

# BRONCHIOLITIS: ACUTE MANAGEMENT

## PRACTICE GUIDELINE®

### DOCUMENT SUMMARY/KEY POINTS

#### NSW Ministry of Health Guideline

#### Infants and Children - Acute Management of Bronchiolitis

[http://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2018\\_001](http://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2018_001)

- The above linked document is a NSW Ministry of Health Guideline.
- This is a clinical practice guideline and is aimed at achieving the best possible paediatric care in all parts of the state.
- For information on the use of Humidified High Flow Nasal Prong Oxygen in Bronchiolitis refer to SCHN Humidified High Flow Nasal Cannula Therapy guideline:  
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/4453>

#### **A brief summary of the NSW MoH guidelines follows.**

- Supportive care is the mainstay of management.
- Infants with mild bronchiolitis can often be managed at home
- Admission to hospital for fluids, oxygen and/or respiratory support may be necessary
- Skilful nursing is a major element of good care
- Bronchodilators should not be used in infants < 6/12
- Corticosteroids should not be used unless asthma is likely
- Antibiotics are not routinely used
- Take special care – infants at risk of severe illness

#### **SCHN Contacts:**

- Head of Department, SCH or CHW Emergency Department

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure and Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> April 2016	<b>Review Period:</b> 5 Years
<b>Team Leader:</b>	Staff Specialist	<b>Area/Dept:</b> Emergency Department SCH & CHW

## CHANGE SUMMARY

- This SCHN coversheet to the MoH Guideline [GL2018\_001] replaces CHW Guideline Bronchiolitis Management in ED - Infants up to 12 months [2008-0031].
- GL2018\_001 replaces PD2012\_004.
- To replace Bronchiolitis: Acute Management Practice Guideline 1/C/16:9012-01:00  
To replace Viral Bronchiolitis- Inpatient Care- SCH Practice Guideline 1/C/13:7057-01:00

## READ ACKNOWLEDGEMENT

- All clinical nurses and medical staff must read and acknowledge they understand the contents of this document.

## General information

Viral bronchiolitis of infancy is a lower respiratory infection which produces small airway obstruction with air trapping and respiratory difficulty in infants mostly aged less than twelve months. Respiratory syncytial virus (RSV) is the cause in >90% of infants. Other viruses causing bronchiolitis include metapneumovirus, rhinovirus and influenzae etc. It is the most common severe respiratory infection of infancy. Most cases occur between late autumn and early spring, with sporadic cases any time. In older infants (9-24 months) viral bronchiolitis often appears clinically the same as early childhood wheeze or asthma with associated viral infection. The mainstays of good care include oxygen, adequate fluids, and careful observation to detect the few infants who will need major intervention.

### Differential diagnosis

- A number of other conditions may share some presenting features with viral bronchiolitis:
  - acute asthma, associated with viral lower respiratory infection
  - viral induced wheeze
  - pneumonia
  - congestive heart failure
  - pertussis
  - pneumothorax
  - bronchial foreign body
  - Congenital lung abnormalities

### Severity Assessment:

## 1.1 Assessment and management of acute bronchiolitis

INITIAL SEVERITY ASSESSMENT			
Treat in the highest category in which any symptom occurs			
SYMPTOMS	MILD manage at home?	MODERATE Admit to hospital	SEVERE AND LIFE THREATENING
APPEARANCE	Well	Moderate	Unwell
RESPIRATORY RATE	Mild Tachypnoea <60	Moderate Tachypnoea 60-70	Apnoeas Severe Tachpnoea >70 Bradpnoea <30
WORK OF BREATHING	Normal	Mild to Moderate	Moderate to Severe Grunting
CYANOSIS	No Cyanosis	No Cyanosis	May be Cyanosed or Pale
OXYGEN SATURATION OXYGEN REQUIREMENT (NOT SINGLE DETERMINANT FOR SEVERITY)	Above 92% in Air	≤92% in Air Requiring <1L/kg/min for work of breathing	≤90% in Air Requiring >1L/kg/min for work of breathing
HEART RATE	Normal	Mild Tachycardia	Tachycardia >180
FEEDING	Normal or	Difficulty feeding, but able to take > 50% of normal feed	Difficulty feeding taking <50% of normal feed

	<b>Slightly Decreased but able to take &gt; 75% normal feed</b>		
<b>TREATMENT</b>			
<b>OXYGEN</b>	<b>No</b>	<b>Give O<sub>2</sub> via nasal prongs to maintain saturation at or above 92% and or to improve the work of breathing Consider high flow if not responding</b>	<b>Maintain oxygen saturations greater than 92% If required consider high flow of 2L/kg/min</b>
<b>HYDRATION</b>	<b>Recommend smaller more frequent feeds</b>	<b>Smaller more frequent feeds Consider NG feeds</b>	<b>IV fluids (at 2/3 maintenance) and NBM</b>
<b>INVESTIGATIONS</b>	<b>Nil required</b>	<b>Nil required Consider NPA*</b>	<b>Consider CXR and Blood Gas / BSL Consider NPA*</b>

**Treatment at Home:**

- Is often possible with mild bronchiolitis. Requirements for this must include – competent parent/s, appropriately informed, out-of-hours access to help, ready transport, involved general practitioner.

<p><b>Warning: High risk of serious illness</b>  <b>Infants in these groups are more prone to rapid deterioration and are more likely to need ventilatory assistance:</b></p>	<ul style="list-style-type: none"> <li>• <b>The premature or low-weight for gestational age</b></li> <li>• <b>Infants &lt;3/12 months old</b></li> <li>• <b>Chronic lung disease: eg bronchopulmonary dysplasia, congenital abnormalities</b></li> <li>• <b>Congenital heart disease especially with L→R shunt, or pulmonary hypertension</b></li> <li>• <b>Neuromuscular disorders</b></li> <li>• <b>Immunodeficiency</b></li> <li>• <b>Multiple previous admissions with bronchiolitis</b></li> <li>• <b>Exposure to cigarette smoke</b></li> <li>• <b>Failure to thrive</b></li> <li>• <b>Being an indigenous infant</b></li> </ul>
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**Tests:**

No tests are needed in mild bronchiolitis. Otherwise **consider:**

<ul style="list-style-type: none"> <li>• <b>NPA for RSV/other viruses</b></li> <li>• <b>CXR – if moderate (or worse) respiratory difficulty, or if there is any diagnostic uncertainty</b></li> <li>• <b>Blood sugar level</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>FBC – any sick child</b></li> <li>• <b>Electrolytes – especially if needing I.V. fluids</b></li> <li>• <b>Blood culture – if temperature &gt; 38.5°C</b></li> <li>• <b>Venous/capillary blood gas if useful for clinical management (discuss with senior medical officer)</b></li> </ul>
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**Oxygen:**

- Aim at 92% (or higher) saturation (measured on continuous pulse oximetry) during acute phase
- During recovery, accept 90-92%, if not distressed, and feeding well, as sufficient for cessation of oxygen and discharge, (but not with chronic lung disease infants)

- Generally start with nasal prong (NP) oxygen. In moderate to severe respiratory distress consider starting with humidified high flow NP oxygen. Seek senior medical officer review. Face mask oxygen is an alternative if not tolerating NP oxygen, but not in severe distress.
- Consider changing to humidified high flow NP oxygen in infants with moderate to severe distress who are not responding to low flow nasal prong oxygen.
- For information on humidified high flow NP oxygen refer to SCHN Humidified High Flow Nasal Cannula Therapy guideline:  
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/4453>.
- Persisting hypoxaemia +/- severe distress, despite high oxygen flow, requires immediate Intensive Care Unit (ICU) assessment for ventilatory assistance
- When oxygen saturations are persistently sustained less than 92% - it is appreciated that infants with bronchiolitis will have brief episodes of mild/moderate desaturations to levels less than 92%, these brief desaturations are not a reason to commence oxygen therapy
- For infants not receiving oxygen, routine use of continuous pulse oximetry is not required for medical management of non-hypoxic patient

### ***Nursing Management:***

- Includes the concept of minimal handling along with early recognition of clinical deterioration:
  - Maintaining continuity of oxygen therapy
  - Minimising impact of procedures eg cannulation
  - Careful feeding; recognising increasing difficulty with feeding
  - Assessment of fatigue, increasing effort of breathing
  - Careful and repeated observation by nurses who have experience in caring for children with bronchiolitis.

### ***Fluid Therapy:***

- Infants require frequent and careful assessment of their hydration status and ability to take oral fluids. Oral feeding should continue while tolerated in infants with mild to moderate respiratory distress.
- Nasogastric (NG) feeding is recommended for infants who are tiring with feeding or if oral intake is poor.
- Use I.V. fluids if not tolerating NG fluids or if moderate to severe bronchiolitis. Check electrolytes if using IV fluids.
- For fluid management with infants receiving humidified high flow NP oxygen, refer to refer to SCHN Humidified High Flow Nasal Cannula Therapy guideline:  
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/4453>.

- Rarely, Syndrome of inappropriate anti diuretic hormone secretion (SIADH) may be present (will need to reduce fluids)

### **Drugs:**

- In general, do not use bronchodilators in infants <6 months old.
- If it is thought that a trial of a bronchodilator is appropriate, in infants aged 6-12 months, order a stat dose, (e.g. 6 puffs salbutamol via puffer and spacer), and assess any improvement before deciding whether to order more.
- Do not use corticosteroids or ipratropium bromide, except in older infants, when asthma is considered a substantial possibility, or in infants with chronic neonatal lung disease.
- Generally do not use antibiotics, but consider in the most unwell infants, especially those with gross CXR changes, high fever, toxicity
- Do not use antiviral drugs (eg ribavirin) or RSV antibodies

### **Physiotherapy:**

- Is contraindicated in viral bronchiolitis

### **Admission:**

- Discuss patients who are likely to need admission with the ED consultant/fellow.
- **At CHW:**
  - Infants with mild to moderate bronchiolitis who are thought likely to be discharged in 24 hours can be admitted to the CHW ED Emergency Medical Unit (EMU).
  - Infants with risk factors for severe bronchiolitis, or have severe bronchiolitis, or are likely to stay longer in hospital than 24 hours should generally be admitted to the hospital under the medical team. Discuss with ED consultant /fellow.
- **At SCH:** Infants requiring admission should be discussed with and admitted under the general paediatric team.

### **I.C.U. Consultation:**

- In any of these:
  - Progression to severe distress, especially in at-risk group
  - Significant apnoea
  - Persistent desaturation despite oxygen
  - Blood gases showing respiratory failure

- For infants on humidified high flow nasal prong oxygen, refer to refer to SCHN Humidified High Flow Nasal Cannula Therapy guideline:  
<http://webapps.schn.health.nsw.gov.au/epolicy/policy/4453>.

***Discharge criteria:***

- Minimal respiratory distress, feeding well.
- Oxygen saturation above 90%, without supplemental oxygen, EXCEPT infants with chronic lung disease, heart disease, or other risk factors: discuss individually, with consultant.
- Parents aware of any particular concerns and follow-up arrangements.

***Prevention of RSV Cross-Infection:***

- RSV cross-infection is common, serious, largely preventable
- RSV is spread by nose / face → hands → hands or face of another individual
- Adequate frequent handwashing by nursing medical staff, other staff and parents will minimise this problem.
- Please see [SCHN Hand Hygiene Policy](#) for further information on hand washing

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