

VUMC Surgical Intensive Care Unit Antibiotic Stewardship Guideline

Purpose: To promote appropriate use of antimicrobials and decrease microbial resistance in the surgical intensive care unit (SICU).

Background: The multidisciplinary SICU team employs infection reduction and antibiotic stewardship practices. Such practices have resulted in a dramatic reduction in multidrug resistant pathogens, a significant increase in the percentage of pathogens that are pan-sensitive, and a significant reduction in broad spectrum antibiotic use per patient day^{1,2,4,5}.

Antibiotic Stewardship Program Components:

1. Antibiotic Prophylaxis

- All antibiotic prophylaxis will be discontinued \leq 24 hours post operatively
- Use narrowest spectrum antibiotics based on type of surgery

2. Quantitative Cultures

- Quantitative bronchoalveolar lavage for diagnosis of hospital acquired pneumonia (HAP)
 - Quantitative culture \geq 10,000 cfu/mL

3. Empiric Antibiotic Protocols

- Indication specific empiric antibiotic therapy
- Empiric antibiotics driven by unit data and hospital antibiogram
- Evidence-based antibiotic treatment durations

4. Quarterly Antibiotic Rotation

- Maintenance of antibiotic heterogeneity
- Avoidance of an antibiotic class each quarter

5. Narrowing of Antimicrobial therapy

- De-escalate therapy as soon as possible based on culture results

SICU Antibiotic Rotation Schedule:

	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Duration ⁹⁻¹¹
Excluded Class	BLIC	FQ	CARB	3/4 CEPH	-
Hospital-Acquired Pneumonia[#]	Levofloxacin (+) Tobramycin (+) Vancomycin	Meropenem (+) Vancomycin	Cefepime (+) Vancomycin	Piperacillin/tazobactam (+) Vancomycin	7 – 14 days
Intraabdominal Infection	Cefepime (+) Metronidazole (+) Vancomycin	Piperacillin/tazobactam	Levofloxacin (+) Metronidazole	Meropenem	4 – 7 days
Bacteremia	Cefepime (+) Metronidazole (+) Vancomycin	Piperacillin/tazobactam (+) Vancomycin	Levofloxacin (+) Metronidazole (+)Vancomycin	Meropenem (+) Vancomycin	7 – 14 days

BLIC = beta-lactam/beta-lactamase inhibitor combinations, FQ = fluoroquinolone, CARB = carbapenems, 3/4CEPH = 3rd and 4th generation cephalosporins

[#] Hospital-acquired pneumonia (HAP) is defined as a pneumonia not incubating at the time of hospital admission and occurring 48 hours or more after admission and includes ventilator-associated pneumonia.

Intraabdominal Infection Protocol Considerations:

- Antifungal Coverage⁶
 - Consider addition of fluconazole for:
 - Upper gastrointestinal perforations
 - Recurrent bowel perforations
 - Surgically treated pancreatitis
 - Candida growth on cultures or known to be colonized with candida
 - Immunocompromised patients
- MRSA coverage⁷
 - Consider addition of vancomycin for:
 - Prior MRSA infection
 - Recent hospitalization and/or nursing facility exposure
 - Intravenous antibiotic use within the past 90 days

Pneumonia Protocol Considerations:

- Consider double gram-negative coverage with tobramycin⁸
 - Prior intravenous antibiotic use within the past 90 days
 - Prior multi-drug resistant infections
 - Septic shock
 - Failure to improve on current regimen

Exceptions to the Antibiotic Protocol

- Solid organ transplant recipients
 - Should not receive an aminoglycoside unless deemed appropriate by the primary transplant team
- Necrotizing skin and soft tissue infections
 - Should be given either piperacillin/tazobactam or meropenem for empiric gram negative coverage

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Revised: December 6, 2018

Kelli Rumbaugh, PharmD, BCPS
Lauren Schmidt, PharmD