



# University of Missouri Pediatric Service Line

Pediatric Emergency • Clinical Practice Guidelines

## Pediatric Community Acquired Pneumonia (CAP) Management Guideline

Child with history/exam and/or chest X-ray<sup>a</sup> consistent with CAP (see exclusion criteria)<sup>b</sup>

**Critically ill and/or requiring respiratory support >15L/kg (or 15L) HFNC and/or 50% FiO<sub>2</sub>**

Yes

No

**Concern for complicated pneumonia<sup>c</sup>**

Yes

No

**Requiring supplemental O<sub>2</sub> and/or respiratory support**

Yes

No

**Able to tolerate PO fluids/antibiotics**

No

Yes

Plan for PICU admission

IV access, blood culture, CBC, CMP, VBG, MRSA nasal swab

Continuous O<sub>2</sub> monitoring

Obtain chest CT with IV contrast & consult pediatric surgery for moderate/large effusions

IV Ceftriaxone<sup>d</sup> +/- Azithromycin based on risk factors<sup>e</sup>  
(Use PowerPlan: **'ED PED Pneumonia Community Acquired'** for antibiotic selection & dosing)

Consider adding vancomycin if critically ill and/or hemodynamically unstable

Plan for floor admission

IV access, blood culture, CBC, CMP,<sup>f</sup> MRSA nasal swab

Continuous O<sub>2</sub> monitoring

Obtain chest CT with IV contrast & consult pediatric surgery for moderate/large effusions

IV Ceftriaxone<sup>d</sup> +/- Azithromycin based on risk factors<sup>e</sup>  
(Use PowerPlan: **'ED PED Pneumonia Community Acquired'** for antibiotic selection & dosing)

Plan for floor admission

Consider IV access, labs<sup>f</sup>

Continuous O<sub>2</sub> monitoring

IV Ampicillin<sup>g</sup> or PO Amoxicillin +/- Azithromycin based on risk factors<sup>e</sup>  
(Use PowerPlan: **'ED PED Pneumonia Community Acquired'** for antibiotic selection & dosing)

Plan for floor admission

IV access, labs<sup>f</sup>

Continuous O<sub>2</sub> monitoring

IV Ampicillin<sup>g</sup> +/- Azithromycin based on risk factors<sup>e</sup>  
(Use PowerPlan: **'ED PED Pneumonia Community Acquired'** for antibiotic selection & dosing)

Discharge home

PO Amoxicillin +/- Azithromycin based on risk factors<sup>e</sup>  
(Use PowerPlan: **'ED PED Pneumonia Community Acquired'** for antibiotic selection & dosing)

ED return precautions<sup>h</sup>



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### Footnotes:

- a. Routine CXRs are not necessary for the confirmation of suspected CAP. AP and lateral CXRs should be obtained in cases of diagnostic uncertainty or for patients with concern for CAP and hypoxemia, significant respiratory distress, or if failed initial antibiotic therapy to verify presence or absence of complications.<sup>1</sup>
- b. Exclusion Criteria: age < 60 days, chronic pulmonary diagnoses (e.g. bronchopulmonary dysplasia/chronic lung disease, cystic fibrosis, asthma, history of aspiration), immunodeficiency, tracheostomy with or without mechanical ventilation, hospital acquired pneumonia
- c. Complicated pneumonia: moderate to large parapneumonic effusion, empyema, abscess, necrosis
- d. Give clindamycin if cephalosporin allergy. Clindamycin can be added to ceftriaxone for complicated pneumonia if concern for MRSA (obtain MRSA nasal swab).
- e. Atypical pneumonia risk factors/clinical features: age > 5 years, insidious onset of symptoms, constitutional symptoms (headache, rash, conjunctivitis, photophobia, sore throat) failure to improve on typical CAP antibiotic coverage, increased local prevalence. Mycoplasma pneumonia can have various radiographic appearances including lobar or segmental consolidation (37%), perihilar or peribronchial infiltrates (27%), localized reticulonodular infiltrates (21%), and patchy infiltrates (15%).<sup>2</sup>
- f. Consider IV access and basic blood work for inability to tolerate adequate PO fluids, concern for dehydration, requiring escalating HFNC. Blood cultures should be obtained in children requiring hospitalization for CAP that is moderate to severe, particularly those with complicated pneumonia. Routine blood work and inflammatory markers are not routinely recommended for uncomplicated CAP, mild to moderate respiratory distress, and no chronic complex conditions.<sup>1</sup>
- g. Give ceftriaxone instead of ampicillin if not fully immunized for age against HiB and Pneumococcus or if true penicillin allergy.
- h. ED return precautions: lack of improvement after 48 hours of antibiotic therapy, worsening respiratory distress, progressive systemic symptoms (e.g. development of altered mental status, dehydration), inability to tolerate oral antibiotics

### References:

1. Bradely et al. The management of community-acquired pneumonia in infants and children older than 3 months of age: clinical practice guidelines by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America. *Clinical Infectious Diseases*. 2011; 53 (7): 617-630.
2. Community-acquired pneumonia in children: Outpatient treatment, UpToDate 2024.  
[https://www.uptodate.com/contents/community-acquired-pneumonia-in-children-outpatient-treatment?search=pneumonia%20children%20treatment&source=search\\_result&selectedTitle=1%7E150&usage\\_type=default&display\\_rank=1#H264608206](https://www.uptodate.com/contents/community-acquired-pneumonia-in-children-outpatient-treatment?search=pneumonia%20children%20treatment&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1#H264608206)