VANDERBILT UNIVERSITY
MEDICAL CENTER

Surgical Intensive Care Unit
Antimicrobial Stewardship Practice Management Guideline

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

Antibiotic Stewardship Program Components

1. Antibiotic Prophylaxis
    - All antibiotic prophylaxis will be discontinued ≤ 24 hours post operatively
    - Use narrowest spectrum antibiotics based on type of surgery
2. Empiric Antibiotic Protocols
    - Indication specific empiric antibiotic therapy
    - Empiric antibiotics driven by unit data and hospital antibiogram
    - Evidence-based antibiotic treatment durations
3. Narrowing of Antimicrobial therapy
    - De-escalate therapy as soon as possible based on culture results

***Staphylococcus* Nasal Colonization Testing**

All patients suspected of having an intraabdominal infection or pneumonia should have the "PCR staph nasal colonization" nasal swab completed upon admission to the SICU before intranasal mupirocin is administered. Do not obtain a staph nasal swab after mupirocin administration as this will not be accurate.

If the staphylococcus PCR nasal swab does not detect methicillin-resistant staphylococcus aureus, vancomycin can be discontinued unless there is another indication for vancomycin. A positive test should not be used to make clinical interpretations due to low positive predictive value of the test.

Empiric Antimicrobial Guideline

Empiric antimicrobials should be ordered through the adult inpatient sepsis order panel.

1. Assess for Multidrug-Resistant Organisms (MDRO)		
MDRO Risk Factors Immunocompromised Solid organ transplant Recent culture with MRDO Extensive healthcare exposure or broad-spectrum antibiotic exposure in the past 90 days	**MRSA Risk Factors** Immunocompromised Previous culture with MRSA Extensive healthcare exposure in the past 90 days	**Fungal Risk Factors** Upper GI or proximal small bowel perforation Recurrent bowel perforations Surgically treated pancreatitis Immunocompromised Candida growth on culture or known colonization

2. Determine Source of Infection & Choose Antimicrobial(s)		
Abdominal	High Risk MDRO	• First-line: Piperacillin-tazobactam • Severe penicillin allergy: Cefepime AND metronidazole AND vancomycin • *E. cloacae* or ESBL isolated: Meropenem
	Low Risk MDRO	• First-line: Ceftriaxone AND metronidazole • Severe penicillin allergy: Levofloxacin AND metronidazole
Bacteremia	N/A	• First-line: Piperacillin-tazobactam AND vancomycin • Severe penicillin allergy: Cefepime AND metronidazole AND vancomycin • *E. cloacae* or ESBL isolated: Meropenem AND vancomycin
Pneumonia	High Risk MDRO	• First-line: Cefepime AND vancomycin • Severe penicillin allergy: Piperacillin-tazobactam AND vancomycin • *E. cloacae* or ESBL isolated: Meropenem
	Low Risk MDRO or CAP	• First-line: Ceftriaxone AND azithromycin • Severe penicillin allergy: Levofloxacin
Urinary	High Risk MDRO	• First-line: Piperacillin-tazobactam • Severe penicillin allergy: Cefepime
	Low Risk MDRO	• First-line: Ceftriaxone • Severe penicillin allergy: Levofloxacin
Necrotizing Soft Tissue	N/A	• First-line: Piperacillin-tazobactam AND linezolid • Severe penicillin allergy: Meropenem AND linezolid

- Severe penicillin allergy = anaphylaxis, face and or throat swelling, shortness of breath, and hives
- Cefepime does not cover *enterococcus*. When using cefepime for an intraabdominal infection, vancomycin should be added for *enterococcus* coverage.
- Fluconazole may be added for empiric coverage in patients with fungal risk factors.
- Vancomycin may be added for empiric coverage in patients with MRSA risk factors.

Treatment Duration

Intraabdominal infections
- 96 hours from source control

Pneumonia
- Community-acquired (CAP): 5-7 days
- Hospital-acquired (HAP): 7 days

Bacteremia
- Duration is highly dependent on the source of infection and isolated bacteria
- Infectious diseases must be consulted for all positive blood cultures with *staphylococcus aureus* (MSSA and MRSA), *enterococcus,* and yeast

Urinary infections
- Pyelonephritis: 10-14 days
- Catheter-associated: 7 days

- May consider 10-14 days for patients who have a delayed response to treatment
- May consider 5 days if using levofloxacin and the patient is not severely ill

Necrotizing soft tissue infections

- Fournier's gangrene: reference Fournier's Gangrene Guidelines on MDSCC website (https://www.vumc.org/trauma-and-scc/sites/default/files/public_files/Manual/Fournier%27s%20Gangrene%20Guidelines.pdf)
- Necrotizing fasciitis: Antibiotics can be discontinued once source control is obtained, and the patient is hemodynamically stable.

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