Clinical Pathway
Bronchiolitis
Updated: October 2012

Outcomes/Goals	1. Provide a consistent evidence-based approach to the diagnosis and management of bronchiolitis 2. Create a team-oriented approach to efficient evaluation including use of RAS scoring 3. Support diagnosis by history and physical examination **4. Reduce routine use of bronchodilators and corticosteroids** **5. Reduce x-rays for use in diagnosis**
NURSE documentation	Chief complaint. Onset of symptoms. Risk factors. Hydration status. Vital signs. RAS score. Work of breathing. Quality of breath sounds. Need/frequency for nasal suctioning.
INTERVENTIONS Initiate on arrival	ESI Triage level II or III Full set of vitals Document RAS score Evaluate need for nasal suctioning Continuous pulse oximetry if initial SaO2 < 92%. Re-evaluate the need for continuous monitoring and adjust as condition warrants Oxygen to maintain SaO2 > 92% LMX to extremity for IV start if moderate to severe dehydration or RR >60
DIAGNOSTICS	**Not** routinely encouraged Virology tests (RSV swab/culture) recommended only if results will change treatment decision or for inpatient cohorting
PHYSICIAN (LIP)	
Medication Albuterol and Epinephrine Corticosteroids Hypertonic Saline	 Consider a one-time trial of albuterol (if likely discharge) or epinephrine (if likely admission) within the first 12 hours of presentation. Continue only if documented positive clinical response (decreased RR / WOB) Prelone or Dexamethasone **not** recommended for routine management Consider trial of Hypertonic saline nebs for copious or thick secretions
Fluids (if indicated)	Encourage oral rehydration prior to IV rehydration If unable to tolerate ORT, then Normal Saline bolus 20 ml/kg
ADMISSION	Call primary care physician Call peds ward attending Prepare family/infant for admission to PICU, ward or Peds ED Observation
Discharge teaching	Typical features of the clinical syndrome of bronchiolitis are profuse rhinorrhea, rapid respirations, retractions, cough, and wheeze. The typical age range for infants with bronchiolitis is 1-6 months with the peak at about 3 months. Mainstay therapy is supportive care with an emphasis on ***suctioning, positioning, and hydration (including pacing of feeds)***. Additional discharge information should focus on prevention and hand washing (including an alcohol-based rub) for all family members.

Clinical Pathway Decision Making Process

Bronchiolitis

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DIAGNOSIS	ASSESSMENTS	INTERVENTIONS
• Diagnosis is usually made by clinical presentation, history, and seasonality. Acute bronchiolitis should be considered in infants with nasal discharge, wheezing, inspiratory crackles and/or high pitched expiratory wheeze. Apnea may be presenting complaint especially <3 months of age. • **Chest x-rays are not routinely encouraged**. Virology tests (RSV swab/culture) recommended only if results will change treatment decision or for inpatient cohorting. • Increased respiratory rate should arouse suspicion of lower respiratory tract infections like bronchiolitis or pneumonia. • High fever (>39°C) warrants careful evaluation for other causes. Absence of fever should not preclude diagnosis of acute bronchiolitis.	Pulse oximetery on all patients **SaO2 <92%** usually require hospitalization **SaO2 92-94%** require supportive care, ongoing assessments including hydration/nutrition status, phase of illness, suctioning requirements, social and geographical factors **SaO2>94%** supportive care, able to maintain oral intake, consider for discharge	• Vital signs including room air SaO2 • Assign Respiratory Assessment Score (RAS) • If <3 months of age suction first with bulb syringe. If unable to adequately clear secretions suction with nasal aspirator • Initiate isolation (droplet) • Consider a one-time trial of albuterol or epinephrine (within the first 12 hours of presentation). Continue only if documented positive clinical response • Prelone or Dexamethasone **not** recommended for routine management • Consider trial of Hypertonic Saline nebs for copious or thick secretions. Continue only if documented positive clinical response.
RISK FACTORS	**INTENSIVE CARE CONSULTATION**	**SUPPORTIVE CARE / DISCHARGE CRITERIA**
• <3 months of age • Infants born <35 weeks gestation • Congenital heart disease • Chronic lung disease • Exposure to second-hand smoke	Consider PICU/NICU consult for: • Failure to maintain oxygen saturations >92% with increasing oxygen therapy • Deteriorating respiratory status with signs of increasing distress or exhaustion • Recurrent apnea	• SaO2 >92% • If supplemental oxygen required, monitor for 8-12 hours after oxygen discontinued including a period of sleep • If unable to maintain oral intake/hydration support with IV therapy • Infants <3 months must be able to clear nasal secretions with bulb syringe (not aspirator) and feed without desaturation prior to discharge • Infants with oxygen saturation levels <92%, have severe respiratory distress or cyanosis should receive supplemental oxygen

Bronchiolitis Rationale and Data

Goals of Clinical Pathway

1. Provide a consistent evidence-based approach to the diagnosis and management of bronchiolitis
2. Create a team-oriented approach to efficient evaluation including use of RAS scoring
3. Support diagnosis by history and physical examination
4. **Reduce routine use of bronchodilators and corticosteroids**
5. **Reduce x-rays for use in diagnosis**

Diagnosis and Management of Bronchiolitis

Bronchiolitis is a disorder most commonly caused in infants by viral lower respiratory tract infection. It is the most common lower respiratory infection between the ages of 12 weeks and 2 years (AAP, 2008). Bronchiolitis is characterized by acute inflammation, edema of the airway, increased mucus production and bronchospasm. Clinical signs and symptoms include rhinitis, tachypnea, wheezing, cough, crackles, use of accessory muscles and/or nasal flaring.
90% of children are infected with RSV in the first 2 years of life (3). Infection does not grant permanent or long-term immunity (6)

AAP Recommendations for Treatment and Diagnosis of Bronchiolitis

Bronchiolitis is a clinical diagnosis that does not require diagnostic testing. The AAP has the following recommendations in the diagnosis and treatment of Bronchiolitis.

1. Bronchiolitis should be diagnosed on the basis of history and physical examination. Clinicians should not routinely order laboratory and radiologic studies for diagnosis.
2. Assess risk factors, which include ages less than 12 weeks, history of prematurity, underlying cardiopulmonary disease or immunodeficiency when making decisions about evaluation and management.
3. Bronchodilators should not be used routinely in the management of bronchiolitis. A one-time trial within 12 hours of presentation is an option. Continue only if documented positive clinical response.
4. Corticosteroid medications should not be used routinely in the management of bronchiolitis.
5. Ribavirin should not be used routinely.
6. Antibacterial medications should be used only in children with Bronchiolitis who have specific indications of the coexistence of a bacterial infection.
7. Clinicians should assess hydration and ability to take fluids orally.
8. Chest physiotherapy should not be used routinely in management of the disease.
9. Supplemental oxygen is indicated if saturation levels fall persistently below 90% (previously healthy infants).
10. Continuous measurement of saturation levels is not routinely needed.
11. Infants with a known history of heart or lung disease and premature infants require close monitoring as oxygen is being weaned.
12. Clinicians may administer palivizumab prophylaxis to selected infants and children with CLD or a history of prematurity or with congenital heart disease.
13. Hand decontamination is the most important step in preventing nosocomial spread of RSV. Alcohol–based rubs are preferred for hand decontamination. Clinicians should educate personnel and family members on hand sanitation.
14. Infants should not be exposed to passive smoking.
15. Breastfeeding is recommended to decrease a child's risk of having lower respiratory tract disease.
16. Clinicians should inquire about use of complimentary alternative medicine.