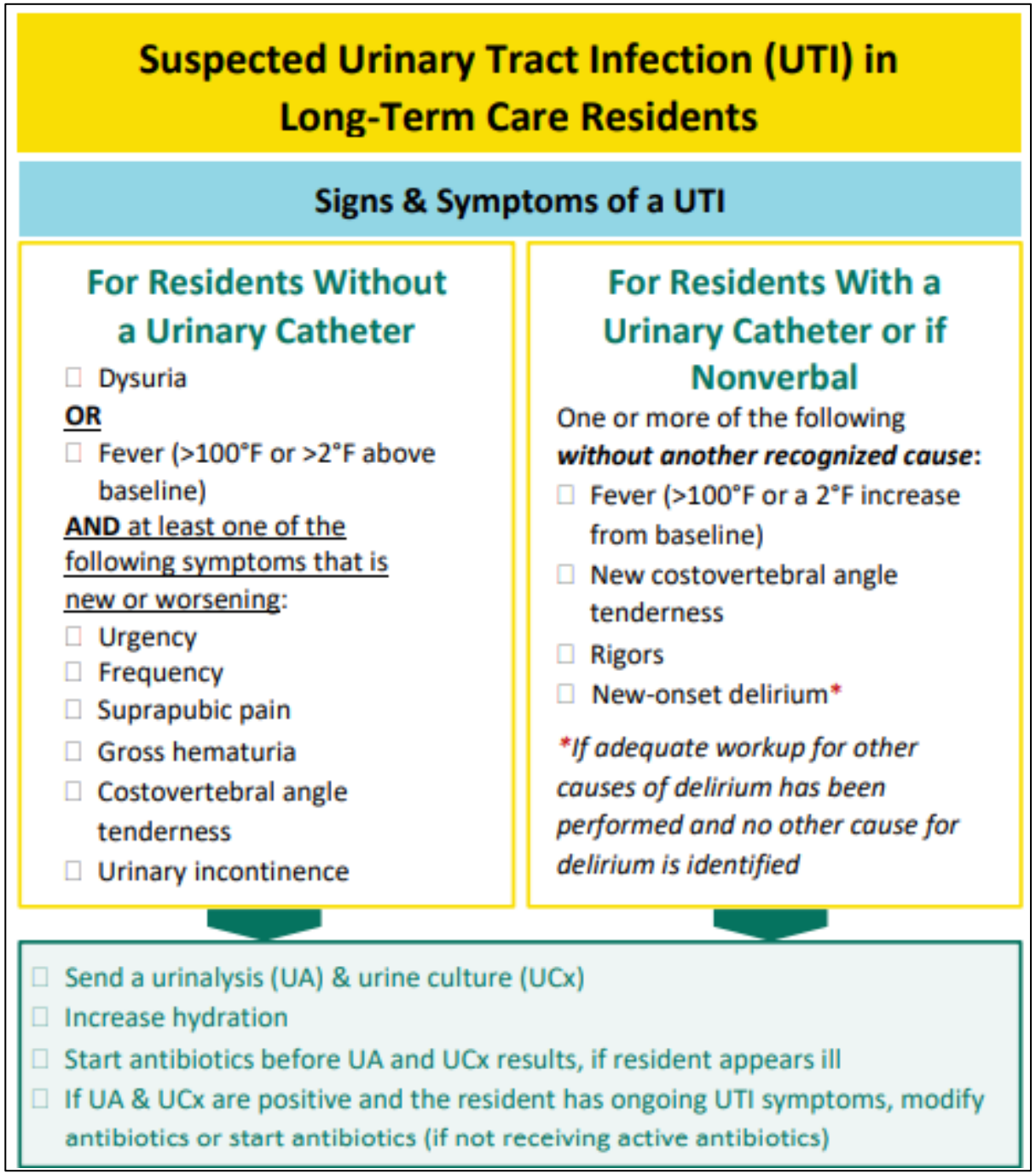
CULTURE, RESPIRATORY *Final*
2+ **PSEUDOMONAS AERUGINOSA MDRO**

OCC **PROTEUS SP**
NO FURTHER WORKUP

1+ MIXED RESPIRATORY FLORA

Organism 1 **PSEUDOMONAS AERUGINOSA MDRO**

	PSA MDRO M.I.C.	RX
AMIKACIN	<16	S
AZTREONAM	16	I
CEFTAZADIME	16	I
CIPROFLOXACIN	>2	R
GENTAMICIN	8	I
IMIPENEM	>8	R
PIPERACILLIN/TA		I
TOBRAMYCIN	<4	S



Should you wait for the urine culture results before starting clinical treatment?

https://quality.allianthealth.org/media_library/suspected-urinary-tract-infection-uti-in-long-term-care-residents/

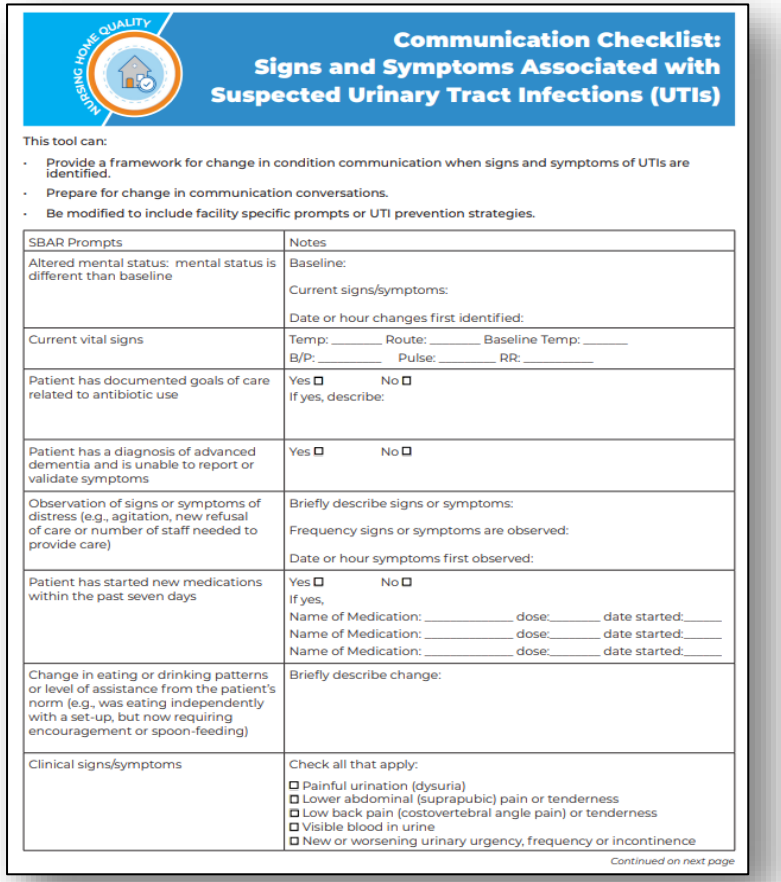
https://www.youtube.com/watch?v=Nti0jZp3URE

Polling Question

Does your facility have a standardized process or protocol in place to communicate suspected UTIs to facilitate timely assessment and treatment (when indicated) by a clinical team?

A. No, and I do not think we need one.
B. No, but I think we need something in place.
C. Yes, but it is not working well.
D. Yes, and it is effective.

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

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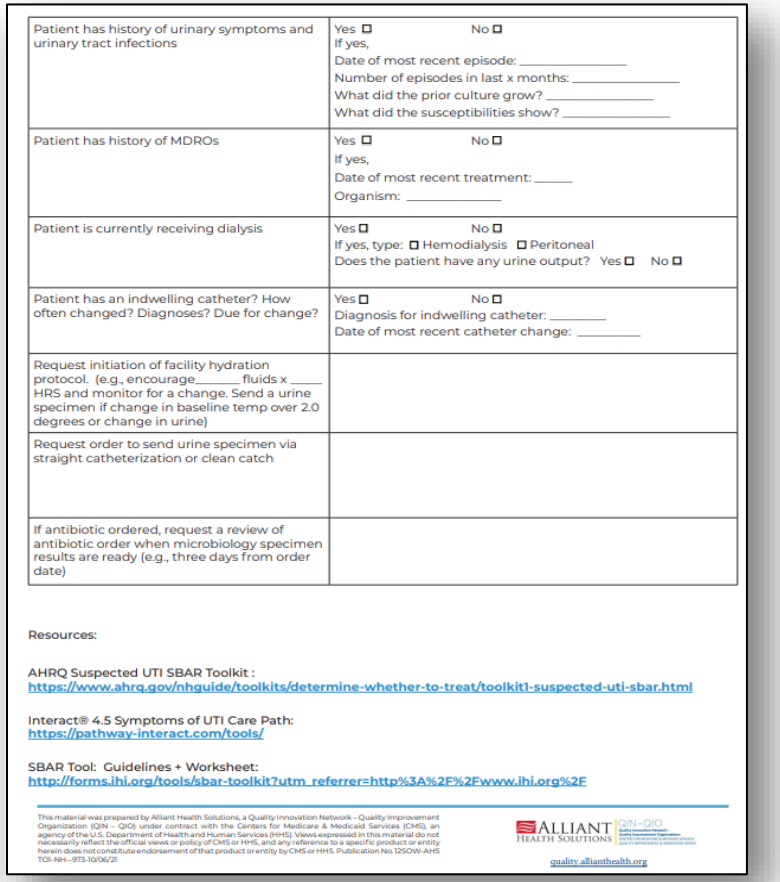

Patient has history of urinary symptoms and urinary tract infections	Yes ☐ No ☐ If yes, Date of most recent episode: _____ Number of episodes in last x months: _____ What did the prior culture grow? _____ What did the susceptibilities show? _____
Patient has history of MDROs	Yes ☐ No ☐ If yes, Date of 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

This material was prepared by Alliant Health Solutions, a Quality Innovation Network – Quality Improvement Organization (QIN – QIO) under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services (HHS). Views expressed in this material do not necessarily reflect the official views or policy of CMS or HHS, and any reference to a specific product or entity herein does not constitute endorsement of that product or entity by CMS or HHS. Publication No. 12SOW-AHS TOI-NH--973-10/06/21

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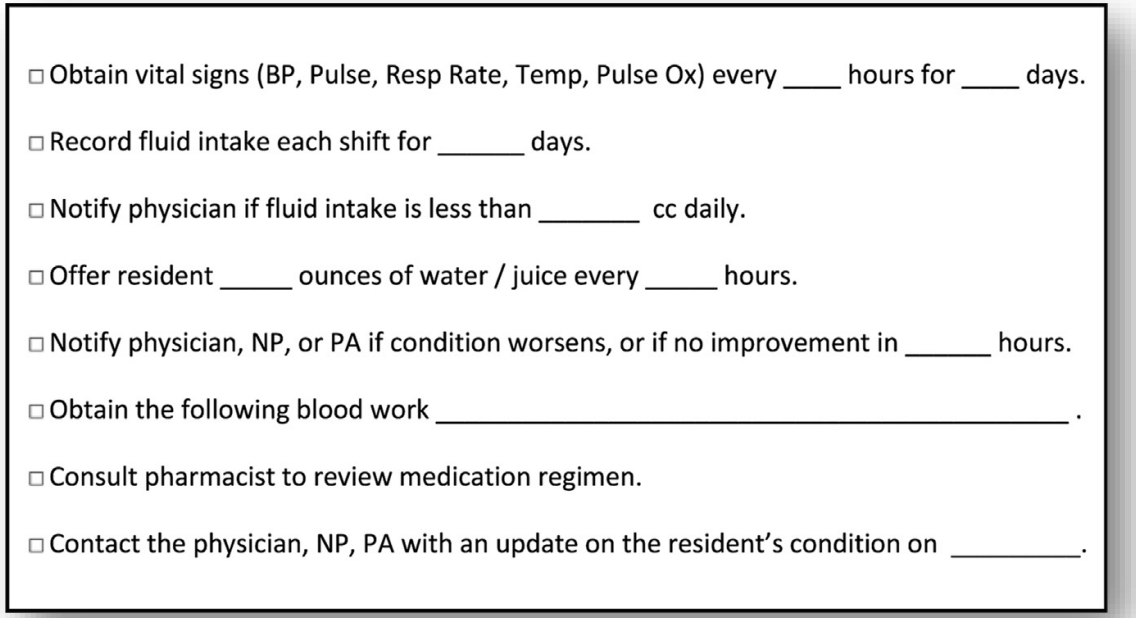
- Provides a framework for change in condition communication when signs/symptoms of UTI identified
- Helps nursing home staff and prescribing clinicians communicate about suspected UTIs and facilitates appropriate antibiotic prescribing
- Agency for Healthcare Research & Quality (AHRQ Toolkit) includes:
  - 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.

Polling Question

Does your facility have a urine culture protocol?

A. No, and I do not think we need one.
B. No, but I think we need something in place.
C. Yes, but it is not working well.
D. Yes, and it is effective.

Urine Culture Stewardship

- A multifaceted approach to ensure that urine cultures are:
  - Performed only when appropriate indications are present to determine if treatment with antibiotics is indicated

AND

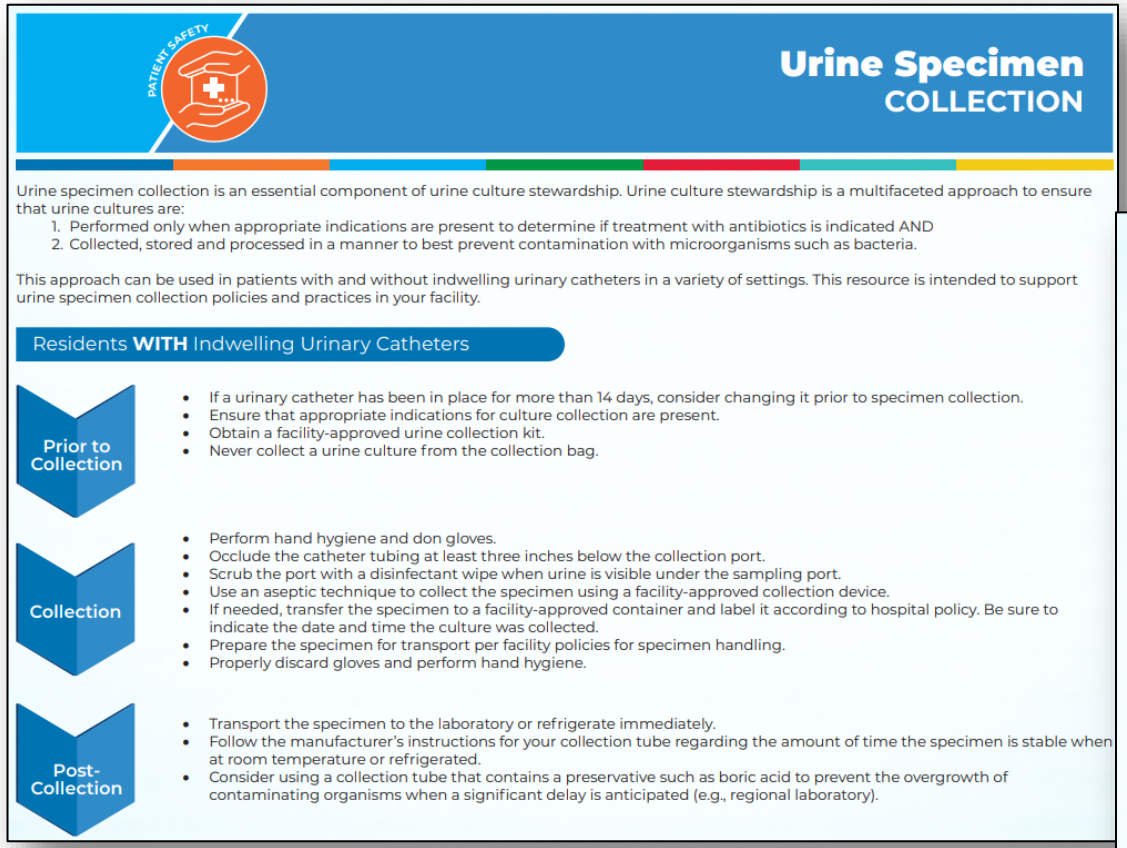
  - Collected, stored, and processed in a manner to best prevent contamination with microorganisms such as bacteria
- Essential strategy to prevent misdiagnosis of urinary tract infections and reduce unnecessary testing and inappropriate antibiotic use

Preventing CAUTI: Focus on Culturing Stewardship. Content last reviewed May 2023. Agency for Healthcare Research and Quality, Rockville, MD. https://www.ahrq.gov/hai/cauti-tools/phys-championsgd/section7.html

Urine Culture Stewardship Implementation

- Ask colleagues why the urine culture was sent
  - Use Communication Checklist for Suspected UTIs
- Assess the resident for urinary symptoms **BEFORE** initiating antibiotics
- Send urinalysis (UA) and urine cultures when residents have symptoms of UTI
- Document appropriate indications
- Not sending urine cultures for:
  - Foul-smelling or cloudy urine
  - Routinely on admission or preoperatively
  - Routinely before or after a catheter change
  - As part of a fever workup, if there are no signs or symptoms localizing to the urinary tract
  - As a test of cure

Urine Culture Stewardship Implementation: Urine Specimen Collection



PATIENT SAFETY

Urine Specimen COLLECTION

Urine specimen collection is an essential component of urine culture stewardship. Urine culture stewardship is a multifaceted approach to ensure that urine cultures are:

1. Performed only when appropriate indications are present to determine if treatment with antibiotics is indicated AND
2. Collected, stored and processed in a manner to best prevent contamination with microorganisms such as bacteria.

This approach can be used in patients with and without indwelling urinary catheters in a variety of settings. This resource is intended to support urine specimen collection policies and practices in your facility.

Residents **WITH** Indwelling Urinary Catheters

Prior to Collection

- If a urinary catheter has been in place for more than 14 days, consider changing it prior to specimen collection.
- Ensure that appropriate indications for culture collection are present.
- Obtain a facility-approved urine collection kit.
- Never collect a urine culture from the collection bag.

Collection

- Perform hand hygiene and don gloves.
- Occlude the catheter tubing at least three inches below the collection port.
- Scrub the port with a disinfectant wipe when urine is visible under the sampling port.
- Use an aseptic technique to collect the specimen using a facility-approved collection device.
- If needed, transfer the specimen to a facility-approved container and label it according to hospital policy. Be sure to indicate the date and time the culture was collected.
- Prepare the specimen for transport per facility policies for specimen handling.
- Properly discard gloves and perform hand hygiene.

Post-Collection

- Transport the specimen to the laboratory or refrigerate immediately.
- Follow the manufacturer's instructions for your collection tube regarding the amount of time the specimen is stable when at room temperature or refrigerated.
- Consider using a collection tube that contains a preservative such as boric acid to prevent the overgrowth of contaminating organisms when a significant delay is anticipated (e.g., regional laboratory).

Resident **WITHOUT** Indwelling Urinary Catheters

Prior to Collection

- Determine if a urine culture order is appropriate.
- If urine culture is indicated, obtain a facility-approved urine collection kit.
- Do not send urine cultures:
  - For foul-smelling or cloudy urine.
  - Routinely on admission or preoperatively.
  - Routinely before or after a catheter change.
  - As part of a fever workup, if there are no signs or symptoms localizing to the urinary tract.
  - As a test of cure.

Collection

- Perform hand hygiene and don gloves.
- Midstream clean catch is the preferred method.
  - Always clean the perineal area, especially the urethral meatus, prior to collection.
  - Collect urine after the resident has bathed, when possible.
  - Consult with the provider if in/out catheter specimen is appropriate when the resident is unable to void or if you are unable to collect a clean catch specimen.
  - In/out catheterization requires a sterile technique and should be performed by a registered nurse.
    - Alternative to in-and-out catheterization for men: place and obtain a specimen from a newly placed condom catheter.
  - Prepare the specimen for transport per facility policies for specimen handling.
  - DO NOT collect a urine specimen from a urinal, bedpan, diaper or chucks pad.
  - Properly discard gloves and perform hand hygiene.

Post-Collection

- Transport the specimen to the laboratory or refrigerate immediately.
- Follow the manufacturer's instructions for your collection tube regarding the amount of time the specimen is stable when at room temperature or refrigerated.
- Consider using a collection tube that contains a preservative such as boric acid to prevent the overgrowth of contaminating organisms when a significant delay is anticipated (e.g., regional laboratory).

https://quality.allianthealth.org/wp-content/uploads/2023/08/Urine-Specimen-Collection-Resource_508.pdf

https://www.youtube.com/watch?v=yXvEVmftPGA

IP Leadership and Collaboration

Infection Preventionist

- Specially trained professionals, leaders, educators, and collaborators from diverse backgrounds, including nursing, public health, laboratory and allied health fields
- Promote a culture of safety and impact the health of patients, workers, staff and community members

https://apic.org/wp-content/uploads/2022/10/WhoAreIPs_Infographic.pdf

HEALTHCARE LEADERSHIP

Senior Leaders, managers, and supervisors

HEALTHCARE DEPARTMENTS

Clinical:
Physicians, nurses, therapists, pharmacists

Operational:
Food and nutritional services, environmental services, supply chain, facility maintenance professionals

PUBLIC HEALTH

Local, state, federal

COMMUNITY PARTNERS

First responders, regional healthcare coalitions, healthcare associations

REGULATORY AGENCIES

Centers for Medicare & Medicaid Services (CMS), Occupational Safety and Health Administration (OSHA), Accrediting organizations

PROFESSIONAL ORGANIZATIONS

Association for Professionals in Infection Control and Epidemiology (APIC), Society for Healthcare Epidemiology of America (SHEA), Infectious Diseases Society of America (IDSA)

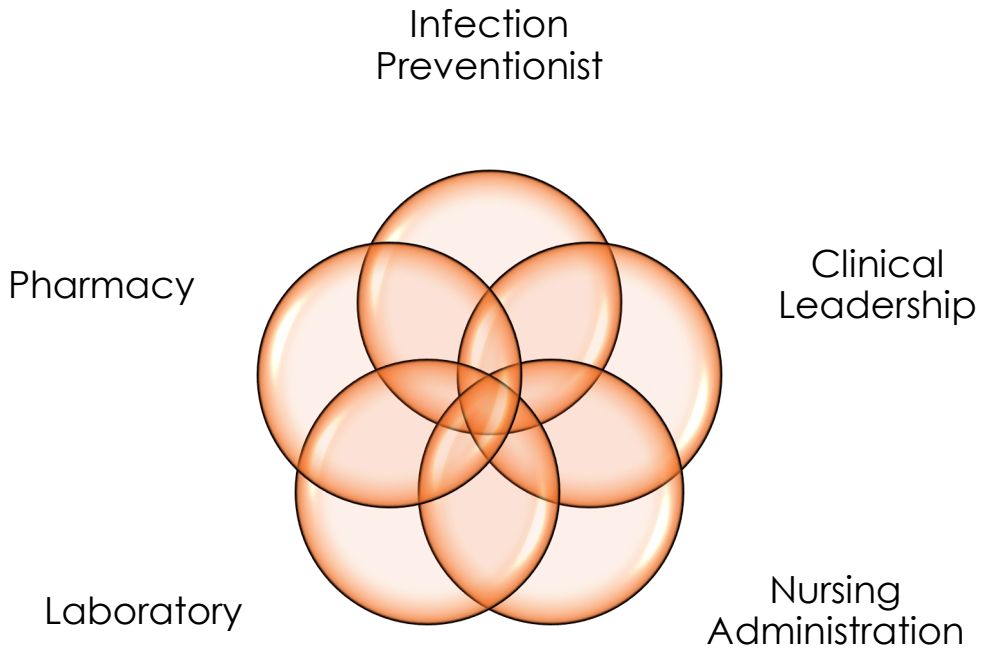
INDUSTRY

Medical device manufacturers, medical equipment and supply vendors, industry clinical/science liaisons

https://apic.org/wp-content/uploads/2022/10/WhoAreIPs_Infographic.pdf

Long-Term Care Infection Preventionist

- ✓ Apply scientific principles and methods to collect and present IPC data
- ✓ Conduct surveillance using standardized methodologies for case identification, data collection, and reporting
- ✓ Prepare reports and presentations for committees
- ✓ Investigate outbreaks and implement IPC interventions
- ✓ Report to and collaborate with public health entities
- ✓ 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
- ✓ Support multi-disciplinary collaboration to ensure progress to IPC program goals



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…"

Making A Case for UTI Quality Improvement

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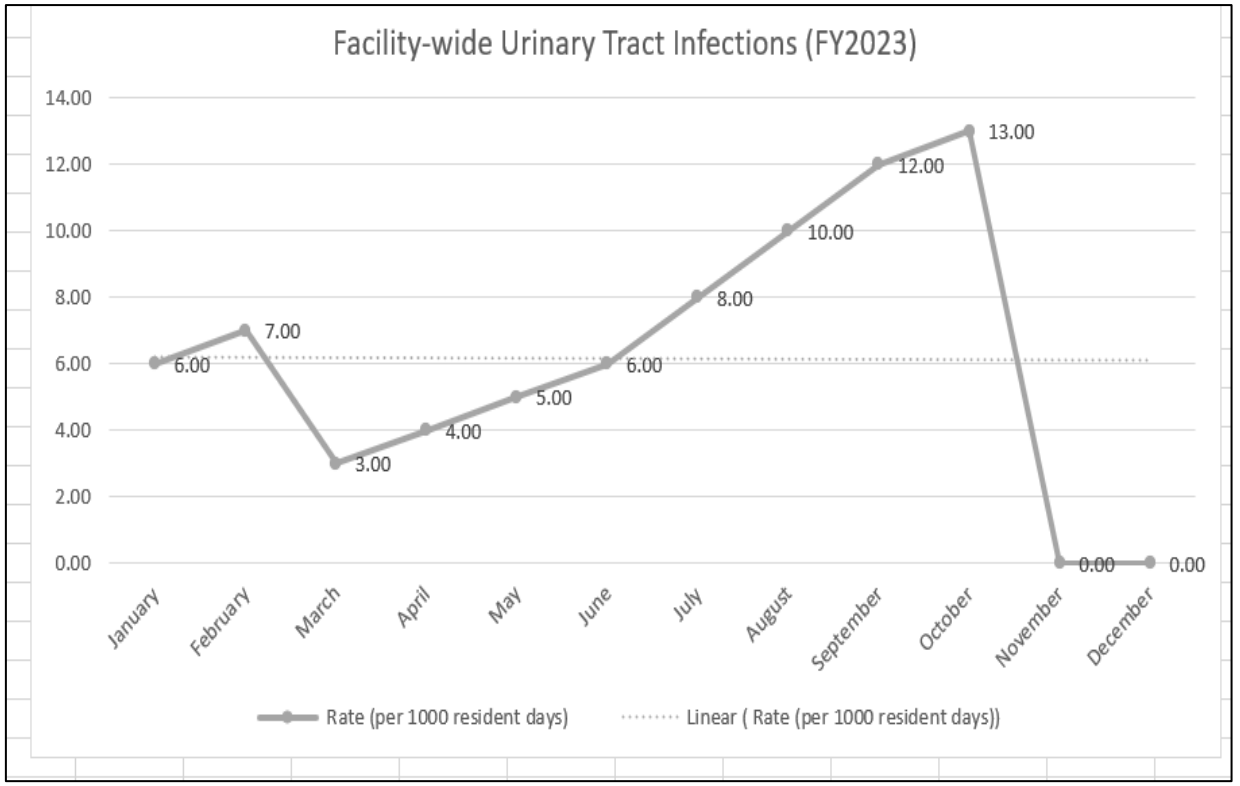
Case Study

Mr. Smith is the new infection preventionist at Sunshine Health Nursing Facility. He is responsible for the facility's IPC program and other administrative tasks. He is committed to prioritizing the IPC program and goals. He notes that last year's UTI rate was three UTIs per 1000 resident days. He spends the afternoon reviewing the UTI surveillance data year to date. **Based on the information, should Mr. Smith be concerned about the facility's UTI rates?**



FY2023 (Jan-Dec 2023)													
Facility-wide UTIs	January	February	March	April	May	June	July	August	September	October	November	December	**FYTD**
Total Urinary Tract Infections (UTIs)	6	7	3	4	5	6	8	10	12	13			**74**
Resident Days	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			**10000**
Rate (per 1000 resident days)	6.00	7.00	3.00	4.00	5.00	6.00	8.00	10.00	12.00	13.00	#DIV/0!	#DIV/0!	**7.40**

Case Study

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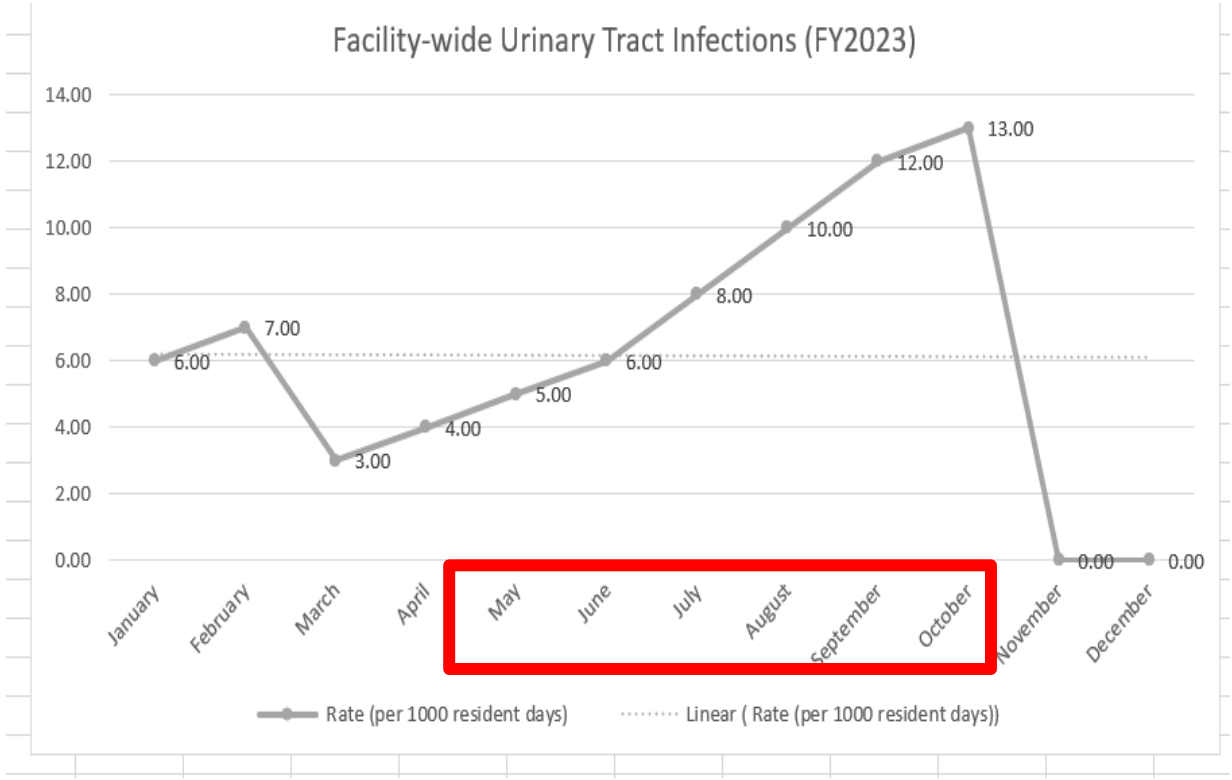

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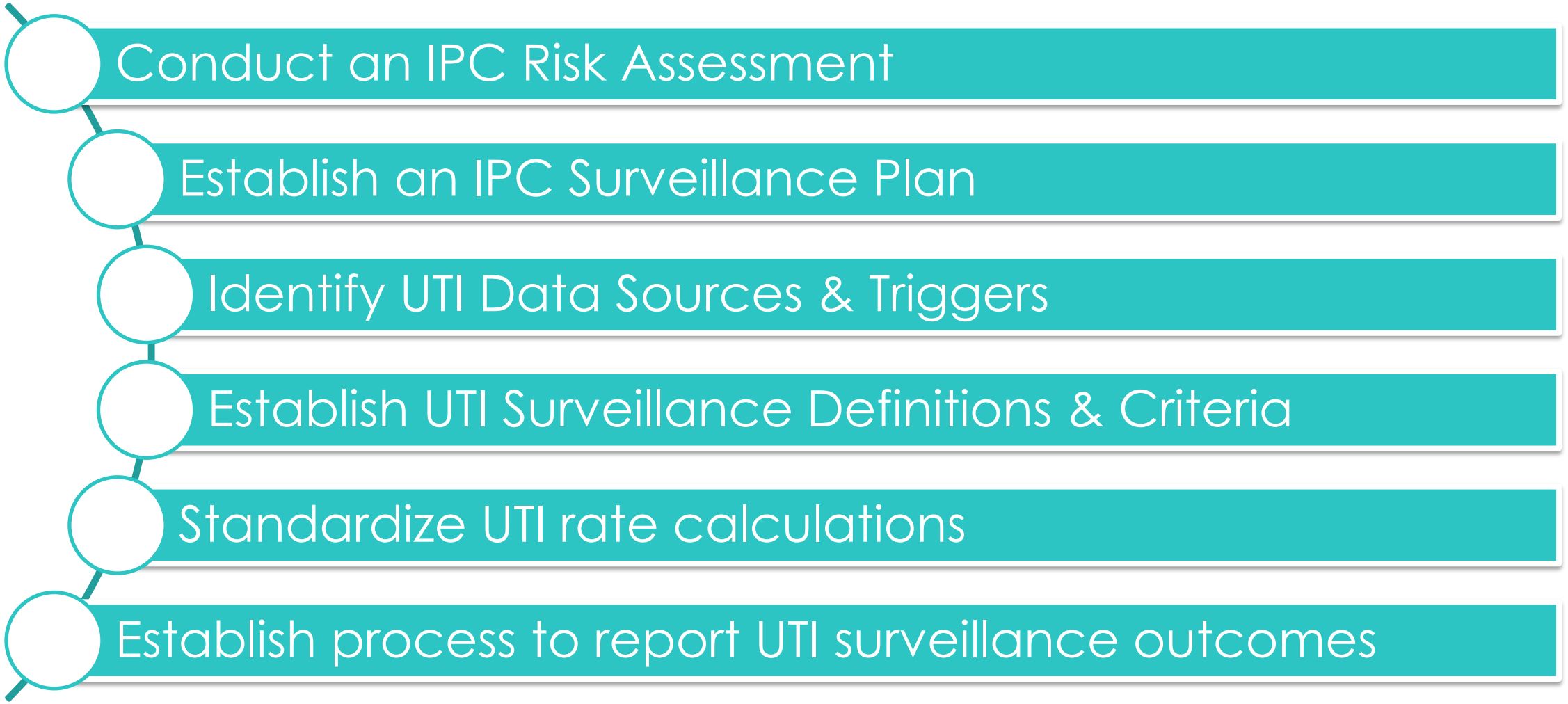
Practical Approach to Making A Case for UTI Quality Improvement

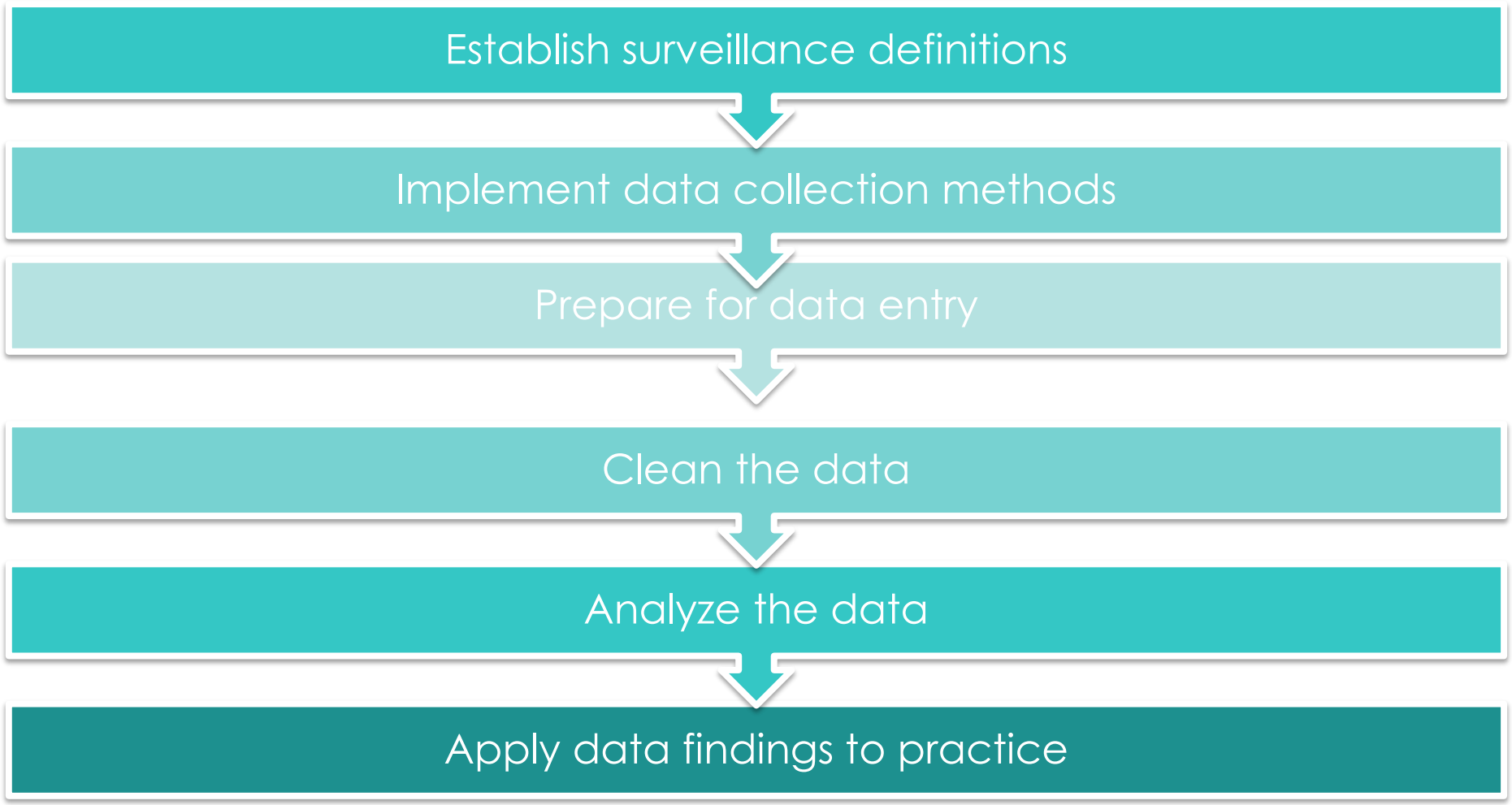
- Incorporate UTI surveillance into your IPC program
- Ensure high-quality UTI surveillance data
- Conduct a gap analysis
- Perform root cause analyses (RCA)
- Disseminate surveillance findings
- Make a business case for targeted UTI improvement project

Steps To Incorporate UTI Surveillance Into Your IPC Program



https://www.youtube.com/watch?v=iHPRnDZTALY

Steps To Ensure High-Quality UTI Surveillance Data



https://www.youtube.com/watch?v=Ohl8_3HxI_M

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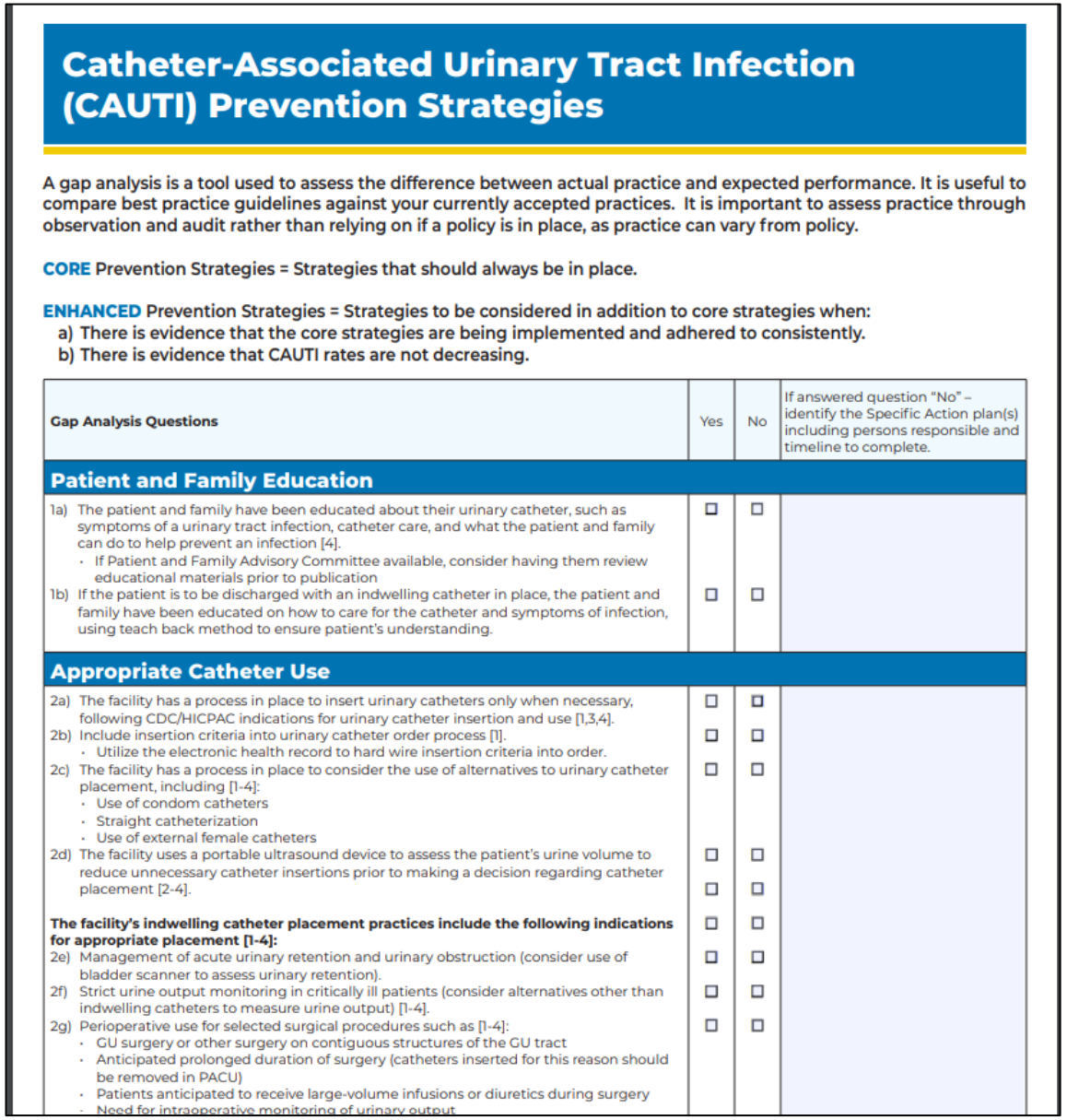


Catheter-Associated Urinary Tract Infection (CAUTI) Prevention Strategies

A gap analysis is a tool used to assess the difference between actual practice and expected performance. It is useful to compare best practice guidelines against your currently accepted practices. It is important to assess practice through observation and audit rather than relying on if a policy is in place, as practice can vary from policy.

CORE Prevention Strategies = Strategies that should always be in place.

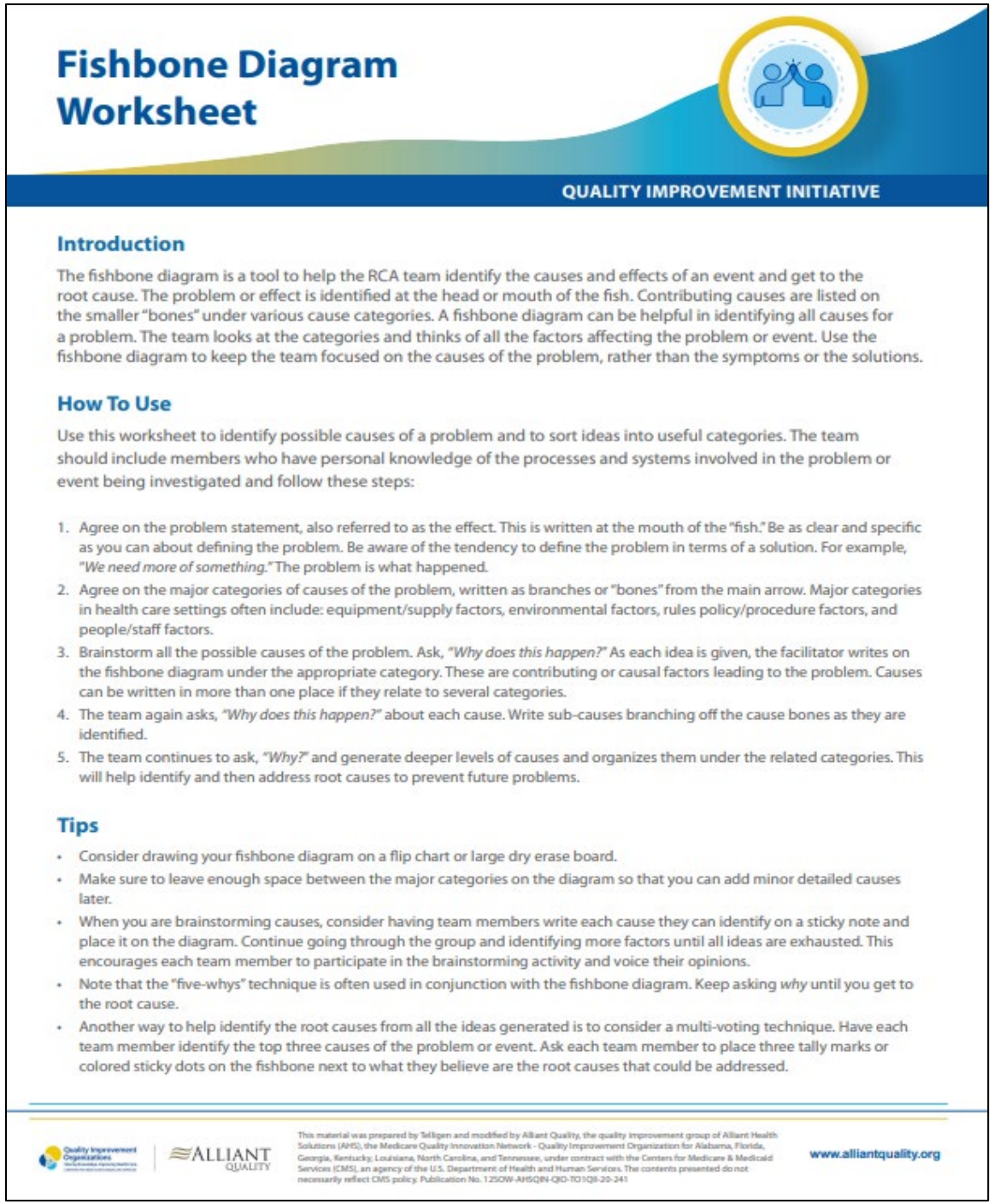
ENHANCED Prevention Strategies = Strategies to be considered in addition to core strategies when:
a) There is evidence that the core strategies are being implemented and adhered to consistently.
b) There is evidence that CAUTI rates are not decreasing.

Gap Analysis Questions	Yes	No	If answered question "No" – identify the Specific Action plan(s) including persons responsible and timeline to complete.
Patient and Family Education			
1a) The patient and family have been educated about their urinary catheter, such as symptoms of a urinary tract infection, catheter care, and what the patient and family can do to help prevent an infection [4]. · If Patient and Family Advisory Committee available, consider having them review educational materials prior to publication	☐	☐	
1b) If the patient is to be discharged with an indwelling catheter in place, the patient and family have been educated on how to care for the catheter and symptoms of infection, using teach back method to ensure patient's understanding.	☐	☐	
Appropriate Catheter Use			
2a) The facility has a process in place to insert urinary catheters only when necessary, following CDC/HICPAC indications for urinary catheter insertion and use [1,3,4].	☐	☐	
2b) Include insertion criteria into urinary catheter order process [1]. · Utilize the electronic health record to hard wire insertion criteria into order.	☐	☐	
2c) The facility has a process in place to consider the use of alternatives to urinary catheter placement, including [1-4]: · Use of condom catheters · Straight catheterization · Use of external female catheters	☐	☐	
2d) The facility uses a portable ultrasound device to assess the patient's urine volume to reduce unnecessary catheter insertions prior to making a decision regarding catheter placement [2-4].	☐	☐	
	☐	☐	
The facility's indwelling catheter placement practices include the following indications for appropriate placement [1-4]:	☐	☐	
2e) Management of acute urinary retention and urinary obstruction (consider use of bladder scanner to assess urinary retention).	☐	☐	
2f) Strict urine output monitoring in critically ill patients (consider alternatives other than indwelling catheters to measure urine output) [1-4].	☐	☐	
2g) Perioperative use for selected surgical procedures such as [1-4]: · GU surgery or other surgery on contiguous structures of the GU tract · Anticipated prolonged duration of surgery (catheters inserted for this reason should be removed in PACU) · Patients anticipated to receive large-volume infusions or diuretics during surgery · Need for intraoperative monitoring of urinary output	☐	☐	

https://quality.allianthealth.org/wp-content/uploads/2021/11/CAUTI-Gap-Assessment-Tool_2SOW-AHS-TO3-HQIC-1058-10.29.21.pdf

GAP Analysis

- CAUTI GAP Assessment Tool
- Used to assess the difference between actual practice and expected performance
- Compare best practice guidelines against your currently accepted practices
- CAUTI GAP Analysis Areas:
  - Patient & family education
  - Appropriate catheter use
  - Catheter insertion practices
  - Catheter maintenance practices
  - Urine culturing practices
  - Indwelling catheter removal
  - Documentation
  - Staff education
  - Monitoring & evaluating
  - Infrastructure



Fishbone Diagram Worksheet

QUALITY IMPROVEMENT INITIATIVE

Introduction

The fishbone diagram is a tool to help the RCA team identify the causes and effects of an event and get to the root cause. The problem or effect is identified at the head or mouth of the fish. Contributing causes are listed on the smaller "bones" under various cause categories. A fishbone diagram can be helpful in identifying all causes for a problem. The team looks at the categories and thinks of all the factors affecting the problem or event. Use the fishbone diagram to keep the team focused on the causes of the problem, rather than the symptoms or the solutions.

How To Use

Use this worksheet to identify possible causes of a problem and to sort ideas into useful categories. The team should include members who have personal knowledge of the processes and systems involved in the problem or event being investigated and follow these steps:

1. Agree on the problem statement, also referred to as the effect. This is written at the mouth of the "fish." Be as clear and specific as you can about defining the problem. Be aware of the tendency to define the problem in terms of a solution. For example, *"We need more of something."* The problem is what happened.
2. Agree on the major categories of causes of the problem, written as branches or "bones" from the main arrow. Major categories in health care settings often include: equipment/supply factors, environmental factors, rules policy/procedure factors, and people/staff factors.
3. Brainstorm all the possible causes of the problem. Ask, *"Why does this happen?"* As each idea is given, the facilitator writes on the fishbone diagram under the appropriate category. These are contributing or causal factors leading to the problem. Causes can be written in more than one place if they relate to several categories.
4. The team again asks, *"Why does this happen?"* about each cause. Write sub-causes branching off the cause bones as they are identified.
5. The team continues to ask, *"Why?"* and generate deeper levels of causes and organizes them under the related categories. This will help identify and then address root causes to prevent future problems.

Tips

- Consider drawing your fishbone diagram on a flip chart or large dry erase board.
- Make sure to leave enough space between the major categories on the diagram so that you can add minor detailed causes later.
- When you are brainstorming causes, consider having team members write each cause they can identify on a sticky note and place it on the diagram. Continue going through the group and identifying more factors until all ideas are exhausted. This encourages each team member to participate in the brainstorming activity and voice their opinions.
- Note that the "five-whys" technique is often used in conjunction with the fishbone diagram. Keep asking *why* until you get to the root cause.
- Another way to help identify the root causes from all the ideas generated is to consider a multi-voting technique. Have each team member identify the top three causes of the problem or event. Ask each team member to place three tally marks or colored sticky dots on the fishbone next to what they believe are the root causes that could be addressed.

This material was prepared by Telligen and modified by Alliant Quality, the quality improvement group of Alliant Health Solutions (AHS), the Medicare Quality Innovation Network - Quality Improvement Organization for Alabama, Florida, Georgia, Kentucky, Louisiana, North Carolina, and Tennessee, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. Publication No. 12SOW-AHSQIN-QIO-TO1QII-20-241

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Root Cause Analysis

- Fishbone diagram
  - Identify cause and effect to get to the root cause
  - Problem at the head or mouth of fish
  - Contributing factors listed under the smaller bones in various categories
- RCA Trigger Examples
  - ✓ All HAI events
  - ✓ HAIs with subsequent hospital admission
  - ✓ Facility outbreaks
  - ✓ Antibiotic overuse
  - ✓ Low hand hygiene compliance
  - ✓ Inappropriate use of personal protective equipment (PPE)

https://quality.allianthealth.org/wp-content/uploads/2020/10/QII_Fishbone-12SOW-AHSQIN-QIO-TO1QII-20-241_508.pdf

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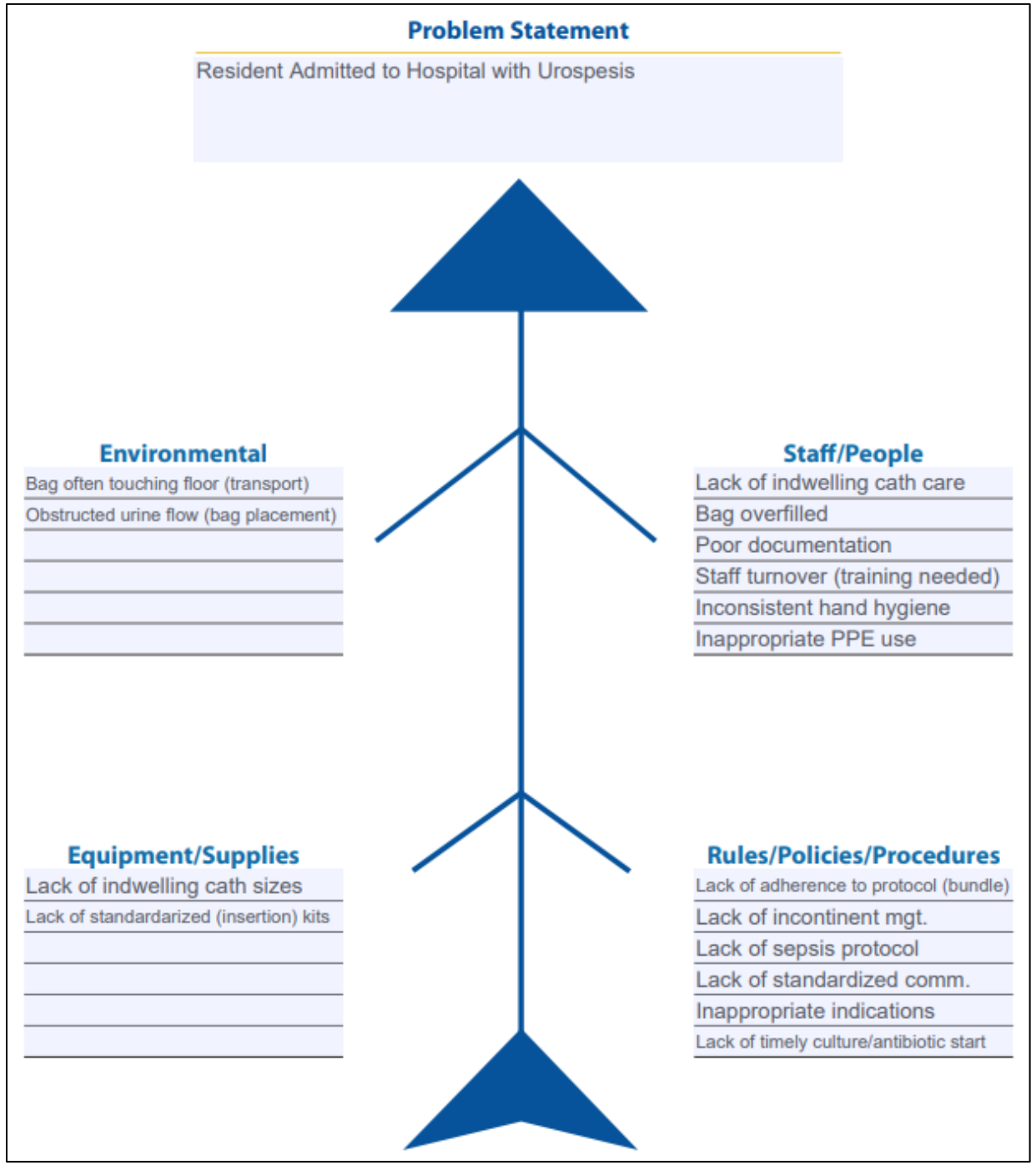

Root Cause Analysis Example: Hospital Admission Due to Urosepsis

Fishbone Diagram Worksheet

Forums To Disseminate UTI Surveillance Data, GAP Analysis and RCA Findings

- Facility Administration
- Clinical Leadership
- UTI Root Cause Analyses Reviews
- IPC/Antimicrobial Stewardship Committee
- Quality Assurance Performance Improvement (QAPI) Committee

Polling Question

Which of the following is the MOST important reason for having an infection prevention and control (IPC) committee?

A. The IPC committee function is required by CMS.
B. The IPC committee is a vehicle for communication, data sharing and consensus building.
C. The IPC committee is necessary to justify the IP role.
D. The IPC committee can replace the facility's other quality committees.

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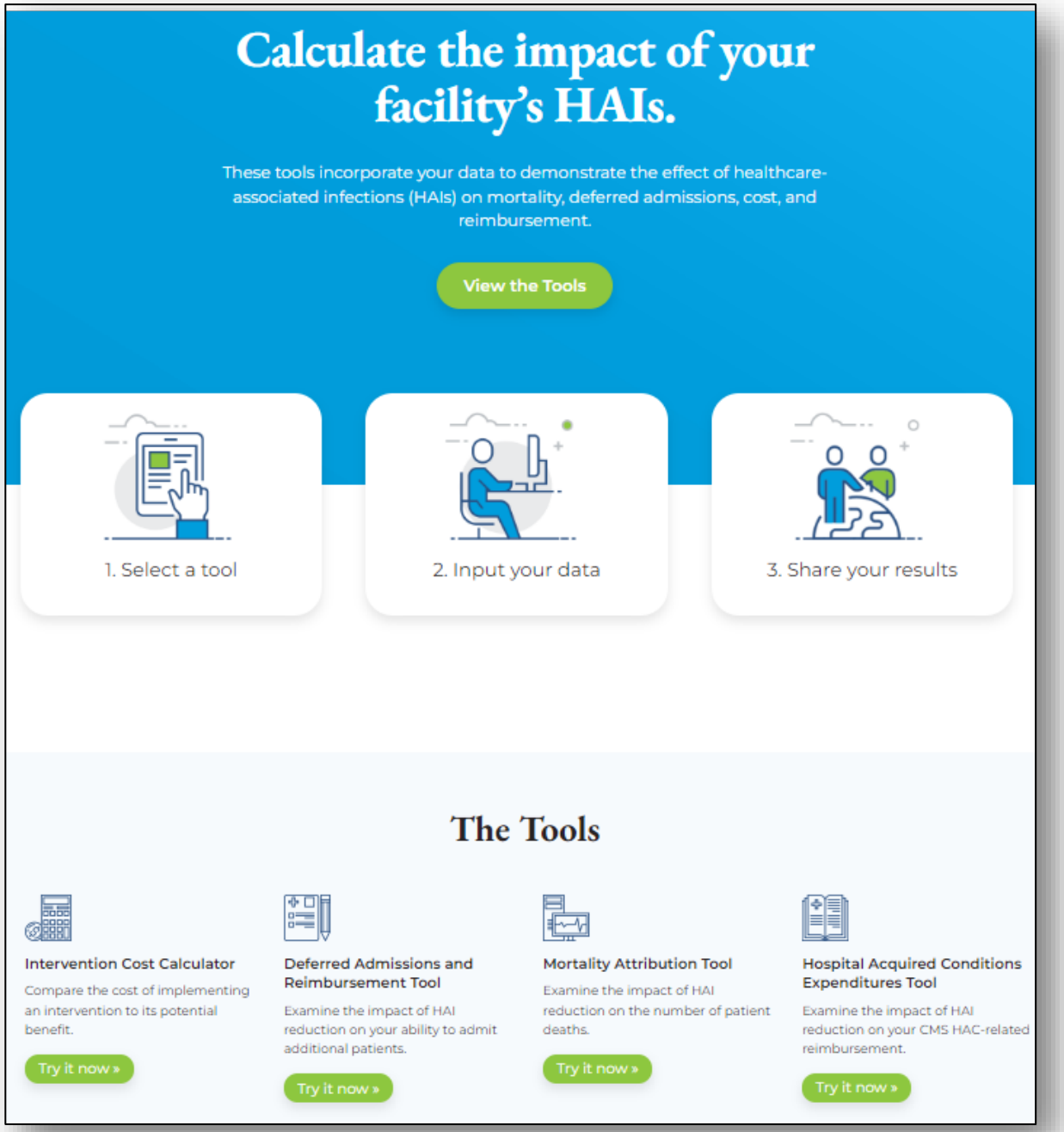


https://haitools.apic.org/

Making a Business Case for UTI Quality Improvement

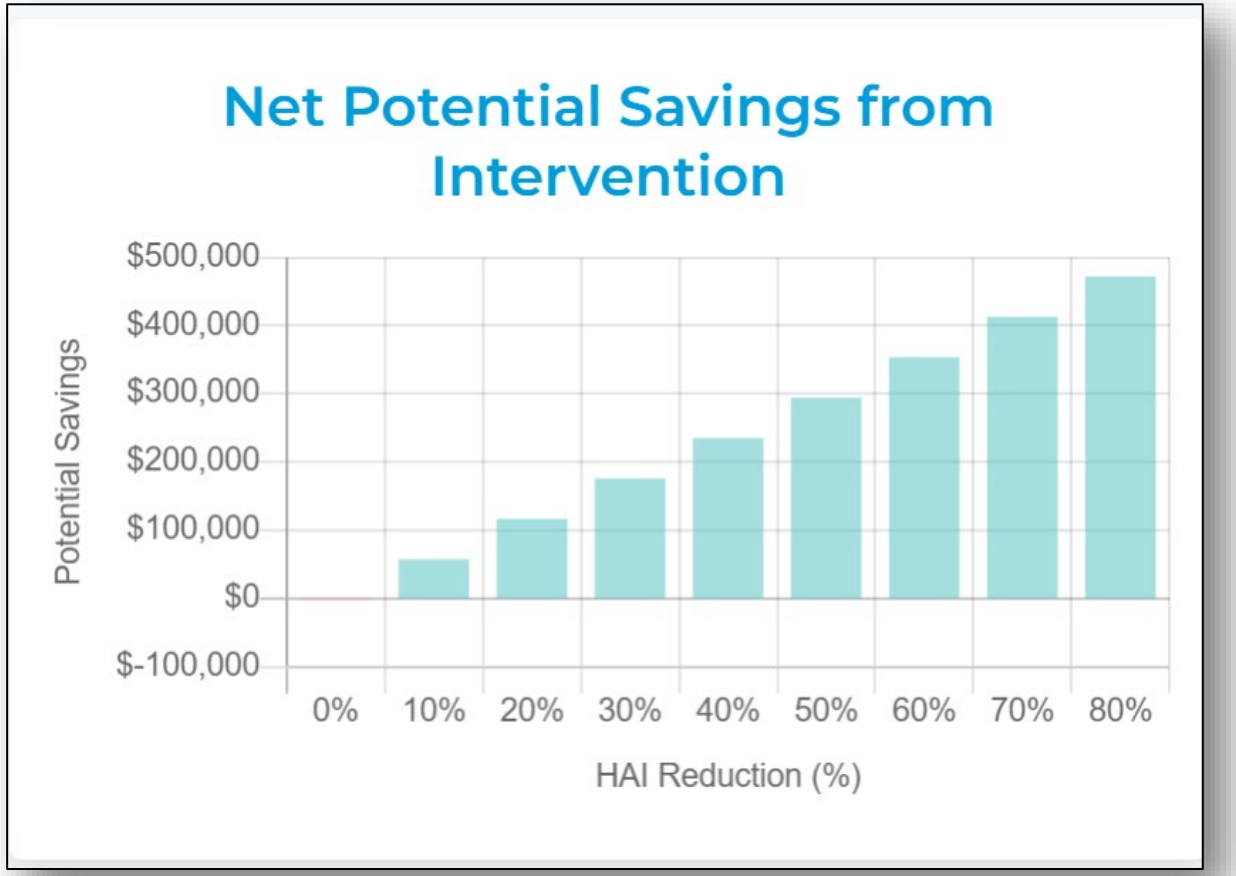
- Cost-benefit analysis
  - Intervention cost
  - Deferred admissions and reimbursement tool
  - Mortality attribution
  - Antibiotic treatment costs
  - Resident quality of life
- APIC HAI calculator tool

Case Study

After collaborating with his IPC committee, Mr. Smith decided to prioritize implementing interventions to reduce the facility's UTI rate. He would like to implement a standardized peri-care bundle. To get buy-in from the facility administration, he conducts an intervention cost analysis using the APIC HAI calculator. Here are his results.

Do you think he would receive support from facility and clinical leadership?

https://haitools.apic.org/icc/



Reducing the facility's UTI events by 50% could potentially save the facility **$296,000** over **10 months**.

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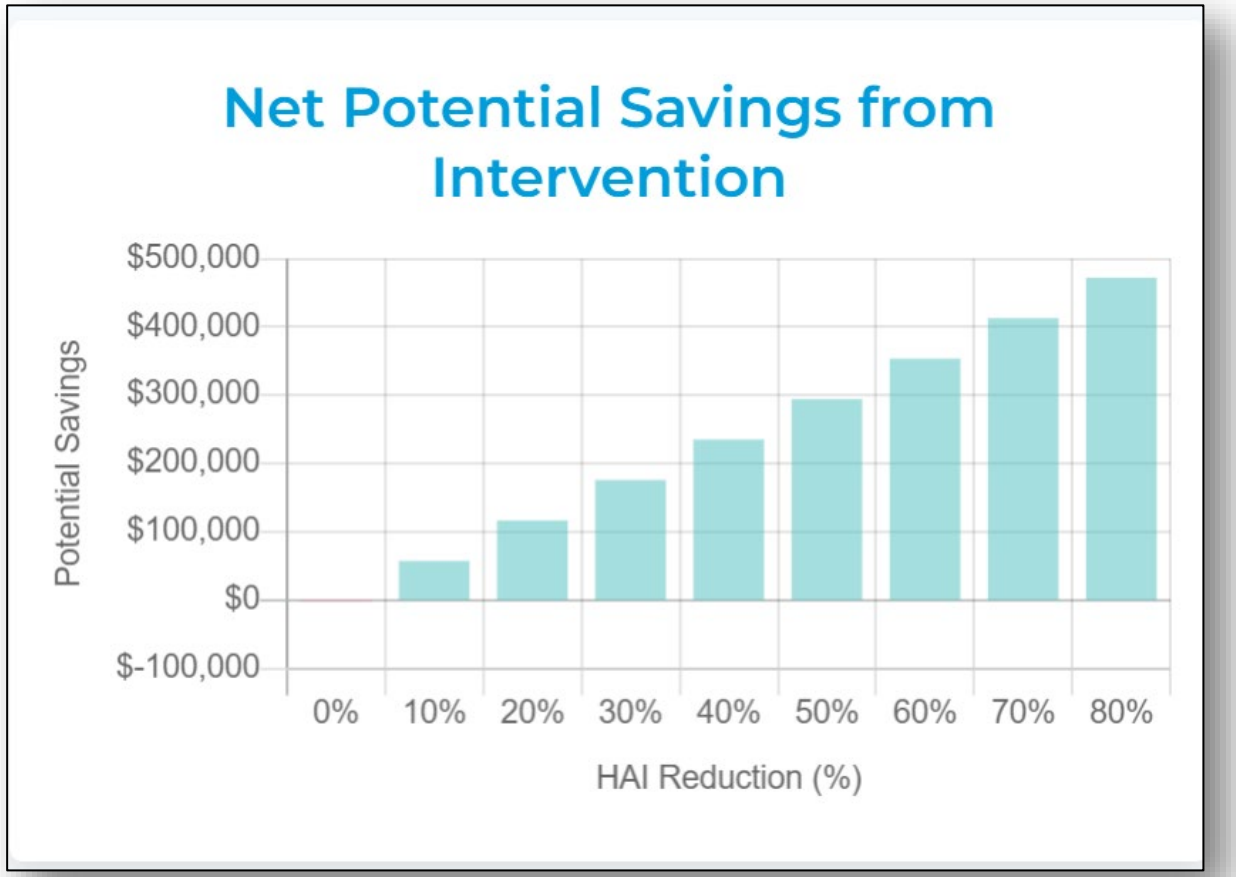


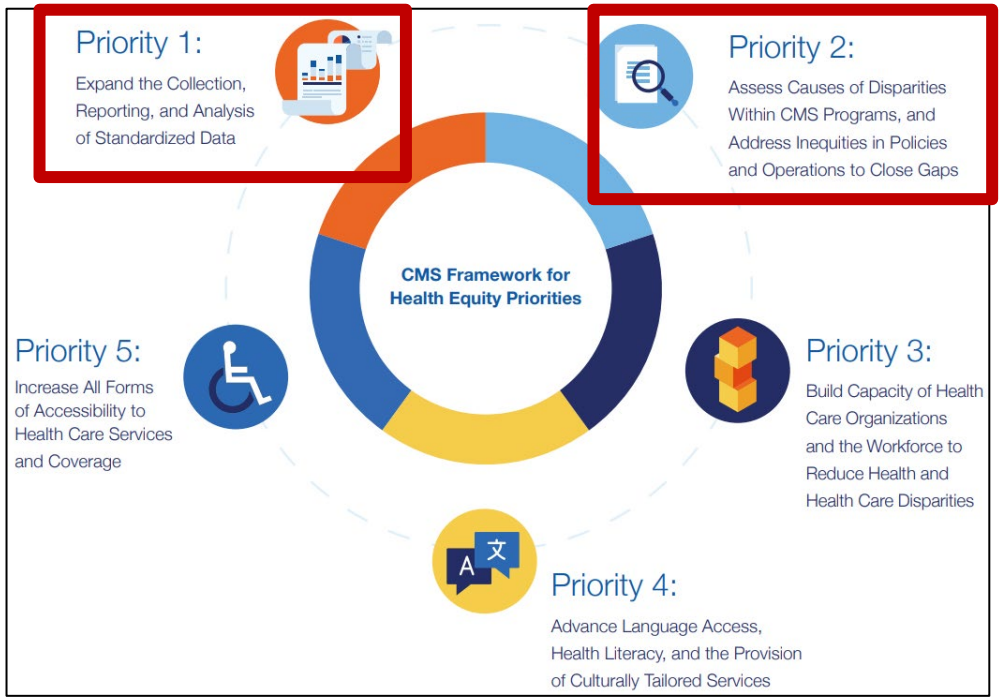
Do you think he would receive support from facility and clinical leadership?

YES

Reducing the facility's UTI events by 50% could potentially save the facility **$296,000** over **10 months**.

Make a Business Case for UTI Quality Improvement

- CMS regulatory standards
  - Health Equity Framework
    - Hospitals are required to collect and analyze data based on demographic and/or social determinants of health variables with the goal of identifying equity gaps in hospital performance and quality of care
    - Implications for nursing homes
      - Potential to capture readmission data related to patients admitted from nursing homes
        - Indirectly identify LTCF quality of care-related and HAI disparities
      - Interconnectedness (health care network)
        - Data follows the resident



https://www.cms.gov/files/document/cms-framework-health-equity-2022.pdf

CMS Health Equity Framework: Implications for Nursing Facilities

Advancing Health Equity

- Facility-specific quality outcomes & disparities
- Improve resident & family communication using CLAS

Engaging Partners & Communities

- Readmissions & hospitalizations (networks)
- Collaboration within health care networks

Driving Innovation

- Facility-specific quality improvement initiatives
- Enhancing the IPC program to improve HAI prevention

https://www.cms.gov/files/document/cms-framework-health-equity-2022.pdf

Polling Question

Although LTCF HAI surveillance and quality improvement are important, they are not a priority for the Centers for Medicare and Medicaid Services (CMS).

A. True
B. False

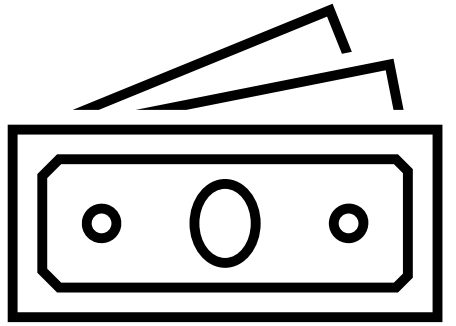
Polling Question

Although LTCF HAI surveillance and quality improvement are important, they are not a priority for the Centers for Medicare and Medicaid Services (CMS).

A. True
B. False

Make a Business Case for UTI Quality Improvement

- CMS Value-based Purchasing (VBP) Updates
  - CMS finalized the expansion of the SNF VBP program in FY 2026 and FY 2027 to include three new measures
    - Total Nursing Hours per Resident Day measures (FY2026)
    - Adoption of the Discharge to Community — Post Acute Care measure for SNFs (FY2027)
    - **SNF HAI Requiring Hospitalization (FY2026)**



UTI Resources

Bite-sized Learnings

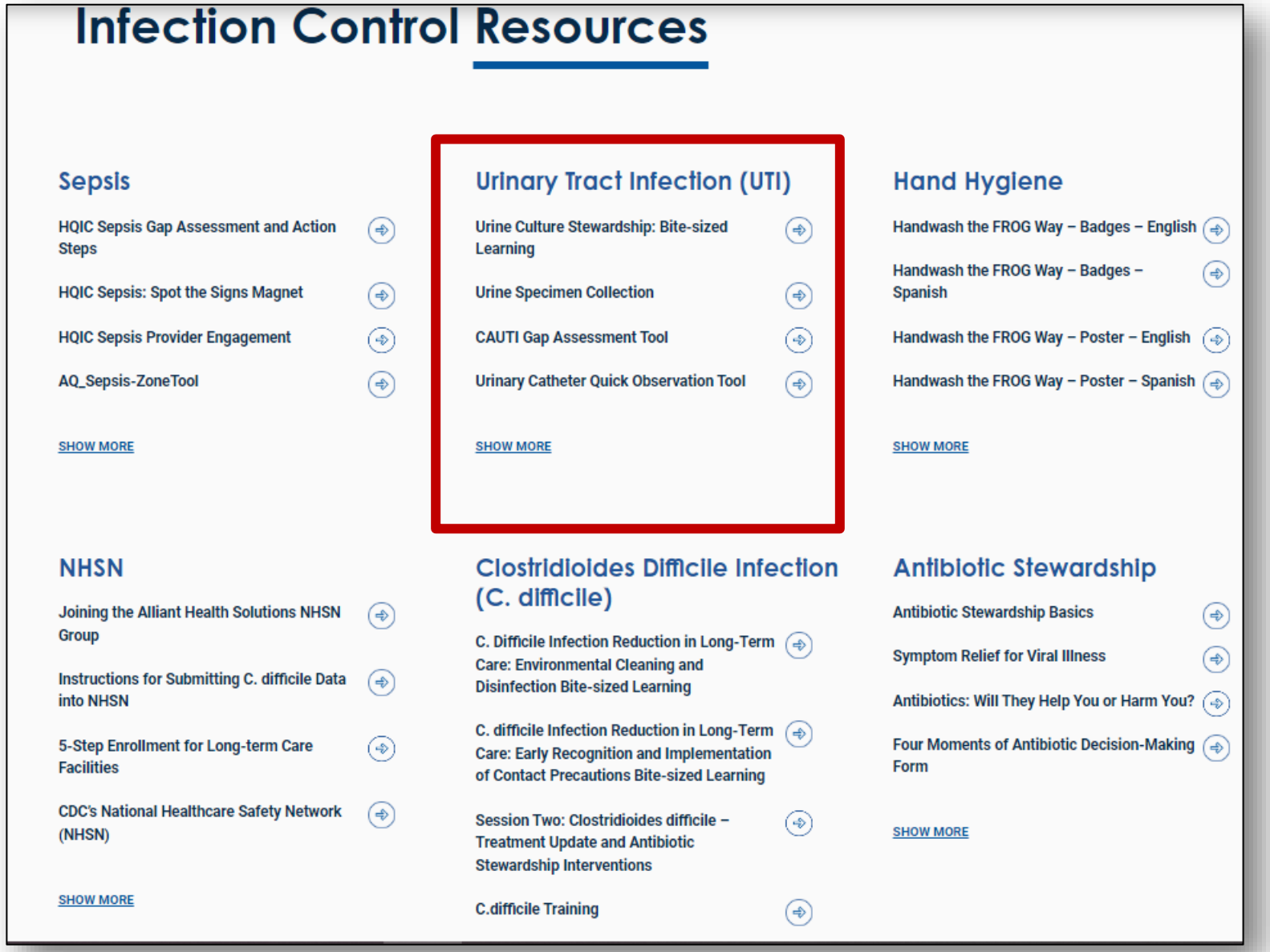
- Ensuring High Quality UTI Surveillance Data: Bite-Sized Learning
- Implementing UTI Surveillance: Bite-sized Learning
- Revised McGeer Criteria Checklist Tool: Bite-sized Learning
- Enhanced Barrier Precautions: Bite-sized Learning
- HAI Surveillance Dashboard & Tool: Bite-sized Learning
- *UTI Quality Improvement: A Medical Director's Perspective*
- *Antibiogram & Empiric Treatments*
- *UTIs & Antibiotic Time-outs*
- *UTI Treatment Guidance*

Resources

- HAI Surveillance Dashboard Tool (Click Handout)
- Revised McGeer Criteria Checklist Tool (click Handout)
- Urine Specimen Collection Resource/Checklist
- Root Cause Analysis/Fishbone Diagram: Use this form to identify factors associated with UTIs

Webinars

- Nursing Home Patient Safety Series: Comprehensive approaches to preventing and managing UTIs Webinar
  - Webinar slides
- Strategies to reduce UTIs Webinar



https://quality.allianthealth.org/topic/infection-control/

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Questions?

Nursing Home and Partnership for Community Health:
CMS 12th SOW GOALS

OPIOID UTILIZATION AND MISUSE

Promote opioid best practices

•

Reduce opioid adverse drug events in all settings

PATIENT SAFETY

Reduce hospitalizations due to c. diff

•

Reduce adverse drug events

•

Reduce facility acquired infections

CHRONIC DISEASE SELF-MANAGEMENT

Increase instances of adequately diagnosed and controlled hypertension

•

Increase use of cardiac rehabilitation programs

•

Reduce instances of uncontrolled diabetes

•

Identify patients at high-risk for kidney disease and improve outcomes

CARE COORDINATION

Convene community coalitions

•

Reduce avoidable readmissions, admissions to hospitals and preventable emergency department visits

•

Identify and promote optimal care for super utilizers

COVID-19

Support nursing homes by establishing a safe visitor policy and cohort plan

•

Provide virtual events to support infection control and prevention

•

Support nursing homes and community coalitions with emergency preparedness plans

IMMUNIZATION

Increase influenza, pneumococcal, and COVID-19 vaccination rates

TRAINING

Encourage completion of infection control and prevention trainings by front line clinical and management staff

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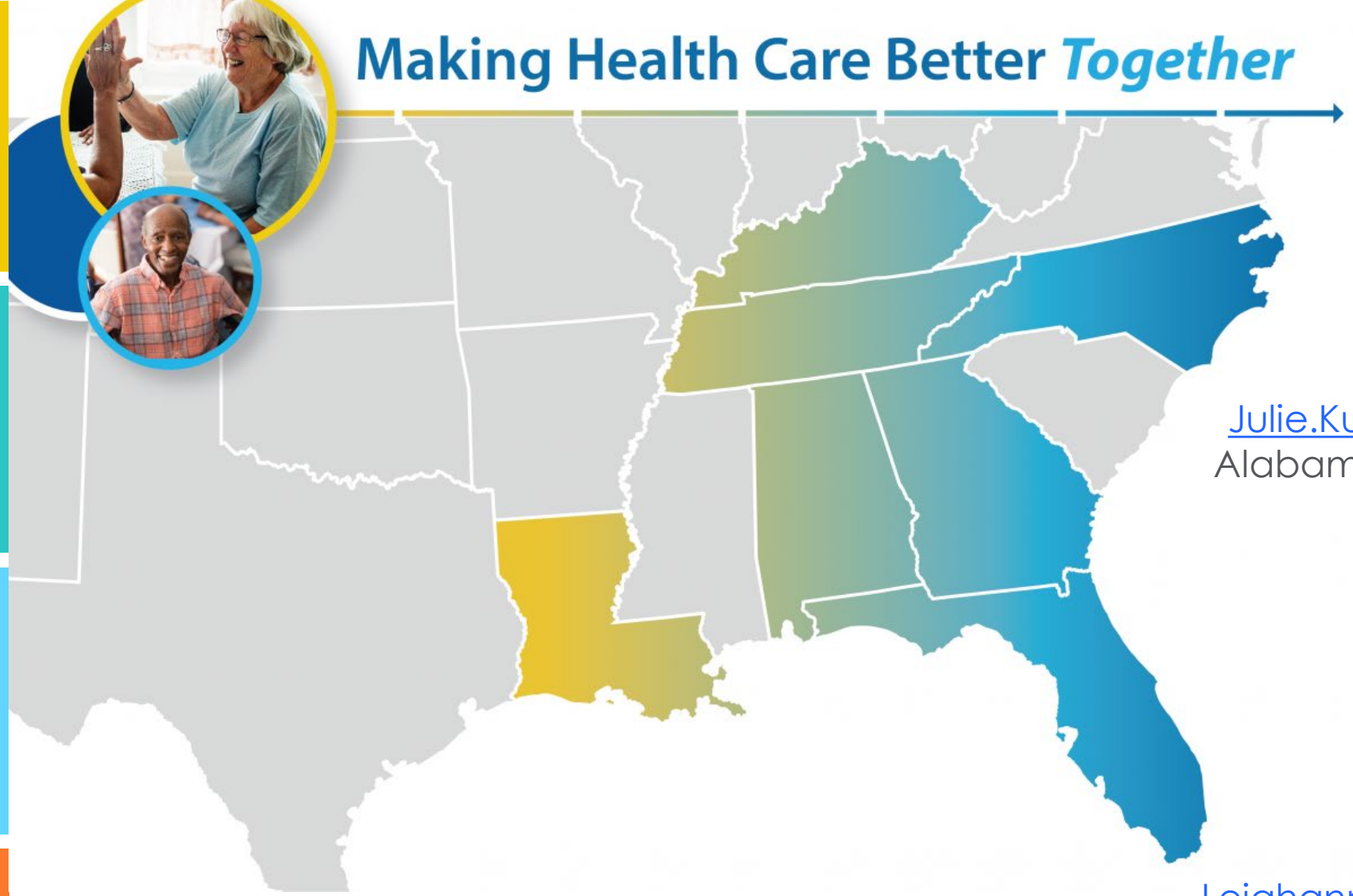

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