



PAEDIATRIC ACUTE CARE GUIDELINE

Bronchiolitis

Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Bronchiolitis

Bronchiolitis is a clinical diagnosis referring to a viral lower respiratory tract infection in infants less than 12 months of age. Application of these guidelines for children over 12 months may be relevant but there is less diagnostic certainty in the 12-24 month age group.

Background

- Bronchiolitis is a viral condition beginning with an acute upper respiratory infection followed by onset of respiratory distress and fever and one or more of:
 - Cough
 - Tachypnoea
 - Retractions
 - Widespread crackles or wheeze
- The natural history of bronchiolitis is that it worsens over the first few days (peak severity at day 2-3) and then improves thereafter over the next 7-10 days.
- It is a clinical diagnosis, chest X-Rays are generally not indicated.
- Bronchiolitis is usually self-limiting, often requiring no treatment of interventions
- Most patients can be managed at home but is a leading cause of hospitalisation in infants in Australia.

Risk factors for More Serious Illness in Bronchiolitis

Children with the following should be discussed with a Senior Doctor:

- Born at less than 37 weeks gestation
- Chronological age at presentation <10 weeks
- Post-natal exposure to cigarette smoke
- Breast fed for less than two months
- Failure to thrive.
- Congenital heart disease.
- Chronic lung disease.
- Chronic neurological conditions
- Indigenous ethnicity
- Other factors eg Immunodeficiency, other chronic medical conditions, social factors – geographical location and access to transport.

These children are at risk of more likely to deteriorate and require escalation of care. Consider hospital admission even if presenting early in illness with mild symptoms.

Assessment

History

- There is a prodrome of rhinorrhoea or nasal obstruction for several days followed by a cough and increasing respiratory distress.
- There may be apnoeic episodes, particularly in neonates, young infants, and ex-preterm infants.
- Hydration status: reduced feeding and decreased urine output (fewer wet nappies).
- Fever may be present.

Examination

- Assess the respiratory status of the child including respiratory rate, oxygen saturations and work of breathing (signs of respiratory distress).
 - Signs of increased work of breathing includes nasal flaring, head bobbing, tracheal tug, accessory muscle use and grunting
- Child may look pale and unwell.
- Decreased level of consciousness indicates exhaustion and impending risk of respiratory arrest.
- Cyanosis is a late sign and indicates severe disease.
- Fever is often present, although is not usually high.
- There may be clinical signs of dehydration.

- Chest auscultation reveals bilateral, widespread wheeze and / or crackles. There may be areas of decreased air entry (due to atelectasis from mucous plugging).

Assessment of Severity

	Mild	Moderate	Severe
Behaviour	Normal	Some/intermittent irritability	Increasing irritability and/or lethargy Fatigue
Respiratory rate	Normal or mildly increased	Increased respiratory rate	Marked increase or decrease in respiratory rate
Use of accessory muscles	Nil to mild chest wall retractions	Moderate chest wall retractions Tracheal tug Nasal flaring	Marked chest wall retraction Marked tracheal tug Marked nasal flaring
Oxygen saturation/oxygen requirements	O2 saturations greater than 92% (in room air)	O2 saturations 90-92% (in room air)	O2 saturation less than 90% Hypoxaemia, may not be corrected by O2
Apnoeic episodes	None	May have brief apnoea	May have increasingly frequent or prolonged apnoea
Feeding	Normal	May have difficulty with feeding or reduced feeding	Reluctant or unable to feed

Initial Management

The main treatment of bronchiolitis is supportive to ensure appropriate oxygenation and fluid intake.

	Mild	Moderate	Severe
Likelihood of admission	Suitable for discharge Consider risk factors for more serious illness	Likely admit, may be discharged after period of observations Management discussed with senior doctor	Requires admission, consider need for transfer for higher level care
Observations Vital signs (respiratory rate, heart rate, O2 saturation, temperature)	Adequate assessment in ED prior to discharge (minimum 2 recorded measurements or every 4 hours as per hospital guidelines and EWT)	Hourly – dependent on condition (as per hospital EWT)	Hourly with continuous cardiorespiratory (including oximetry) monitoring and close nursing observation – dependent on condition (as per hospital EWT)
Hydration/nutrition	Small frequent feeds	If not feeding adequately (less than 50% over 12 hours) administer NG or IV hydration	If not feeding adequately (less than 50% over 12 hours) administer NG or IV hydration
Oxygen saturation/ oxygen requirement	Nil required	Administer O2 to maintain SpO2 greater than or equal to 92%	Administer O2 to maintain SpO2 greater than or equal to 92%
Respiratory support		Consider HFNC if a trial of NPO2 is ineffective	Consider HFNC or CPAP
Oxygen monitoring	None	Intermittently done with other observations	Continuous oxygen monitoring, consider apnoea monitor
Disposition/ escalation	Consider further medical review if early in the illness and any risk factors are present or if child develops increasing severity after discharge	Decision to admit should be supported by clinical assessment, social and geographical factors and phase of illness	Consider escalation if severity does not improve Consider ICU review/admission or transfer if - Severity does not improve - Persistent desaturations - Significant or recurrent apnoeas associated with desaturations

	Mild	Moderate	Severe
Parental education	Provide advice on the expected course of illness and when to return (worsening symptoms and inability to feed adequately). Provide Parent information sheet	Provide advice on the expected course of illness and when to return (worsening symptoms and inability to feed adequately) Provide Parent information sheet	Provide advice on the expected course of illness Provide Parent information sheet

Investigations

In most infants presenting to hospital and/or hospitalised with bronchiolitis, no investigations are required

Chest X-ray

- This is not routinely indicated and may lead to unnecessary treatment with antibiotics with subsequent risk of adverse events

Bloods (including FBE, Blood cultures)

- Have no role in management

Nasopharyngeal Aspirate (NPA)

- Has no role in management of individual patients

Urine microscopy and culture

- May be considered to identify urinary tract infection if a temperature over 38 degrees in an infant less than two months of age with bronchiolitis

Differential diagnoses

- Asthma (greater than 12 months old)
- Bronchial foreign body
- Cardiac failure
- Pneumonia
- Pertussis
- Pneumothorax

Children with a fever > 39°C should have a careful evaluation to exclude other diagnoses

such as bacterial infections.

Management

- Bronchiolitis is a viral condition – antibiotics are not indicated.
- Management consists of supportive care only (oxygen and fluids).
- Most patients can be managed at home.

Respiratory Support

- Oxygen therapy should be instituted when oxygen saturations are persistently 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 therapy
- Oxygen should be discontinued when oxygen saturations are persistently greater than or equal to 92%
- Heated humidified high flow oxygen/air via nasal cannulae (HFNC) can be considered in the presence of hypoxia (oxygen saturations less than 92%) and moderate to severe recessions. Its use in infants without hypoxia should be limited to the randomised control trial (RCT) setting only

Monitoring

- Observations as per local hospital guidelines and Early Warning Tools (EWTs)
- Continuous oximetry should not be routinely used to dictate medical management unless the disease is severe

Hydration/nutrition

- When non-oral hydration is required either intravenous (IV) or nasogastric (NG) hydration are appropriate
- If IV fluid is used it should be isotonic (0.9% Sodium Chloride with Glucose or similar)
- The ideal volume of IV or NG fluids required to maintain normal hydration remains unknown; between 60% to 100% of maintenance fluid is an appropriate volume to initiate

Medication

- Beta 2 agonists – Do not administer beta 2 agonists (including those older infants with a personal or family history of atopy)
- Corticosteroids – Do not administer systematic or local glucocorticoids (nebulised, oral, intramuscular (IM), or IV)

- Adrenaline – Do not administer adrenaline (nebulised, IM or IV) except in the peri-arrest or arrest situation
- Hypertonic Saline – Do not administer nebulised hypertonic saline
- Antibiotics – (Including azithromycin) are not indicated in bronchiolitis
- Antivirals – Are not indicated

Nasal suction

- Nasal suction is not routinely recommended. Superficial nasal suction may be considered in those with moderate disease to assist feeding
- Nasal saline drops may be considered at the time of feeding

Chest physiotherapy

- Is not indicated

Ongoing Management

- HFNC or Nasal CPAP therapy may be considered in the appropriate ward setting

Discharge planning and community-based management

- Infants can be discharged when oxygen saturations are greater than or equal to 92% and feeding is adequate
- Infants younger than 8 weeks of age are at an increased risk of re-presentation
- Discharge on home oxygen can be considered after a period of observation in selected infants as per local policies, if appropriate community short term oxygen therapy is available

Education (Parent/Care-giver)

- A bronchiolitis parent information sheet should be provided
- Parents should be educated about the illness, the expected prognosis and when and where to seek further medical care

Safety initiatives

- Use simple infection control practices such as hand washing
- Cohorting of infants (based on virological testing) has not been shown to improve outcomes

Tags

apnoea, asthma, bradycardia, bronch, bronchiolitis, CXR, distress, feeding, infant, LRTI, PNA,

pneumonia, respiratory, RSV, virus, wheeze, X-Ray

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File Path:			
Document Owner:	Dr Meredith Borland HoD, PMH Emergency Department		
Reviewer / Team:	Kids Health WA Guidelines Team		
Date First Issued:	4 September, 2013	Version:	
Last Reviewed:	12 October, 2015	Review Date:	12 October, 2017
Approved by:	Dr Meredith Borland	Date:	12 October, 2015
Endorsed by:	Medical Advisory Committee	Date:	12 October, 2015
Standards Applicable:	NSQHS Standards:   		
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