Bronchiolitis Pathway v12.0: Table of Contents

Inpatient & ED Inclusion Criteria
- Age <2 years
- Prematurity and/or age <12 weeks may be included, but expect a more severe course of illness
- Viral upper respiratory symptoms & lower respiratory symptoms that may include: increased work of breathing, cough, feeding difficulty, tachypnea, wheeze, fever

Inpatient & ED Exclusion Criteria
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency
- Chronic lung disease

HFNC Inclusion Criteria
- Primary diagnosis of bronchiolitis
- Age 44 weeks PMA to <2 years
- ONE of the following:
  1) Severe respiratory distress (deep retractions in multiple areas, grunting, head bobbing), or
  2) Significant hypoxia (need for >1 lpm NCO2 if 30-90 days, >1.5 lpm for 91 days – 6 months, >2 lpm for 6 months – 2 years)

HFNC Exclusion Criteria
- Concern for impending respiratory failure (lethargy, poor perfusion, apnea)
- Primary diagnosis of pneumonia, asthma, or croup
- Born prematurely <34 weeks (if <6 mo)
- History of intubation for respiratory failure
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency
- Chronic lung disease

Bronchiolitis Care

Criteria & Respiratory Score
ED Management
Inpatient Phase
HFNC Phase

Appendix

Version Changes
Approval & Citation
Evidence Ratings
Bibliography
**Bronchiolitis Pathway v12.0: Criteria and Respiratory Score**

### Inclusion Criteria
- Age <2 years
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### Exclusion Criteria
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency
- Chronic lung disease

### RESPIRATORY SCORE (RS)

<table>
<thead>
<tr>
<th>Variable</th>
<th>0 points</th>
<th>1 point</th>
<th>2 points</th>
<th>3 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2 mo</td>
<td>≤60</td>
<td>61-69</td>
<td>≥70</td>
<td></td>
</tr>
<tr>
<td>2-12 mo</td>
<td>≤50</td>
<td>51-59</td>
<td>≥60</td>
<td></td>
</tr>
<tr>
<td>1-2 yr</td>
<td>≤40</td>
<td>41-44</td>
<td>≥45</td>
<td></td>
</tr>
<tr>
<td>Retractions</td>
<td>None</td>
<td>Subcostal or intercostal</td>
<td>2 of the following: substernal, intercostal, substernal, OR nasal flaring (infant)</td>
<td>3 of the following: substernal, intercostal, substernal, suprasternal, supraclavicular OR nasal flaring / head bobbing (infant)</td>
</tr>
<tr>
<td>Dyspnea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-2 years</td>
<td>Normal feeding, vocalizations and activity</td>
<td>1 of the following: difficulty feeding, decreased vocalization or agitated</td>
<td>2 of the following: difficulty feeding, decreased vocalization or agitated</td>
<td>Stops feeding, no vocalization or drowsy and confused</td>
</tr>
<tr>
<td>Auscultation</td>
<td>Normal breathing, no wheezing present</td>
<td>End-expiratory wheeze only</td>
<td>Expiratory wheeze only (greater than end-expiratory wheeze)</td>
<td>Inspiratory and expiratory wheeze OR diminished breath sounds OR both</td>
</tr>
</tbody>
</table>
Urgent Care Transfer Criteria
- Severe respiratory distress after suction and reevaluation
- Inadequate oral hydration
- Hypoxemia
- Apnea
- Signs of clinical deterioration
  *Transport via ALS

Initial assessment
- SCORE, SUCTION, SCORE: nasal suction; follow with NP suction if needed
- Provide supplemental O2 to keep saturation >90% (>88% asleep). Start at ½ L and titrate as needed.

Rehydration
- Give supplemental NG or IV fluids if moderately to severely dehydrated; NPO and IV fluids if severe respiratory distress
- Encourage NG over IV fluids, esp. if <1 year old
- If safe for PO feeds and mildly to moderately dehydrated, attempt oral feeding

Family teaching
- Viral illness, treated by hydration and suction
- Signs of respiratory distress
- When and how to suction
- Frequent feeds and watch hydration status
- Cough may last 2-4 weeks, do not use OTC cough and cold medications, avoid tobacco smoke

Suction and reevaluation
- Respiratory score (SCORE, SUCTION, SCORE) Q 1 hour
  + prn if mild to moderate distress
- Respiratory score and suction q30 minutes + prn if severe respiratory distress
- For patients with prolonged ED stays, may space suctioning per MD discretion

Decision to Admit or Discharge
- Able to discharge
- Discharge: Recommend follow up in 24-48 hours

Medical Unit Admit Criteria (any of the following)
- Sustained hypoxemia (SpO2 <90% awake, 88% asleep)
- Apnea
- Dehydration/impaired oral hydration requiring ongoing IV or NG fluids
- HFNC trial initiated, clinically improved or unchanged
- Moderate to severe respiratory distress AND one of the above criteria

ICU Admit Criteria (any of the following)
- Clinical worsening despite floor max HFNC support
- Desaturations below 90% despite 50% FiO2
- Other late findings of respiratory failure
- Inappropriately low respiratory rate with worsening obstruction
- Lethargy despite noxious stimuli
- Poor perfusion
- Apnea >20 seconds with associated bradycardia/desaturation requiring intervention

Inclusion Criteria
- Age <2 years
- Prematurity and/or age <12 weeks may be included, but expect a more severe course of illness
- Viral upper respiratory symptoms & lower respiratory symptoms that may include: increased work of breathing, cough, feeding difficulty, tachypnea, wheeze, fever

Exclusion Criteria
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency
- Chronic lung disease

Therapies NOT routinely recommended
- Albuterol
- Racemic Epinephrine
- Corticosteroids
- Chest Physiotherapy
- Montelukast
- Antibiotics
- Hypertonic Saline

Considerations for severely ill patients
- May consider ONE-TIME albuterol MDI trial if:
  - Severe respiratory distress OR
  - Worsening respiratory distress PLUS increased risk for asthma (>12 months old, wheeze, and one of the following: personal history of atopy or recurrent wheezing OR strong family history of atopy or asthma)
- Continue albuterol PRN ONLY if improves work of breathing
- Consider HFNC for significant hypoxia OR severe respiratory distress, not improving with rigorous supportive care (suction, hydration, antipyretics, standard NC)

Go to HFNC Phase

Routine testing for viral pathogens NOT recommended unless for cohorting

Chest X-rays NOT routinely recommended

Bronchiolitis Pathway v12.0: ED Management

Last Updated: December 2020
Next Expected Review: December 2025
Deterioration does not correlate with respiratory distress. NPO and IV fluids if severe especially if on NG.

If on NG:
- No continuous pulse oximetry
- Nasal suction
- More distressed

Score:
- 1: Suction
- 2: Suction minimum q2-4 hours
- 3: Score minimum q2-4 hours
- 4: Score after suctioning, Nasal suction, NP suction if clinically indicated for work of breathing after nasal suctioning
- Spot SpO2 checks; continuous pulse oximetry if on supplemental O2 or per care team request due to clinical concerns

Pre-suction score is LOW (1-4):
- Score, Suction, Score minimum q4 hours, prior to feeds or if more distressed
- Nasal suction
- No continuous pulse oximetry
- If on NG/IV fluids, discontinue fluids and restart oral feeds

Pre-suction score is MODERATE (5-8):
- Score minimum q2 hours
- Suction minimum q2-4 hours, Score after suctioning
- Nasal suction
- NP suction if clinically indicated for work of breathing after nasal suctioning
- Spot SpO2 checks; continuous pulse oximetry if on supplemental O2 or per care team request due to clinical concerns

Pre-suction score is HIGH (9-12):
- Score minimum q1 hours
- Suction minimum q2-4 hours, Score after suctioning
- Nasal suction
- NP suction if clinically indicated for work of breathing after nasal suctioning
- Continuous pulse oximetry
- Consider albuterol trial and HFNC trial (see below)

Rescore at interval specified above (either 1, 2, or 4 hours)
Recategorize based on pre-suction score

Inadequate PO Intake:
- Encourage NG over IV fluids, especially if <1 year old
- NPO and IV fluids if severe respiratory distress

Discharge Criteria:
Patients should be meet ALL of the following criteria:
- Respiratory score ≤5 for at least 8 hours
- No need for NP suctioning for 4 hours
- Off supplemental O2 for 12 hours
- If apnea occurred, no further apnea for 48 hours
- Feeding adequately
- Family teaching completed, teach-back done
- PCP follow up as needed

Escalation for worsening patients:
- May consider ONE-TIME albuterol trial (only if not previously trialed) if:
  - Severe respiratory distress OR Worsening respiratory distress PLUS increased risk for asthma (>12 months old, wheeze, and one of the following: personal history of atopy or recurrent wheezing OR strong family history of atopy or asthma)
  - Continue albuterol PRN only if improves work of breathing; otherwise discontinue it
  - Consider HFNC for significant hypoxia OR severe respiratory distress not improving with rigorous supportive care (suction, hydration, antipyretics, standard NC)

Go to HFNC Phase

Inclusion Criteria:
- Age <2 years
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Exclusion Criteria:
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Immunodeficiency
- Chronic lung disease
- Immunodeficiency
- Neuromuscular disease
- Cardiac disease requiring baseline medication
- Viral upper respiratory symptoms
- More severe course of illness
- Prematurity and
- Years

Signs of clinical deterioration:
- Lethargy despite noxious stimuli, inappropriately low respiratory rate with worsening obstruction, apnea, poor perfusion; Deterioration does not correlate with day of illness

Patient admitted:
- Begin family teaching
- Signs of respiratory distress
- How to suction
- When to suction
- Assess patient
- Calculate patient score

Score -4:
- Inadequate PO Intake
- Suction score is LOW
- Place CR monitors
- Notify MD
- Call Rapid Response Team

Inpatient Management

Seattle Children's Hospital

Stop and Review

Go to HFNC Phase

Therapies NOT routinely recommended:
- Albuterol
- Racemic Epinephrine
- Corticosteroids
- Chest Physiotherapy
- Montelukast
- Antibiotics
- Hypertonic Saline

Seattle Children’s Hospital

Clinical Standard Work

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bronchiolitis@seattlechildrens.org

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Last Updated: December 2020
Next Expected Review: December 2025
Bronchiolitis Pathway v12.0: HFNC Management

HFNC Inclusion Criteria
- Primary diagnosis of bronchiolitis
- Age 44 weeks PMA to <2 years
- ONE of the following:
  1) Severe respiratory distress (deep retractions in multiple areas, grunting, head bobbing), or
  2) Significant hypoxia (need for >1 lpm NCO2 if 30-90 days, >1.5 lpm for 91 days – 6 months, >2 lpm for 6 months – 2 years)

HFNC Exclusion Criteria
- Concern for impending respiratory failure (lethargy, poor perfusion, apnea)
- Primary diagnosis of pneumonia, asthma, or croup
- Born prematurely <34 weeks (if <6 mo)
- History of intubation for respiratory failure
- Cardiac disease requiring baseline medication
- Anatomic airway defects
- Neuromuscular disease
- Immunodeficiency
- Chronic lung disease

Pre-HFNC care
- Suctioning, at least three rounds
- Fluid bolus completed
- Antipyretic administered, if febrile
- May consider albuterol trial ONCE
- Floor intubation: also call RRT; resident to notify attending MD

Initiate HFNC at floor max flow, FiO2 ≥21%
- Titrate FiO2 to maintain Spo2 > 90%, awake, 88% asleep; max floor FiO2 is 50%
- Score, suction, score + VS q 30 min x 3
- Ensure NPO

Huddle 60 minutes post HFNC initiation
- ED: include ED (RN, RT, resident, and fellow/attending), and accepting floor resident
- Floor: include PICU (RISK RN, APP/fellow/attending), and resident

Clinically Worsening
- In ED: Call PICU
- On floor: Call RRT
- Transfer patient to ICU
- May escalate respiratory support with ICU guidance while waiting for transfer
- Suction and vitals q30 minutes while waiting for transfer

Clinically Unchanged
- In ED: Consult PICU to decide transfer to floor or ICU
- Suction + vitals q1h while awaiting transfer
- On floor:
  - Suction at least q2 hours until off HFNC
  - VS q2 hours x 12 hours, then q4 hours
  - Assess q4 hours for readiness to wean

Clinically Improving
- In ED: Transfer to floor
- Suction + vitals q1h until transfer
- On floor:
  - Wean flow rates and FiO2 as tolerated
  - Suction at least q2 hours until off HFNC
  - VS q2 hours x 12 hours, then q4 hours
  - Place NG if anticipated NPO ≥2 days
  - May orally feed once weaned to floor min flow and safe for feeding
  - RN or MD to observe first feed
  - Use extra caution in neonates <30 days old

Criteria for transfer to the ICU
- Clinical worsening despite floor max HFNC support
- Desaturations below 90% despite 50% FiO2
- Other late findings of respiratory failure:
  - Inappropriately low respiratory rate with worsening obstruction
  - Lethargy despite noxious stimuli
  - Poor perfusion
  - Apnea >20 seconds with associated bradycardia/ desaturation requiring intervention

Criteria for transfer from the ICU to the floor
- Meets pathway criteria and stable on flow rate at or below the floor maximum for >12 hours
- If does not meet bronchiolitis HFNC pathway criteria, see HFNC policy

Weaning HFNC on the medical unit
- Rapidity: wean flow and FiO2 quickly in improving patients, including at night
  - Floor max flow → min flow → off OR max flow → off, as patient condition allows
  - Avoid gradual weans using other flow
- Frequency: at least once a day, unless worsening trajectory or ongoing resp distress
  - RT or RN to assess improving patients for readiness to wean q4 hours
- Team guidance: observe patient for 10 minutes after flow wean, and reassess within 2 hours to ensure sustained successful wean
- Definition of failed wean: increased work of breathing that the team judges difficult to sustain for next 12-24 hours, which resolves when flow wean is reversed
- RRT considerations: may restart HFNC without RRT, if within 24 hours of failed trial off, and if severity does not warrant RRT

Pathway
- 44wk PMA - 90 days* 4 3
- 91 days – 6 months* 6 4
- >6 months - 1 year 8 5
- >1 year - <2 years 10 5

*Correct for gestational age

Trial HFNC at floor max flow

Age
HFNC floor maximum (L/min)
HFNC floor minimum (L/min)
44wk PMA - 90 days* 4
91 days – 6 months* 6
>6 months - 1 year 8
>1 year - <2 years 10

For questions concerning this pathway, contact: bronchiolitis@seattlechildrens.org

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Standard Work

Last Updated: December 2020
Next Expected Review: December 2025
How do I use the respiratory scoring tool?

The Seattle Children’s respiratory scoring tool was adapted from the Seattle Children’s asthma pathway. Interrater reliability was validated (see asthma pathway for references).

Other scoring tools have been validated, but no single tool has been adopted universally or has clearly superior performance in bronchiolitis.

<table>
<thead>
<tr>
<th>4 Respiratory Assessment Elements</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>RESPIRATORY RATE</strong>: assessed over 60 seconds</td>
<td>(1-3)</td>
</tr>
<tr>
<td>2. <strong>RETRACTIONS</strong>: work of breathing</td>
<td>(0-3)</td>
</tr>
<tr>
<td>3. <strong>DYSPNEA</strong>: shortness of breath</td>
<td>(0-3)</td>
</tr>
<tr>
<td>4. <strong>AUSCULTATION</strong>: wheezing on lung exam</td>
<td>(0-3)</td>
</tr>
</tbody>
</table>

**TOTAL SCORE** 1-12

• The respiratory scoring tool consists of 4 elements that make up the respiratory assessment of the patient in distress.

• You assess each component distinctly and add them to make a total between 1-12.

  □ A patient’s RR is 1-3 whereas all other categories are scored 0-3.
Treatment: Supplemental Oxygen

Supplemental oxygen should be provided if SpO2 falls persistently below 90%. The goal is to provide oxygen to maintain SpO2 at or above 90%. (AAP 2014)

- Oxygen is supplied via nasal cannula, using the lowest flow possible.
- SpO2 drops to 88% are acceptable during sleep.
- <20 sec drops in SpO2 to the 80s in the sleeping child do not require supplemental oxygen; these may occur in healthy infants. (Hunt 1999)
- Deeper self-resolving desaturations may not be clinically meaningful in mild-to-moderate bronchiolitis patients, who should therefore be taken off continuous pulse oximetry once off supplemental oxygen. (Principi 2016)

Treatment: NG or IV Fluids

Intravenous (IV) or nasogastric (NG) fluid administration should be considered if the patient cannot maintain hydration orally or is severely dehydrated (AAP 2014).

- NG hydration is as effective as IV hydration in patients with bronchiolitis, and requires fewer attempts at placement. It is advisable to involve caregivers in the decision of how to hydrate their child.
- Because respiratory distress may increase the risk of aspiration:
  - Patients with significant coughing, choking, gagging, or worsening tachypnea with feeds should be made NPO, and IV/NG feeds started.
  - Patients with a sustained respiratory rate > 60 should be evaluated for safety of a feeding trial. If severe distress, do not attempt feeding trial and make NPO.
  - Patients on HFNC at floor maximum flow rates should be NPO.
Caregiver and Family Teaching

Teaching should start on arrival:
- Signs of respiratory distress
  - When to call PCP, go to ED, call 911
- How and when to nasally suction
  - Using bulb syringe or mouth operated nasal aspirator
- Maintaining hydration
  - Small frequent feeds
  - Signs of dehydration
- Anticipatory guidance:
  - Cough can last up to 4 weeks
  - Do not use over-the-counter cough/cold medications

Prevention

RSV can persist on fomites for hours and has been identified in the air up to 22 feet from the patient's bed.

- Viral isolation is standard for inpatients at Seattle Children's:
  - Strict handwashing / alcohol-based rubs, gown, gloves, mask
  - Wash hands or gel before and after patient contact, after contact with inanimate objects directly near the patient, and after glove removal
  - Limit visits by young children
- Family education re: hand hygiene (AAP 2014)
- Consider RSV monoclonal antibody (i.e. monthly Synagis) for at-risk infants (AAP palivizumab policy statement 2014)

Source: AAP 2014, AAP Committee on Infectious Diseases 2014
Suctioning is not widely evaluated in the literature, but is considered essential to bronchiolitis care.
- Used to clear secretions from the nares / airway that the child is unable to clear himself / herself.
- Induces coughing, which allows child to clear lower airway secretions.
- Reduces work of breathing and improves oral intake.
- Suction gaps may be associated with longer LOS
- Patients admitted with bronchiolitis should receive suction of the nares at frequent intervals 
  Mussman 2013, AAP 2014

Suction should be primarily nasal:
- **Nasal suction** (with an olive tip catheter, bulb, or parental mouth-operated nasal aspirator) should be used routinely, at regular intervals.
- **Nasopharyngeal suction** should be used in patients in severe respiratory distress and fail to improve with olive tip suction. Nasal edema may result from repeated nasopharyngeal suction events. Some articles suggest nasopharyngeal suction is associated with a longer LOS, and using it less often does not make outcomes worse (Mussman 2013, Mittal 2014).
- Suction response should be documented, with a respiratory score recorded before and after all types of suctioning.
- Family should be trained how/when to use nasal suction at home.
Escalation Therapies: High Flow Nasal Cannula

- Terms: Also called high-flow, or high-humidity nasal cannula
- Function: HFNC delivers a higher flow of air or oxygen than nasal cannula. Gas is delivered with a mixer so FiO2 can be adjusted (21-100%), although actual delivered FiO2 does not reach 100%. By contrast, nasal cannula oxygen is not humidified and dries airways at higher flow rates.

- Proposed mechanisms of HFNC action in bronchiolitis:
  - Provides CO2 “washout” of respiratory physiologic dead space
  - Provides very low-level positive pressure that aids lung recruitment
    - Exact amount of PEEP varies based on:
      - Flows
      - Nasal cannula fit to nares
      - Whether mouth is open or closed
  - Warmth and humidity
    - Keep secretions moist, improving mucociliary clearance
    - Inhibit bronchoconstriction reflexes triggered by cold and dry air
Escalation Therapies: HFNC Weaning

HFNC should be weaned quickly in improving patients.

- FiO2 may be weaned by RN/RT
- Flow must be weaned by provider order
  - RN/RT should assess readiness to wean flow every 4 hours, and prompt team to wean if appropriate
  - Teams should wean flow at least daily, unless team holds due to anticipated trajectory or patient severity
  - Flow should be weaned stepwise, from floor max to min to off.
  - Trials off: Flow can be weaned from max flow to off if appropriate

Return to HFNC

Escalation Therapies: Feeding Patients on HFNC

No strong evidence exists to guide feeding practices on HFNC.

Recommendations:
- Patients who wean to minimum floor flow are eligible to resume oral feeds.
- Patients should only attempt oral feeding if clinically improving and if no known aspiration history
- First oral feeding should be supervised by an RN, SLP/OT, or provider
- Oral feeding should be stopped if associated with increased coughing, choking, or worsening respiratory distress.
- An NG tube should be placed and enteral feeds initiated for patients NPO for > 2 days.

Return to HFNC
Summary of Version Changes

- **Version 1.0 (10/10/2011):** Go live
- **Version 1.1 and 1.2 (07/20/2012):** Copyrighted photos and diagrams removed
- **Version 2.0 (10/22/2012):** Updated to SpO2 monitoring recommendations
- **Version 3.0 (12/10/2013):** Go live of Bronchiolitis HFNC Pathway
- **Version 3.1 (12/13/2013):** Changes made to add contact hospitalist; correction to oral feeds to match training slide; wording change in trial of albuterol to match the orders
- **Version 3.2 (01/15/2014):** Changes to inclusion and exclusion criteria; changes to reflect medical hospitalist at ED 90 minute huddle; admit to medical hospitalist
- **Version 3.3 (01/30/2015):** Changes to inclusion and exclusion criteria; addition of ICU to floor transfer criteria and link to education slide in transfer criteria box
- **Version 3.4 (12/15/2015):** Removal of hospitalist involvement for HFNC initiation/huddle
- **Version 3.5 (02/14/2016):** Removal of respiratory score from admit criteria and change to “moderate to severe distress”
- **Version 3.6 (02/14/2018):** Periodic review go live with new formatting style and minor content changes: removal of respiratory score as an UC to ED transfer criterion, more stringent albuterol trial criteria, time range flexibility for inpatient suctioning for moderate and severe respiratory scores, addition of text to encourage NG over IV use, PRN PCP follow-up, and removal of antibiotic or steroid use as an exclusion criterion for HFNC use
Approval & Citation

Approved by the CSW Bronchiolitis Pathway team for December 7, 2020, go-live

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Retrieval Website:  https://www.seattlechildrens.org/pdf/bronchiolitis-pathway.pdf

Please cite as:
This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children’s. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94, Hultcrantz M et al. J Clin Epidemiol. 2017;87:4-13.):

Quality ratings are downgraded if studies:
- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are upgraded if it is felt that:
- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Certainty of Evidence
- 🌟🌟🌟🌟 High: The authors have a lot of confidence that the true effect is similar to the estimated effect
- 🌟🌟🌟 Moderate: The authors believe that the true effect is probably close to the estimated effect
- 🌟🌟🌟🌟 Low: The true effect might be markedly different from the estimated effect
- 🌟🌟🌟🌟🌟 Very low: The true effect is probably markedly different from the estimated effect

Guideline: Recommendation is from a published guideline that used methodology deemed acceptable by the team
Expert Opinion: Based on available evidence that does not meet GRADE criteria (for example, case-control studies)
Literature Search Methods
For this update, we revised the search strategies in line with current Library practices. Literature searches were conducted in July 2020 to target synthesized literature on bronchiolitis for 2015 to current and limited to English. The search was executed in Ovid Medline, Embase, Cochrane Database of Systematic Review (CDSR), and Turning Research into Practice database (TRIP).

Screening and data extraction were completed using DistillerSR (Evidence Partners, Ottawa, Canada). Two reviewers independently screened abstracts and included guidelines and systematic reviews that addressed optimal diagnosis, treatment, and prognosis of patients who meet pathway inclusion/exclusion criteria. One reviewer screened full text and extracted data and a second reviewer quality checked the results. Differences were resolved by consensus.

Literature Search Results
The searches of the 4 databases (see Electronic searches) retrieved 497 records.

Once duplicates had been removed, we had a total of 376 records. We excluded 332 records based on titles and abstracts. We obtained the full text of the remaining 44 records and excluded 30.

We combined these studies with those previously identified for prior versions of this pathway, and for this update we have included a total 14 new studies. The flow diagram summarizes the study selection process.

Identification
Records identified through database searching (n=497) Additional records identified through other sources (n=0)

Screening
Records after duplicates removed (n=376)

Eligibility
Records assessed for eligibility (n=44)
Articles excluded (n=30)
Did not answer clinical question (n=6)
Did not meet quality threshold (n=16)
Outdated relative to other included study (n=8)

Included
Studies included in pathway (n=14)

Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535
Included Studies


Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

However, in view of the possibility of human error or changes in medical sciences, neither the authors nor Seattle Children’s Healthcare System nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers should confirm the information contained herein with other sources and are encouraged to consult with their health care provider before making any health care decision.