



# Cystic Fibrosis Research News

## **Citation:**

Cogen, et al., Association of Inhaled Antibiotics in Addition to Standard Intravenous Therapy and Outcomes of Pediatric Inpatient Pulmonary Exacerbations" Ann Am Thorac Soc 2020.

## **What was your research question? (50 words maximum)**

Does adding inhaled antibiotics to standard intravenous (IV) antibiotics for pulmonary exacerbations improve lung function and increase the time between pulmonary exacerbations compared with standard intravenous antibiotics alone.

## **Why is this important? (100 words maximum)**

Current pulmonary exacerbation guidelines note insufficient evidence to recommend for or against the combined use of inhaled and intravenous antibiotics. While adding inhaled antibiotics to intravenous antibiotics may increase airway drug levels and overall drug exposure, there are potential side effects of inhaled antibiotic use. Some of these risks include acute kidney injury, ototoxicity, and vestibular toxicity.

## **What did you do? (100 words maximum)**

We performed a retrospective cohort study using the Cystic Fibrosis Patient Registry (CFPR) which was linked to data from the Pediatric Health Information System Database (PHIS). We evaluated lung function outcomes and time to next pulmonary exacerbations between pulmonary exacerbations treated with inhaled and IV antibiotics versus pulmonary exacerbations treated with IV antibiotics alone. We used propensity-scores (a statistical method) to address confounding by indication.

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## **What did you find? (100 words maximum)**

We looked at 9,040 pulmonary exacerbation events and a total of 3,253 involved children. Inhaled antibiotics were used in 23% of pulmonary events but were not associated with better pre- to post-PEx ppFEV1, a higher odd of returning to lung function baseline, or a long time to next pulmonary exacerbation.

## **What does this mean and reasons for caution? (100 words maximum)**

These data suggest that adding inhaled antibiotics to standard IV antibiotic therapy is not associated with any improved clinical outcomes following pulmonary exacerbation treatment. There are many limitations to this study, the most important is the potential for confounding by indication. While we attempted to minimize this bias using propensity-scores, we were unable to account for unmeasured confounders.

## **What's next? (50 words maximum)**

We hope to further evaluate the benefits of inhaled antibiotic therapy in the treatment of pulmonary exacerbations. We would collaborate with future investigators on a prospective clinical trial evaluating the benefits of inhaled antibiotic therapy in the treatment of pulmonary exacerbations.