NM Broad-Spectrum Usage Criteria
(Cefepime and Piperacillin-Tazobactam)

Background: Broad spectrum antibiotic usage in NM is driven by our piperacillin-tazobactam and cefepime usage. In an effort to address this broad-spectrum antibiotic usage, a list of usage criteria has been approved by the West Region, North, and Northwest Region Antimicrobial Stewardship Subcommittees and their respective Pharmacy and Therapeutics Committees.

Likely Appropriate Indications	Possibly Appropriate Indications	Likely Inappropriate Indications
Genitourinary		
-Cystitis or complicated urinary tract infection with history of non-susceptibility to cefazolin and ceftriaxone in past year -Endometritis (acute postpartum) or salpingitis/PID pts who are critically ill	-Complicated pyelonephritis (critically ill, recent instrumentation, perinephric abscess, kidney transplant)	-Cystitis or pyelonephritis/complicated urinary tract infection with no history of non-susceptibility to cefazolin and ceftriaxone in past year -Endometritis (acute postpartum) or salpingitis/PID -Epididymitis (unless culture-directed or recent instrumentation)
Intra-abdominal		
-High risk/severe intra-abdominal infection: complicated cholecystitis, peritonitis, perirectal abscess, diverticulitis with abscess or perforation, or hospital-associated intra-abdominal infection **(See Table 2 below)**	-Perforated appendicitis in high risk patients **(See table 2 below)** -Necrotizing pancreatitis (>50% necrosis)	-Uncomplicated intra-abdominal infection: community-onset cholecystitis, diverticulitis, appendicitis -Spontaneous bacterial peritonitis (SBP) -Pancreatitis (non-necrotizing)
Respiratory		
-Community-acquired pneumonia (severe) with history of *Pseudomonas* in respiratory culture in past year **(See Figure 1 below)** -Hospital-acquired pneumonia -Ventilator-associated pneumonia		-Acute Bronchitis -Acute Exacerbation of COPD (AECOPD) -Asthma exacerbation -Community-acquired pneumonia with no history of *Pseudomonas* in respiratory culture in past year (**see Figure 1 below**) -Community aspiration
Skin/Skin Structure		
-Necrotizing fasciitis (in combination with linezolid or [vancomycin + clindamycin]) -Diabetic foot infection, critically ill OR history of Gram-negative organisms resistant to ampicillin/sulbactam or ceftriaxone in past year		-Bite wound (human or animal) -Diabetic foot infection not meeting criteria to left -Septic arthritis/prosthetic joint infection -Skin infection, uncomplicated (furunculosis, cutaneous abscess, cellulitis)
Other		
-Sepsis of unknown origin -Directed therapy based on current culture and susceptibility data -Failure of moderately broad-spectrum antibiotics after 48-72 hours (ceftriaxone, ampicillin-sulbactam) -Febrile neutropenia (cefepime preferred) -Recent history (~1 year) of documented infection with *Pseudomonas aeruginosa* susceptible to piperacillin-tazobactam or cefepime -Recommended by ID	-Fever of unknown origin -Necrotizing otitis externa	-Immunosuppression as the only reason cited for use -Infective endocarditis -Neutropenic but afebrile

Table 1: Alternative Antibiotic Recommendations

Indication	First-Line Alternative(s)	Second-Line Alternative
Genitourinary		
Endometritis (post-partum)	Ampicillin-sulbactam plus doxycycline	-Ceftriaxone plus metronidazole OR -Clindamycin plus gentamicin +/- ampicillin
Epididymitis	Suspected STI: Ceftriaxone IM/IV x 1 plus doxycycline Non-STI: Ceftriaxone IV daily	Non-STI: Levofloxacin PO Note: Target urine culture; avoid po beta-lactams if possible. Atypical coverage may be needed if related to STI. Enteric organisms may be covered by ceftriaxone alone.
Prostatitis (acute)	PO: SMX-TMP OR ciprofloxacin (in that order based on susceptibility) IV: Ceftriaxone	
Salpingitis/Pelvic inflammatory disease (PID)	Ceftriaxone plus metronidazole plus doxycycline	-Ampicillin-sulbactam plus doxycycline OR -Clindamycin plus gentamicin
Cystitis, complicated UTI, and pyelonephritis	Base empiric therapy on most recent urine culture susceptibilities (max 1 year prior) PO: Cephalexin OR SMX-TMP OR nitrofurantoin (uncomplicated only) IV: Cefazolin OR ceftriaxone (if non-susceptible to cefazolin)	PO: Cefpodoxime OR ciprofloxacin
Intra-abdominal (Uncomplicated)		
Appendicitis, cholecystitis, diverticulitis	IV: Cefazolin plus metronidazole OR Ceftriaxone plus metronidazole PO: Cephalexin plus metronidazole	-Aztreonam plus metronidazole OR -[SMX-TMP or ciprofloxacin] plus metronidazole OR -Amoxicillin/clavulanate
Pancreatitis (gallstone)	Cefazolin Consider no antibiotics for pancreatitis of other sources	Aztreonam
Spontaneous bacterial peritonitis (SBP)	IV: Ceftriaxone PO: Ciprofloxacin or SMX-TMP	IV: Vancomycin plus aztreonam
Respiratory		
Acute bronchitis or asthma exacerbation	Antibiotics are not indicated for acute bronchitis or asthma exacerbation due to lack of clinical benefit and may be associated with harm	
Acute Exacerbation of COPD (when treatment indicated)	PO: Azithromycin OR doxycycline OR cefuroxime IV: Ceftriaxone OR azithromycin OR doxycycline	PO/IV: Levofloxacin

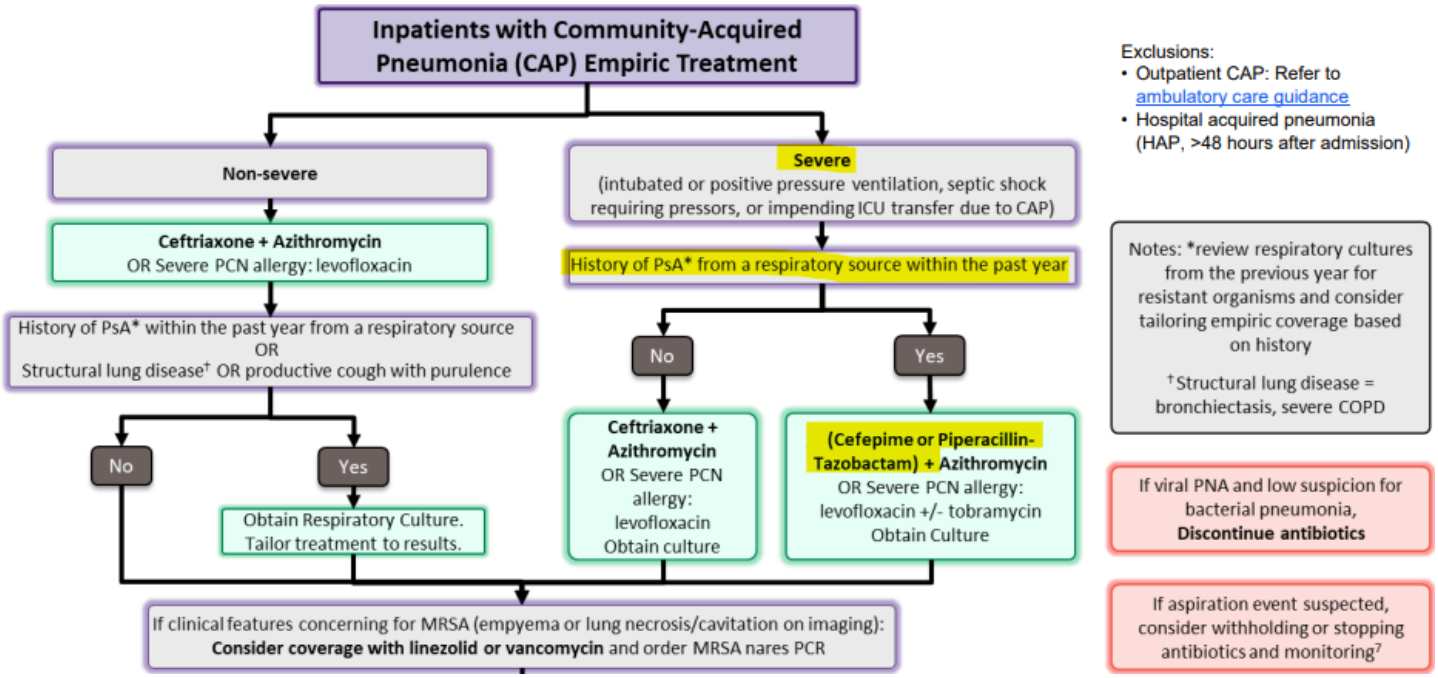
Community-acquired pneumonia (CAP)/community aspiration (see Figure 1)	PO : Cefuroxime plus azithromycin IV : Ceftriaxone plus azithromycin	PO: Amoxicillin-clavulanate plus azithromycin IV: Ampicillin-sulbactam plus azithromycin -Alt for azithromycin: doxycycline (azithromycin highly preferred) -Alt for severe beta-lactam allergy: Levofloxacin alone
Skin/skin structure infection (uncomplicated)		
Bite wound (animal/human)	PO: Amoxicillin-clavulanate IV: Ampicillin-sulbactam	IV: Ceftriaxone plus metronidazole OR PO: [Cefuroxime OR doxycycline OR SMX/TMP] plus metronidazole
Non-purulent cellulitis	PO: Cephalexin IV: Cefazolin	Clindamycin
Purulent/ulcer (consider MRSA Wound PCR)	PO: SMX/TMP OR doxycycline IV: Cefazolin OR vancomycin	IV: Vancomycin PO: Linezolid
Diabetic foot infection (uninfected chronic ulcer with cellulitis)	IV: Cefazolin PO: Cephalexin	Clindamycin OR SMX/TMP
Diabetic foot infection with no history of resistance to first-line options (infected chronic ulcer)	Ampicillin-sulbactam	Cefazolin plus metronidazole OR Ceftriaxone plus metronidazole
Other		
Infective endocarditis (IE)	Refer to IE guidelines (ID Consult)	
Sepsis	Refer to sepsis order set for source-specific antibiotic recommendations	
Septic arthritis/prosthetic joint infection	Ceftriaxone plus vancomycin (or culture-directed)	Aztreonam plus vancomycin

Table 2: Factors Associated with Mortality and Resistance for Intra-Abdominal Infections[1,2]

Factors associated with Mortality
Age> 70 years
Multiple medical comorbidities (cardiovascular, ESRD, ESLD, hypoalbuminemia, malignancy)
Immunocompromising condition (high dose corticosteroids, other immunosuppressive agents, neutropenia, advanced HIV)
Extensive peritoneal involvement or diffuse peritonitis
Delay in initial intervention (source control) > 24 hours
Inability to achieve adequate debridement or drainage control
Septic shock
APACHE-II score > 10

Factors associated with infection with antibiotic resistant bacteria
Healthcare-acquired infection
Travel to areas with high rates of resistance (Asia, Middle East or Africa) or antibiotics were received during travel
Known colonization with antibiotic-resistant bacteria

Figure 1: NM Community-Acquired Pneumonia Protocol



References:

1. Solomkin JS, Mazuki JE, Bradley JS et al, Diagnosis and management of complicated intra-abdominal infection in adults and children by the Surgical Infection Society and Infectious Diseases Society of America. *Clin Infect Dis.* 2010; 50: 133
2. Huston JM, Barie PS, Dellinger EP, et al. The Surgical Infection Society guidelines on the management of intra-abdominal infection: 2024 update. *Surg In.f* 2024; 25(6):419-35. doi: 10.1089/sur.2024.137.
3. US Centers for Disease Control and Prevention. Sexually transmitted infections treatment guidelines, 2021. *Morbidity and Mortality Weekly Report* 2021; 70(4). https://www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf
4. Biggins SW, Angel P, Garcia-Tsao G, et al. Diagnosis, evaluation, and management of ascites, spontaneous bacterial peritonitis and hepatorenal syndrome: 2021 practice guidance by the American Association for the Study of Liver Diseases. *Hepatology* 2021; 72(2):1014-48.
5. Senneville E, Albalawi Z, van Asten SA, et al. Guidelines on the diagnosis and treatment of foot infection in persons with diabetes. International Working Group on the Diabetic Foot 2023.
6. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America [published correction appears in Clin Infect Dis. 2015 May 1;60(9):1448. Dosage error in article text]. *Clin Infect Dis*. 2014;59(2):e10-e52. doi:10.1093/cid/ciu444
7. Jones BE, Ramirez JA, Oren E, et al. Diagnosis and Management of Community-acquired Pneumonia. An Official American Thoracic Society Clinical Practice Guideline. *Am J Respir Crit Care Med*. Published online July 18, 2025. doi:10.1164/rccm.202507-1692ST