

Reduced inhaler use is safe for infants with bronchiolitis

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Bronchiolitis, a lung infection that is one of the most common reasons for hospitalizations in young children, is most prevalent during the winter months and is usually treated with albuterol delivered via inhalers, despite evidence showing no benefit in most patients. A multidisciplinary team of researchers from Children's Hospital of Philadelphia (CHOP) redesigned the hospital's standard treatment for the infection and reduced albuterol use without compromising care.

The research was published in the December issue of *Pediatrics*.

"Given the frequency of [albuterol](#) usage and the drug's potential side effects, we wanted to improve the value of the medical care provided to children with bronchiolitis and searched for ways to reduce use," said Michelle Dunn, M.D., attending physician in general pediatrics at CHOP and lead author of the study. "We set out to revise our treatment plan, or [clinical pathway](#), to reflect the current American Academy of Pediatrics (AAP) guidelines and educate clinicians about the recommended changes."

The AAP updated its bronchiolitis guidelines in 2014, recommending against the use of bronchodilators like albuterol in typical patients with bronchiolitis. To bring its [clinical practice](#) in line with those recommendations, the CHOP team used a [multidisciplinary approach](#)—with a goal of reducing the use of albuterol for bronchiolitis in infants in both [emergency department](#) and inpatient settings.

To do so, the team modified emergency department and inpatient treatment plans to state explicitly that bronchodilators were not recommended for infants with a typical presentation of bronchiolitis, which involves symptoms of a viral upper respiratory infection that progress to the lower respiratory tract. The team also educated nurses, respiratory therapists and physicians on the new guidelines and modified the electronic health record system, creating a "do not order" option that stated bronchodilators were not recommended for routine use.

After implementing the new protocols, albuterol use in infants with bronchiolitis declined from 43% to 20% in the emergency department and from 18% to 11% in inpatient settings, which prevented more than 600 infants from receiving an unnecessary treatment. The team measured patient admission rates, length of stay and revisit rates and found the reduced albuterol use did not impact those metrics.

The study period covered October 2014 through March 2017, which included three winter seasons. During that time, CHOP had 5,115 emergency department visits and 1,948 hospitalizations for bronchiolitis. Of those, 3,834 emergency department visits and 1,119 inpatient hospitalizations were included in the study.

"The methods used in this study can be applied to other diagnoses where there is potential overuse of testing and interventions," said Joseph J. Zorc, MD, MSCE, attending physician in emergency medicine at CHOP and senior author of the study. "The next

step for improving bronchiolitis care at CHOP is focusing on the use of the high-flow nasal cannula, an emerging therapy for infants with severe [bronchiolitis](#)."

More information: Michelle Dunn et al, Reducing Albuterol Use in Children With Bronchiolitis, *Pediatrics* (2019). [DOI: 10.1542/peds.2019-0306](https://doi.org/10.1542/peds.2019-0306)

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