

Practice Guidelines

AAP RELEASES PRACTICE GUIDELINE ON DIAGNOSIS, MANAGEMENT, AND PREVENTION OF BRONCHIOLITIS

Bronchiolitis, which is the most common reason infants are hospitalized in the first year of life, is typically caused by viral lower respiratory tract infection (e.g., respiratory syncytial virus [RSV]) and often causes acute swelling, edema, epithelial cell necrosis in small airways, and increased production of mucus. Typically, symptoms start as rhinitis and cough; these can evolve into tachypnea, wheezing, rales, accessory muscle use, or flaring of the nostrils. This guideline on the diagnosis, management, and prevention of bronchiolitis in children one to 23 months of age from the American Academy of Pediatrics (AAP) updates a previous guideline published in 2006.

Recommendations

Diagnosis

Strong Recommendations. Based on studies with minor limitations or consistent findings in multiple observational studies, the diagnosis for bronchiolitis should be established using a history and physical examination; severity of the condition should be established in the same manner. The goal of the history and physical examination is to distinguish between suspected bronchiolitis and other illnesses or conditions. Important aspects of the history include the patient's underlying conditions; how respiratory problems are affecting his or her mental status, feeding, and hydration; and the caregiver's ability to provide care and bring the child back to the office, if needed. When performing a physical examination, it may be necessary to observe the patient over time to fully determine status.

Moderate Recommendations. The following recommendations are based on studies with minor limitations or consistent findings in multiple observational studies:

- Risk factors for severe disease (e.g., age younger than 12 weeks, history of prematurity, cardiopulmonary disease, immunodeficiency) should be evaluated when choosing how to assess for and manage bronchiolitis.

- When establishing a diagnosis using the history and physical examination, radiography and laboratory tests do not need to be routinely performed. Radiography should be performed initially only in patients with airway complications or in whom respiratory effort necessitates admission to the intensive care unit.

Treatment

Strong Recommendations. Based on well-designed trials and meta-analyses on applicable populations, systemic corticosteroids should not be given to children with bronchiolitis. Although good evidence indicates that corticosteroids are beneficial in other respiratory disease, data regarding their use for bronchiolitis are negative, with the most recent Cochrane review and a large multicenter randomized trial demonstrating that their use as monotherapy is not significantly beneficial. Additionally, aside from prolonged viral shedding, no evidence exists of the adverse effects of corticosteroids when used for bronchiolitis; therefore, their safety profile is uncertain.

The following strong recommendations are based on studies with minor limitations or consistent findings in multiple observational studies:

- Albuterol, salbutamol, and epinephrine should not be given to infants with bronchiolitis. Alpha- and beta-adrenergics have not been shown to be consistently beneficial in patients with bronchiolitis in a majority of randomized controlled trials. Additionally, a few systematic reviews and meta-analyses have indicated that, although bronchodilators possibly help with symptom scores, they do not help in resolving the illness, lessen the need to be hospitalized, or, if hospitalized, shorten the stay. With regard to epinephrine, a Cochrane review determined there was a lack of evidence to support its use in the inpatient setting; two randomized trials determined that its use vs. placebo or albuterol did not shorten the length of stay in the hospital or other outcomes in the inpatient setting; and a large multicenter trial determined that it lacked effectiveness vs. placebo, and caused a longer stay in the hospital when used on a fixed schedule vs. being used only as needed. The use of epinephrine in outpatients remains controversial.
- Antibacterial drugs should not be given, unless the patient has or is suspected to have a bacterial

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infection. Randomized controlled trials have demonstrated no benefit from the routine use of antibacterial drugs in children with bronchiolitis.

Although validating studies cannot be performed, in situations where the benefits outweigh the harms, nasogastric or intravenous fluids should be given to patients unable to maintain hydration via the oral route. The indications should be based on the level of respiratory distress in the patient.

Moderate Recommendations. The following recommendations are based on studies with minor limitations or consistent findings in multiple observational studies:

- Nebulized hypertonic saline should not be given to children with bronchiolitis who present to the emergency department. Evidence has shown that saline does not reduce hospitalizations in emergency settings.
- Chest physiotherapy should not be used in children with bronchiolitis.

Weak Recommendations. Based on studies with minor limitations or consistent findings in multiple observational studies, nebulized hypertonic saline can be given to children with bronchiolitis who are in the hospital. Most evidence supports the safety and effectiveness of 3% saline for helping improve symptoms, after one day's use, in patients with mild to moderate disease. Additionally, data support use of 3% saline for shortening hospital stays of greater than three days.

Based on single or few observational studies or multiple studies with inconsistent findings or major limitations, physicians can opt not to use continuous pulse oximetry. Additionally, based on expert opinion, case reports, or reasoning from first principles, if a patient's oxyhemoglobin saturation is greater than 90%, supplemental oxygen does not have to be given, and physicians can opt to not provide it.

Prevention

Strong Recommendations. The following recommendations are based on studies with minor limitations or consistent findings in multiple observational studies:

- Palivizumab should not be given to otherwise healthy infants with a gestational age of at least 29 weeks; however, it can be given as outlined below in the moderate recommendations section.
- When caring for children with bronchiolitis, alcohol-based rubs should be used for hand cleaning; however, if unavailable, soap and water can be used. RSV can be carried on hands of caregivers and then spread to others. Hands

should be cleaned before and after having direct contact with the patient, after contact with items around the patient, and before putting on and after removing gloves. When the patient is in the hospital, adhering to procedures for hand cleaning and using protective items like gloves can help lower the chance of cross infection.

- When evaluating a child for bronchiolitis, counseling about exposing the child to tobacco smoke, as well as smoking cessation (if needed), should be provided to the parents. When a child is exposed to tobacco smoke, he or she has a higher risk of bronchiolitis. Additionally, if the child has bronchiolitis, the disease can worsen when exposed to smoke.

Moderate Recommendations. The following recommendations are based on studies with minor limitations or consistent findings in multiple observational studies:

- During the first 12 months of life, palivizumab should be given during the RSV season to children with hemodynamically significant heart disease or chronic lung disease of prematurity (less than 32 weeks' gestation and requiring more than 21% oxygen in the first 28 days of life). It should be given as a maximum of five monthly doses (15 mg per kg per dose).
- Women should be encouraged to breastfeed their child for six months or longer to reduce morbidity from respiratory infections. One meta-analysis found a 72% decrease in the risk of hospitalization from respiratory illness in children exclusively breastfed for at least four months vs. children given formula. Additionally, it has been demonstrated that respiratory infections are less common in children who have been breastfed.

The following recommendations are based on single or few observational studies or multiple studies with inconsistent findings or major limitations:

- During evaluation for bronchiolitis, caregivers should be asked whether the child is exposed to tobacco smoke.
- Health care personnel and patients' families should be taught about bronchiolitis diagnosis, treatment, and prevention options that are based on evidence. Allowing families of patients to share in the decision-making process is essential when providing patient-centered care, and despite the lack of effective treatments for bronchiolitis, providing families key information still has the possibility to significantly affect patterns of care.