Antibiotic Recommendations for Sepsis and Septic Shock

- This guidance is for patients with sepsis and septic shock (Sepsis 3 criteria) only where early initiation of active antibiotics has been shown to improve outcomes
- Those with less severe infections should have syndromic antibiotics started per NM guidelines available via the stewardship website and/or One Chart order sets
- Appropriate cultures should be obtained which include two sets of blood cultures obtained before antibiotics are started and cultures of other suspected sites of infection (sputum, urine, etc.) obtained as soon as possible
- Use of two antibiotics targeting gram negative pathogens (i.e. combination therapy) is not routinely recommended, but may be considered in patients with septic shock
    - If two agents are started they should rapidly be narrowed when culture becomes available
- Antibiotics started for sepsis should be narrowed to target isolated pathogens as soon as culture results become available or clinical improvement is achieved in the absence of culture data
    - Antibiotics started for sepsis should be reassessed daily for potential discontinuing if sepsis is ruled out or narrowing if more data becomes available

Suspected Source of Sepsis/Septic Shock	New Recs
Unknown Source (includes catheter related blood stream infection) +	Vancomycin IV* **PLUS** Cefepime 1 gm IV q6hr **+/-** Tobramycin 7 mg/kg IV EIAD+ <u>Severe beta-lactam allergy (anaphylaxis, hives):</u> Vancomycin IV **PLUS** Aztreonam 2g q8h **+/-** Tobramycin 7 mg/kg IV EIAD+ + Consider addition of micafungin 100mg daily in those at high risk for candidemia. Risk factors for candidemia at NM include: 1) Broad-spectrum antibiotic use, 2) Central venous catheter, 3) Receipt of TPN, 4) Recent abdominal surgery, and 5) Steroid use. Presence of 2 or fewer of the risk factors suggests a 99.4% chance of **not** developing candidemia, while patients with >2 risk factors have a 4.7% risk of developing candidemia.
Intra-abdominal Source	Piperacillin/tazobactam 4.5g IV q8h, over 4 hours **OR** Cefepime 1g q6h hours **PLUS** Metronidazole 500 mg IV q8h **+/-** Gentamicin 7 mg/kg IV EIAD

	Severe beta-lactam allergy (anaphylaxis, hives): Vancomycin IV **PLUS** Aztreonam 2g q8h **PLUS** Metronidazole 500mg q8h +/- Gentamicin 7 mg/kg IV EIAD
Urinary Tract	Ceftriaxone 2g IV Daily +/- Gentamicin 7 mg/kg IV EIAD (consider if history of MDR pathogen or Pseudomonas) History ESBL colonization Ertapenem 1g qday **alone** Severe beta-lactam allergy (anaphylaxis, hives): Aztreonam 2g q8h **PLUS** Gentamicin 7mg/kg IV EIAD
Skin/Soft Tissue Infection: **Necrotizing Skin/Soft Tissue: Gas Gangrene or Necrotizing Fasciitis (ID Consult rec)**	Vancomycin IV* **OR** Oxacillin/nafcillin 2g IV Q4H **if MRSA not suspected or ruled out** Vancomycin IV* **PLUS** *Piperacillin/tazobactam 4.5g IV q8h, over 4 hours +/- Clindamycin 900mg IV Q8H (**only** if toxic shock present) Severe beta-lactam allergy (anaphylaxis, hives): Vancomycin IV* **PLUS** Aztreonam 2g q8h **PLUS** Metronidazole 500mg q8h +/- Clindamycin 900mg IV Q8H (**only** if toxic shock present)
Severe Community Acquired Pneumonia – No Risk Factors for resistance	Ceftriaxone 2 gm IV q24h^{+} **PLUS** Azithromycin 500 mg IV q24h Severe beta-lactam allergy (anaphylaxis, hives): Levofloxacin 500 mg IV q24h^{+} + Consider addition of vancomycin if significant concern for MRSA (post-influenza, necrotizing pneumonia)

Severe Community Acquired Pneumonia with Risk Factors for Resistance (prev. HCAP, CAP with Pseudomonas risk factors)**–** **Risk factors for resistance (MRSA, Pseudomonas, etc.) identified at NM:** • Hospitalized ≥ 5 days in the past 90 days • Broad spectrum or IV antimicrobial therapy for ≥ 5 days in the past 90 days • Known respiratory tract colonization with an MRDO, particularly *Pseudomonas aeruginosa* • Residence in a long-term care facility	Cefepime 1 gm IV q6hr **PLUS** Azithromycin 500 mg IV q24h **+/-** Vancomycin IV* (consider if history of MRSA, post-influenza, necrotizing pneumonia) **+/-** Tobramycin 7 mg/kg IV EIAD (consider if history of Pseudomonas) <u>Severe beta-lactam allergy (anaphylaxis, hives):</u> Levofloxacin 750 mg IV q24h **PLUS** Aztreonam 2 g IV q8h **+/-** Vancomycin IV* (consider if history of MRSA, post-influenza, necrotizing pneumonia) **+/-** Tobramycin 7 mg/kg IV EIAD (consider if history of Pseudomonas)
Nosocomial Pneumonia Hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia (VAP) Treat using CAP guidelines unless one of the following risk factors is present • Hospitalized ≥5 days • Broad spectrum or IV antimicrobial therapy for ≥ 5 days in the past 90 days • Known respiratory tract colonization with an MRDO, particularly *Pseudomonas aeruginosa* • Septic shock	Vancomycin IV* **PLUS** Cefepime 1 gm IV q6hr **+/-** Tobramycin 7 mg/kg IV EIAD (if concern for Pseudomonas) <u>Severe beta-lactam allergy (anaphylaxis, hives):</u> Vancomycin IV* **PLUS** Aztreonam 2g q8h **+/-** Tobramycin 7 mg/kg IV EIAD (if concern for Pseudomonas)

* Vancomycin dosed per pharmacy consult. Typically with loaded with 20-25 mg/kg dose initially (max 2g initial dose)
EIAD: Extended Interval Aminoglycoside Dosing