

1. Bronchiolitis

Most infants presenting with wheeze in the first year of life have bronchiolitis. Most cases of bronchiolitis occur between 2 and 5 months of age, in airways with very small calibre.

Bronchiolitis is usually caused by Respiratory Syncytial Virus, but can also be caused by rhinovirus, adenovirus, influenza and parainfluenza viruses. It starts with 2–3 days of coryzal symptoms and progresses to cough and wheeze with fever and tachypnoea.

Wheezes and crackles are usually heard throughout the chest. Focal chest signs suggest alternative diagnoses such as pneumonia or aspiration.

Infants with bronchiolitis often get worse for the first 72 hours of their illness and then start to improve. Symptoms may take several weeks to resolve, with a median duration of approximately 12 days. Children and parents need support during this time.

Bronchiolitis has a 1–2% mortality rate and infants with hypoxaemia related to small airways obstruction may need treatment with racemic epinephrine and steroids in addition to oxygen, intravenous fluids and nasogastric feeding.

Management of bronchiolitis is mostly supportive

Interventions such as bronchodilators, adrenaline, steroids and antibiotics have not been shown to be beneficial in uncomplicated bronchiolitis. Management is supportive but may include the need for oxygen, nasogastric feeding or intravenous fluids. Primary care clinicians need to know the features of moderate to severe bronchiolitis so that they can manage it appropriately but also so that they can educate the parents of children with bronchiolitis about recognising deteriorating illness.

Assessment of severity

Table 1: Assessment of severity of bronchiolitis

	Mild	Moderate	Severe
Respiratory rate <i>breaths/minute</i>	Under 2 months >60/min 2–12 months >50/min	>60/min	>70/min
Chest wall indrawing	None/mild	Moderate	Severe
Nasal flare	None/mild	Present	Present
Grunting	Absent	Absent	Present
Feeding	Normal	Less than usual Frequently stops Quantity >1/2 normal	Not interested Choking Quantity <1/2 normal
History of behaviour	Normal	Irritable	Lethargic

Any criterion in the severe category designates the child as severely ill

Recognising severe illness in children

- Behaviour and feeding both go from interested infant, to infant not interested
- **Respiratory rate**
 - A newborn may breathe up to 60 breaths/min
 - A 1-year-old: 40 breaths/min
 - A 5-year-old: 30 breaths/minIf the rate is high, look for potential respiratory failure using 2 key signs
 - effort, **and**
 - effectiveness of effort
- **Increased effort** is indicated by sounds
 - Stridor in upper airway obstruction
 - Wheeze or grunting in lower airways obstruction
 - Accessory muscle use producing nasal flare, heaving chest, intercostal and subcostal indrawing
- **Effectiveness of effort** is indicated by looking at the chest movement and listening to breath sounds to judge ventilation:
 - A silent chest
 - Falling heart rate
 - Falling level of consciousness
 - Falling respiratory rate in severe illnessare all preterminal events.

During respiratory failure, skin colour changes from pink to pale, to mottled.

Pale colour indicates vasoconstriction and mottled indicates terminal circulatory collapse.

Reference: Bone J. *Recognising the very ill child*
NZ Doctor 14 Mar 2007.

When to refer with acute bronchiolitis

As a general rule **refer infants earlier rather than later**: if in doubt get specialist advice.

Refer all infants immediately with; severe illness (see Table 1), progressive dehydration, where there is clinical concern about hypoxia or a history of apnoea.

Refer early

- If less than 8-weeks-old or if birth was significantly premature (<32 weeks gestation)
- If there has been apnoea or significant comorbidity (heart and lung disorders, immune-compromise)
- If illness is getting worse after 72 hours or home care is uncertain

Management of bronchiolitis at home

Most infants with bronchiolitis can be safely managed at home. Supportive care plus careful observation for signs of deterioration are the keys.

Supportive care may include:

- Keeping the child's environment smokefree
- Keeping the child well hydrated
- Small frequent feeds
- Minimal handling
- Normal saline nasal drops before feeds
- Caregiver hand washing to prevent spread to other children

Written instructions will help caregivers to keep an eye on feeding patterns and behaviour and to monitor for:

- Respiratory rate
- Indrawing
- Grunting
- Nasal flare
- Sleepiness
- Colour

Infants with a moderate episode of bronchiolitis need to be reviewed within 24 hours and a firm appointment (time, place, person) helps to ensure the child is seen. (For an example of written instructions for caregivers see page 23)