Introduction

Bronchiolitis is an acute inflammatory disease of the lower respiratory tract, resulting from obstruction of small airways. It is initiated by infection of the upper respiratory tract by any one of a number of seasonal viruses, the most common of which is respiratory syncytial virus (RSV).

Previous confusion around the clinical management of infants with bronchiolitis has improved with the creation and integration of clinical practice guidelines. Typical bronchiolitis in infants is a self-limited disease, usually due to an acute viral infection whose clinical course is not generally altered by aggressive evaluations/interventions, use of antibiotics, or other therapies. Most infants who contract bronchiolitis recover without sequelae; however, rates of admissions have increased from 1% to 3% of all infants.

Several studies on the use of clinical guidelines for the management of infant bronchiolitis have shown a reduction in unnecessary resource utilization with a streamlining of medical care for these infants.

Objectives

In the target population, the objectives of this guideline are to:

- decrease the use of unnecessary diagnostic studies;
- decrease the use of medications;
- provide guidance on the use of appropriate respiratory therapy;
- improve the rate of appropriate admission;
- improve the use of appropriate monitoring activities; and
- decrease length of stay.

Target Users

Include, but are not limited to:

- Emergency Medicine physicians, nurses, nurse practitioners, and trainees
- Inpatient physicians, nurses, nurse practitioners, and trainees
- Respiratory Therapists
- Pharmacists
- Patients and families

Clinical recommendations summary table
Management of Bronchiolitis in Infants

ED Management Recommendations

Management Pathway

Discharge with parent education
- Provide follow-up plan

ED Discharge Criteria
- Ambulatory status
- Alert: no fever
- No oxygen requirement
- Prenatal SpO2 > 90%
- Absence of respiratory or severe respiratory distress

History, symptoms, and signs of bronchiolitis
- Presence of upper respiratory illness and/or fever
- Suppurative signs and symptoms
- Cough, rhinorrhea, malaise, fever, irritability
- History of travel to an area where bronchiolitis is common
- Presence of pneumonia on chest X-ray
- Presence of lower respiratory infection

Management of Bronchiolitis in Infants

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**Management of Bronchiolitis in Infants**

**Inpatient Management Recommendations**

<table>
<thead>
<tr>
<th>Severity Criteria</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td>&lt; 10</td>
<td>10-20</td>
<td>&gt; 20</td>
</tr>
<tr>
<td>WOB</td>
<td>None</td>
<td>Mild</td>
<td>Severe</td>
</tr>
<tr>
<td>SpO₂</td>
<td>95-100</td>
<td>90-94</td>
<td>&lt; 90</td>
</tr>
</tbody>
</table>

**Discharge Criteria:**
- Respiratory status, consistently improving, tachypneas and work of breathing have improved, and SpO₂ in an acceptable range on room air or SpO₂ > 95% when sleeping and SpO₂ > 90% when awake
- Nutritional status: child is nourish with oral feeds
- Parent or Family education completed
- Follow-up instructions provided
- Follow-up with primary care provider based on clinical needs

**Consider a CCRT consult. Refer to Sepsis Pathway (if applicable)**

**Does the child have severe respiratory distress or appear septicotic?**

**Does child meet discharge criteria?**

- Discharge patient education
- Provide follow-up plan
- Refer to Discharge Checklist

**Treat respiratory distress:**
- Oxygen as needed
- Hypertonic saline nebulization
- Intravenous fluids
- Nasal cannula
- Continuous positive airway pressure (CPAP)

**Respiratory Distress:**
- Moderate: Tachypnea and work of breathing
- Severe: Tachypnea and severe respiratory distress

**Antibiotics:**
- Only if not following expected clinical course and examination/imaging consistent with focal consolidation
- Pulmonary physiotherapy

**The following therapies should NOT be ordered for children admitted with bronchiolitis:**
- Nebulized Epinephrine
- Intravenous fluids
- Neumorphism
- Antibiotics (only if not following expected clinical course or pending ICU admission and/or severity of course suggests alternate diagnosis)
- Blood work including CBC, liver, blood gas, cultures (only if patient is failing sepsis pathway and pending ICU admission and/or concerned about potential respiratory failure)
- Naso-pharyngeal swabs for respiratory multiples PCR testing (only if ICU/ICU/ICU)

**The following tests are NOT ordered in bronchiolitis unless there is a specific clinical indication:**
- Chest X-rays (only ordered if not following expected clinical course or pending ICU admission and/or severity of course suggests alternate diagnosis)
- Blood work including CBC, liver, blood gas, cultures (only if patient is failing sepsis pathway and pending ICU admission and/or concerned about potential respiratory failure)
- Naso-pharyngeal swabs for respiratory multiples PCR testing (only if ICU/ICU/ICU)
- Rapid flu point of care testing in flu season

Children < 3 months admitted to Peds Medicine with bronchiolitis

Does child meet discharge criteria?

Discharge with parent education

**SickKids Guidelines**

- If on HHFNC weaning flow rate based on work of breathing
- Neonatal high flow nasal cannula (HHFNC) should be considered if child requires increasing respiratory support despite HHFNC

**HHFNC note the following:**
- HHFNC is not a substitute for non-invasive ventilation
- CCRT consult should be considered if child requires increasing respiratory support despite HHFNC

**Oxygen and Hydration**

- Initial rate based on work of breathing and respiratory status
- Maintain SpO₂ > 90% when awake and > 88% when sleeping
- Invasive ventilation when awake

**Blood work including:**
- CBC
- Blood gas
- Cultures
- Blood cultures (only if not following expected clinical course or pending ICU admission and/or severity of course suggests alternate diagnosis)

**Chest X-rays:**
- Only ordered if not following expected clinical course or pending ICU admission and/or severity of course suggests alternate diagnosis

**ICU Admission and/or Severity of Course Suggests Alternate Diagnosis:**
- Antibiotics (only if not following expected clinical course or pending ICU admission and/or severity of course suggests alternate diagnosis)
- Pulmonary physiotherapy

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Implementation and Evaluation Plan

Implementation Plan

- Education and awareness building by Paediatric Medicine and ED Divisions' practice champions during resident/fellow orientation, resident educational rounds, and nursing orientation/staff meetings.
- ED and Inpatient Medical Director to communicate any updates in practice to ED and Paediatric Medicine Divisions respectively.

Evaluation Plan

- Ongoing monitoring of bronchiolitis pathway adherence.

Guideline Group and Reviewers

Guideline Group Membership:

1. Julie Johnstone, MD, Staff Paediatrician, Paediatric Medicine
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2. Sanjay Mahant, Staff Paediatrician, Paediatric Medicine
3. Carolyn Beck, Staff Paediatrician, Paediatric Medicine
4. Michael Weinstein, Staff Paediatrician, Paediatric Medicine

References


**Attachments:**

- Clinical Reccomendations_July 2019.pdf
- Discharge Checklist Bronchiolitis_June 29.docx
- inpatient pathway_july 5.pdf
- ED pathway_july 5.pdf