Drug Therapy Protocols: Isoprenaline

Policy code	DTP_ISO_0722
Date	July, 2022
Purpose	To ensure a consistent procedural approach to isoprenaline administration.
Scope	Applies to all Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless specifically mentioned.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
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Isoprenaline

July, 2022

Drug class

Chronotrope[1]

Pharmacology

Isoprenaline is a synthetic sympathomimetic amine that is structurally related to adrenaline (epinephrine) but acts almost exclusively on Beta1 (β1) adrenergic receptors with a prominent chronotropic, inotropic and dromotropic effect.[1]

Metabolism

Isoprenaline is metabolised primarily in the liver, with metabolites excreted in the urine.[1]

Indications[1–3]

- **Bradycardia with poor perfusion** unresponsive to transcutaneous pacing (TCP)

Contraindications

- Allergy AND/OR Adverse Drug Reaction
- Heart rate > 120 beats per minute
- Tachycardia OR AV Block caused by Digoxin (digitalis) toxicity
- Active cardiogenic chest pain

Precautions

- Acute or recent myocardial infarction
- Ischaemic heart disease
- Hypotension secondary to intravascular volume depleted
- Hypertension

Side effects[1]

- Palpitations
- Cardiogenic chest pain
- Dysrrhythmias
- Headache

Presentation

- Ampoule, 1 mg/5 mL *isoprenaline hydrochloride*

Onset (IV INF)	Duration (IV INF)	Half-life
Immediate	Not applicable	< 2 hours

Isoprenaline

Schedule

- S4 (Restricted drugs).

Routes of administration

Intravenous infusion (IV INF) ECCP

Special notes

- Ambulance officers must only administer medications for the listed indications and dosing range. Any consideration for treatment outside the listed scope of practice requires mandatory approval via the *QAS Clinical Consultation and Advice Line*.
- All isoprenaline infusions must be initiated using hospital supplies; isoprenaline will not be carried by the QAS flight team. Hospital presentations may vary – final concentration must equal 3 mg/50 mL.
- Careful dose adjustment is required for patients with coronary insufficiency, diabetes or hyperthyroidism.
- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.

Adult dosages [1–3]

Bradycardia with poor perfusion (unresponsive to TCP)

ECCP

IV INF

CCP ESoP aeromedical – RSQ Clinical Coordinator consultation and approval required in all situations.

Commence infusion at **2 microg/minute** (2 mL/hour) and increase by **1–2 microg/minute** (1–2 mL/hour) every **3–5 minutes** as determined by ventricular response and MAP.

Syringe preparation: *Mix 3 mg (15 mL) of isoprenaline with 35 mL of glucose 5% in a 50 mL syringe to achieve a final concentration of 60 microg/mL. Ensure all syringes are appropriately labelled. Administer via syringe driver.*

Paediatric dosages

Note: QAS officers are **NOT** authorised to administer isoprenaline to paediatric patients