Antimicrobial Therapy for Adult Community Acquired Pneumonia¶

(NB Provinical Health Authorities Anti-Infective Stewardship Committee, November 2014)

Treatment Considerations:

- Having taken antibiotics within the past 3 months significantly increases the risk of resistant *S. pneumoniae*. Choose an antibiotic from a different class

¶Exclusion: patient with predisposing conditions such as cancer or immunosuppression, acute exacerbation of chronic obstructive pulmonary disease (COPD), bronchitis, macro-aspiration, or MRSA.

Severity	CURB65§	Mortality	Treatment Site	Empiric Therapy∞ (start antibiotics within 4 hours)	Duration of Therapy	Comments
Low	0-1	Less than 3%	Home **OR** Hospitalized for reason other than pneumonia	amoxicillin 500 mg – 1000 mg PO three times daily* **OR** doxycycline 100 mg PO twice daily **OR** Macrolide PO (clarithromycin 500 mg PO twice daily* OR azithromycin 500 mg PO on day one then 250 mg once daily x 4 days)	5 - 7 days	• amoxicillin-clavulanate 875/125 mg PO bid* should be used instead of amoxicillin to provide coverage against Gram-negative bacilli and *S. aureus* when required (e.g., post-influenza, alcoholism, COPD, nursing home) • Amoxicillin is the oral beta-lactam that offers the best coverage against *S. pneumoniae*. Microbiology Tests: None *routinely* (unless hospitalized, see below)
Moderate	2	9%	Hospital	amoxicillin 1000 mg PO three times daily* **+** [macrolide PO or doxycycline 100 mg PO bid] **OR** ampicillin 2 g IV q6h* **+** [macrolide IV (azithromycin 500 mg IV once daily x 3 days) or doxycycline100 mg PO bid] Penicillin Allergy cefuroxime 1.5 g IV q8h **+** [macrolide IV or PO OR doxycycline100 mg PO bid]	7 days	Microbiology Tests: Always order: -Blood cultures (2 sets) -Sputum culture -Urine antigen for pneumococcus and legionellosis‡ (Depending on clinical context, consider investigation for atypical pathogens and viruses)
High	3 or greater	15-40%	Hospital (consider ICU)	cefTRIAXone 2 g IV once daily **+** [macrolide IV or PO OR doxycycline 100 mg PO bid] **OR** levofloxacin 750 mg IV once daily* **+** ampicillin 2 g IV q6h* • For critically ill patients, combinations including doxycycline are not preferred • If legionellosis strongly suspected, consider using levofloxacin • Care with use of levofloxacin: association with *C. difficile* and nosocomial MRSA colonization	7 - 10 days [may extend to 14-21 days according to clinical judgment (e.g. *S. aureus*,)]	

§ CURB65 calculator, 1 point for any of the following:

-**C**onfusion (new)
-**U**rea (greater than 7 mmol/L)
-**R**espiration (greater than or equal to 30/min)
-**B**lood Pressure (less than 90 mm Hg systolic or less than or equal to 60 mm Hg diastolic)
-**A**ge (**65** or greater)

- Interpretation of CURB65 score *in conjunction with clinical judgment*. Too loose an interpretation of “severe pneumonia” contributes to overprescribing third generation cephalosporins and respiratory fluoroquinolones

IV-to-PO Step Down:

Parentral drug	Suggested oral stepdown
azithromycin	azithromycin or clarithromycin
Cephalosporin (any)	amoxicillin + clavulanic acid
levofloxacin + ampicillin	levofloxacin alone ± amoxicillin
Please note, oral monotherapy vs combined therapy (atypicals) → clinical judgment.	

*Dose adjustment required in renal impairment

‡If antigen is positive for *Legionella*, efforts must be made to obtain sputum and advise laboratory that *Legionella* culture is required. This is important for epidemiological purposes in case of an outbreak.

∞If microbial cause of infection known, treat accordingly

References:

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2. Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell D, Dean NC, Dowell SF, File TM Jr., Musher DM, Niederman MS, Torres A and Whitney CG. Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults. Clinical Infectious Diseases 2007; 44:S27–72
3. Mandell LA, MarrienTJ, Grossman RF, Chow AW, Hyland RH and The Canadian CAP Working Group. Summary of Canadian Guidelines for the Initial Management of Community-acquired Pneumonia: An evidence-based update by the Canadian Infectious Disease Society and the Canadian Thoracic Society. Can J Infect Dis. 2000 Sep-Oct; 11(5): 237–248