

UCDHS - Guidelines for the Treatment of Ventilator Associated & Hospital Acquired Pneumonia in Adult ICU's

{Guidelines for the Management of Adults with HAP/VAP. Clin Infect Dis 2016 63(5):e61-e111}

ICU Patient with new lung infiltrate, fever > 38 °C and clinical signs of infection: unlikely abdominal source



Cefepime[^] ± Aminoglycoside* ± Vancomycin[†]
Obtain blood and respiratory cultures
Consider Legionella/Strep UrAg and procalcitonin



Day #3 Review cultures and need to continue antibiotics for nosocomial pneumonia
Reobtain procalcitonin

PCT > 0.25

Continue antibiotic course for 7 days
Add stop date to order
Modify regimen based on Culture & Susceptibility Results



STOP
 (e.g. culture negative, stable,
 PCT ≤ 0.25 or 80-90% decrease from peak PCT)

[^] Levofloxacin is an alternative for severe β-lactam allergy (requires Antibiotic Stewardship authorization)

* If patient is in septic shock, aminoglycoside therapy is encouraged until cultures/susceptibilities are available and is rarely associated with nephrotoxicity at appropriate doses.

[†]For HAP, reserve vancomycin for patients with increased risk of MRSA: abx treatment within 90 days, known MRSA colonization, respiratory gram stain with gram positive cocci.

Prepared by: Hien Nguyen, MD & Brett Heintz, PharmD, BCPS
 Updated by: Nicola Clayton, PharmD
 Approved UCDH Pharmacy & Therapeutics Committee 6/2017.

Empiric Treatment of Hospital Acquired Pneumonia

Early hospital-acquired pneumonia (< 5 days and No RFs for MDR ^o)	Ceftriaxone		
Late hospital acquired pneumonia (≥ 5 days or risk for MDR pathogens ^o) MDR = multi-drug resistant AP = antipseudomonal	AP β-lactam [^] ±	Aminoglycoside* ±	Anti-MRSA
	Cefepime Ceftazidime	Gentamicin Tobramycin Amikacin	Vancomycin

Manifestation (early vs. late)	Common Pathogens
Early hospital-acquired Pneumonia (< 5 days): Community-acquired organisms: colonizing pt at hospital admission	<i>Streptococcus pneumoniae</i> <i>H. influenzae</i> <i>S. aureus</i> (MSSA > MRSA) <i>E. coli</i> , <i>Klebsiella</i> , <i>Proteus</i> , <i>Enterobacter</i>
Late hospital-acquired Pneumonia: (> 5 days, recent antibiotics): Hospital acquired organisms: colonization of more resistant bugs	As above plus <i>Pseudomonas aeruginosa</i> <i>Acinetobacter baumannii</i> ESBL-producing <i>Klebsiella</i> & <i>E. coli</i> <i>Staphylococcus aureus</i> (MRSA > MSSA)

Severe β-lactam allergy: **Early onset:** Levofloxacin[§] **Late onset:** (Aztreonam or Levofloxacin[§]) ± Aminoglycoside* + (Vancomycin or Linezolid)[§]

Duration of Treatment: Generally treat for **7 days** in responding patients

◊**Risk factors for multi-drug resistant pathogens:** hospitalization or broad spectrum antibiotics in last 90 days, septic shock at the time of VAP, ARDS or renal replacement therapy prior to VAP

§**Requires Antibiotic Stewardship authorization**