

# February 23, 2018

Ron Kerous is a 6yo incompletely vaccinated M with no PMH presenting with 4 days of gradually worsening fever, productive cough, and poor appetite. Mom says he has not had any rhinorrhea, sore throat, nausea, vomiting, diarrhea, rash, or myalgia.

VS: T 38.6C HR 165 RR 35 BP 88/46 SpO2 88% on RA

Exam: subcostal retractions, LLL rhonchi, sluggish cap refill. The rest of the exam is WNL.

Workup: WBC 18.3 (N 88, L 11, M 1), Hb 13.8. Viral respiratory panel is negative. CXR with silhouette sign and LLL consolidation.

Of the following, the most appropriate inpatient antibiotic regimen for this patient is:

- A. Azithromycin
- B. Ampicillin
- C. Ceftriaxone
- D. Amoxicillin
- E. Oseltamivir

## C. Ceftriaxone

This is the best choice for empiric inpatient antibiotic therapy for community-acquired pneumonia in children with signs of severe illness – temperature  $\geq 38.5^{\circ}\text{C}$ , SpO<sub>2</sub>  $< 90\%$ , retractions, slow capillary refill, and radiological evidence of lobar consolidation – who are not fully immunized. While both beta lactams and third generation cephalosporins have activity against the most common bacterial etiology in immunocompetent children  $\geq 5$  years old, *Streptococcus pneumoniae*, the latter is the correct choice because of better coverage of *S. pneumoniae* and respiratory gram negatives, e.g. *H. influenzae*, that may harbor resistance in this incompletely vaccinated child. Please note, however, that neither have activity against the second and third most common pediatric CAP pathogens, *Mycoplasma pneumoniae* and *Chlamydia pneumoniae*; respectively.

Macrolide monotherapy with azithromycin is not an appropriate empiric choice for pediatric CAP in a severely ill child due to insufficient coverage of *S. pneumoniae*; which, by the way, is the most likely bacterial etiology of severe CAP in this age group. In combination with a beta lactam, however, it would suffice for treatment of atypical CAP caused by *M. pneumoniae* and *C. pneumoniae*. In general, neither cephalosporins nor beta-lactams have activity against *Mycoplasma* or *Chlamydia*.

As noted above, ampicillin is not a good choice for a school-aged child with incomplete vaccinations.

Amoxicillin could serve as an appropriate empiric treatment for mild to moderate CAP. Characteristic signs and symptoms of mild-moderate illness include temperature  $< 38.5^{\circ}\text{C}$ , no/mild retractions, normoxemia, and normal HR with normal capillary refill.

Our Biofire has good sensitivity for influenza, thus effectively ruling out the flu. Also of note, while the flu may present in a variety of ways, Ron's indolent mid-grade fever, productive cough, lobar consolidation, and lack of myalgia strongly argue against the use of a neuraminidase inhibitor alone.