**INDICATIONS FOR IV USE**

**HEALTH CANADA APPROVED:**
- For the conversion of paroxysmal supraventricular tachycardia to sinus rhythm, including that associated with accessory bypass tracts (Wolff-Parkinson-White Syndrome). **Adenosine does not convert atrial flutter, atrial fibrillation or ventricular tachycardia to normal sinus rhythm.**
- As a diagnostic tool in patients with broad or narrow QRS complex tachycardia.

**NON HEALTH CANADA APPROVED INDICATIONS BUT SUBSTANTIATED IN THE LITERATURE:**
- As an alternative to dipyridamole in patients undergoing cardiac thallium-201 single-photon emission computed tomography, including those unable to perform exercise stress tests. If given by infusion, special authority from Health Canada required to obtain the product.

**CONTRAINDICATIONS**
- Known hypersensitivity to adenosine
- Second or third degree AV block (except in patients with artificial pacemaker).
- Sick sinus syndrome (except in patients with functioning artificial pacemaker).

**CAUTIONS**
- Elderly: may have diminished cardiac function, nodal dysfunction, concomitant disease, or drug therapy that may alter haemodynamic function and produce severe bradycardia or AV block.
- Warn patient of probable transient side effects (i.e. flushing, chest discomfort, headache and dyspnoea), which resolve within one minute.
- May produce (short lasting) first, second or third degree heart block. Transient asystole may occur, external pacer should be easily accessible.
- Patients with asthma or a history suggestive of bronchospasm; may cause bronchospasm.
- A variety of new rhythms may occur at the time of conversion to normal sinus rhythm.
- Patients with atrial fibrillation/flutter and an accessory bypass tract may develop increased conduction down the anomalous pathway.
- Central line administration: lower doses should be considered due to decreased degradation by vascular endothelium and blood cells.
- Heart transplant patients: clinically profound bradycardia can result. Use greatly decreased doses if at all.

**DRUG INTERACTIONS**
- Digoxin or digoxin/verapamil combination: has caused ventricular fibrillation, use with caution.
- Carbamazepine – higher degree of heart block may be produced.
- Dipyridamole – effects of adenosine potentiated. Dose reduction is advised.
- Methylxanthines (caffeine, theophylline) – effects of adenosine are antagonized. May require higher doses.

**ADMINISTRATION**

<table>
<thead>
<tr>
<th>MODE</th>
<th>DIRECT INTO IV TUBING</th>
<th>INTERMITTENT INFUSION</th>
<th>CONTINUOUS INFUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO MAY GIVE</td>
<td>Registered nurses with specialized skills – see required monitoring</td>
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<tr>
<td>ADULT</td>
<td>Over 1-2 seconds into IV port closest to patient.</td>
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<tr>
<td>PAEDIATRIC</td>
<td>Over 1-2 seconds into IV port closest to patient. If necessary, dilute to 1 mg/mL. Withdraw 2 mL (6 mg) adenosine, add 4 mL NS (without preservatives) for 1 mg/mL.</td>
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<tr>
<td>NEONATE</td>
<td>Over 1-2 seconds into IV port closest to patient. If necessary, dilute to 300 mcg/mL. Withdraw 1 mL (3 mg) adenosine, add 9 mL NS (without preservatives) for 300 mcg/mL.</td>
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</tbody>
</table>

**REQUIREMENTS**
- Follow with rapid flush.

**MONITORING REQUIRED**
- Continuous ECG monitoring during and for 3 - 5 minutes after administration and then until stable

**RECOMMENDED**
- None.

References available on the VIHA (South Island) Pharmacy Web site (http://intranet.viha.ca/clinical_support/pharmacy/si/)
RECONSTITUTION
- None required.
- Available as a 3 mg/mL solution: 2 mL single-dose vial and pre-filled syringe.

COMPATIBILITY/STABILITY
- Physically compatible with NS, D5W and lactated Ringer’s solutions. Compatibility with dextrose-saline combinations assumed.
- Vials should be stored at room temperature. Do not refrigerate as crystallization may occur. If crystallization has occurred, dissolve crystals by warming to room temperature.
- Physically compatible with concentrations of KCl up to 40 mEq/L.
- For additional drug-drug compatibility contact Drug Information.

ADVERSE EFFECTS
- Reactions are short lived due to short duration of action (approximately 30 seconds)
  CARDIOVASCULAR
  - Facial flushing (common), angina-like chest pain/pressure (common), sweating, palpitations, headache.
  - Arrhythmias at time of conversion to normal sinus rhythm: premature ventricular contractions, polymorphic ventricular tachycardia, torsades de pointes, atrial premature contractions, sinus bradycardia, sinus tachycardia, skipped beats, varying degrees of A-V nodal block.
  - Hypotension (rare)
  RESPIRATORY
  - Shortness of breath/dyspnoea (common), respiration associated chest discomfort.
  CENTRAL NERVOUS SYSTEM
  - Light headedness, dizziness, tingling in the arms, numbness.
  GASTROINTESTINAL
  - Nausea (common), metallic taste, tightness in throat

DOSE
- Has very short half-life (less than 10 seconds), with duration of action approximately 30 seconds.
  ADULT
  - Initial dose 6 mg; then 12 mg within 1-2 minutes if no response. This 12 mg dose may be repeated x 1.
  - Via a central line: initial dose 3 mg, then increasing doses of 6, 9 and 12 mg at one minute intervals until tachycardia terminated.
  ELDERLY
  - No specific dosing guidelines available at this time.
  PAEDIATRIC
  - 0.1 mg/kg/dose, max 6 mg; repeat every 2 minutes at 0.2-0.3 mg/kg/dose, max 12 mg. Total dose 30 mg.
  NEONATE
  - 0.05 mg/kg/dose, increase in increments of 0.05 mg/kg (50 mcg/kg) to a maximum dose 0.25 mg/kg/dose.
  - NOTE: Do NOT give via umbilical artery catheter (not effective).
  RENAL IMPAIRMENT ADJUSTMENTS
  - None required.
  HEPATIC IMPAIRMENT ADJUSTMENTS
  - None required.
  HEMO/PERITONEAL DIALYSIS
  - No information available at this time.
MISCELLANEOUS
- IM and SC: not applicable.
adenosine - REFERENCES


