



**STANDARD RISK – LOW DOSE HEPARIN**

At Risk Patients for Prophylactic Heparin  
 age < 1yr, 15 units/kg/hr.  
 age ≥ 1yr, 10 units/kg/hr.  
 (separate from Shunt)

POST-OP PROPHYLAXIS FOR SHUNTED PATIENTS

- Presence of CVL/PICC and:
  - ❖ Neonate < 28 days
  - ❖ Any Single Ventricle Patient
  - ❖ History or Thrombosis/DVT/PE/Stroke
  - ❖ Inherited thrombophilia including Antphospholipid syndrome
  - ❖ Chronic Immobilization
  - ❖ Paralyzed > 24hrs
  - ❖ Acute Infection/Sepsis
  - ❖ PLE/Chylous effusion
  - ❖ DCM EF < 40%
  - ❖ LV Noncompaction
  - ❖ Obesity

- Start Heparin drip at 15 units/kg/hr-** Heparin assay not needed
- Obtain post- op AT3
  - Stop Heparin 2 hrs. before discontinuing intrathoracic lines
    - No need to do a PT/PTT prior to discontinuing intrathoracic lines
  - Transition to Aspirin when feeds are started
    - < 2.5kg – 20.25 mg
    - 2.5kg – 10kg - 40.5 mg
    - >10kg – 81 mg
  - Verify Now (platelet reactivity to aspirin)
    - <550: Adequate platelet inhibition (consistent with aspirin-induced inhibition of platelet

Patient should receive standard intervention based on risk level on admission

**Use the order set for CICU Thromboembolism Prophylaxis Orders in EPIC**

- Exclusion Criteria**
- VAD
  - ECMO
  - IVH > Grade 1
  - Other Bleeding Complications (GI Bleeding, etc.)
  - Contraindication to Pharm. Prophylaxis

**CONTRAINDICATIONS TO PHARMACOLOGIC PROPHYLAXIS**

- Ongoing or uncontrolled bleeding
- Uncorrected coagulopathy (PLT<50,000; INR>1.5; or PTT>2x control)
- <1 year since acute stroke
- Suspected or known paraspinal hematoma
- Major allergy to pork products
- History of heparin induced thrombocytopenia
- Intracranial monitoring (EVD/Bolt)
- CNS drain (epidural catheter/ other)
- Risk for major surgical bleeding

**MODERATE RISK – THERAPEUTIC ANTICOAGULATION**

**Inclusion:**  
 Patients with Clinical indications for therapeutic heparin or enoxaparin (known thrombus, mechanical valve, etc.)

- Follow CICU/CTS Therapeutic Unfractionated Heparin Dosage Titration (page 2)
- Heparin Assays per Guidelines, See page 2

**HIGH RISK: DIRECT VERBAL COMMUNICATION WITH CTS & CICU ATTENDING IS REQUIRED AND DOCUMENTED**

<p><b>INCLUSION</b></p> <ul style="list-style-type: none"> <li>• Shunted with high risk for thrombosis</li> <li>• Mechanical valve with high risk for thrombosis</li> <li>• History of clotted shunts</li> </ul> <p><b>Need to have CTS Attending identify patient as High Risk &amp; document</b></p>	<p><b>ASSESSMENT LABS &amp; RADIOLOGY</b></p> <ul style="list-style-type: none"> <li>• Baseline Head US (if open fontanelle)</li> <li>• CBC</li> <li>• PT/PTT</li> <li>• Fibrinogen</li> <li>• Heparin Assay</li> <li>• AT3 (goal is 80 -130)</li> <li>• ACT</li> </ul>
<p><b>INTERVENTION</b></p> <ul style="list-style-type: none"> <li>• Initial Heparin Bolus 50 units-100 units/kg x1</li> <li>• Q 1hr ACT checks for first 6hrs post-operative using bedside POC cartridges</li> <li>• Titrate Heparin per ACT</li> <li>• Bolus Heparin 25-50 units/kg to achieve goal ACT</li> <li>• Keep bolusing until ACT is achieved</li> <li>• After 6hrs transition to Heparin Assay</li> <li>• Manage per CICU/CSU Heparin Order Set (see pg. 2).</li> </ul>	

**PRE-OP LABS**

Stat AT3

- Baseline range should be between 80-130
- All neonates (< 28 days) and shunted patients should have the AT3 drawn pre-op
- AT3 will be repeated in the OR at discretion of anesthesiologist & cardiac surgeon

**MONITORING**

- Obtain Daily Heparin Assay and 4hrs after any dosing change
- Heparin assay goal should be 0.35-0.7

*Consider consulting pharmacy or Hematology*



Therapeutic Unfractionated Heparin Dosage Titration		
Hep Assay (Units/mL)	Dosage Adjustment	Time to Repeat Heparin Assay (Anti-Xa)
<0.2	Give 50 units/kg bolus and increase infusion rate by 15%	4 hours after rate change
0.21 - 0.35	Increase infusion rate by 10%	4 hours after rate change
0.35 -0.7	Keep rate the same	Daily after 2 levels 4 hours apart are in goal range
0.71-0.79	Decrease infusion by 10%	4 hours after rate change
0.8-0.89	Hold infusion for 60 minutes then decrease infusion rate by 10%	4 hours after infusion resumes
≥0.9	Hold infusion for 120 minutes then decrease infusion rate by 15%	4 hours after infusion resumes