### Alert

### Indication
Manangement of post-extubation stridor [evidence for effectiveness is not clear]. [1-4]
Initial treatment of outpatients with moderate to severe bronchiolitis. [5]
Initial treatment of croup.[6]

### Action
Catecholamine drug with combined alpha and beta-agonist actions resulting in peripheral vasoconstriction reversing hypotension and mucosal oedema; increased rate and force of cardiac contractions, reversing hypotension; and reversal of bronchoconstriction and reduction in the release of inflammatory mediators. [7]

### Drug Type
Inotropic vasopressor.

### Trade Name
Aspen Adrenaline 1:1,000 injection

### Presentation
1:1,000 ampoule [1mg/1 mL]

### Dosage / Interval
0.5 mg/kg [0.5 mL/kg of adrenaline 1:1000 ampoule].
Dose may be repeated every 60 minutes if required following medical assessment of previous dose effect.

### Maximum dose
N/A

### Route
Nebulised

### Preparation/Dilution
Draw up 0.5 mL/kg (0.5 mg/kg) of adrenaline 1:1,000 [1 mg/1 mL] ampoule and add sodium chloride 0.9% to make a final volume of 4 mL.

### Administration
Deliver final volume of 4 mL via nebuliser [kept upright] over 15 minutes.
Driving gas as prescribed by medical staff. Set flow rate at 6 L/minute.
There will always be dead space that is not available for nebulisation – it is not possible to nebulise to dryness.

### Monitoring
Administer under close supervision of medical staff.
Ensure cardiorespiratory monitoring including respiratory rate, oxygen saturation, heart rate and blood pressure.

### Contraindications
Nil

### Precautions
Infants with arrhythmias, hypertension or hyperthyroidism.
Infants with dilated or ischaemic cardiac disease.

### Drug Interactions
No information.

### Adverse Reactions
Tachycardia and arrhythmia.
Systemic hypertension.

### Compatibility
Fluids: Sodium chloride 0.9%
Drugs: No information.

### Incompatibility
Fluids and drugs: No information.

### Stability
Discard remainder after use.

### Storage
Store below 25°C. Protect from light.

### Special comments
Cross-check correct adrenaline strength ampoule used.

### Evidence summary
**Efficacy:**
Nebulised racemic adrenaline for extubation of newborn infants: There are no trials proving the efficacy of nebulised adrenaline compared to placebo or intravenous dexamethasone for post extubation stridor. [1-4]

**Treatment and prevention of bronchiolitis in newborns and infants:** Nebulised
adrenaline decreases hospitalisations in patients presenting to ED. There is no evidence to support the use of adrenaline for inpatients. [5, 8] (LOE I, GOR A)

**Treatment of children with croup:** Nebulised adrenaline is associated with clinically and statistically significant transient reduction of symptoms of croup 30 minutes post-treatment. [6] 30 (LOE I, GOR A) Evidence does not favour racemic adrenaline or L-adrenaline, or IPPB over simple nebulisation. (LOE II, GOR B)

**Safety:** Nebulised adrenaline is associated with increased heart rate and blood pressure. [2, 8]

**Pharmacokinetics:** Not reported for nebuliser use in newborns or children. No difference in plasma adrenaline concentrations in asymptomatic children with history of anaphylaxis given adrenaline inhaler (10–20 activations) versus children given a placebo.[9]

**References**