

Supplement

Validation and Generalizability of an Asymptomatic Bacteriuria Metric in
Critical Access Hospitals

Supplemental Table 1. Presenting symptoms/diagnoses among patients not clinically determined to have a urinary tract infection

Presenting symptom/diagnosis	Cases (n=33)
Urinary retention ^a	7
Abdominal diagnosis ^b	4
Back pain or bilateral flank pain as isolated symptom	3
Fractures ^c	3
Altered mental status as isolated symptom ^d	2
Fever as isolated symptom	2
Stroke	2
Poor appetite or failure to thrive as isolated symptom	2
Heart failure	1
Dizziness as isolated symptom	1
Vital sign changes	1
Myocardial infarction	1
Nausea/vomiting after recent surgery	1
Atrial fibrillation	1
Suspected yeast infection	1
Parainfluenza	1

^aUrinary retention included 4 due to urinary catheter obstructions and 1 post-surgical case

^bAbdominal diagnoses included gastroenteritis, diverticulitis, post-surgical complication, and stercoral colitis

^c1 pelvic, 1 humeral, 1 spinal

^dIn one of the cases, altered mentation resolved by time of ED visit

Treated only for UTI or infection secondary to UTI (e.g., sepsis, bacteremia, C Diff) during hospitalization

Have normal urinary anatomy (do not include patients with urinary stent, nephrostomy, altered urinary tract anatomy, or urologic surgery during hospitalization)

This case does not meet inclusion criteria. Please scroll to the bottom of this form and click 'submit' and move on to the next case review by clicking on the link (https://redcap.link/Case_Abstraction_Form).

Exclusion Criteria

	Yes	No
Patient left against medical advice (AMA) or refused care	<input type="radio"/>	<input type="radio"/>
Admitted on hospice	<input type="radio"/>	<input type="radio"/>
Women who are pregnant	<input type="radio"/>	<input type="radio"/>
Spinal cord injury	<input type="radio"/>	<input type="radio"/>
Had a UTI Complication (include any patient prescribed > 14 days of antibiotics)	<input type="radio"/>	<input type="radio"/>

This case is excluded. Please move on to the next case review. Please scroll to the bottom of this form and click 'submit' and move on to the next case review by clicking on the link (https://redcap.link/Case_Abstraction_Form).

Was the patient breastfeeding? Yes No N/A Unknown

Hospitalization

Location at the time of culture? Ambulatory care clinic ED, then discharged ED, then admitted Inpatient Rehab or long-term care facility urgent or quick care facility Other

What "Other" setting was the patient cultured in? _____

Was the patient sent to the ED or inpatient? Yes No

Was the culture reflexed from a urinalysis (UA)? Yes No Unknown

NOTE: If possible, all case abstractions should be for patients treated in the hospital/acute care setting or the ED. If your hospital does not have enough of these cases and you have discussed this with the study team, then please continue with case abstraction. Otherwise, please select the next patient who was treated in the hospital/acute care setting or the ED.

Date of hospital encounter:
Date when the patient was first seen (e.g., in ED, clinic, etc) and may be before the date of hospitalization _____

Date of admission to hospital: _____

Date first positive urine culture was collected:
This is defined as Day 0

(Date culture was collected, NOT the date result was reported)

Date of discharge from hospital: _____

Demographics

Age (years): _____

Sex Male
 Female
 Other or not specified

Race White
 Black
 Asian
 Pacific Islander
 American Indian or Alaska Native
 Multiracial
 Other
 Unknown or not specified

Ethnicity Hispanic/Latinx
 Not Hispanic/Latinx
 Unknown or not specified

Co-Morbidities (on Day 1 or 2 of hospitalization)

	Yes	No
Diabetes	<input type="radio"/>	<input type="radio"/>
End Stage Renal Disease (ESRD) - on dialysis	<input type="radio"/>	<input type="radio"/>
Dementia	<input type="radio"/>	<input type="radio"/>

Admitted from skilled nursing facility (SNF) or long-term assisted care facility (LTAC)	<input type="radio"/>	<input type="radio"/>
Immune suppression not severe enough to be excluded (e.g., HIV with CD4 > 200; taking low-dose steroids, < 20 mg prednisone/day; taking < 2 immunosuppressant agents)	<input type="radio"/>	<input type="radio"/>

Urologic Co-Morbidities

	Yes	No
Urologic procedure in 30 days prior to admission	<input type="radio"/>	<input type="radio"/>
Chronic urinary catheter use (i.e., foley)	<input type="radio"/>	<input type="radio"/>
Chronic intermittent straight catheterization	<input type="radio"/>	<input type="radio"/>
History of prostate cancer within the past year	<input type="radio"/>	<input type="radio"/>
Neurogenic bladder or urinary retention	<input type="radio"/>	<input type="radio"/>

SIRS criteria and organ dysfunction (check all that apply):

Information from the period of -1 day to +2 days relative to urine culture (where Day 0 is day first positive urine culture was collected).

	Day -1	Day 0, [first_pos_uc]	Day 1	Day 2
No data are available for this day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temp > 38.0 C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temp < 36.0 C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HR > 90 bpm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RR > 20 breaths/minute	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WBC > 10 K/uL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WBC < 4 K/uL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hypotension (SBP < 90 mm Hg)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New organ dysfunction: Cr >2, Bilirubin >2, platelet < 100,000, INR >1.5, lactate > 2, OR SBP < 90 (see data dictionary for details)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above (all negative)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Urinary Catheter**Information from the period of -1 day to +2 days relative to urine culture (where Day 0 is day first positive urine culture was collected).**

	Day -1	Day 0, [first_pos_uc]	Day 1	Day 2
No data are available for this day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urinary catheter in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermittent straight catheter used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above (both negative)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signs and symptoms related to UTI:**Information from the period of -1 day to +2 days relative to urine culture (where Day 0 is day first positive urine culture was collected).**

	Day -1	Day 0, [first_pos_uc]	Day 1	Day 2
No data are available for this day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urgency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rigors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frequency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dysuria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suprapubic pain or tenderness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acute hematuria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Costovertebral or flank pain or tenderness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Documentation of pyelonephritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fever (>38 C)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New onset mental status changes WITH systemic signs of infection (leukocytosis [WBC > 10uL] OR hypotension [SBP< 90 mmHg] OR 2 or more SIRS criteria)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New onset mental status changes WITHOUT systemic signs of infection (leukocytosis [WBC > 10 uL] OR hypotension [SBP< 90 mmHg] OR 2 or more SIRS criteria)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above (all negative)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Micro Data

What bacteria is/are in the urine culture? (Select all that apply)

- Citrobacter species
- Coagulase-negative Staphylococcus spp.
- Enterobacter species
- Enterococcus species
- Escherichia coli
- Klebsiella species
- Staphylococcus aureus (MSSA or MRSA)
- Proteus mirabilis
- Pseudomonas aeruginosa
- Mixed flora
- Other

Other (primary urine culture organism)

Urinalysis:
Urinalysis that reflexed to culture or was taken just prior to primary urine culture

- Not performed
- Positive leukocyte esterase
- Positive nitrites
- Positive squamous
- Positive bacteria
- WBC marked positive in EMR but WBC < 10
- WBC > 10

Were any blood cultures obtained?

- Yes
- No

Blood culture results (mark all that apply):

- Positive; matched urine
- Positive; did not match urine - likely pathogen
- Positive; did not match urine - likely contaminant
- Negative

Blood culture organism

_____ (only enter if different from urine culture)

Antibiotic Information

On what date did the patient first receive an antibiotic during the hospital encounter? (i.e., first day of antibiotics)

Did the patient receive IV antibiotics while inpatient?
(If patient received IM antibiotics while inpatient, please check 'yes')

- Yes
- No

Which IV antibiotics received during hospitalization?
(Select all that apply)

- Ampicillin-sulbactam
- Cefazolin
- Cefepime
- Ceftriaxone
- Ciprofloxacin
- Ertapenem
- Levofloxacin
- Meropenem
- Metronidazole
- Piperacillin-tazobactam
- Trimethoprim-sulfamethoxazole
- Vancomycin
- Other

Which "other" IV antibiotics received during hospitalization? (Select all that apply)

- Amikacin
- Ampicillin
- Azithromycin
- Aztreonam
- Cefotaxime
- Cefotetan
- Cefoxitin
- Ceftaroline
- Ceftazidime
- Ceftazidime/avibactam
- Ceftolozone/tazobactam
- Cefuroxime
- Clindamycin
- Colistin
- Dalbavancin
- Daptomycin
- Doripenem
- Doxycycline
- Eravacycline
- Gentamicin
- Imipenem/cilastatin
- Linezolid
- Meropenem/vaborbactam
- Moxifloxacin
- Nafcillin
- Oritavancin
- Oxacillin
- Penicillin
- Piperacillin
- Televancin
- Tetracycline
- Tigecycline
- Tobramycin
- Other

Please type in which "other" IV antibiotic received during hospitalization.

Did the patient receive oral antibiotic therapy while inpatient?

- Yes
- No

Which oral antibiotics received during hospitalization? (Select all that apply)

- Amoxicillin
- Amoxicillin-clavulanate
- Cefdinir
- Cefixime
- Cefpodoxime
- Cefuroxime
- Cephalexin
- Ciprofloxacin
- Doxycycline
- Fosfomycin
- Levofloxacin
- Nitrofurantoin
- Trimethoprim-Sulfamethoxazole
- Other
- ()

Which "other" oral antibiotics received during hospitalization? (Select all that apply)

- Azithromycin
- Clarithromycin
- Delafloxacin
- Dicloxacillin
- Linezolid
- Metronidazole
- Minocycline
- Other

Please type in "other" oral antibiotic received during hospitalization

Did the patient receive an IV antibiotic at discharge?

- Yes
- No

Which IV antimicrobials received at discharge? (Select all that apply)

- Ampicillin-sulbactam
- Cefazolin
- Cefepime
- Ceftriaxone
- Ciprofloxacin
- Ertapenem
- Levofloxacin
- Meropenem
- Metronidazole
- Piperacillin-tazobactam
- Trimethoprim-sulfamethoxazole
- Vancomycin
- Other

Which "other" IV antimicrobials received at discharge?
(Select all that apply)

- Amikacin
- Ampicillin
- Azithromycin
- Aztreonam
- Cefotaxime
- Cefotetan
- Cefoxitin
- Ceftaroline
- Ceftazidime
- Ceftazidime/avibactam
- Ceftolozone/tazobactam
- Cefuroxime
- Clindamycin
- Colistin
- Dalbavancin
- Daptomycin
- Doripenem
- Doxycycline
- Eravacycline
- Gentamicin
- Imipenem/cilastatin
- Linezolid
- Meropenem/vaborbactam
- Moxifloxacin
- Nafcillin
- Oritavancin
- Oxacillin
- Penicillin
- Piperacillin
- Televancin
- Tetracycline
- Tigecycline
- Tobramycin
- Other

Please type in "other" IV antibiotic received at hospital discharge

Did the patient receive oral antibiotic therapy at discharge?

- Yes
- No

Which oral antibiotics received at hospital discharge?
(Select all that apply)

- Amoxicillin
- Amoxicillin-clavulanate
- Cefdinir
- Cefixime
- Cefpodoxime
- Cefuroxime
- Cephalexin
- Ciprofloxacin
- Doxycycline
- Fosfomycin
- Levofloxacin
- Nitrofurantoin
- Trimethoprim-Sulfamethoxazole
- Other

Which "other" oral antibiotics received at hospital discharge? (Select all that apply)

- Azithromycin
- Clarithromycin
- Delafloxacin
- Dicloxacillin
- Linezolid
- Metronidazole
- Minocycline
- Other

Please type in "other" oral antibiotic received at hospital discharge

Completed antibiotic therapy while inpatient; no antibiotics prescribed at discharge?

- Yes
- No

Total inpatient IV antibiotic days

(calendar days)

Total inpatient oral antibiotic days

(calendar days)

Total inpatient antibiotic days (IV + oral)

(calendar days, including both IV and oral)

Total discharge antibiotic days

(calendar days)

Total treatment antibiotic duration (days)

(x.x days)

Time abstractor finishes case review:

Total abstraction time:
