



Paediatric Research in
Emergency Departments
International Collaborative

AUSTRALASIAN BRONCHIOLITIS

BEDSIDE CLINICAL GUIDELINE

SUMMARY

PURPOSE/AIM

This guideline has been developed to provide an evidence-based clinical framework for the management of infants (0–12 months) with bronchiolitis treated in Australasian emergency departments (EDs) or general paediatric wards. 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.

(All references to age within this guideline refer to chronological age unless stated otherwise.)

DIAGNOSIS

Viral bronchiolitis is a clinical diagnosis, based on typical history and examination. Peak severity is usually at around day two to three of the illness with resolution over 7–10 days. The cough may persist for weeks. Bronchiolitis most commonly occurs in the winter months, but can be seen all year round.

FEATURES

Bronchiolitis typically begins with an acute upper respiratory tract infection followed by onset of respiratory distress and fever and one or more of:

- Cough
- Tachypnoea
- Retractions
- Widespread crackles or wheeze

Bronchiolitis is usually self-limiting, often requiring no treatment or interventions.

RISK FACTORS FOR MORE SERIOUS ILLNESS

- Gestational age less than 37 weeks
- Chronological age at presentation less than 10 weeks
- Post-natal exposure to cigarette smoke
- Breast fed for less than two months
- Failure to thrive
- Chronic lung disease
- Congenital heart disease
- Chronic neurological conditions
- Indigenous ethnicity

Infants with any of these risk factors are more likely to deteriorate rapidly and require escalation of care. Consider hospital admission even if presenting early in illness with mild symptoms.

INITIAL ASSESSMENT

This table is meant to provide guidance in order to stratify severity. The more symptoms the infant has in the mod-severe categories, the more likely they are to develop severe disease.

	MILD	MODERATE	SEVERE
Behaviour	Normal	Some/intermittent irritability	Increasing irritability and/or lethargy Fatigue
Respiratory rate	Normal – mild tachypnoea	Increased respiratory rate	Marked increase or decrease in respiratory rate
Use of accessory muscles	Nil to mild chest wall retraction	Moderate chest wall retractions Tracheal tug Nasal flaring	Marked chest wall retractions Marked tracheal tug Marked nasal flaring
Oxygen saturation/ oxygen requirement	O ₂ saturations greater than 92% (in room air)	O ₂ saturations 90–92% (in room air)	O ₂ saturations less than 90% (in room air) Hypoxemia, may not be corrected by O ₂
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.
This involves ensuring appropriate oxygenation and fluid intake.

	MILD	MODERATE	SEVERE
Likelihood of admission	Suitable for discharge Consider risk factors	Likely admission, may be able to be discharged after a period of observation Management should be discussed with a local senior physician	Requires admission and consider need for transfer to an appropriate children's facility/PICU Threshold for referral is determined by local escalation policies but should be early
Observations Vital signs (respiratory rate, heart rate, O₂ saturation, temperature)	Adequate assessment in ED prior to discharge (minimum of two recorded measurements or every four hours as per local hospital guidelines and EWT)	Hourly – dependent on condition (as per local hospital guidelines and EWT)	Hourly with continuous cardiorespiratory (including oximetry) monitoring and close nursing observation – dependent on condition (as per local hospital guidelines and 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), or unable to feed, administer NG or IV hydration
Oxygen saturation/oxygen requirement	Nil requirement	Administer O ₂ to maintain saturations greater than or equal to 92%	Administer O ₂ to maintain saturations greater than or equal to 92%
Respiratory support		Consider HFNC if a trial of NPO ₂ is ineffective	Consider HFNC or CPAP
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 to local centre with paediatric HDU/ICU capacity if: <ul style="list-style-type: none"> • Severity does not improve • Persistent desaturations • Significant or recurrent apnoeas associated with desaturations
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

PICU = paediatric intensive care unit, **EWT** = early warning tool, **NG** = nasogastric, **IV** = intravenous, **NPO₂** = nasal prong oxygen, **HFNC** = heated humidified high flow oxygen/air via nasal cannulae, **CPAP** = continuous positive airway pressure, **HDU** = high dependency unit.

INVESTIGATIONS

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

Chest X-ray (CXR)

- Is not routinely indicated in infants presenting with bronchiolitis and may lead to unnecessary treatment with antibiotics with subsequent risk of adverse events

Blood tests (including full blood count (FBC), blood cultures)

- Have no role in management

Virological testing (nasopharyngeal swab or aspirate)

- 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

MANAGEMENT

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 oxygen 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 saturation less than 92%) and moderate to severe recessions. Its use in infants without hypoxia should be limited to the randomised controlled 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 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 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 with a personal or family history of atopy)
- Corticosteroids — Do not administer systemic or local glucocorticoids (nebulised, oral, intramuscular (IM) or IV)
- Adrenaline — Do not administer adrenaline (nebulised, IM or IV) except in 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 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 rehospitalisation
- 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
- Follow-up and review as per local practice

EDUCATION (PARENT/CARE-GIVER)

- A Bronchiolitis Parent Information Sheet should be provided
- Parents should be educated about the illness, the expected progression 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

ACKNOWLEDGEMENT

The Australasian Bronchiolitis Guideline has been developed by the Paediatric Research in Emergency Departments International Collaborative (PREDICT) research network. The project was funded by a National Health and Medical Research Council Centre of Research Excellence grant for paediatric emergency medicine (GNT1058560) administered by the Murdoch Childrens Research Institute.

A Guideline Advisory Group was initially established from PREDICT and convened a multidisciplinary Guideline Development Committee with expert knowledge and skills within the fields of Emergency and Paediatric Medicine. This multidisciplinary Development Committee complement the skills and knowledge of the Guideline Advisory Group. This ensured stakeholder engagement and representation from specific specialty areas to ensure broad relevance of the guideline.

This summary document is an excerpt that contains the clinical guideline only. The guideline is evidence-based following a review of the literature according to GRADE and NHMRC methodology. Please see:

<http://www.predict.org.au/download/Australasian-bronchiolitis-guideline.pdf>

to download the complete guideline and full review of the evidence base.