

Community Acquired Pneumonia (CAP) in Children and Adolescents
By Daniel Rauch

Dueling Guidelines: IDSA and British Thoracic Society both 2011

Diagnosis:

Clinical - should be suspected when fever and cough and tachypnea
Classic PE findings are localized rales/rhonchi or localized decreased breath sounds
Pre-school children can have occult pneumonia as source of fever without PE findings
Wheezing is NOT consistent with a bacterial process
Laboratory – If clinically suspected, No need for routine CBC
No need for routine blood culture
No need for sputum culture
Influenza testing in season
Mycoplasma testing is not sensitive or specific enough to overrule clinical suspicion

Radiology – If clinically suspected, No need for routine chest x-ray
X-ray can lag behind clinical picture so a negative x-ray does not rule out pneumonia

When to do more tests:

For severe illness MAY get CBC and blood culture
For suspicion of complicated pneumonia get chest x-ray

Indications for Admission:

Hypoxia
Moderate to severe respiratory distress
Unable to tolerate PO
Complicated pneumonia
Strongly consider for age < 6 months old

So, if can tolerate PO, not hypoxic, and no respiratory distress can be treated as outpatient

Treatment:

Antibiotics – Age dependent plus some other factors
>2mo - <2yo due to decreased likelihood of bacterial etiology should consider supportive care only. When using antibiotics start with a narrow spectrum drug to cover Strep pneumonia such as Amoxicillin orally or Ampicillin IV. Ceftriaxone IM can be used for poor PO and no IV access for QD dosing. For sicker children or evidence of abscess/pneumatocoele consider adding staph coverage.
2-5 – almost exclusively non-vaccine covered strep so Amoxicillin or Ampicillin
>5yo – still mostly strep so again Amoxicillin or Ampicillin. Can consider atypical bacterial causes although evidence for benefit by treating with macrolides is

poor. Due to strep macrolide resistance do not use macrolide for single coverage unless a bug is identified with susceptibility

For all ages - when PCN allergic can consider 1st generation cephalosporins or clindamycin. 2nd generation cephalosporins have added benefit of H. influenza coverage but that is rarely necessary in vaccinated children.

Risk factors for non-standard treatment

Immunocompromised (include asthmatics on oral steroids currently or frequently) – consider broader gram positive coverage

Unvaccinated – consider H. influenza coverage

Underlying cardiac or respiratory disease – consider broader gram positive empiric coverage until clinical improvement

Local Strep resistant profile – if local strep resistance to penicillins use appropriate empiric strep coverage.

Chest Physiotherapy – NO

Follow-up labs – Not necessary if patient is improving

Consider repeat blood culture for unusual organisms or lack of improvement

Repeat CXR – Not necessary if patient is improving

Consider repeat CXR for lack of improvement or worsening specifically looking for effusion

Complications:

Failure to improve likely to be from one of two causes:

1. Viral etiology not be treated by antibiotics. More common in children <2 years old.
2. Parapneumonic effusions. Effusions can cause persistent fever. Drainage can improve time to afebrile but may not be clinically necessary in patient who is otherwise stable or improving. Drainage method is often locally determined by available resources – chest tube versus VATS

When to call for consultants:

1. For drainage if procedure is done by other providers
2. For removal of foreign body if that is cause of pneumonia
3. ID when unusual organisms are suspected or proven
4. Pulmonary for recurrent pneumonia

Discharge criteria:

Stable on room air and tolerating PO to complete a 10 day course of antibiotics