

**VANDERBILT UNIVERSITY MEDICAL CENTER
DIVISION OF TRAUMA, BURNS AND SURGICAL CRITICAL CARE**

ANTIBIOTIC STEWARDSHIP PROGRAM:

The Division of Trauma and Surgical Critical Care employs aggressive 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}.

Components of Antibiotic Stewardship Program:

Antibiotic prophylaxis protocols

(< 24hrs - narrow spectrum Rx)

- Perioperative abdominal trauma
- Orthopedic fractures
- Craniofacial trauma

Guideline driven diagnosis of hospital infections

- Quantitative BAL for diagnosis of VAP
- Targeted empiric therapy – only when suspected source identified

Therapeutic antibiotic protocols

- Empiric Rx directed by unit specific infection data
- Indication specific antibiotic therapy
 - Pneumonia – early & late onset
 - Non-pneumonia – blood stream, surgical site, urinary tract
- De-escalation therapy
- Evidence based antibiotic treatment duration

Quarterly antibiotic rotation – class elimination and maintenance of antibiotic heterogeneity

Overall approach: limit prophylactic exposure to appropriate indications with the narrowest appropriate spectrum and duration supported by literature, aggressively empirically cover likely pathogens for suspected infections, de-escalate therapy based on cultures, and limit therapy to evidence based durations. The Division maintains an antibiotic rotation program designed to eliminate an antibiotic class each quarter, while maintaining heterogeneic use of other classes.

Trauma Antibiotic Rotation Schedule:

	Pneumonia (hospital day 1-3)	Pneumonia (hospital day \geq 4) ^a	Non – pneumonia ^b
1 st quarter	Ceftriaxone	Levofloxacin	Piperacillin/tazobactam
2 nd quarter	Ampicillin/sulbactam	Doripenem	Cefepime / metronidazole
3 rd quarter	Levofloxacin	Cefepime	Doripenem
4 th quarter	Ertapenem	Piperacillin/tazobactam	Levofloxacin / metronidazole

^a Empiric Rx includes Vancomycin and Aminoglycoside until culture data is available

^b Vancomycin included except in secondary peritonitis. Fluconazole included for high risk patients & tertiary peritonitis

Administration: The Antibiotic Stewardship Program is under the direction of Addison May and the unit PharmD.

References

1. Dortch MJ, Fleming SB, Kauffmann RM et al. Infection reduction strategies including antibiotic stewardship protocols in surgical and trauma intensive care units are associated with reduced resistant gram-negative healthcare-associated infections. Surg Infect (Larchmt) 2011; 12:15-25.
2. May AK, Fleming SB, Carpenter RO et al. Influence of broad-spectrum antibiotic prophylaxis on intracranial pressure monitor infections and subsequent infectious complications in head-injured patients. Surg Infect (Larchmt) 2006; 7:409-417.