

# ADENOSINE

<b>Indication</b>	<ul style="list-style-type: none"> <li>• Drug of choice in the management of neonatal supraventricular tachycardia (SVT)<sup>1,2</sup></li> </ul>
<b>INTRAVENOUS</b>	<b>Presentation</b> <ul style="list-style-type: none"> <li>• Ampoule: 6 mg in 2 mL (3mg in 1 mL)</li> </ul>
	<b>Dosage</b> <ul style="list-style-type: none"> <li>• 0.1 mg/kg (100 microgram/kg) initially<sup>3</sup> <ul style="list-style-type: none"> <li>○ May repeat dose with incremental increases of 0.1 mg/kg (100 microgram/kg) every 2 minutes until tachycardia terminated or maximum single dose given</li> </ul> </li> <li>• Maximum single dose           <ul style="list-style-type: none"> <li>○ One month of age or less<sup>2</sup>: 0.3 mg/kg (300 microgram/kg) (i.e. 3 increments of 0.1 mg/kg)</li> <li>○ More than one month of age<sup>1</sup>: 0.5 mg/kg (500 microgram/kg) (i.e. 5 increments of 0.1 mg/kg)</li> </ul> </li> </ul>
	<b>Preparation</b> <ul style="list-style-type: none"> <li>• May be used undiluted <i>or</i></li> <li>• Draw up 3 mg (1 mL) and make up to 3 mL total volume with 0.9% sodium chloride           <ul style="list-style-type: none"> <li>○ <i>Concentration now equal to 1 mg/mL (1000 microgram/mL)</i></li> </ul> </li> </ul>
	<b>Administration</b> <ul style="list-style-type: none"> <li>• Administer in presence of MO/NNP</li> <li>• Use IV port closest to baby (to ensure rapidly reaches heart)<sup>4</sup></li> <li>• Draw up prescribed dose           <ul style="list-style-type: none"> <li>○ IV bolus stat over 1–2 seconds<sup>2</sup></li> <li>○ Follow with rapid 2 mL IV bolus 0.9% sodium chloride flush<sup>4</sup></li> </ul> </li> </ul>
<b>Special considerations</b>	<ul style="list-style-type: none"> <li>• Continuous 12 lead ECG monitoring/recording is required to<sup>5</sup>:           <ul style="list-style-type: none"> <li>○ Establish presence of SVT</li> <li>○ Assess reversion to sinus rhythm during adenosine administration</li> </ul> </li> <li>• Do not give through silastic CVL as cannot be given quickly enough</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• Use only if cardiac monitoring and cardiorespiratory resuscitation equipment available<sup>4,6</sup></li> <li>• Continuous cardiorespiratory<sup>4</sup> and oxygen saturation</li> <li>• If no invasive arterial monitoring, then non-invasive BP with frequency as per clinical condition           <ul style="list-style-type: none"> <li>○ Apply cuff to arm opposite to adenosine infusion to avoid bolus effect<sup>4</sup></li> </ul> </li> </ul>
<b>Compatibility</b>	<ul style="list-style-type: none"> <li>• Fluids           <ul style="list-style-type: none"> <li>○ 5% glucose<sup>4</sup>, 0.9% sodium chloride<sup>4</sup></li> </ul> </li> <li>• Y-site           <ul style="list-style-type: none"> <li>○ No information<sup>4</sup></li> </ul> </li> </ul>
<b>Incompatibility</b>	<ul style="list-style-type: none"> <li>• No information<sup>4</sup></li> </ul>
<b>Interactions</b>	<ul style="list-style-type: none"> <li>• Effects are antagonised by methylxanthines (e.g. caffeine)<sup>7</sup>; larger dose of adenosine may be required</li> </ul>
<b>Stability</b>	<ul style="list-style-type: none"> <li>• Ampoule           <ul style="list-style-type: none"> <li>○ Store below 25 °C<sup>6</sup></li> <li>○ Do not refrigerate as crystallisation may occur<sup>4</sup></li> </ul> </li> </ul>
<b>Side effects</b>	<ul style="list-style-type: none"> <li>• Resolve rapidly on cessation due to short duration of action<sup>7</sup> (half life less than 10 seconds)<sup>4</sup></li> <li>• Circulatory: flushing (frequent)<sup>2</sup>, AV block<sup>1</sup>, transient arrhythmias<sup>2</sup>, recurrence of SVT<sup>2</sup>, hypotension<sup>1</sup></li> <li>• Nervous: irritability (frequent)<sup>2</sup></li> <li>• Respiratory: dyspnoea (frequent)<sup>2</sup>, bronchospasm (rare)<sup>6</sup></li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>• A short-acting endogenous purine nucleoside (half-life 10 seconds)<sup>4</sup></li> <li>• Acts by temporarily blocking electrical conduction and interrupting the re-entry circuit through the AV node<sup>6</sup>, which is responsible for the vast majority of SVT episodes neonates in infants and children</li> </ul>
<b>Abbreviations</b>	AV: atrioventricular, BP: blood pressure, CVL: central venous line, ECG: electrocardiogram, IV: intravenous, MO: medical officer, NNP: neonatal nurse practitioner, SVT: supraventricular tachycardia



**Keywords**

Adenosine, supraventricular tachycardia, SVT, antiarrhythmic

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

**References**

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**Document history**

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