Paediatric Research in Emergency Departments International Collaborative (PREDICT)

Australasian Bronchiolitis Guideline: 2025 Update

Bedside Guideline

Acknowledgments

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Abbreviations and Acronyms

CPAP	Continuous positive airway pressure
CXR	Chest Xray
ED	Emergency department
EWT	Early warning tools
FiO_2	Fractional concentration of inspired oxygen
GAG	Guideline Advisory Group
GDC	Guideline Development Committee
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HDU	High dependency unit
HF	Humidified High flow
ICU	Intensive care unit
IV	Intravenous
NA	Not applicable
NHMRC	National Health and Medical Research Council
NG	Nasogastric
RCT	Randomised controlled trial
RSV	Respiratory syncytial virus
SARS-CoV-2	Severe acute respiratory syndrome coronavirus-2
SpO_2	Peripheral oxygen saturation

Summary

Bronchiolitis is one of the most common reasons for hospital admission in Australian and Aotearoa New Zealand infants. The Australasian Bronchiolitis Guideline aims to provide evidence-based clinical guidance on the management of infants (<12 months) presenting or admitted to hospital with bronchiolitis. The recommendations are applicable to emergency departments (EDs), general paediatric wards, and intensive care units (ICUs) in Australasian hospitals. The guidance has been developed for clinicians working within these settings.

This guideline was originally developed in 2016. The scope of the guideline has been expanded in this 2025 update to include recommendations on respiratory syncytial virus (RSV) prevention, the management of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) co-infection, and bronchiolitis management in intensive care settings (up to but not including intubation). Forty-one recommendations have been developed on 25 topics by 29 clinical and methodological experts from Australasia serving within the overseeing Guideline Advisory Group (GAG) and the consultative Guideline Development Committee (GDC). The recommendations were based on systematic reviews (final search 24 January 2024), and appraisals of the evidence using the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach. Each recommendation was finalised through consensus discussion and voting of the GAG/GDC, who considered the balance of benefits and harms, resource implications, feasibility in the Australasian context, acceptability, interest-holder values and preferences, and the equity and human rights implications of the proposed action.

The implications of the recommendations for bronchiolitis diagnosis and management are summarised below. For detailed information of the underlying evidence, please refer to the guideline report and annex. Explanation of the recommendation strength and evidence quality definitions are described in Table 1.

Diagnosis

Bronchiolitis is a clinical diagnosis that is based on typical history and examination. The peak severity of bronchiolitis usually occurs at day two to three of illness, with resolution over seven to ten days. The associated cough may persist for weeks. Bronchiolitis most commonly occurs in the winter months in temperate regions but can be seen year-round in tropical regions.

Clinical signs and symptoms

Consider a diagnosis of bronchiolitis in an infant if they have an upper respiratory tract infection (rhinorrhoea, nasal congestion, and/or cough), followed by the onset of a lower respiratory tract infection involving one or more of the following: respiratory distress (tachypnoea and/or retractions), presence of diffuse crackles and/or wheeze. These symptoms may occur with or without the presence of fever. Additional signs and symptoms may include feeding difficulties, vomiting, dehydration, hypoxaemia, lethargy, and uncommonly (<5%) diarrhoea, and rarely (<2%) apnoea. *(Evidence quality:* very low*; recommendation strength:* weak)

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

Table 1. GRADE recommendation strength and evidence quality definitions.

Recommendation strength	Definition	Recommendation language
Strong	The GDC is confident that the desirable effects of the action outweigh its undesirable effects, or vice versa. Most or all individuals will be best served by the recommended course of action.	"Use..." "Do not..." "Clinicians should..."
Weak	The desirable effects of the action probably outweigh the undesirable effects, or vice versa, but appreciable uncertainty exists. Not all individuals will be best served by the recommended course of action.	"Consider..." "Do not routinely..."
Conditional	A *weak* recommendation where the recommended course of action may depend on patient factors, resources or setting.	
Consensus-based recommendation	A recommendation formulated through GAG and GDC consensus in the absence of evidence, where a systematic review of the evidence was conducted as part of the search strategy.	

Evidence quality ratings	Contributing factors
⨁⨁⨁⨁ High	• Risk of bias (↓ or ↓↓) • Inconsistency of results (↓ or ↓↓) • Indirectness of evidence (↓ or ↓↓) • Imprecision (↓ or ↓↓) • Publication bias (↓ or ↓↓) • Large magnitude of effect (↑ or ↑↑)[a] • Plausible confounding would reduce the demonstrated effect (or increase the effect if no effect observed) (↑)[a] • Demonstrated dose-response gradient (↑)[a]
⨁⨁⨁⊖ Moderate	
⨁⨁⊖⊖ Low	
⨁⊖⊖⊖ Very low	
Not applicable (NA)	No eligible evidence

GDC = Guideline Development Committee; GAG = Guideline Advisory Group. Reproduced from the GRADE Handbook[1]. For further detail, refer to the guideline report methodology section[2]. High quality= no downgrades, or observational evidence* with ≥2 upgrades; moderate quality= one downgrade, or observational evidence* with 1 upgrade; low quality= two downgrades, or observational evidence* with no upgrades; very low quality= ≥3 downgrades, or observational evidence* with ≥1 downgrade. *For topics where RCT evidence was sought, observational evidence is downgraded to low quality at the outset. [a]Only for observational evidence without downgrades for the subsequent five domains.

[1] GRADE handbook for grading quality of evidence and strength of recommendations: The GRADE Working Group; 2013. Available from: guidelinedevelopment.org/handbook.
[2] PREDICT. Australasian Bronchiolitis Guideline: 2025 Update. Melbourne, VIC, Australia; 2025.

Risk factors for severe illness

Clinicians should take into account the following risk factors for more serious illness when assessing and managing infants with bronchiolitis:

- Gestational age <37 weeks*;
- Younger chronological age at presentation*;
- Prenatal and/or postnatal exposure to tobacco smoke*;
- Reduced breastfeeding exposure*;
- Faltering growth/ slow weight gain (failure to thrive);
- Comorbidities including congenital heart disease, chronic lung disease, chronic neurological condition, congenital diaphragmatic hernia, trisomy 21, and other genetic disorders;
- Being an Indigenous infant†;
- Being an economically disadvantaged infant;
- Timing and severity of illness onset at hospital presentation.

*Clinicians should judge these as risk factors on a continuous scale; with higher risk of poor outcomes associated with lower gestational age, lower chronological age, fewer days of breastfeeding exposure, and greater tobacco smoke exposure.

†Indigenous status, in itself, is unlikely to confer risk but there remains a correlation in Australia and Aotearoa New Zealand with ethnicity and severe bronchiolitis outcomes, independent of socioeconomic status, potentially reflecting the ongoing impacts of colonisation, remote geographical isolation and the institutional racism in our health systems.

(Evidence quality: moderate; *recommendation strength:* strong)

Infants with any of these risk factors are more likely to deteriorate rapidly and require escalation of care. Risk factors are likely to be cumulative. Infants with bronchiolitis presenting with these risk factors may require a longer period of observation or hospital admission, even if they are presenting early in the illness with mild symptoms.

SARS-CoV-2 co-infection

SARS-CoV-2 infection or co-infection does not appear to place infants at increased risk of severe outcome from bronchiolitis. Do not routinely use SARS-CoV-2 status to stratify increased risk for deterioration in infants with bronchiolitis. *(Evidence quality:* very low*; recommendation strength:* weak)

Investigations

In most infants presenting to hospital and/or hospitalised with bronchiolitis, no investigations are required. Guidance for the use of chest Xray (CXR), laboratory and virological testing are outlined below.

Chest Xray

Do not routinely use CXR in infants presenting or admitted to hospital with bronchiolitis. (*Evidence quality*: very low; *recommendation strength*: conditional)

CXR may be considered in the following situations:

1. Infants with an unexpected deterioration* (defined as an unexpected requirement for an escalation of care), and/or a clinical course not consistent with bronchiolitis, including concerns regarding the presence of sepsis, pneumonic consolidation, pneumothorax, empyema, immunodeficiency, pleural effusion, or significant cardiac abnormalities. (*Evidence quality*: NA;

recommendation strength: consensus-based)

*The following are not considered "unexpected deterioration": gradual development of an oxygen requirement, increased work of breathing, and/or the need for humidified high flow (HF) therapy in the first few days of illness.

2. In infants presenting with bronchiolitis in high dependency unit (HDU) or ICU settings, where there is clinician diagnostic concern regarding possible sepsis, pneumonic consolidation, pneumothorax, empyema, immunodeficiency, pleural effusion, or significant complication of other diseases (e.g., heart failure with congenital heart disease), in order to guide treatment options. (*Evidence quality*: NA; *recommendation strength*: consensus-based)

Laboratory tests

Do not routinely use laboratory tests for infants presenting or admitted to hospital with bronchiolitis, including bacteriological testing of urine or blood. (*Evidence quality*: very low; *recommendation strength*: conditional)

However, clinicians may consider glucose and/or sodium levels during assessment in infants with bronchiolitis and poor feeding, evidence of dehydration or altered mental state. (*Evidence quality*: NA; *recommendation strength*: consensus-based)

Clinicians may consider using biomarkers (full blood count, C-reactive protein, procalcitonin) and blood cultures to inform diagnoses of serious bacterial co-infection in the following groups:

1. Infants with an unexpected deterioration (defined as an unexpected requirement for an escalation of care) during their hospitalisation with bronchiolitis. (*Evidence quality*: NA; *recommendation strength*: consensus-based).

2. Infants admitted to the ICU with bronchiolitis. (*Evidence quality*: very low; *recommendation strength*: weak).

Urine testing may also be considered to inform a diagnosis of serious bacterial co-infection in infants with an unexpected deterioration during hospitalisation for bronchiolitis.

Virological tests

Do not routinely use viral testing in infants presenting or admitted to hospital with bronchiolitis, including testing undertaken solely for cohorting of patients. (*Evidence quality*: very low; *recommendation strength*: conditional)

This recommendation is separate from the requirements for virological testing that hospitals may have. Routine viral testing is unlikely to provide benefit to individual infants but provides epidemiological data.

Management

Monitoring

Observations as per local hospital guidelines and Early Warning Tools (EWTs) are appropriate for monitoring infants with bronchiolitis.

Do not routinely use a formal bronchiolitis severity scoring system to predict need for hospital admission or length of stay in infants presenting or admitted to hospital with

bronchiolitis. (*Evidence quality*: very low; *recommendation strength*: weak)

Do not routinely use continuous pulse oximetry for medical management of non-hypoxaemic infants with bronchiolitis who are not receiving supplemental oxygen, or in stable infants receiving low flow oxygen therapy, who are not at risk of apnoea. (*Evidence quality*: moderate; *recommendation strength*: conditional)

Respiratory support

Supplemental oxygen

Consider use of supplemental oxygen in the treatment of hypoxaemic infants with bronchiolitis. (*Evidence quality*: low; *recommendation strength*: conditional)

Supplementary oxygen should not be used for work of breathing alone.

Oxygen saturation targets

Supplemental oxygen therapy should be considered in infants with bronchiolitis when oxygen saturation levels meet the following criteria:

- For otherwise healthy infants aged ≥6 weeks: Peripheral oxygen saturation (SpO_2) persistently <90%.
- For infants aged <6 weeks, or infants aged <12 months with an underlying health condition: SpO_2 persistently <92%.

(*Evidence quality*: low; *recommendation strength*: weak)

Infants with bronchiolitis may have brief episodes of mild or moderate desaturations to levels below these thresholds, particularly during sleep. These brief desaturations are not a reason to commence oxygen therapy. Interpretation of 'persistently less' should be considered in light of the stage at which the child is in the disease course and whether the child is awake or asleep. Oxygen saturation targets are not considered alone for decision-making and are one of many data-points. They should be considered in light of the full disease picture involving other factors such as need for supplemental feeding, day of illness, and underlying risk factors.

When used, supplementary oxygen should be discontinued when oxygen saturations are persistently greater than or equal to the appropriate threshold outlined (90% or 92%) (see Figure 2 for guidance on observation periods). Oxygen saturations should be tested and monitored every 4 to 6 hours, according to institutional policy.

Humidified high flow (HF) therapy

Do not routinely use HF therapy in infants with mild or moderate bronchiolitis who are not hypoxaemic.* (*Evidence quality*: low; *recommendation strength*: conditional)

Infants with moderate work of breathing are suitable to be on the ward with appropriate nursing ratios.

Do not routinely use HF therapy as a first-line therapy in infants with moderate bronchiolitis who are hypoxaemic.* (*Evidence quality*: low; *recommendation strength*: conditional)

Consider HF therapy in infants with bronchiolitis who are hypoxaemic,* and who have failed low flow oxygen. (*Evidence quality*: low; *recommendation strength*: conditional)

Consider HF therapy in infants with bronchiolitis with severe disease prior to continuous positive airway pressure (CPAP). (*Evidence quality*: low; *recommendation strength*: conditional)

*For otherwise healthy infants aged ≥6 weeks: SpO_2 persistently <90%. For infants

aged <6 weeks, or infants <12 months with an underlying health condition: SpO_2 persistently <92%. Low flow oxygen failure is defined as a lack of response to therapy (determined by a lack of reduction in respiratory rate, heart rate, or a paediatric early warning score within 4-5 hours of commencing therapy), and/or the onset of severe respiratory distress.

A flow chart to inform the use of HF therapy is presented in Figure 1. See the *supplemental oxygen* section (pg 8) for criteria for hypoxaemia.

Continuous positive airway pressure (CPAP)

CPAP therapy can be considered for use in infants with bronchiolitis and impending or severe respiratory failure, and/or with severe illness. (*Evidence quality*: very low; *recommendation strength*: conditional)

Medication

Beta2 agonists

Do not use beta2 agonists in infants (<12 months of age) presenting or admitted to hospital with bronchiolitis. (*Evidence quality*: moderate; *recommendation strength*: strong)

Do not use beta2 agonists in infants (<12 months of age), presenting or admitted to hospital with bronchiolitis with a personal or family history of atopy, outside of a randomised controlled trial (RCT). (*Evidence quality*: very low; *recommendation strength*: strong)

Adrenaline/epinephrine

Do not use adrenaline/epinephrine in infants presenting or admitted to hospital with bronchiolitis. (*Evidence quality*: low; *recommendation strength*: strong)*

*Refer to the 'Combined corticosteroid and adrenaline/epinephrine' therapy section for guidance on use of combined therapy.

Glucocorticoids

Do not use glucocorticoids (systemic or local) in infants with bronchiolitis*. (*Evidence quality*: low; *recommendation strength*: strong)

*For guidance on the use of glucocorticoids when SARS-CoV-2 infection is present, refer to '*Treatment of SARS-CoV-2 co-infection*' on pg 10.

Do not use glucocorticoids for the routine treatment of infants with bronchiolitis and a positive response to beta2 agonists or other markers of a latter asthmatic phenotype outside of an RCT. Beta2 agonists should not be used in infants <12 months of age. (*Evidence quality*: NA; *recommendation strength*: strong)

Combined corticosteroid and adrenaline/epinephrine therapy

Do not routinely use a combination of systemic or local corticosteroids and adrenaline/epinephrine in infants presenting or admitted to hospital with moderate bronchiolitis outside of the ICU setting (*evidence quality*: moderate; *recommendation strength*: conditional). A combination of systemic or local corticosteroids and adrenaline/epinephrine may be considered in infants with severe bronchiolitis requiring ICU level care. (*Evidence quality:* moderate; *recommendation strength*: conditional)

Hypertonic saline

Do not routinely use nebulised hypertonic saline in infants presenting or admitted to hospital with bronchiolitis outside of an RCT. (*Evidence quality*: low; *recommendation strength*: weak)

Antibiotic medication

Do not routinely use antibiotic medication for the treatment of infants with bronchiolitis. (*Evidence quality*: very low; *recommendation strength*: conditional)

Do not routinely use azithromycin for the treatment of bronchiolitis in infants admitted to hospital. (*Evidence quality*: low; *recommendation strength*: weak)

Additionally, do not routinely use antibiotics for the treatment of bronchiolitis in infants at risk of developing bronchiectasis due to known risk factors such as virus type (e.g., Adenovirus), Indigenous ethnicity, or socioeconomic disadvantage. (*Evidence quality*: very low; *recommendation strength*: weak)

Treatment of SARS-CoV-2 co-infection

For hypoxaemic infants with bronchiolitis and SARS-CoV-2 infection, consider use of dexamethasone. (*Evidence quality*: NA; *recommendation strength*: consensus-based)

For immunosuppressed infants with bronchiolitis and SARS-CoV-2 infection, consider use of remdesivir. (*Evidence quality:* NA; *recommendation strength*: consensus-based)

Nasal suction

Do not routinely use nasal suction in the management of infants with bronchiolitis. (*Evidence quality*: low; *recommendation strength*: conditional)

However, superficial suctioning may be considered in infants with respiratory distress or feeding difficulties from upper airway secretions. (*Evidence quality:* low; *recommendation strength*: conditional). Superficial suctioning refers to suctioning of the nose.

Additionally, one off suctioning may be performed prior to oxygen supplementation to increase patient comfort and avoid clogging of nasal prongs.

Do not routinely use deep nasal suctioning for the management of infants with bronchiolitis. (*Evidence quality*: low; *recommendation strength*: weak). Deep suctioning refers to any suctioning beyond the nose, such as the nasopharynx.

Nasal saline

Do not routinely use nasal saline drops in the management of infants with bronchiolitis. (*Evidence quality*: very low; *recommendation strength*: conditional)

A trial of intermittent nasal saline drops could be considered at the time of feeding in infants with reduced feeding. (*Evidence quality:* very low; *recommendation strength*: conditional)

Chest physiotherapy

Do not routinely use chest physiotherapy in infants with bronchiolitis. (*Evidence quality*: low; *recommendation strength*: conditional)

Hydration/ nutrition

Supplemental hydration should be provided to infants with bronchiolitis who cannot maintain hydration orally. (*Evidence quality*: NA; *recommendation strength*: strong)

Hydration status may be considered inadequate by reported <50% of normal intake, or evidenced by 5% weight loss or hypernatremia (if tested).

After treatment of hypoxaemia, feeding is often improved.

When supplemental hydration is required, either nasogastric (NG) or intravenous (IV) routes are appropriate. (*Evidence quality*: moderate; *recommendation strength*: strong). However, the NG route should be the preferred first method. (*Evidence quality:* moderate; *recommendation strength*: weak). Consider either continuous or bolus methods of NG hydration using oral rehydration solution/breast milk or formula. (*Evidence quality:* moderate; *recommendation strength*: conditional).

Consider fluid restriction at 50-75% of normal weight-based fluid calculation for age over 24 hours to avoid fluid overload in infants with bronchiolitis. Careful monitoring of signs of over-hydration (facial and eye-lid oedema, weight increase) and under-hydration are needed. (*Evidence quality*: NA; *recommendation strength*: consensus-based)

There is a risk of increased antidiuretic hormone secretion and hyponatremia.

Consider enteral feeding (NG or oral) in infants receiving HF therapy, if tolerated. (*evidence quality*: very low; *recommendation strength*: weak). Continuous NG feeding can be considered in infants receiving CPAP therapy who are not judged to be at imminent risk of intubation. (*Evidence quality:* very low; *recommendation strength*: consensus-based)

In infants requiring IV hydration, consider using either 0.9% sodium chloride (normal saline) with 5% glucose, or balanced fluid (e.g., Plasma-lyte 148™ or Hartmann's solution) with 5% glucose, for use as maintenance fluid in infants admitted to hospital with bronchiolitis requiring IV hydration. For infants aged up to 4 weeks corrected with bronchiolitis, consider 10% glucose, or monitoring of blood sugar levels if receiving 5% glucose. (*Evidence quality*: NA; *recommendation strength*: consensus-based)

Safety initiatives

Hand hygiene practices should be followed during the management of infants with bronchiolitis (*evidence quality*: very low; *recommendation strength*: strong). Cohorting of infants admitted to inpatient wards (*Evidence quality:* very low; *recommendation strength*: weak), and multicomponent infection control practices may be considered (e.g., cohort nursing, gowns, gloves, face masks, family education). (*Evidence quality:* very low; *recommendation strength*: weak)

Discharge-planning and community-based management

For infants with bronchiolitis, safe discharge from the hospital (ED or ward) should take into account risk factors for severe illness (see pg 6), the distance of the family's residence from the hospital, their ability to return, parental health literacy, and the timing of the hospital presentation relative to the natural history of bronchiolitis.

Infants should be considered as safe for discharge from hospital when the criteria are met from Figure 2. These criteria incorporate clinical stability, oxygen saturation and support requirements, feeding difficulties, parent/caregiver ability to manage the illness from home and education on deterioration, the social situation of the family, and arrangement of local follow-up where appropriate. (*Evidence quality*: very low; *recommendation strength*: weak)

Education (parent/ caregiver)

A bronchiolitis information sheet (in writing or electronic) should be provided to parents and caregivers. Parents and caregivers should be educated about the illness, the expected progression, and when and where to seek further medical care if needed.

Prevention of RSV bronchiolitis

Infant monoclonal antibody vaccination

Consider providing monoclonal antibody prophylaxis (nirsevimab or palivizumab) during the RSV season to infants at increased risk of severe complications from bronchiolitis (due to the presence of chronic lung disease, congenital heart disease, or birth at <32 weeks' gestational age). (*Evidence quality*: moderate; *recommendation strength*: conditional)

Nirsevimab provides long-acting protection (6 months) from one dose. Palivizumab provides

short-acting protection (1 month) and requires 5 to 6 monthly doses during the RSV season.

Consider universal nirsevimab as a population-based approach to reduce morbidity due to RSV bronchiolitis. (*Evidence quality:* moderate; *recommendation strength*: conditional)

Maternal active RSV immunisation

Consider universal maternal antenatal immunisation with an RSV prefusion F protein-based vaccine as a population-based approach to reduce morbidity from RSV bronchiolitis. (*Evidence quality*: moderate; *recommendation strength*: conditional)

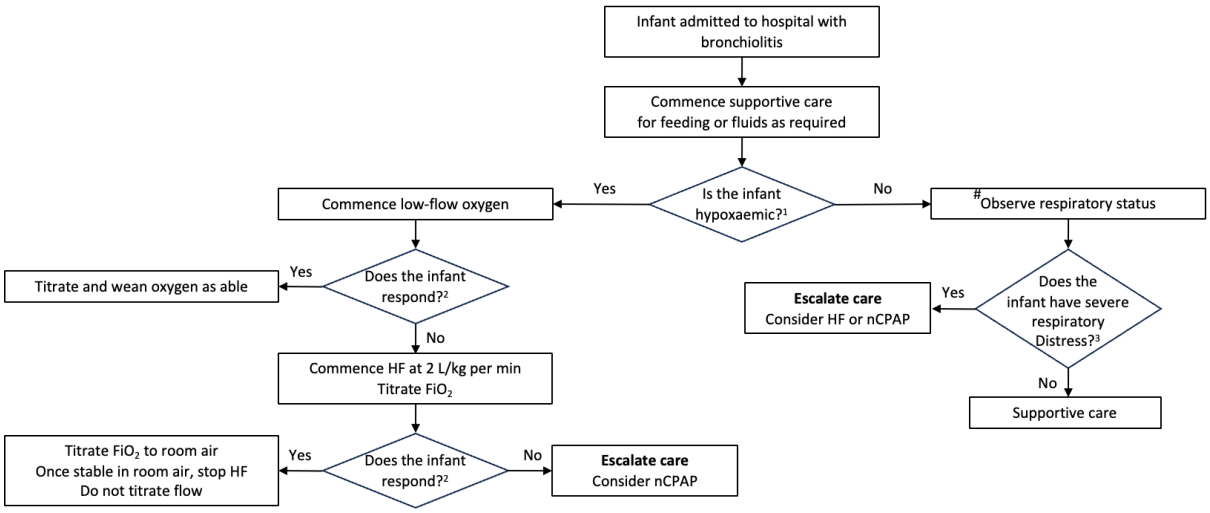
Infant active RSV immunisation

This recommendation refers to the use of active RSV vaccines for infants and excludes passive vaccines (monoclonal antibodies). For guidance on use of monoclonal antibodies, refer to the 'infant monoclonal antibody' section (pg 11).

Do not routinely use universal infant RSV immunisation. (*Evidence quality*: low; *recommendation strength*: weak)

At the time of publication, there is no approved active vaccine candidate for RSV in infants in Australasia.

Figure 1. An evidence-based approach to the use of high flow (HF) therapy in infants with bronchiolitis.[3]



FiO_2 = fractional concentration of inspired oxygen; HF = Humidified high flow; nCPAP = nasal continuous positive airway pressure.

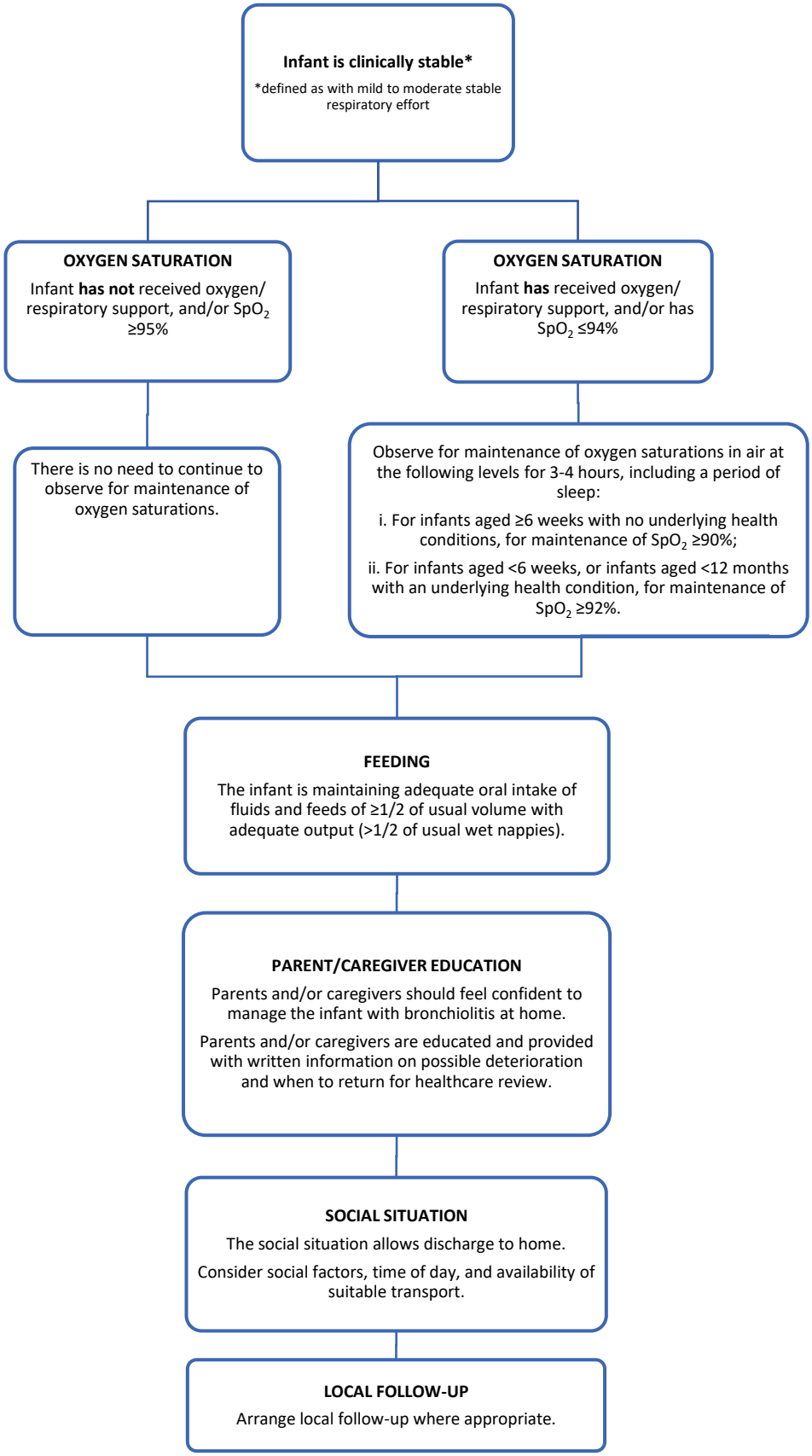
[1]For otherwise healthy infants aged ≥6 weeks: SpO_2 persistently <90%. For infants aged <6 weeks, or infants <12 months with an underlying health condition: SpO_2 persistently <92%.

[2]Response to therapy (low-flow or HF oxygen therapy) is determined by a reduction in respiratory rate, a reduction in heart rate, or a paediatric early warning score within 4-5 hours of commencing therapy.

[3]If at any time, the infant has severe respiratory distress, escalate care. Respiratory distress is a subjective finding. Severe respiratory distress is a level where a senior clinician determines that escalation in care is required, transferring the patient to the emergency department resuscitation area, paediatric ward resuscitation area, high dependency unit, or intensive care unit. Junior staff should escalate concerns regarding severe respiratory distress to senior colleagues.

[3] Reused from: Dalziel SR, Haskell L, O'Brien S, Borland ML, Plint AC, Babl FE, et al. Bronchiolitis. Lancet. 2022;400(10349):392-406.

Figure 2. Criteria for safe discharge of infants with bronchiolitis from the emergency department and inpatient ward.



SpO_2= Peripheral oxygen saturation.

Initial Illness severity assessment

Throughout the guideline, the terms mild, moderate, and severe are used with regards to the clinical condition of the infant with bronchiolitis. Within the research literature, the definition of these subgroups varies. Further, the definition of these terms varies between individual clinicians and healthcare settings. The evidence for bronchiolitis diagnosis and management is largely based on observational studies or RCTs which have occurred in the ED, inpatient paediatric wards, or in the ICU.

To define mild, moderate, and severe disease, a pragmatic definition has been developed that is consistent with the inclusion and exclusion criteria from the majority of the evidence (Table 2). This table is intended to serve as a reference point to help define and guide assessments of illness severity. It may also be used to clarify definitions of mild, moderate, and severe bronchiolitis used in the guideline recommendations.

Table 2. Severity of bronchiolitis based on the initial assessment.

Severity	**Mild**		**Moderate**		**Severe**
Behaviour	Normal		Some/intermittent irritability		Increasing irritability and/or lethargy fatigue
Respiratory rate (/min)	<50		50-59	60-69	≥70
Use of accessory muscles	Nil to mild chest wall retraction		Moderate chest wall retractions Moderate tracheal tug Moderate nasal flaring		Marked chest wall retractions Marked tracheal tug Marked nasal flaring
Oxygen saturations for those <6/52 or ≥6/52 with underlying chronic disease	Persistent SpO_2 ≥95%	Persistent SpO_2 92-94%	Initial SpO_2 87-91% and hypoxaemia corrected by low flow O_2		Hypoxaemia not corrected by low flow O_2 or initial SpO_2 <87%
Oxygen saturations for those ≥6/52 and no underlying chronic disease	Persistent SpO_2≥95%	Persistent SpO_2 90-94%	Initial SpO_2 85-89% and hypoxaemia corrected by O_2		Initial SpO_2 <85% or hypoxaemia not corrected by low flow O_2
Apnoea	None		Brief apnoea not requiring stimulus to resolve		Increasingly frequent or prolonged apnoea

Heart rate (/min)	<160		160-169	170-179	≥180
Feeding	Maintaining adequate oral intake of fluids and feeds. At least 1/2 of usual volume with adequate output (>1/2 of usual wet nappies)		Not maintaining adequate oral intake of fluids and feeds <1/2 of usual volume with inadequate output (<1/2 of usual wet nappies) and/or ≤5% dehydrated		Infant not able to feed >20% of normal volume and/or >5% dehydrated
Early warning score zone[1]	White		Yellow/Orange		Red/Purple

[1] *Note, early warning scores have been developed and validated for use in inpatient settings and not in EDs. SpO_2= Peripheral oxygen saturation.* This table is meant to provide guidance in order to stratify. The more symptoms the infant has in the moderate to severe categories, the more likely they are to have moderate or severe disease.

What level of care is required for infants with bronchiolitis?

Within Australia and Aotearoa New Zealand, management of bronchiolitis is such, that while tertiary children's hospitals may see patients who move through the various levels of care from ED to inpatient ward to ICU based on the settings that the studies have occurred in, this may not be reflective of care in metropolitan, regional, and rural hospitals, where most infants with bronchiolitis are seen. In these hospitals, bronchiolitis patients with severe disease may be managed for some time in an ED or inpatient paediatric ward prior to transfer to a tertiary children's hospital ICU or managed in an adult ICU without transfer. Transfer should occur safely according to local protocols.

The appropriate setting for delivery of care should reflect resources and skills that are available, rather than a specific physical location or label.

- Standard nursing ratios in the ED and ward environment are suitable for infants with mild or moderate bronchiolitis (Table 2).
    - For mild disease, no hydration or respiratory support is required, and these infants are usually managed in ED and as an outpatient.
    - For moderate disease, hydration support and/or oxygen therapy (low flow or HF oxygen) can be safely delivered in an ED or ward environment with standard nursing ratios.
- Standard nursing ratios in the ED and ward environment have been shown to be safe for stable infants on HF therapy.
- Severe bronchiolitis (Table 2) requires either a 1:1 or 1:2 nursing ratio. This will usually require HDU/ICU care, or escalation to a higher level of care depending on the health facility, and may involve transport to an HDU/ICU or higher-level facility. Post stabilisation of severe bronchiolitis with improvement in condition, nursing ratios can be revised.

Summary of key changes in the recommendations between the 2016 guideline and the 2025 update

This section presents a summary of key changes in the recommendations between the 2016 Australasian Bronchiolitis Guideline and the 2025 update. A summary of the changes and the original recommendations are presented.

Table 3. Summary of key changes in the recommendations

TOPIC	NO.	CHANGE	SUMMARY of CHANGES	2016 RECOMMENDATION
Physical exam and history	1	✓	The key clinical signs and symptoms of bronchiolitis have not changed. However, additional clinical signs and symptoms have been added to the recommendation: feeding difficulties, vomiting, dehydration, hypoxaemia, lethargy, uncommonly (<5%) diarrhoea, and rarely (<2%) apnoea.	*Infants can be diagnosed with bronchiolitis if they have an upper respiratory tract infection followed by onset of respiratory distress with fever, and one or more of: cough, tachypnoea, retractions and diffuse crackles or wheeze on auscultation.* *(NHMRC: C, GRADE: Weak)*
Risk factors	2	✓	Additional risk factors have been added to the recommendation, including the presence of trisomy 21, economic disadvantage, CDH, other genetic disorders, and the timing of illness onset at hospital presentation. In the 2025 update, clinicians are encouraged to view gestational age, chronological age, breastfeeding and tobacco smoke exposure (pre and postnatal) as continuous risk factors (where risk of serious illness is increased with lower gestational or chronological age, less breastfeeding exposure, and more tobacco smoke exposure).	*Clinicians should consider as risk factors for more serious illness: gestational age <37 weeks; chronological age at presentation <10 weeks; exposure to cigarette smoke; breastfeeding for <2 months; failure to thrive; having chronic lung disease; having chronic heart and/or chronic neurological conditions; being Indigenous ethnicity, and should take these into account when managing infants with bronchiolitis.* *(NHMRC: C, GRADE: Conditional)*
CXR	3b	NA	New topic to the 2025 guideline update.	NA
	3c	NA	New topic to the 2025 guideline update.	NA
Laboratory tests	4a	✓	The recommendation to perform urine testing for suspected urinary tract infection in infants with bronchiolitis and a fever was	*There is no role for blood tests in managing infants presenting to hospital and hospitalised with bronchiolitis. Routine*

			removed to reflect the updated evidence. However, urine tests may be considered to inform diagnoses of serious bacterial co-infection in infants with unexpected deterioration (see R4b). The recommendation was updated to report that glucose and/or sodium levels may be considered during assessment in infants with bronchiolitis and poor feeding, evidence of dehydration or altered mental state.	*bacteriological testing of blood and urine is not recommended.* *In infants <2 months of age presenting to hospital or hospitalised with bronchiolitis with a temperature >38 degrees, there is a low risk of UTI. If clinical uncertainty exists, clinicians may consider collecting a urine sample for microscopy, culture, and sensitivity looking for the concurrent presence of UTI.* *(NHMRC: D, GRADE: Conditional)*
	4b	NA	New topic to the 2025 guideline update.	NA
	4c	NA	New topic to the 2025 guideline update.	NA
Criteria for safe discharge	7	✓	In the 2025 update, a prescriptive discharge criteria and flow chart was developed. The criteria for safe discharge were revised to include specific oxygen saturation targets and indicators of adequate feeding, and the criteria were tailored to ED and ward discharge. Additional detail on the social factors surrounding discharge, such as parent/caregiver education on bronchiolitis and confidence to manage bronchiolitis from home, transport, and arrangement of local follow-up (if needed) were added.	*Oxygen saturations, adequacy of feeding, age (infants <8 weeks), and lack of social support should be considered at the time of discharge as a risk for representation. There is insufficient evidence to recommend absolute discharge criteria for infants attending the ED, or hospitalised with bronchiolitis* *(NHMRC: Practice Point, GRADE: Weak)*
Glucocorticoids	11c	✓	The 2025 update states that combined glucocorticoid and adrenaline/epinephrine therapy may be considered in infants with severe bronchiolitis who are requiring ICU level care. The 2025 guidance is otherwise consistent with the 2016 guideline in advising against the routine use of combined therapy in infants	*Do not administer a combination of systemic or local glucocorticoids and adrenaline/epinephrine to infants presenting to hospital or hospitalised with bronchiolitis.* *(NHMRC: D, GRADE: Weak)*

			with moderate bronchiolitis outside of the ICU setting.	
Saturation targets	12b	✓	In the 2025 update, it is recommended to use supplemental oxygen in infants with bronchiolitis if SpO_2 is persistently <90% in infants aged ≥6 weeks. For infants <6 weeks of age, or <12 months of age with an underlying health condition, supplemental oxygen should be used if SpO_2 is persistently <92%.	*In uncomplicated bronchiolitis oxygen supplementation should be commenced if the oxygen saturation level is sustained at a level <92%. At oxygen saturation levels of 92% or greater, oxygen therapy should be discontinued.* *(NHMRC: C, GRADE: Conditional)*
Non-oral hydration	20b	✓	In the updated recommendation, further detail was provided on the types of NG hydration that may be given. Clinicians can consider either continuous or bolus methods of NG non-oral hydration with oral rehydration solution, breast milk, or formula in infants admitted to hospital with bronchiolitis requiring an NG. NG is the preferred first method of non-oral hydration in infants with moderate bronchiolitis requiring supplemental hydration.	*Both NG and IV routes are acceptable means for non-oral hydration in infants admitted to hospital with bronchiolitis.* *(NHMRC: B, GRADE: Strong).*
	20c	✓	The recommendation has been updated to provide more specific guidance on fluid restriction. Clinicians can consider fluid restriction at 50-75% of recommended maintenance due to the risk of fluid overload from syndrome of inappropriate antidiuretic hormone secretion (SiADH), and hyponatremia in bronchiolitis. Clinicians are also encouraged to monitor for signs of overhydration.	*There is insufficient evidence to recommend a specific proportion of maintenance fluid. There is a risk of fluid overload therefore judicious and vigilant use of hydration fluid is required and regular review is recommended* *(NHMRC: Practice point, GRADE: Weak).*
	20d	NA	New topic to the 2025 guideline update.	NA
	20e	NA	New topic to the 2025 guideline update.	NA
Infection control practices	21	✓	In addition to hand hygiene practices and cohorting of patients in wards, the 2025 update recommends that	*Hand hygiene is the most effective intervention to reduce hospital acquired infections and is*

			multicomponent infection control measures may be considered while managing infants with bronchiolitis (e.g., use of gowns, masks).	*recommended. There is inadequate evidence for benefits in cohorting infants with bronchiolitis.* *(NHMRC: D, GRADE: Weak)*
SARS-CoV-2 co-infection	22a	NA	New topic to the 2025 guideline update.	NA
SARS-CoV-2 treatment	22b	NA	New topic to the 2025 guideline update.	NA
Monoclonal antibody therapy	23	NA	New topic to the 2025 guideline update.	NA
Maternal RSV immunisation	24	NA	New topic to the 2025 guideline update.	NA
Infant RSV immunisation	25	NA	New topic to the 2025 guideline update.	NA

Note. The recommendations were not reported as changed in instances where there were minor changes to the wording of the recommendation, but the recommended action had not changed. For details of all recommendations, refer to the main report (*Table 6: recommendations from the 2025 Australasian Bronchiolitis Guideline update*).

CDH = Congenital diaphragmatic hernia; ED = Emergency department; GRADE = Grading of Recommendations Assessment, Development and Evaluation; ICU = Intensive care unit; IM = Intramuscular; IV = Intravenous; NG = Nasogastric; NHMRC = National Health and Medical Research Council; RSV = Respiratory syncytial virus; SARS-CoV-2 = Severe acute respiratory syndrome coronavirus 2; UTI = Urinary tract infection.