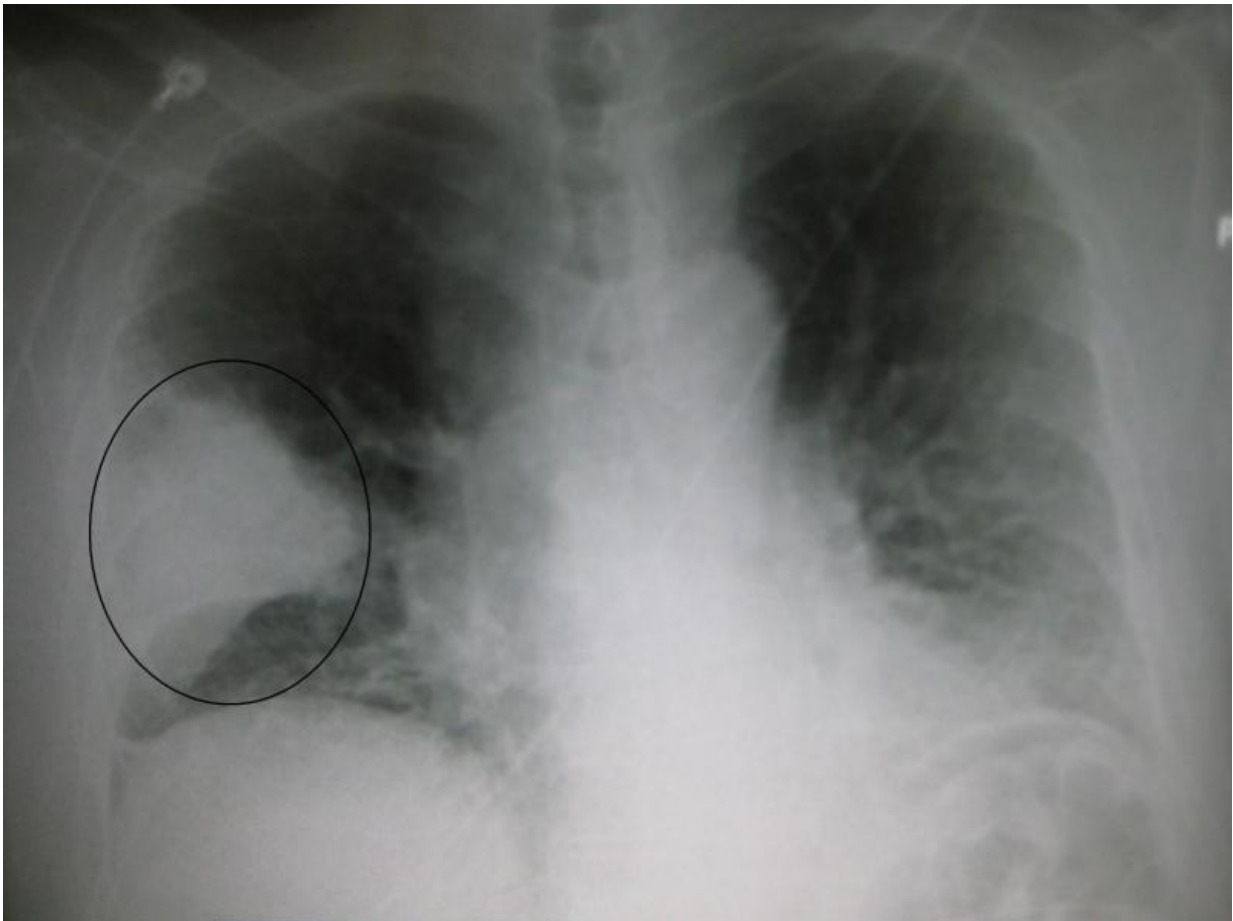


# Study shows azithromycin overprescribed for childhood pneumonia

November 1 2017

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A black and white X-ray picture showing a triangular white area on the left side. A circle highlights the area. Credit: James Heilman, MD./Wikipedia

A combination of two antibiotics is often prescribed to treat community-acquired pneumonia in children but a *JAMA Pediatrics* study is now showing that using just one of the two has the same benefit to patients in most cases.

Vanderbilt University Medical Center researchers are reporting this week that amoxicillin alone, rather than combined with azithromycin, is just as effective and a better choice as it relates to efforts to curb antibiotic resistance.

One of the most commonly used [antibiotics](#) in pediatrics, azithromycin was prescribed to 12.2 million outpatients in 2013 and accounted for almost 20 percent of all antibiotic prescriptions for children in the U. S. ambulatory setting, according to an editorial accompanying the study.

"Combination therapy with azithromycin is unnecessary in most cases of pediatric [pneumonia](#), both because the bacteria targeted by azithromycin are less common than other causes of pneumonia, including viruses, and the effectiveness of azithromycin has not been clearly demonstrated in prior studies," said lead author Derek Williams, M.D., MPH, assistant professor of Pediatrics.

"By minimizing antibiotic exposure whenever possible, we can preserve the effectiveness of currently available antibiotics."

Williams and co-authors studied 1418 children (693 girls and 725 boys) hospitalized for radiologically confirmed community-acquired pneumonia. Amoxicillin, a beta-lactam antibiotic, was used on 72 percent of the study patients while 28 percent received a combination of amoxicillin plus azithromycin.

There were no significant differences in length of stay, intensive care admission, readmissions or recovery at follow-up between the groups.

Thus, "the combined therapy showed no benefit over the single therapy of just amoxicillin," Williams said.

There were also no differences among important subgroups of children most likely to benefit from the combination therapy, including children with *Mycoplasma pneumoniae*, those with wheezing and those admitted to intensive care, he added.

"Amoxicillin or the IV equivalent, ampicillin, treat the most common bacteria that cause pneumonia and are recommended by national guidelines as the treatment of choice for most children with pneumonia," Williams said.

"Azithromycin is used to treat so called atypical pneumonia bacteria, including *Mycoplasma pneumoniae*. Atypical infections are somewhat common in older children and adolescents, but the benefits of treating these infections is less clear."

Additional research to identify which children with pneumonia may benefit from macrolide antibiotics like [azithromycin](#) is urgently needed, Williams said.

"Pneumonia accounts for more antibiotic days in U.S. children's hospitals than any other condition. It is a hugely important target for antimicrobial stewardship efforts," he said. "Reducing unnecessary antibiotic use in pediatric pneumonia and other respiratory illnesses is one strategy to help slow the progression of antimicrobial resistance."

In most pneumonia cases, the actual causative pathogens may be difficult to identify, and antibiotics are selected empirically. Although about 30 percent of children hospitalized with pneumonia received [combination therapy](#) in this study, atypical pathogens were detected in less than 9 percent.

"This apparent discrepancy highlights the challenges of empirical therapy for pediatric pneumonia, and the need to characterize the most common pneumonia pathogens and the effectiveness of antibiotic regimens, to inform empirical treatment", said Carlos G. Grijalva, M.D., MPH, senior author and associate professor of Health Policy.

Co-author Kathryn Edwards, M.D., professor of Pediatrics and the Sarah H. Sell and Cornelius Vanderbilt Chair, said the report is part of a very large study of pneumonia in [children](#) and adults conducted at Vanderbilt and sites in Utah, Chicago and Memphis.

"This work has revealed the important role of viruses in pneumonia and provided guidance on the best antibiotics to use to treat [bacterial pneumonia](#)," she said.

Provided by Vanderbilt University Medical Center

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