

# Management of bronchiolitis in infants in primary care settings

## What to do and what not to do

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### Clinical question

How can we provide optimal management of bronchiolitis in infants while avoiding unnecessary treatments and investigations?

### Bottom line

Bronchiolitis is the most common viral respiratory disease in infancy and is frequently encountered in primary care settings. Routine pharmacotherapy, chest radiographs, and laboratory testing have no proven benefit in its management, yet providers often order non-evidence-based interventions that have no impact on disease trajectory. Providers often feel the need to “do something” when faced with these infants and their worried caregivers, especially when there is diagnostic uncertainty. Providers should focus on educating families, which includes helping caregivers manage symptoms and identify warning signs that warrant further evaluation. Tools are available to empower clinicians and families in understanding what they can do and to de-emphasize the use of non-evidence-based interventions.

### Case description

Tasha is a previously healthy and fully immunized 9-month-old infant who has been brought in to see you based on a 1-day history of cough and wheezing. She has had a runny nose for 3 days and her siblings are sick with similar symptoms. She has been drinking well and has had good urine output but decreased appetite. Her father has asthma. While talking with her father, you have noticed that Tasha is playful and interactive. She is fussy while being examined but is easily consolable. She has a respiratory rate of 35 breaths per minute and her temperature is 38°C. Your office does not have a saturation monitor that is accurate for children. Her mucous membranes are moist and she has acute rhinitis. Chest examination findings reveal some mild indrawing, and auscultation findings show good air entry with wheezes and crepitations scattered throughout.

### Evidence

Bronchiolitis is a viral respiratory infection that primarily affects children younger than 2 years. It is typically caused by respiratory syncytial virus, although any virus

can be responsible. Diagnosis is based on clinical evaluation alone.<sup>1</sup> There is clear evidence that pharmacotherapy does not alter the natural course of the disease<sup>2</sup> and that chest radiographs and laboratory testing lead to unnecessary antibiotic use and hospitalization.<sup>3,4</sup> Despite well-established national guidelines that discourage the use of non-evidence-based management,<sup>1,5</sup> bronchiolitis remains a common source of unnecessary expenditure and overuse of resources in health care.<sup>6</sup> A study published in 2019 demonstrated that bronchiolitis guideline adherence in the outpatient setting in Australia was 52.3%,<sup>7</sup> and another multicentre retrospective cohort study in several countries, including Canada, showed that only 48.3% of infants seen in the emergency department received full evidence-based treatment.<sup>8</sup> Choosing Wisely Canada is the national voice for reducing unnecessary tests and treatments in Canada.<sup>9</sup>

### Approach to patients

**Diagnosis.** Bronchiolitis is a clinical diagnosis. It typically presents in infants between 0 and 24 months of age with a history of upper respiratory illness prodrome, and it may result in bilateral wheezing or crepitations, increased work of breathing (grunting, nasal flaring, retractions), or increased respiratory rate. No investigations are needed for diagnosis—including chest radiograph or laboratory testing, as highlighted by the Canadian Paediatric Society<sup>1</sup>—regardless of whether the infant is seen at the start, middle, or end of disease, even if the infant has ongoing cough after a few weeks.

Differential diagnoses to consider include asthma (which cannot reliably be diagnosed in children younger than 12 months but can be considered in those with a history of atopy or recurrent wheeze),<sup>10</sup> pneumonia (unilateral findings, fever >39°C), croup (stridor or barking cough), foreign body aspiration (unilateral sign, no prodrome), or laryngomalacia (stridor with positional changes).

Infants at high risk of severe disease are those who were born at less than 35 weeks' gestation, are younger than 3 months at presentation, have hemodynamically substantial cardiopulmonary disease, or have immunodeficiency.<sup>1</sup>

**Severity determination and disposition management.** Table 1 outlines clinical features of patients with mild, moderate, and severe bronchiolitis and relevant management approaches.<sup>1</sup>

**Things to do.** Supportive management includes the following actions:

- Ensure adequate fluid intake: Encourage families to feed the infant small amounts frequently.<sup>1,11</sup>
- Suction: Suctioning nasal passages with any commercial device may be beneficial, especially prior to feeding.<sup>11</sup>
- Manage fever: Translating Emergency Knowledge for Kids recommends treating fevers with antipyretics.<sup>12</sup>
- Empower families: Provide families with resources for home management and clear instructions regarding when to seek further care.<sup>13,14</sup>
- Refer to and use the Choosing Wisely Canada bronchiolitis tool kit.<sup>11</sup>
- Follow up: Arrange close follow-up as needed.

**Things not to do.**

- Do not measure oxygen saturation if the patient appears well and has mild disease.<sup>15</sup>
- Do not order chest x-ray scans.<sup>1,11</sup>
- Do not order routine bloodwork unless clinically indicated (eg, dehydration, febrile young infant).<sup>12</sup>

- Do not prescribe salbutamol, corticosteroids (inhaled or oral), or epinephrine.<sup>1,11,14</sup>
- Do not order comprehensive respiratory viral testing.<sup>1,11</sup>
- Do not prescribe antibiotics.<sup>1,11,14</sup>

### Implementation

Providers continue to use non-evidence-based management strategies to treat patients with bronchiolitis for various reasons. Understanding barriers to evidence-based practice and ways to overcome them may help reduce the use of these approaches in primary care, as described in **Table 2**.<sup>10,14,16</sup>

For patients and their families, display educational posters in your waiting room and send targeted emails prior to bronchiolitis “season” (ie, November to March) with relevant information and caregiver resources. Information about bronchiolitis can also be posted on the website of your clinic, hospital, or health care team. For staff, provide educational rounds and engage in quality improvement initiatives to address any quality gaps.

**Table 1. Bronchiolitis management approach based on illness severity**

SEVERITY	CLINICAL FEATURES	DISPOSITION MANAGEMENT
Mild	<ul style="list-style-type: none"> <li>• No or mild respiratory distress</li> <li>• Well hydrated, feeding adequately</li> <li>• “Happy wheezer”</li> </ul>	Usually managed as outpatient and at home
Moderate	<ul style="list-style-type: none"> <li>• Moderate respiratory distress</li> <li>• Tachypnea with respiratory rate &gt;60 breaths/min</li> <li>• Inadequate feeding</li> <li>• Brief apnea</li> </ul>	Often needs observation, including assessment in the ED; hospitalization may be required*
Severe	<ul style="list-style-type: none"> <li>• Severe respiratory distress</li> <li>• Unable to feed or clinically dehydrated</li> <li>• Lethargic</li> <li>• Frequent apneas</li> </ul>	ED assessment and hospitalization required*

ED—emergency department.  
\*Indications for admission include severe respiratory distress, dehydration or poor fluid intake, cyanosis or apnea, family unable to cope, and infants at risk of severe disease.<sup>1</sup>

**Table 2. Strategies for overcoming barriers to evidence-based management of patients with bronchiolitis**

BARRIER	EXPLANATION	WAYS TO OVERCOME BARRIER
Caregiver anxiety or lack of understanding	Families may not understand the disease or may believe there is a treatment that can resolve symptoms	<ul style="list-style-type: none"> <li>• Empower families by educating them</li> <li>• Provide resources for home management<sup>14</sup></li> <li>• Ensure close follow-up</li> </ul>
Diagnostic uncertainty	<ul style="list-style-type: none"> <li>• Providers may worry they will miss an alternative diagnosis, especially as examination findings often reveal crepitations and wheezing</li> <li>• Providers may not be confident in diagnosing bronchiolitis based on the patient’s clinical history and examination alone</li> </ul>	<ul style="list-style-type: none"> <li>• Educate families on signs and symptoms of differential diagnoses (eg, pneumonia: fever &gt;39°C, persisting unilateral symptoms) and ensure close follow-up. Asthma is less common in children younger than 12 mo but could be considered with atopy history and symptom improvement with short-acting <math>\beta_2</math>-agonists<sup>10</sup></li> <li>• Improve your knowledge of bronchiolitis management through continuing professional development programs, such as the Canadian Paediatric Society’s Pedagogy module <i>Diagnosis and Management of Paediatric RSV infections</i><sup>16</sup></li> </ul>
Provider feels the need to “do something”	Providers may feel an urge to do something to help infants and their families with the symptoms or symptom duration	Focus on providing supportive care management (eg, feeding, suctioning, comfort) and close follow-up

RSV—respiratory syncytial virus.

## Case resolution

Tasha was clinically diagnosed with mild bronchiolitis. Asthma is less likely in her age group, despite her family history of asthma. Her father was provided with information on bronchiolitis management, encouraged to feed Tasha frequent small meals, and advised to monitor Tasha's urine output. Tasha did not require any investigations or treatments, including oxygen saturation or salbutamol. When she was seen for follow-up 2 days later, her breathing had improved and she continued to have good urine output. Her parents were advised to return for follow-up as needed.

## Conclusion

Infants with bronchiolitis are frequently seen in primary care settings, and health care providers often feel pressure to prescribe non-evidence-based interventions. This article provides information and tools to help clinicians and families focus on symptom management, avoid non-evidence-based interventions, and understand warning signs that warrant further evaluation. 🌿

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### Competing interests

None declared

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Choosing Wisely Canada is a campaign designed to help clinicians and patients engage in conversations about unnecessary tests, treatments, and procedures and to help physicians and patients make smart and effective choices to ensure high-quality care is provided. To date there have been 13 family medicine recommendations, but many of the recommendations from other specialties are relevant to family medicine. Articles produced by Choosing Wisely Canada in *Canadian Family Physician* are on topics related to family practice where tools and strategies have been used to implement one of the recommendations and to engage in shared decision making with patients. If you are a primary care provider or trainee who has used Choosing Wisely recommendations or tools in your practice and you would like to share your experience, please contact us at [info@choosingwiselycanada.org](mailto:info@choosingwiselycanada.org).