



## MONOGRAPH

# ADENOSINE

<b>Scope (Staff):</b>	Medical, Pharmacy, Nursing, Anaesthetic Technicians
<b>Scope (Area):</b>	All Clinical Areas

### Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [DISCLAIMER](#)

### QUICKLINKS

<a href="#">Dosage/Dosage Adjustments</a>	<a href="#">Administration</a>	<a href="#">Compatibility</a>	<a href="#">Monitoring</a>
---	--------------------------------	-------------------------------	----------------------------

### DRUG CLASS

Antiarrhythmic.<sup>1</sup>

### INDICATIONS AND RESTRICTIONS

Use of adenosine should be discussed with on-call cardiologist wherever possible.

- Acute treatment of supraventricular tachycardia (SVT), including SVT in patients with Wolff-Parkinson-White (WPW) syndrome.<sup>1-5</sup>
- Diagnosis of wide-complex tachycardia,<sup>1, 2, 4</sup> or narrow-complex tachycardia.<sup>1, 4</sup>
- Diagnosis of atrial flutter.<sup>3, 4</sup>
- Conversion of wide-complex tachycardia of SVT origin (in haemodynamically stable patients).<sup>2</sup>

## CONTRAINDICATIONS

### Contraindications:

- Hypersensitivity to adenosine or any component of the formulation.
- Second or third-degree heart block without pacemaker.<sup>1-6</sup>
- Sick sinus syndrome without pacemaker.<sup>1-6</sup>

### Relative contraindications (adenosine may still be administered if deemed clinically appropriate by treating consultant):

- Reactive airway disease (e.g. asthma, acute bronchospasm) – may cause bronchospasm lasting up to 30 minutes.<sup>1, 3, 4 5</sup>
- Long QT syndrome.<sup>4, 5</sup>
- Severe hypotension.<sup>4, 5</sup>
- Decompensated states of heart failure.<sup>4 5</sup>

## PRECAUTIONS

- First-degree AV block or bundle-branch block.<sup>2-5</sup>
- WPW syndrome – use with caution, may cause atrial proarrhythmias.<sup>1, 3</sup>
- Autonomic neuropathy, stenotic valvular heart disease, pericarditis or pericardial effusion, stenotic carotid artery disease with cerebrovascular insufficiency, or uncorrected hypovolemia – may cause significant hypotension.<sup>2-4</sup>
- Heart transplant patient – may cause prolonged asystole, reduce initial dose.<sup>1-4, 6</sup>
- Atrial fibrillation or flutter – life-threatening in atrial fibrillation with an antegrade accessory pathway.<sup>2, 4, 5</sup>
- Patients receiving dipyridamole – avoid or reduce dose.<sup>1, 4</sup>
- Heart failure or recent myocardial infarction.<sup>4, 5</sup>

## FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- 6 mg/2 mL vial

Imprest location: [Formulary One](#)

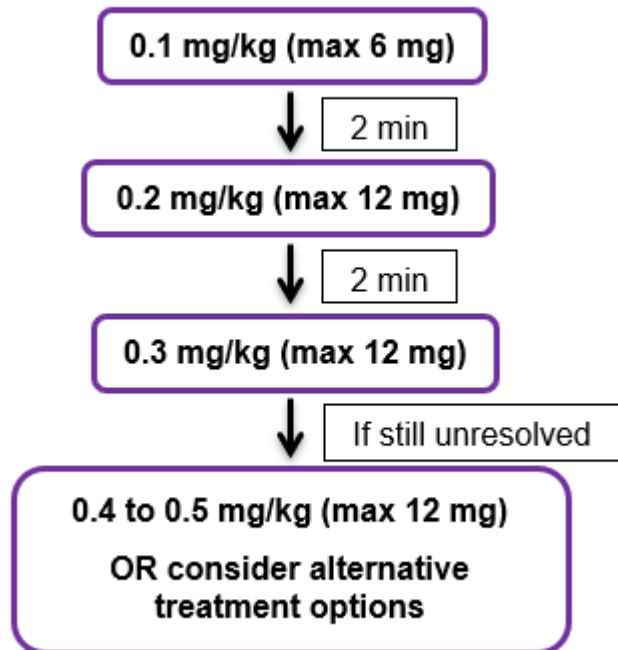
## DOSAGE & DOSAGE ADJUSTMENTS

### Neonates: [Refer to Neonatal Medication Protocols](#)

Ensure full resuscitation equipment is available and ready for use.

≥ 4 weeks old

IV rapid bolus:<sup>2, 5, 7</sup>



**Renal impairment:** No adjustment necessary.<sup>2</sup>

**Hepatic impairment:** No adjustment necessary.<sup>2</sup>

**Suggested dosage adjustment in patients (following discussion with on-call cardiologist):**

- Receiving dipyridamole (give one-quarter of normal dose).<sup>1, 8</sup>
- With transplanted heart (give one-fifth to one-third of normal dose).<sup>2</sup>

## ADMINISTRATION

- Must be administered under direct supervision of medical staff.
- Administer via IV site closest to patient's heart (therapeutic failure may occur with administration into lower extremities).<sup>3</sup>
- Using a 3-way tap, administer adenosine undiluted over 1-2 seconds, immediately followed by a rapid 10 mL sodium chloride 0.9% flush.<sup>2, 6, 9</sup>

## COMPATIBILITY (LIST IS NOT EXHAUSTIVE)

### Compatible fluids:

Glucose 5%, Hartmann's, sodium chloride 0.9%.<sup>2, 9</sup>

### Compatible at Y-site:

Limited/no data available.<sup>9</sup>

Only commonly used drugs are listed below. This is not a complete list of incompatible drugs. [Compatibilities of IV drugs](#) must be checked when two or more drugs are given concurrently.

#### INCOMPATIBLE drugs:

Limited/no data available.<sup>9</sup>

### MONITORING

- Monitor blood pressure immediately after the end of a flush. Measure blood pressure on the opposite arm to the injection site.<sup>9</sup>
- Continuous ECG and heart rate monitoring with printed record (rhythm strip or 12-lead ECG if possible).<sup>1, 2</sup>

### ADVERSE EFFECTS

**Common:**<sup>1-4</sup> Dyspnoea, dizziness, flushing, headache, bradycardia, nausea, chest pain.

**Infrequent:**<sup>1-3</sup> Hypotension, transient arrhythmias, SVT recurrence, anxiety, paraesthesia, tingling in arms.

**Rare:**<sup>1-4</sup> Bronchospasm, atrial/ventricular fibrillation, cardiac arrest, respiratory arrest, torsades de pointes, ventricular arrhythmia/tachycardia, increased intracranial pressure, myocardial infarction.

### STORAGE

Store below 25°C. **Do NOT refrigerate** as crystallisation may occur.<sup>4, 6, 9</sup>

Protect from light (Viatrix® brand 6 mg/2 mL pre-filled syringes only)<sup>4</sup> – not routinely stocked at PCH.

### INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. [Clinical Pharmacology](#)), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

*\*\*Please note: The information contained in this guideline is to assist with the preparation and administration of **adenosine**. Any variations to the doses recommended should be clarified with the prescriber prior to administration\*\**



### References

1. Australian Medicines Handbook. Adenosine [Internet]. Adelaide (SA): Australian Medicines Handbook Pty Ltd.; 2023 [cited 2023 Mar 16]. Available from: <https://amhonline-amh-net-au.pklibresources.health.wa.gov.au/chapters/cardiovascular-drugs/drugs-arrhythmias/antiarrhythmics/adenosine>.
2. Adenosine pediatric monograph [Internet]. Philadelphia (PA): Elsevier Inc.; 2023 [cited 2023 Mar 16]. Available from: Clinical Pharmacology powered by ClinicalKey.
3. Lexicomp Editorial Advisory Panel. Adenosine: paediatric drug information [Internet]. Waltham (MA): Lexicomp Inc.; 2023 [cited 2023 Mar 16]. Available from: UpToDate.
4. MIMS Australia. Adenocor [full product information] [Internet]. Crows Nest (NSW): MIMS Australia Pty Ltd.; 2022. Available from: MIMS Online.

## References

5. Adenosine. British National Formulary for Children: BMJ Publishing Group Ltd, Royal Pharmaceutical Society, RCPCH Publications Ltd,; 2023. Available from: <https://www-medicinescomplete-com.pklibresources.health.wa.gov.au/#/content/bnfc/502990816?hspl=adenosine>.
6. Pediatric Injectable Drugs. Adenosine [Internet]: American Society of Health-System Pharmacists, Inc.; 2023 [cited 2023 Apr 07]. Available from: <https://www-medicinescomplete-com.pklibresources.health.wa.gov.au/#/content/pid/Adenosine>.
7. ANZCOR guideline 12.3 - Management of other (non-arrest) arrhythmias in infants and children. Paediatric Advanced Life Support. East Melbourne (VIC): Australian Resuscitation Council; 2021. p. 5.
8. Samuels MP, Wieteska S. Advanced paediatric life support : the practical approach. Sixth edition. ed.
9. Society of Hospital Pharmacists of Australia. Adenosine. 2023 [cited 2023 Apr 07]. In: Australian injectable drugs handbook [Internet]. Collingwood (VIC): The Society of Hospital Pharmacist of Australia. 8th edition., [cited 2023 Apr 07]. Available from: <https://aidh-hcn-com-au.pklibresources.health.wa.gov.au/browse/a/adenosine>.

This document can be made available in alternative formats on request for a person with a disability.

<b>File Path:</b>	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\Medication Monographs\_Word\PCH.MED.Adenosine.docx		
<b>Document Owner:</b>	Chief Pharmacist		
<b>Reviewer / Team:</b>	Pharmacist, Cardiologist, PCC Consultant, PCC CNS		
<b>Date First Issued:</b>	Aug 2016	<b>Last Reviewed:</b>	Jun 2023
<b>Amendment Dates:</b>	Jun 2023	<b>Next Review Date:</b>	Nov 2026
<b>Approved by:</b>	CAHS Medication Safety Committee	<b>Date:</b>	Jun 2023
<b>Endorsed by:</b>	CAHS Drug & Therapeutics Committee	<b>Date:</b>	Nov 2023
<b>Standards Applicable:</b>	NSQHS Standards:   NSMHS: N/A Child Safe Standards: N/A		

Printed or personally saved electronic copies of this document are considered uncontrolled



## Healthy kids, healthy communities

Compassion

Excellence

Collaboration

Accountability

Equity

Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital