



# Drug Therapy Protocols: Heparin

<b>Policy code</b>	DTP_HEP_0924
<b>Date</b>	September, 2024
<b>Purpose</b>	To ensure a consistent procedural approach to heparin administration.
<b>Scope</b>	Applies to all Queensland Ambulance Service (QAS) clinical staff.
<b>Health care setting</b>	Pre-hospital assessment and treatment.
<b>Population</b>	Applies to all ages unless specifically mentioned.
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## Drug class

Anticoagulant<sup>[1,2]</sup>

## Pharmacology

Heparin is an anticoagulant agent which combines with anti-thrombin III to inhibit Factor X and the conversion of pro-thrombin to thrombin. Heparin therefore reduces the propensity for new clot formation and also inhibits other processes in the clotting cascade. Heparin is not a thrombolytic agent.<sup>[1,2]</sup>

## Metabolism

Heparin is metabolised via biotransformation in the liver and reticulo-endothelial system. The metabolites are then excreted in the urine.<sup>[1]</sup>

## Indications

- **Patients with STEMI** (as defined by the relevant QAS CPP) **who have been accepted for pPCI** (as an adjunct medication to aspirin **AND EITHER** ticagrelor OR clopidogrel)
- Critical care patients requiring anticoagulation during interfacility transport

## Contraindications

- Allergy AND/OR Adverse Drug Reaction
- Patients aged less than 18 years
- Modified Rankin Scale equal to or greater than 4
- Ischaemic chest pain greater than 12 hours
- History of terminal illness, or under the care of a palliative care service
- Symptoms suggestive of an acute aortic dissection
- Patient currently taking anticoagulants (e.g. warfarin)
- Severe active bleeding (excluding menstruation)

## Precautions

- Nil

## Side effects

- Haemorrhage
- Thrombocytopenia

## Presentation

- Ampoule, 5,000 international units/5 mL *heparin sodium*

## Onset (IV)

≈ 30 seconds

## Duration (IV)

3–6 hours

## Half-life

1.5 hours

## Schedule

- S4 (Restricted drugs).

## Routes of administration

Intravenous injection (IV)



Intravenous infusion (IV INF)



## Adult dosages<sup>[1-4]</sup>

**Patients with STEMI** (as defined by the relevant QAS CPP) **and who have been accepted for pPCI** (as an adjunct medication to aspirin **AND EITHER** ticagrelor **OR** clopidogrel)



IV

**5,000 international units**  
(or dose requested by the accepting interventional cardiologist)  
**Single dose only.**

## Adult dosages (cont.)

### Critical care patients requiring anticoagulation during interfacility transport



IV

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

#### Loading dose – 5,000 international units

IV maintenance infusion (listed below) must be administered immediately following IV loading dose.

IV  
INF

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

Heparin infusion must be administered via a syringe driver using the following table:

Patient weight	Maintenance infusion dose (25,000 international units in 50 mL)
< 70 kg	800 international units/hour (1.6 mL/hour)
≥ 70 kg	1,000 international units/hour (2.0 mL/hour)

**Syringe preparation:** Mix 25,000 international units (25 mL) of heparin with 25 mL of sodium chloride 0.9% in a 50 mL syringe to achieve a final concentration of 500 international units/mL. Ensure all syringes are appropriately labelled. Administer via syringe driver.

If the patient has an existing heparin infusion, CCP ESoP – aeromedical officers must use the administration rate (units/hour) already preset.

## Paediatric dosages

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

### Special notes

- Ambulance offers 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 cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.