

Heparin - For anticoagulation only

5000units/5mL injection

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Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

This is a High Risk Medication 

An overdose can be rapidly fatal.

NOTE there are different strengths available of Heparin available. **The high strength 5000unit/5mL is ONLY used for anticoagulation of patients.**

Synonyms

Unfractionated Heparin

Dose and Indications

Consult Haematology prior to use

Anticoagulation

Intravenous infusion

75 units/kg loading dose over 10 minutes, followed by 28 units/kg/hour continuous infusion

Adjust dose to achieve an aPTT (activated partial thromboplastin time) levels that corresponds to an anti-factor Xa level of 0.35 – 0.7. **Consult haematology for advice.**



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Preparation and Administration

Intravenous

To prepare loading dose:

Dilute 1mL of Heparin 5000units/5mL injection with 9mL of compatible fluid (to a total volume of 10mL). *The resulting solution contains Heparin 100units/mL.*

Administer as an intravenous infusion over 10 minutes via syringe driver.

To prepare continuous intravenous infusion:

Dilute 5ml of Heparin 5000units/5ml injection with 45ml of compatible fluid (to a total volume of 50mL). *The resulting solution contains 100units/mL.*

Administer as a continuous infusion via syringe driver. The diluted solution is stable at room temperature for 24 hours.

Formulae

To calculate infusion rate (mL/hr):

$$\text{Rate (mL/hr)} = \frac{\text{dose (units/kg/hour)} \times \text{weight(kg)}}{\text{Strength (units/mL)}}$$

To calculate the dose (units/kg/hour):

$$\text{Dose (units/kg/hr)} = \frac{\text{Rate (mL/hr)} \times \text{Strength (units/mL)}}{\text{Weight (kg)}}$$

Compatible Fluids

Glucose 5%, Glucose 10%, Sodium Chloride 0.9%, Glucose/Sodium combinations

Adverse Effects

Common

Bruising and pain at injection site, bleeding, thrombocytopenia, hyperkalaemia

Rare

Skin necrosis (at injection site), transient elevation of liver enzymes, osteoporosis (with long term use)



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Monitoring

- > aPTT levels & anti-factor Xa levels (four hours after initiating therapy and after dose adjustments) - see Table 1
- > Platelet count every 2-3 days
- > Potassium level daily or as clinically indicated

Consult Haematology for monitoring advice

Table 1: Dose adjustment for systemic Heparin administration¹

aPTT (seconds)	Bolus dose (units/kg)	Hold (minutes)	Percentage rate change	Repeat aPTT levels after rate change
<50	50	0	Increase 10%	4hours
50-59	0	0	Increase 10%	4hours
60-85	0	0	0	Next day
86-95	0	0	Decrease 10%	4hours
96-120	0	30 minutes	Decrease 10%	4hours
>120	0	60 minutes	Decrease 15%	4hours

When aPTT levels are therapeutic, take daily aPTT levels

Practice Points

- > Treatment duration should be limited to 10-14 days or switch to low molecular weight heparin (LMWH) after 3-5 days if possible. For renal vein thrombosis, 6 weeks to 3 months of heparin/LMWH is recommended. *Consult Haematology for advice.*
- > CAUTION in bleeding diathesis, uncontrolled arterial hypertension and haemorrhage
- > Protamine is the agent used to reverse the effects of heparin (see Protamine Neonatal Medication Guideline)
- > DO NOT give intramuscularly

References

- > Monagle P, Chan A, Goldenberg N et al, Antithrombotic Therapy in Neonates and Children – Antithrombotic therapy and prevention of thrombosis 9th ed: American College of Chest Physicians Evidence- based clinical Practice guidelines, Chest, February 2012, Vol 141(2) supplement e737s-e801s



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Document Ownership & History

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