

Pediatric Treatment Dose Heparin Infusion Protocol

Monitoring

- Baseline labs- CBC within 24 hours prior to starting infusion.
- CBC once daily while on heparin. Monitor platelets for signs of heparin induced thrombocytopenia (HIT).
- **Heparin assays (Anti-Xa activity)** will be monitored starting 4 hours after the start of the bolus dose and repeated 4 hours after every change in infusion rate. Dosage adjustments should be made accordingly (see table below). Once in therapeutic range, heparin assays can be drawn once daily.
- **Target heparin concentration (Anti-Xa activity) of 0.3 – 0.7 units/mL¹**

Initial Dosing

- Loading dose: **75 units/kg IV** over 10 minutes
- Initial maintenance dose:
 - **Infants < 1 year 28 units/kg/hour**
 - **Children ≥ 1 year 20 units/kg/hour**
- **Adjust heparin infusion rate to maintain a Heparin concentration (Anti Xa activity) of 0.3 - 0.7 U/mL**

Dosage Adjustments based on Heparin Assay (Target Anti Xa 0.3 - 0.7 U/mL)

Heparin Assay Anti-Xa (U/mL)	Bolus (units/kg)	Stop Infusion (minutes)	Infusion Rate (units/hour)	Repeat Heparin Assay
< 0.15	50	0	↑ rate by 10%	4 hours after rate change
0.15 – 0.29	0	0	↑ rate by 10%	4 hours after rate change
0.3 – 0.7	0	0	0	Next day
0.71 - 1	0	0	↓ rate by 10%	4 hours after rate change
> 1	0	30	↓ rate by 10%	4 hours after infusion restarted

Warfarin Bridging

- Overlap heparin and warfarin for at least 5 days **AND** until 2 therapeutic INRs on separate days are achieved.
- See pediatric warfarin protocol for more information
- If patient will be discharged prior to 5 days, use LMWH to bridge.

Reversal of Heparin Therapy with Protamine Sulfate

- Only include heparin dose given over the last 2 hours in the protamine dose calculation.

Time Elapsed	Dose of Protamine (mg)
Immediate	1- mg per 100 units of heparin
30-60 min	0.5 - 0.75 mg per 100 units of heparin
60-120 min	0.375 - 0.5 mg per 100 units of heparin
>2 hours	0.25-0.375 mg per 100 units of heparin

- Give dose by slow IV push, never to exceed 50 mg over a 10 minute period.
- Multiple repeated does may be necessary if hemorrhage persists. Max is 50 mg per 10 minute period.

Reference:

1. Monagle P, Chalmers E, Chan A, et al. Chest 2008;133(suppl);887S-968S.