

Two New Studies Share Helpful Information on Diagnosis of Community Acquired Pneumonia

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Anytime we find well-done studies that will improve our ability to efficiently diagnose a common but serious disorder such as community-acquired pneumonia (CAP), we are eager to share those studies with you in our journal. This week, we have two such studies. The first, by Neuman et al. ([10.1542/peds.2017-1013](#)) seeks to address the question of whether or not a blood culture is warranted in a child sick enough to be hospitalized for a community-acquired pneumonia. The authors performed a cross-sectional study of children hospitalized with CAP in six children's hospitals over 5 years from ages 3 months to 18 years looking at positive blood cultures in terms of microbiology and antibiotic susceptibility. The investigators found that from 7509 children hospitalized, only 65 (2.5%) of the 34% of children who had blood cultures drawn were positive for a pathogen with *Streptococcus pneumoniae* being responsible for almost $\frac{3}{4}$ of these positive cultures. In total, only 11 children grew an organism not susceptible to penicillin representing .43% of children with blood cultures obtained. Given the low rate of bacteremia and even lower rate of antibiotic susceptibility, this study makes you strongly consider not automatically drawing a blood culture just because a child has been admitted with CAP.

A second CAP study focuses on the reliability of outpatient findings associated with the diagnosis. Florin et al. ([10.1542/peds.2017-0310](#)) decided to study the interrater reliability of a physical examination in diagnosing children with CAP. The authors share results of their prospective cohort study in one emergency department over three years involving children again ages 3 months to 18 years with signs and symptoms suggestive of a lower respiratory infection and who also got a chest x-ray. Two examiners did independent exams of each child to see what kind of agreement different variables had between examiners relative to the

diagnosis of CAP. While no exam finding had substantial agreement, retractions and wheezing had, “moderate-substantial” agreement while a variety of others noted in the article (e.g. respiratory rate) shared fair to moderate agreement and the remainder poor-fair reliability. When all results were tallied and analyzed for correlation between examiners, only three—wheezing, retractions, and respiratory rate had what was considered as acceptable levels of reliability. While this study may not make you not feel as secure as you might in the reliability of your physical diagnostic skills, it speaks to the importance of ongoing follow-up to determine how your findings and the clinical status of the patient may change over time.

There is no question that careful physical examination still has a role in raising clinical suspicion and once that suspicion is raised, close follow-up is warranted especially if the patient is not sick enough for admission. One examination may not be enough, and even if it is, given the patients signs and symptoms being enough to warrant admission, a blood culture is still not an automatic—if you want to take-away what is shared in these two studies. Do you agree with the findings in your own practice? Check out the data detailed in both these articles and you may breathe a bit easier when it comes to evaluating the every changing examination of a child with evolving CAP.

- [Impact of a National Guideline on Antibiotic Selection for Hospitalized Pneumonia](#)
- [Variability in Antibiotic Prescribing for Community-Acquired Pneumonia](#)
- [A Multicenter Collaborative to Improve Care of Community Acquired Pneumonia in Hospitalized Children](#)
- [Predicting Severe Pneumonia Outcomes in Children](#)
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