Wake Forest Baptist Medical Center Guidelines for the Treatment of Hospital-Acquired and Ventilator-Associated Pneumonias in Adults

Note: applies to non-neutropenic patients developing pneumonia after 48 hours of hospitalization or intubation.

Step 1: Obtain lower respiratory cultures (obtaining cultures should not delay initiation of treatment)

Step 2: Assess risk factors, select category, and initiate empiric treatment

Patient Classification	Empiric Treatment	If Severe Penicillin Allergy[1]
Category 1[2] • Hospital stay: ≤ 7 days **AND** • Not in septic shock **AND** • No history of gram-negative pathogen from respiratory or blood cx resistant to P/T or cefepime	Vancomycin[3,4] plus either Cefepime or Piperacillin/tazobactam	Vancomycin[3,4] plus either Ciprofloxacin or Meropenem[5]
Category 2 • Hospital stay: > 7 days **OR** • Septic shock **OR** • History of resistant gram-negative pathogen from respiratory or blood cx resistant to P/T or cefepime[6]	Vancomycin[3,4] plus Amikacin plus either Cefepime[7] or Piperacillin/tazobactam	Vancomycin[3,4] plus Amikacin plus either Ciprofloxacin or Meropenem[5]

[1] examples of severe penicillin allergy include anaphylaxis, hives, or other immediate-type hypersensitivity reaction. All documentation of these allergies in WakeOne should be independently verified as they are often inaccurate

[2] other factors that have been associated with resistance and may justify initiation of 2 antibiotics targeting gram-negative pathogens include: receipt of > 48 hrs of anti-pseudomonal antibiotic within the previous 90 days, ARDS, or acute renal replacement prior to pneumonia onset.

[3] if cannot use vancomycin, use linezolid

[4] target AUC of 400-650 or trough concentration of 15-20 mg/L. Consider contacting Pharmacy for assistance.

[5] there is a very slight risk of cross-reactivity. Assess risk vs. benefit

[6] consider susceptibilities of previous culture when selecting antibiotic regimen

[7] cefepime preferred over P/T in this regimen to decrease risk of acute kidney injury

Step 3: Assess clinical response and culture results at 48-72 hours. De-escalate antibiotics as appropriate: *Narrowing antibiotic treatment in response to culture results is necessary to limit antibiotic resistance and is not detrimental to patient care. If there is significant growth of a pathogen from a lower respiratory tract (LRT) culture, antibiotic therapy can be narrowed to target that pathogen. If a particular organism targeted by the empiric regimen does not grow from a LRT culture, (and there has been no antibiotic change in the 72 hours prior to obtaining the culture), it is very unlikely that that organism is the cause of the pneumonia. For example, in most cases if the cultures don't yield MRSA (or if nasal swab is negative for MRSA), vancomycin can be discontinued.* Note that aminoglycoside monotherapy is generally NOT recommended for treatment of pneumonia.

Step 4: Determine antibiotic stop date. Recommended treatment duration for pneumonia is 7 days. However, this could be shortened or lengthened depending on rate of improvement of clinical, radiologic, and laboratory parameters.