Choosing Wisely Canada™

Bronchiolitis: LESS IS BEST

A toolkit for the management & assessment of bronchiolitis in primary care & emergency departments

V1

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Canadian Paediatric Society
Société canadienne de pédiatrie

THE COLLEGE OF FAMILY PHYSICIANS OF CANADA
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Nurse Practitioner Association of Canada

Association des infirmières et infirmiers practiciens du Canada

trekk *Translating Emergency Knowledge for Kids*

Contents

Introduction

Bronchiolitis is a common viral respiratory infection that primarily affects infants and young children under the age of two leading to a spectrum of symptoms. Respiratory syncytial virus (RSV) along with many other common viruses, including COVID-19, can cause bronchiolitis.

The diagnosis of bronchiolitis is based on clinical evaluation rather than diagnostic testing. Despite Choosing Wisely recommendations and an abundance of clinical guidelines, overuse of several tests and treatments in children with typical bronchiolitis still occurs. Studies have found more than half of children receive ≥1 form of overuse[1] and sometimes this even causes harm.

Drivers of Overuse

Caring for infants with bronchiolitis spans many different practice settings from primary care, emergency medicine to acute hospital care. These diverse settings often have different degrees of familiarity with clinical practice guidelines for managing children with respiratory illnesses. Many providers can feel discomfort or have time pressures limiting "watching and waiting" with a symptomatic or unwell infant. Providers may also feel pressured to manage the expectations of families and caregivers. These system-based and individual psychological barriers can often drive unnecessary testing and treatments.

Changing Practice

Phase 1 of this toolkit provides practical guidance to reduce unnecessary tests and treatments in children with typical bronchiolitis presenting to primary care or emergency department settings. This toolkit is designed to:

- Provide guidance on the assessment and management of bronchiolitis in otherwise healthy children and infants < 24 months old.
- Increase adoption of structured and efficient communication practices that can address caregiver concerns on bronchiolitis diagnosis, symptom management, expected clinical course, and safety net planning.
- Provide clinician and patient tools that target some of the barriers to addressing overuse in bronchiolitis diagnosis and treatment that includes a focus on symptom management.

Recommendations

Do not obtain radiographs in children with bronchiolitis, croup, asthma, or first-time wheezing.

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In children presenting with first-time wheezing or with typical findings of bronchiolitis, croup, or asthma, radiographs rarely yield clinically significant findings and expose patients to radiation, increased cost of care, and prolonged length of stay. Guidelines emphasize the history and physical examination in making an accurate diagnosis and excluding serious underlying pathology. Radiography performed in the absence of significant findings is associated with overuse of antibiotics as it can commonly show patchy infiltrates which are not from bacterial pneumonia. As bacterial pneumonia is uncommon in young children greater than 2 months of age, radiographs should not be routinely obtained unless findings such as significant hypoxia, focal abnormalities on lung exam, prolonged illness course, or severe distress are present. Read Rationale.

Antibiotics should not be used for viral respiratory illnesses (sinusitis, pharyngitis, and bronchiolitis).

American Family Physician and Society of Hospital Medicine - Choosing Wisely US

Antibiotics do not help in the treatment of viral respiratory infections, like bronchiolitis, nor do they prevent complications from these viruses. Unnecessary antibiotics can lead to side effects and other harms, including antimicrobial resistance, and can complicate clinical assessments and accuracy. Evidence shows that caregivers are seeking a diagnosis and support for symptom management, not unnecessary antibiotics. Read Rational.

Do not obtain comprehensive viral panel testing for patients who have suspected respiratory viral illnesses.

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Viral illnesses are diagnosed clinically and usually do not require confirmatory testing. Consistent evidence is lacking on the impact of comprehensive viral panels (i.e., panels simultaneously testing for 8-20+ viruses) on clinical outcomes or management. Hence, most guidelines do not recommend their routine use. Some viral tests are quite expensive, and obtaining nasopharyngeal swab specimens is uncomfortable for children. Comprehensive viral panel testing can be considered in high-risk patients (e.g., immunocompromised) or in situations in which the results will directly influence treatment decisions. (e.g. antivirals for influenza or SARS-CoV-2) or current local public health recommendations (e.g., isolation for SARS-CoV-2). Read Rational.

Do not use continuous pulse oximetry routinely in children with acute respiratory illness unless they are on supplemental oxygen.

American Academy of Family Physicians and Society of Pediatric Hospital Medicine - Choosing Wisely US

Many infants and young children with bronchiolitis can experience transient episodes of desaturation without any clinical consequence. Continuous pulse oximetry can lead to overdiagnosis of hypoxemia and subsequent oxygen use that is of no benefit to the child while also contributing to unnecessary admissions, prolonged length of stay and other resource utilization. Desaturation not accompanied by other signs of respiratory distress, is an isolated finding that should not change management in an otherwise well-appearing child. Read Rational.

Bronchiolitis: INITIAL ASSESSMENT AND MANAGEMENT

Bronchiolitis is a clinical diagnosis. Tests **DO NOT** help make the diagnosis. Consider in infants with upper respiratory illness prodrome (cough, rhinorrhea); wheezing and/or crepitations and increased work of breathing (grunting, nasal flaring, retractions) or respiratory rate.

	CLINICALLY DIAGNOSE (SEE CPS TABLE)[2]	PROVIDE SUPPORTIVE MANAGEMENT		
		DO	DO NOT ORDER	DISPOSITION & TOOLS
MILD	• No or mild respiratory distress • "Happy Wheezer" • Feeding adequately	• Ensure adequate fluid intake: Small & frequent feeds • Suction nasal passages as needed, especially before feeds • Give antipyretics to treat fever	• Chest X-rays • Salbutamol or Epinephrine • Antibiotics • Corticosteroids • O_2 saturation • Comprehensive respiratory viral testing • Routine bloodwork*	• Outpatient assessment, usually managed at home • See practice tools for clinicians & families • Advise when to seek further care • Arrange close follow up as needed
MODERATE	• Moderate respiratory distress, RR > 60 • Inadequate feeding	• Ensure adequate fluid intake: Small & frequent feeds • Suction nasal passages as needed, especially before feeds • Give antipyretics to treat fever • Check O_2 saturation for hypoxemia (< 90%)	• Chest X-rays • Salbutamol or Epinephrine • Antibiotics • Corticosteroids • Continuous pulse oximetry (unless on supplemental O_2 therapy) • Comprehensive respiratory viral testing • Chest physiotherapy • Routine bloodwork*	• Often observation period needed; ED assessment, hospital admission may be required (see admission guidelines) • See practice tools for clinicians & families • Advise when to seek further care • If discharged, arrange close follow up
SEVERE	• Severe respiratory distress • Unable to feed • Refractory hypoxemia • Lethargic • Apnea	• Suction nasal passages • Give antipyretics to treat fever • Consider alternative hydration methods with caregivers (NG, OG, IV) • Oximetry monitoring • Oxygen therapy for persisting O_2 saturation < 90% (low flow nasal prongs preferred initially) • If persisting severe symptoms despite above measures, consider heated high flow nasal cannula	• Testing and treatment to be guided by differential diagnosis. Limit use of items listed above (for moderate disease) when exclusive bronchiolitis diagnosis	• ED assessment, requires hospital admission (see admission guidelines) • Consider potential need for transfer to higher level of care • See practice tools for clinicians & families

CONSIDER DIFFERENTIAL DIAGNOSIS

- Asthma (recurrent wheeze, atopy)
- Pneumonia
- Croup (stridor) or Pertussis (cough & apnea)
- Foreign body aspiration (unilateral signs, no prodrome)
- Laryngomalacia (stridor, positional)
- Viral myocarditis (fatigue, pallor, persisting tachycardia)

TOOLS TO SUPPORT BEST PRACTICES

Viral Prescription | TREKK Parent Tool | Family Info-Sheet | Bronchiolitis Order Set (if applicable)

ADMISSION GUIDELINES

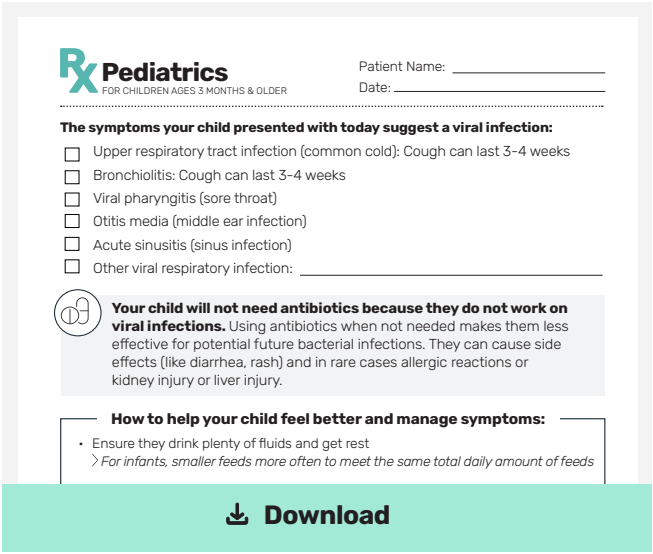
- Severe respiratory distress
- Need for supplemental O_2 (to keep saturations > 90%)
- Dehydration/poor fluid intake
- Cyanosis or/ apnoeas
- Family unable to cope
- Consider in infants at risk of severe disease (born at <35 weeks gestation, age <3 months, hemodynamically significant cardiopulmonary disease, immunodeficiency)

*Unless clinically indicated (i.e. Dehydration; febrile infants age less than 2 months)

Bronchiolitis Management Tools

1. VIRAL PRESCRIPTION

Parents and caregivers are seeking relief for their child's symptoms, and antibiotics will not help them recover. A viral prescription is a helpful way to 'do something' by sharing symptom management strategies and have a conversation about why antibiotics and other treatments are not needed.



Rx Pediatrics
FOR CHILDREN AGES 3 MONTHS & OLDER

Patient Name: _____
Date: _____

The symptoms your child presented with today suggest a viral infection:

- ☐ Upper respiratory tract infection (common cold): Cough can last 3-4 weeks
- ☐ Bronchiolitis: Cough can last 3-4 weeks
- ☐ Viral pharyngitis (sore throat)
- ☐ Otitis media (middle ear infection)
- ☐ Acute sinusitis (sinus infection)
- ☐ Other viral respiratory infection: _____

Your child will not need antibiotics because they do not work on viral infections. Using antibiotics when not needed makes them less effective for potential future bacterial infections. They can cause side effects (like diarrhea, rash) and in rare cases allergic reactions or kidney injury or liver injury.

How to help your child feel better and manage symptoms:

- Ensure they drink plenty of fluids and get rest
  - *For infants, smaller feeds more often to meet the same total daily amount of feeds*

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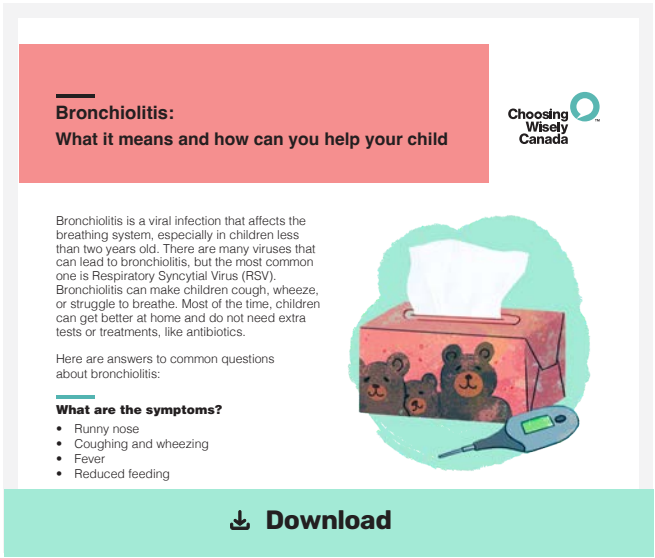
HOW TO IMPLEMENT

There are several ways to provide a patient with a viral prescription, depending on the visit and technology available to you and your patient:

- Print and verbally review the viral prescription with your patient.
- If the viral prescription is incorporated into your EMR system, fill it in and email it directly to your patient.
- You can refer them to the Choosing Wisely Canada website to review the viral prescription.

2. FAMILY INFO-SHEET

The symptoms of bronchiolitis can be distressing for both the child and their caregivers, especially as some symptoms (cough and changes in feeding) can last a few weeks. Use these patient information resources to discuss how to help their child feel better.



Bronchiolitis:
What it means and how can you help your child

Choosing Wisely Canada

Bronchiolitis is a viral infection that affects the breathing system, especially in children less than two years old. There are many viruses that can lead to bronchiolitis, but the most common one is Respiratory Syncytial Virus (RSV). Bronchiolitis can make children cough, wheeze, or struggle to breathe. Most of the time, children can get better at home and do not need extra tests or treatments, like antibiotics.

Here are answers to common questions about bronchiolitis:

What are the symptoms?

- Runny nose
- Coughing and wheezing
- Fever
- Reduced feeding

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HOW TO IMPLEMENT

- Print the resource to have a conversation about symptoms and potential risks.
- Email the resources to your patient using secure approved methods.
- You can refer them to the Choosing Wisely Canada website to review patient resources.

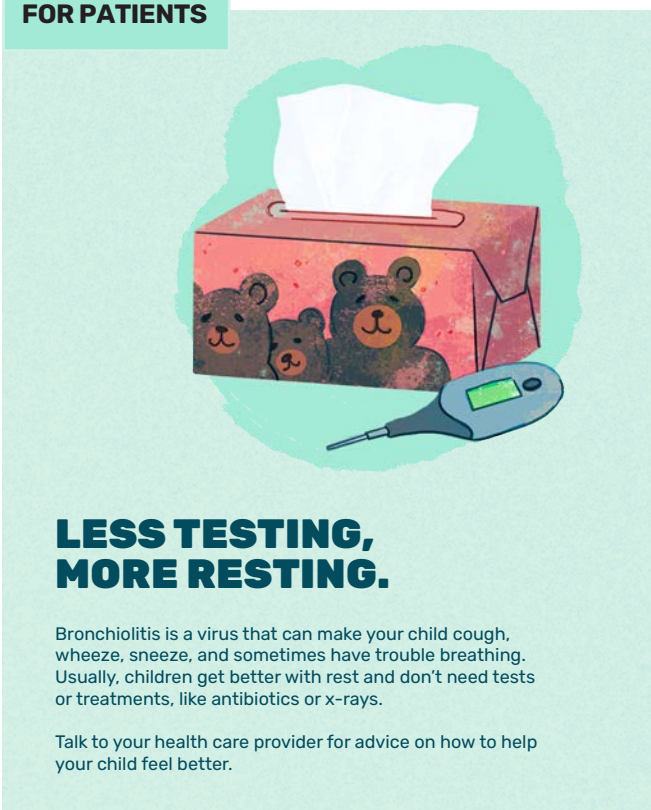
3. POSTERS AND SCREENSAVERS

Posters and screensavers can be an effective way to educate and set expectations before and during a visit.

FOR CLINICIANS

Download

FOR PATIENTS



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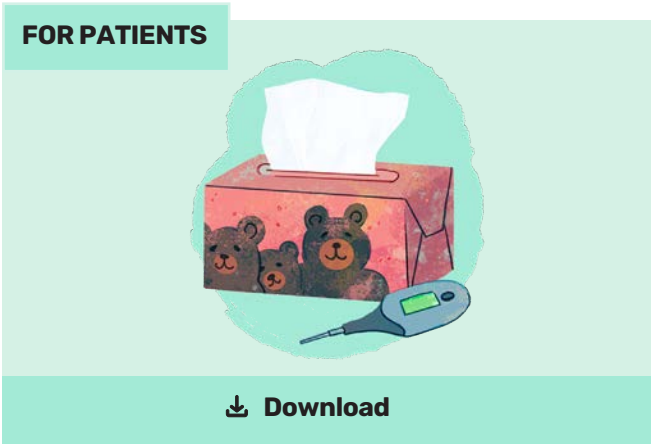

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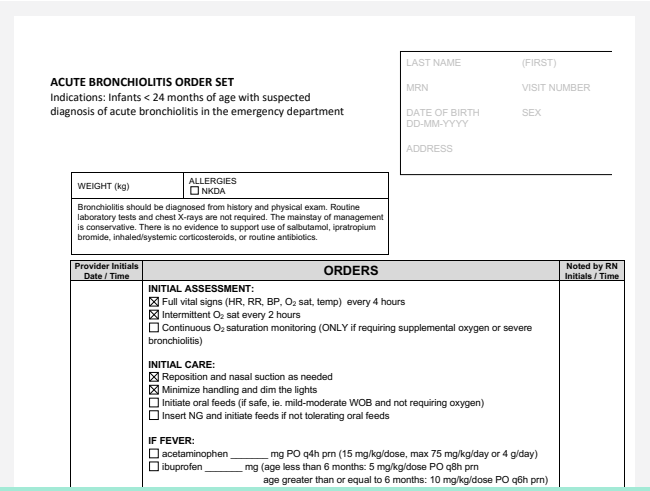
HOW TO IMPLEMENT

- Print the poster and hang it in the waiting area or examination rooms in your practice.
- Use it as a screen saver on your clinic computers or include it in the information broadcast on your waiting room televisions.
- If you do telemedicine, you can hang the poster in a visible space behind you.

4. ORDER SET EXAMPLE

To align with evidence-based care practices and reduce unnecessary practice variation, make it easier for clinicians to do the right thing through the use of standardized order sets.



ACUTE BRONCHIOLITIS ORDER SET
Indications: Infants < 24 months of age with suspected diagnosis of acute bronchiolitis in the emergency department

LAST NAME (FIRST)
MRN VISIT NUMBER
DATE OF BIRTH DD-MM-YYYY SEX
ADDRESS

WEIGHT (kg) | ALLERGIES ☐ NKDA

Bronchiolitis should be diagnosed from history and physical exam. Routine laboratory tests and chest X-rays are not required. The mainstay of management is conservative. There is no evidence to support use of salbutamol, ipratropium bromide, inhaled/systemic corticosteroids, or routine antibiotics.

Provider Initials Date / Time	ORDERS	Noted by RN Initials / Time
	INITIAL ASSESSMENT: ☒ Full vital signs (HR, RR, BP, O_2 sat, temp) every 4 hours ☒ Intermittent O_2 sat every 2 hours ☐ Continuous O_2 saturation monitoring (ONLY if requiring supplemental oxygen or severe bronchiolitis) **INITIAL CARE:** ☒ Reposition and nasal suction as needed ☒ Minimize handling and dim the lights ☐ Initiate oral feeds (if safe, ie. mild-moderate WOB and not requiring oxygen) ☐ Insert NG and initiate feeds if not tolerating oral feeds **IF FEVER:** ☐ acetaminophen _____ mg PO q4h prn (15 mg/kg/dose, max 75 mg/kg/day or 4 g/day) ☐ ibuprofen _____ mg (age less than 6 months: 5 mg/kg/dose PO q8h prn age greater than or equal to 6 months: 10 mg/kg/dose PO q6h prn)	

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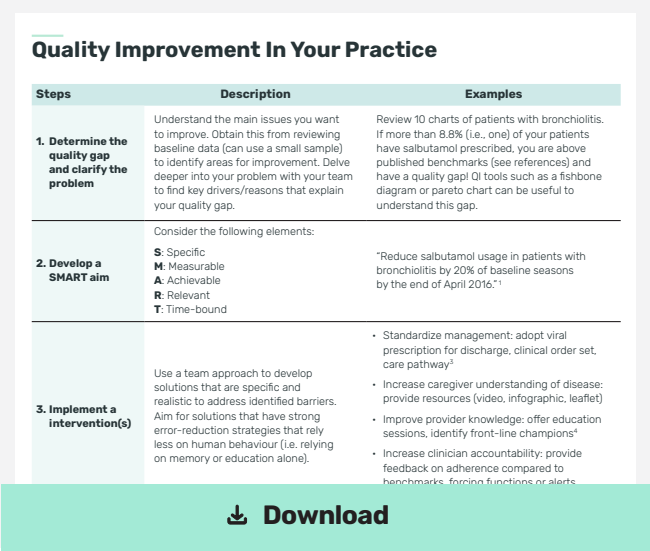
HOW TO IMPLEMENT

There are a number of mechanisms to integrate order sets into practice:

- Incorporate into your EMR system.
- Add to your paper based orders; refer to the order set as a reference when placing orders on a separate form.

5. QUALITY IMPROVEMENT IN YOUR PRACTICE

Quality Improvement Plans (QIPS) provide a blueprint on how you will address quality issues and meet improvement goals.



Quality Improvement In Your Practice

Steps	Description	Examples
1. Determine the quality gap and clarify the problem	Understand the main issues you want to improve. Obtain this from reviewing baseline data (can use a small sample) to identify areas for improvement. Delve deeper into your problem with your team to find key drivers/reasons that explain your quality gap.	Review 10 charts of patients with bronchiolitis. If more than 8.8% (i.e., one) of your patients have salbutamol prescribed, you are above published benchmarks (see references) and have a quality gap! QI tools such as a fishbone diagram or pareto chart can be useful to understand this gap.
2. Develop a SMART aim	Consider the following elements: **S**: Specific **M**: Measurable **A**: Achievable **R**: Relevant **T**: Time-bound	"Reduce salbutamol usage in patients with bronchiolitis by 20% of baseline seasons by the end of April 2016."[1]
3. Implement a intervention(s)	Use a team approach to develop solutions that are specific and realistic to address identified barriers. Aim for solutions that have strong error-reduction strategies that rely less on human behaviour (i.e. relying on memory or education alone).	• Standardize management: adopt viral prescription for discharge, clinical order set, care pathway[3] • Increase caregiver understanding of disease: provide resources (video, infographic, leaflet) • Improve provider knowledge: offer education sessions, identify front-line champions[4] • Increase clinician accountability: provide feedback on adherence compared to benchmarks, forcing functions or alerts

Download

HOW TO IMPLEMENT

- Use this QIP template to identify areas of improvement, define a strategy outlining specific actions and interventions to address these issues, and document regular monitoring, data collection, and evaluation of implemented changes.

More information about the tools and how to download them can be found at:
🔗 www.choosingwiselycanada.org/primary-care/bronchiolitis.

Resources

Canadian Pediatric Society (CPS)

Bronchiolitis: Recommendations for Diagnosis, Monitoring and Management of Children One to 24 Months of Age

Download

Pedagogy (Online education from the CPS)

Download

TREKK (Translating Emergency Knowledge for Kids)

Bottom Line Recommendations: Bronchiolitis

Download

Evidence Repository: Bronchiolitis

Download

Family Tool

Download

The Lancet

Bronchiolitis

Download

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