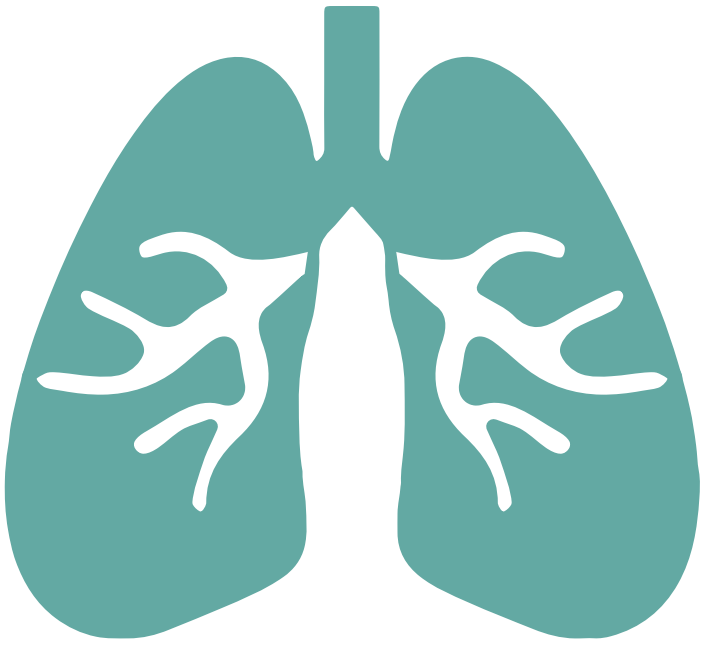
Treatment of Community-Acquired Pneumonia



HMS
MICHIGAN HOSPITAL MEDICINE SAFETY CONSORTIUM

Overview

This document details the Hospital Medicine Safety (HMS) consortium recommendations for empiric therapy and duration of treatment for HMS eligible (hospitalized, non-intensive care unit) patients with community acquired pneumonia (CAP).

The treatment recommendations highlighted in this document are not meant to be a comprehensive guideline, but do reflect therapeutic recommendations in the 2019 ATS/IDSA CAP Guidelines. Many aspects of the management of CAP are not covered in this document, including items such as appropriate diagnostic testing, criteria for the timing of IV to oral step down, discharge criteria, etc. HMS recommendations regarding these aspects of pneumonia care may subsequently be developed based on findings from ongoing data collection at HMS hospitals, but for now, please refer to national or locally developed CAP guidelines.

Intended Use

These recommendations are NOT intended for:

ICU patients

Severely immunosuppressed patients[1]

Patients with a previous culture positive for MRSA or resistant gram-negative organism in the past year

Patients with severe CAP (see Appendix B) who were hospitalized and received IV antibiotics in the previous 90 days

Hospitals should choose their preferred regimen among the options provided based on antimicrobial stewardship/infectious diseases recommendations, hospital formulary restrictions, and hospital antibiograms.

Empiric Treatment for Community-Acquired Pneumonia

HMS Preferred

- Ampicillin-Sulbactam **PLUS** Azithromycin, Clarithromycin, or Doxycycline
- Ceftriaxone **PLUS** Azithromycin, Clarithromycin, or Doxycycline

Alternative but HMS Non-Preferred

- Levofloxacin[2]
- Moxifloxacin[2]

Aspiration Pneumonia

- Duration of therapy is the same as Community-Acquired Pneumonia
- Anaerobic coverage is not routinely warranted in non-critically ill patients with aspiration pneumonia[3]

Empiric Oral Step-Down Therapy: When no etiologic pathogen identified for Community-Acquired Pneumonia[4]

Amoxicillin
Amoxicillin/clavulanate
Cefpodoxime
Cefdinir
Cefditoren
Cefuroxime

} +/- Azithromycin, Doxycycline, or Clarithromycin[5]

Alternatives: Levofloxacin, Moxifloxacin in setting of severe PCN allergy

Duration of Therapy for Community-Acquired Pneumonia[6]

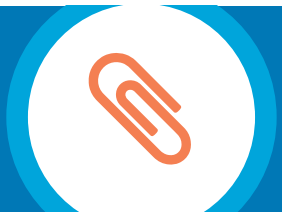
- 5 days[7]
- Therapy can be extended for patients who are febrile or clinically unstable[8] on day 5 of treatment
- Longer durations of therapy (7 days[9,10]) may be appropriate for patients[11] with certain pathogens, structural lung disease, or immunosuppression

Footnotes

1. *Severely immunosuppressed = AIDS (CD4 count < 200 cells/microL), neutropenia (ANC ≤ 0.5 K/uL), Cystic Fibrosis, solid organ and bone marrow transplant recipients, receiving 2 or more immunosuppressive agents, AND/OR congenital or acquired immunodeficiency (except HIV positive with CD4 > 200)*
2. *Preferred for patients with cephalosporin allergy, allergy to both macrolides and doxycycline/ tetracycline, or severe penicillin allergy [hives, angioedema, anaphylaxis, drug reaction with eosinophilia and systemic symptoms (DRESS), stevens-johnson syndrome (SJS), toxic epidermal necrolysis (TENS)]*
3. *Anerobic coverage may be appropriate in patients with cavitary or necrotizing pneumonia, empyema, complicated parapneumonic effusion, lung abscess, or post-obstructive pneumonia. The regimens and durations are not included in this guideline.*
4. *If an etiologic organism is identified based on diagnostic testing, we recommend targeted, narrow spectrum treatment using local susceptibility data.*
5. *There is debate regarding the continuation of atypical coverage for clinically improving patients with CAP when legionella, mycoplasma, and chlamydia spp. have not been identified as an etiology. The IDSA/ATS CAP guideline supports the addition of a macrolide or doxycycline to a beta-lactam for initial empiric CAP treatment. However, many studies supporting the addition of atypical coverage focused on therapy administered during the first 24 hours of hospitalization. A large clinical trial has not been performed addressing continuation of atypical coverage beyond 24-72 hrs when an etiology has not been identified. Therefore, clinicians can individualize treatment after clinical improvement taking into account pneumonia severity, patient specific factors, and institution specific preferences.*
6. *Patients with legionella pneumonia, empyema, parapneumonic effusion, cavitary pneumonia, lung abscess, necrotizing pneumonia, thoracic surgery during hospitalization, pleural drainage catheters, bacteremia, or opportunistic infections (e.g. PCP pneumonia) are not addressed in the following recommendations.*
7. *If patient is afebrile for 48 hrs and has no more than 1 sign of clinical instability by day 5 of treatment.*
8. *Signs of clinical instability: oxygen saturation < 90% or new oxygen requirement, heart rate > 100*

beats/minute, respiratory rate > 24 breaths/minute, systolic blood pressure < 90 mmHg, altered mental status (different than baseline).

9. *If patient is afebrile for 48 hrs and has no more than 1 sign of clinical instability by day 7 of treatment. Note: azithromycin duration should be no more than 5 days.*
10. *Some experts recommend 7 days of therapy for immunosuppressed patients and patients with structural lung disease or moderate/severe COPD. However, data supporting 5 days versus 7 days of therapy for such patients is lacking and either duration would be considered appropriate assuming criteria for clinical stability is met.*
11. *Patients with structural lung disease (e.g. bronchiectasis, pulmonary fibrosis, interstitial lung disease), moderate/severe COPD (excluding COPD exacerbation without pneumonia), documented pneumonia with MRSA, MSSA, or pseudomonas (or other non-fermenting gram-negative pneumonia), or immunosuppressed.*



Appendices

Appendix A: Suggested Antibiotic Dosing[1]:

Drug Name	Dose	Route	Frequency
Amoxicillin	1 g	PO	3 x daily
Amoxicillin/clavulanate XR	875 mg - 2 g	PO	2 x daily
Ampicillin Sulbactam	3 g	IV q	6 hours
Azithromycin	500 mg 250 mg	PO/IV q 24	on day 1 once daily x 4 days
Cefdinir	300 mg	PO	2 x daily
Cefditoren	400 mg	PO	2 x daily
Cefpodoxime	200 mg	PO	2 x daily
Ceftriaxone	1 g	IV q	24 hours
Cefuroxime	500 mg	PO	2 x daily
Clarithromycin	500 mg	PO	2 x daily
Doxycycline	100 mg	PO	2 x daily
Levofloxacin	750 mg	PO/IV	1 x daily
Moxifloxacin	400 mg	PO/IV	1 x daily

1. *Suggested dosing only. Please individualize based on renal function or other pertinent clinical factors.*

Appendix B: Severe CAP Definition

Includes either one major criterion or three or more minor criterion:

Minor Criteria:

- Respiratory rate ≥ 30 breaths/min
- PaO2/FiO2 ratio ≤ 250
- Multilobar infiltrates
- Confusion/disorientation
- Uremia (blood urea nitrogen ≥ 20 mg/dl)
- Leukopenia* (white blood cell count < 4,000 cells/μL)
- Thrombocytopenia (platelet count < 100,000/μL)
- Hypothermia (core temperature < 36°C)
- Hypotension requiring aggressive fluid resuscitation

Major Criteria:

- Septic shock with need for vasopressors
- Respiratory failure requiring mechnical ventilation

**Due to infection alone (i.e., not chemotherapy induced)*

Support for HMS is provided by Blue Cross and Blue Shield of Michigan and Blue Care Network as part of the BCBSM Value Partnerships program. Although Blue Cross Blue Shield of Michigan and HMS work collaboratively, the opinions, beliefs and viewpoints expressed by the author do not necessarily reflect the opinions, beliefs and viewpoints of BCBSM or any of its employees.

Blue Cross
Blue Shield
Blue Care Network
of Michigan

Nonprofit corporations and independent licensees
of the Blue Cross and Blue Shield Association

.215M 0717