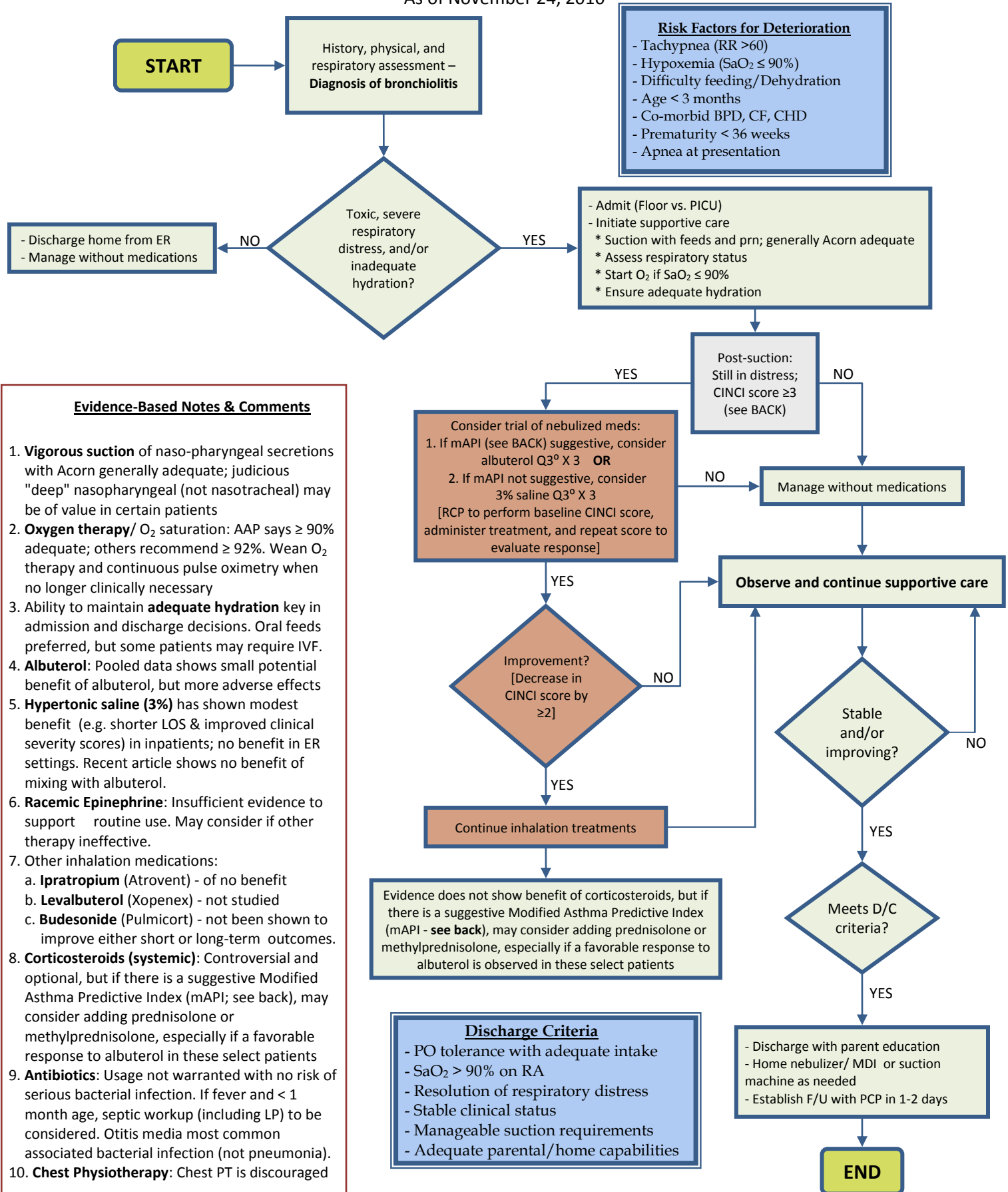


GUIDELINES FOR INPATIENT MANAGEMENT OF BRONCHIOLITIS 2010

As of November 24, 2010



Risk Factors for Deterioration

- Tachypnea (RR >60)
- Hypoxemia (SaO₂ ≤ 90%)
- Difficulty feeding/Dehydration
- Age < 3 months
- Co-morbid BPD, CF, CHD
- Prematurity < 36 weeks
- Apnea at presentation

- Admit (Floor vs. PICU)
- Initiate supportive care
* Suction with feeds and prn; generally Acorn adequate
* Assess respiratory status
* Start O₂ if SaO₂ ≤ 90%
* Ensure adequate hydration

Post-suction:
Still in distress;
CINCI score ≥3
(see BACK)

Consider trial of nebulized meds:
1. If mAPI (see BACK) suggestive, consider
albuterol Q3° X 3 OR
2. If mAPI not suggestive, consider
3% saline Q3° X 3
[RCP to perform baseline CINCI score,
administer treatment, and repeat score to
evaluate response]

Improvement?
[Decrease in
CINCI score by
≥2]

Continue inhalation treatments

Evidence does not show benefit of corticosteroids, but if there is a suggestive Modified Asthma Predictive Index (mAPI - see back), may consider adding prednisolone or methylprednisolone, especially if a favorable response to albuterol is observed in these select patients

Discharge Criteria

- PO tolerance with adequate intake
- SaO₂ > 90% on RA
- Resolution of respiratory distress
- Stable clinical status
- Manageable suction requirements
- Adequate parental/home capabilities

- Discharge with parent education
- Home nebulizer/ MDI or suction
machine as needed
- Establish F/U with PCP in 1-2 days

Evidence-Based Notes & Comments

- Vigorous suction** of naso-pharyngeal secretions with Acorn generally adequate; judicious "deep" nasopharyngeal (not nasotracheal) may be of value in certain patients
- Oxygen therapy/ O₂ saturation:** AAP says ≥ 90% adequate; others recommend ≥ 92%. Wean O₂ therapy and continuous pulse oximetry when no longer clinically necessary
- Ability to maintain **adequate hydration** key in admission and discharge decisions. Oral feeds preferred, but some patients may require IVF.
- Albuterol:** Pooled data shows small potential benefit of albuterol, but more adverse effects
- Hypertonic saline (3%)** has shown modest benefit (e.g. shorter LOS & improved clinical severity scores) in inpatients; no benefit in ER settings. Recent article shows no benefit of mixing with albuterol.
- Racemic Epinephrine:** Insufficient evidence to support routine use. May consider if other therapy ineffective.
- Other inhalation medications:
 - Ipratropium** (Atrovent) - of no benefit
 - Levalbuterol** (Xopenex) - not studied
 - Budesonide** (Pulmicort) - not been shown to improve either short or long-term outcomes.
- Corticosteroids (systemic):** Controversial and optional, but if there is a suggestive Modified Asthma Predictive Index (mAPI; see back), may consider adding prednisolone or methylprednisolone, especially if a favorable response to albuterol in these select patients
- Antibiotics:** Usage not warranted with no risk of serious bacterial infection. If fever and < 1 month age, septic workup (including LP) to be considered. Otitis media most common associated bacterial infection (not pneumonia).
- Chest Physiotherapy:** Chest PT is discouraged

Medical Management of Bronchiolitis 2010

As of November 24, 2010 (Ha C; Wolfe T; Roy L; Akhter J)

Modified Asthma Predictive Index

In past 12 months, ≥ 4 wheezing episodes (>24 h), with at least 1 physician-confirmed, **PLUS**

1 Major Criterion

- Parent with asthma
- Atopic dermatitis
- **Allergic sensitization to ≥ 1 aeroallergen***

OR

2 Minor Criteria

- Wheezing apart from colds
- Eosinophilia ($\geq 4\%$)
- **Allergic sensitization to milk, egg, or peanuts**

*House dust mite, cockroach, dog, cat, mold, grass, tree, and weed.

Castro-Rodriguez et al. *Am J Respir Crit Care Med.* 2000;162:1403-6; Guilbert et al. *Control Clin Trials.* 2004;25:286-310; Guilbert et al. *J Allergy Clin Immunol.* 2004;114:1282-1287.

Summary of Cincinnati Scoring System (CINCI) in Bronchiolitis

1. Scoring is assessed by RCPs post-suction
2. Five elements in the score, 8 points total:
 - * Respiratory rate (0-1)
 - * Accessory muscles/ retractions (0-2)
 - * Air Exchange (0-2)
 - * Wheezes (0-2)
 - * I:E Ratio (0-1)Consider nebs if score of ≥ 3
3. A decrease in score of ≥ 2 is considered significant improvement, suggestive of continuing 3% saline treatments (task-force consensus). If change <2 , stop nebs.

Diagnostic Work-up Issues

- 1) Viral testing is of limited value: if patient has clinical bronchiolitis, the viral testing rarely influences therapeutic decisions, and these patients should be on appropriate isolation regardless of testing.
- 2) Routine chest x-rays in clinical bronchiolitis are of limited value, as findings unexpected or "inconsistent" with the clinical picture are noted $<1\%$ of the time, and antibiotic usage (unnecessary in most cases; see EBM Notes) increases from 2% to 15%.

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