

## Select Antimicrobial Stewardship Mythbusters

### Urinary Tract Infection (UTI)

UTIs are one of the most frequent indications for antimicrobial use, but it is estimated that they are misdiagnosed 39% of the time. It is critical for patient care and antimicrobial stewardship that UTI be distinguished from asymptomatic bacteriuria.

#### **MYTH: The urine is cloudy and smells bad. My patient has a UTI.**

- Urine color, clarity, or odor should not be used alone to diagnose UTI or start antibiotics in ANY patient population.

Urine Clarity and UTI Diagnosis			
Sensitivity	Specificity	PPV	NPV
13.3%	96.5%	40%	86.3%

- Foul-smelling urine is an unreliable indicator of infection, and is usually more dependent on patients' hydration status, recent diet, and concentration of urea in the urine. **Consider hydration therapy and symptoms prior to UTI workup.**

#### **MYTH: My patient has pyuria (presence of WBC in the urine) or bacteriuria. My patient has a UTI.**

##### Pyuria:

- Non-infectious causes of pyuria include acute renal failure, STIs, or the presence of a bladder catheter.
- A UA with WBC count <10 may reflect hydration status and should not be used alone to support a diagnosis of UTI.

##### Bacteriuria:

- Asymptomatic bacteriuria (ASB) is the presence of bacteria in the urine in the absence of symptoms, and should generally not be treated with antibiotics (exceptions: pregnant women and patients undergoing urologic procedures).
- Unnecessary treatment of ASB is common and increases the risk of adverse events and risk of drug resistant organisms.

UTI is NOT a laboratory-defined diagnosis. Diagnosis should be made based on clinical signs/symptoms of UTI or infection, then confirmed microscopy/culture.

- Common urinary symptoms → Dysuria, frequency, urgency
- Systemic signs of infection → Fever, elevated WBC count

#### **UA Reflex Criteria: Need TWO or more of the following**

Mod-Large LE, positive nitrites, ≥ 10 WBC

(sample not run if moderate or greater epithelial cells present)

Positive laboratory workup for UTI should include UA that reflexes to urine culture and finalizes with growth of a predominant organism.

#### **MYTH: My elderly patient has altered mental status or presented with a fall. My patient has a UTI.**

- Altered mental status and falls in the elderly are caused by many factors. Evidence of systemic infection (fever, leukocytosis) or other signs/symptoms of UTI (especially dysuria) should be present to make a UTI diagnosis.
- In the absence of clinical instability or other signs of UTI, elderly patients with acute mental status changes accompanied by bacteriuria and pyuria can reasonably be observed without antibiotics for resolution of confusion for 24-48h while evaluating for other causes of confusion including dehydration.

**In most cases, it is safe to say: if there is symptom-free pee, LET IT BE!**

### Aspiration Pneumonia

Aspiration pneumonia is a bacterial lung infection that results from aspiration of oropharyngeal and gastric contents in sufficient amounts to cause alveolar and systemic inflammation.

- Considered a subset of CAP or HAP depending on environment of pneumonia onset.
- Historically, anaerobic bacteria were thought to be the predominant pathogen in aspiration pneumonia.

#### **MYTH: Coverage of anaerobic pathogens is necessary in treatment of aspiration pneumonia.**

Emerging consensus is that aspiration pneumonia is polymicrobial and reflective of oral hygiene and living environment that may modify normal colonizing flora.

- The 2019 ATS and IDSA guidelines for CAP recommend to NOT routinely add anaerobic coverage in patients with aspiration pneumonia, and to treat with standard first-line CAP or HAP agents such as ceftriaxone.
  - Exceptions: anaerobic coverage should be considered in cases of pulmonary abscess or empyema.
- Adding unnecessary anaerobic coverage increases risk for *Clostridium difficile* infection as well as antimicrobial resistance.

### Gram Negative Bacteremia

#### **MYTH: My patient has a bacteremia due to enteric gram negative bacilli. Longer treatment is necessary.**

- Gram-negative pathogens are less likely to seed distal anatomical sites and therefore are less likely to lead to recurrence of bacteremia, abscess, or endocarditis.
- Gram negative bacteremia often arises from a urinary source.
  - Most antibiotics reach high bactericidal concentrations in the urine, promoting rapid clearance of the source of infection and bacteremia.
- Multiple trials have shown that a 7 day duration is noninferior to a 14 day duration for uncomplicated gram negative bacteremia.
  - Shortening durations is an important antimicrobial stewardship strategy to decrease unnecessary antibiotic use and curb development of resistance.
- Longer courses should still be utilized for complicated gram negative bacteremias, including if:
  - Source control is not readily achievable.
  - The bacteremia is complicated by endocarditis.
  - The pathogen is noted to have significant resistance risks (i.e. *Pseudomonas aeruginosa*, *Acinetobacter baumannii*).
  - The patient is severely immunosuppressed.

**Sensitivity results are from all specimens tested by SPH Laboratory (both inpatient and outpatient).**

**Restricted Agents:** Certain antimicrobial agents are restricted and require approval by the Antimicrobial Stewardship team prior to use based on best-practice criteria. Such agents include **Linezolid, Daptomycin, Meropenem, Ertapenem, Ceftaroline, Oritavancin, Fosfomycin, Tigecycline, Fidaxomicin, Voriconazole, Micafungin, and fecal microbiota transplant.**

**AMS Pharmacist Extension: 447-2450**

## St. Peter's Health

### Microbiology and Pharmacy Departments

## Antibiotic Sensitivity Profile for Period January-December 2025

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# St. Peter's Health Antibigram 2025

Gram Negative	Total Isolates	Ampicillin	Ampicillin/Sulbactam	Cefazolin	Cefepime	Ceftazidime	Ceftriaxone	Ciprofloxacin	Ertapenem	Gentamicin	Levofloxacin	Meropenem	Nitrofurantoin <sup>2</sup>	Piperacillin/Tazobactam	TMP-Sulfa	Tobramycin
Citrobacter freundii <sup>4</sup>	27	R	R	R	100			78	100	88	78	100	92		89	100
Enterobacter cloacae complex <sup>4</sup>	53	R	R	R	98			100		100	100		34		96	100
Escherichia coli	1,555	64	75	92	97	96	96	88	100	93	89	100	98	100	85	96
Klebsiella aerogenes <sup>4</sup>	30	R	R	R				100	88	100	100		18		100	100
Klebsiella oxytoca	66	R	73	90	97	97	91	97	100	95	100	100	86		91	90
Klebsiella pneumoniae	238	R	86	84	97	96	96	98	100	97	99	100	48	100	92	90
Proteus mirabilis	79	78	90	91	100	99	97	82	100	99	87	100		100	73	91
Pseudomonas aeruginosa	128	R	R	R	99	96	R	92			94	99	R	96	R	100

Gram Positive	Total Isolates	Ampicillin	Cefazolin	Ceftriaxone	Clindamycin	Daptomycin	Erythromycin	Gentamicin	Linezolid	Minocycline	Nitrofurantoin <sup>2</sup>	Oxacillin	Penicillin	TMP-Sulfa	Tetracycline	Vancomycin
Enterococcus faecalis <sup>1</sup>	81	100	R	R	R	100		81	100		100			R	28	98
Staphylococcus aureus	407				78	100	59		100	100	100	74		97	89	100
MRSA	105	R	R	R	70	100	26		100	100	100	R	R	93	78	100
MSSA	301		S		80	100	70		100	100	100	S		98	93	100
Coagulase negative Staphylococcus	156				62	100			100	100	100	51		73	77	100
Staphylococcus lugdunensis	68				89	100	90		100	100	100	94		99	96	100
Streptococcus anginosus group <sup>5</sup>	44	98		100	70		52		100				100			100
Streptococcus pneumoniae <sup>3</sup>	18			89		94			100	100					72	

Values are reported as percent susceptible.

R' represents intrinsic resistance. 'S' represents inferred susceptibility.

Group B strep and group A strep can be considered 100% susceptible to penicillin, ampicillin and cefazolin therefore sensitivities are not routinely done and alternatives should only be considered in penicillin-allergic OB patients or for serious infections.

Ampicillin or amoxicillin are the drug of choice for UTI's caused by all Enterococci. Ampicillin and amoxicillin are highly concentrated in the urine meaning Enterococci remain susceptible to urinary concentrations of ampicillin 100% of the time even if the MIC is resistant.

<sup>1</sup> SPH had 6 E. faecium isolates. E. faecium isolates in 2025 had average vancomycin sensitivity of 67%.

<sup>2</sup> Sensitivities are only tested on urine cultures.

<sup>3</sup> Sensitivities for S. pneumoniae only tested on 18 isolates but decreased sensitivity compared to data from 2020 to 2024.

<sup>4</sup> Third generation cephalosporins should not be used for ampC producing organisms (C. freundii, Enterobacter cloacae complex, K. aerogenes) due to risk of beta-lactamase over production.

<sup>5</sup> Streptococcus anginosus group includes grouped data from S. anginosus, S. constellatus, and S. intermedius.