<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Impella Ventricular Assist Device Orders</th>
</tr>
</thead>
</table>

**Instructions:**
- Impella device in place:  □ 2.5, □ CP, □ 5.0/LD
- Admit to CVICU bed.
- Call Dr. _________________ for Impella problems. Call Abiomed clinical support line (24/7) for help troubleshooting at 1-800-422-8666. Call local rep.
- Chest compressions and defibrillation can be administered during impella support. During chest compressions, decrease the performance level (P) to P2. The Impella system does not have to be stopped or unplugged to defibrillate.
- Maintain the RED pressure sidearm on the Impella 2.5 and CP like an arterial line. Connect 0.9% NaCl to red pressure sidearm via pressure bag at 300 - 400 mm Hg. Flush q 2 hours.

**Activity:**

For patients with femoral Impella placement:
- Strict bedrest.
- Position patient with head of bed elevated to max of 30 degrees. Patient may be turned side to side.
- Leg with Impella pump insertion site to be kept straight. Order knee immobilizer.

For patients with axillary/subclavian Impella placement:
- Patients may mobilize as tolerated. Up to bedside chair BID starting on POD 1 unless otherwise ordered.

**Monitoring:**
- Assess: Vital signs, patient hemodynamics, Impella access site, device assessment, and distal pulses every 15 minutes x 4, every 30 minutes x 2, and then hourly for the duration of Impella support.
- Vascular assessment every hour on the extremity of Impella insertion. Notify MD for any changes with doppler signals or palpable pulses of affected lower extremity.
- Initiate the Impella flow sheet and document hourly.
- Maintain pump performance (p-perf) to keep flow above ___________ L/min
  NOTE: Do not decrease performance level below P2 as long as the pump is in the ventricle.
  Retrograde flow will occur across the aortic valve if the pump is set at PO.
- Monitor pump placement using the waveforms of motor current and placement signal.
  NOTE: The distal tip of the Impella catheter is designed to be in the left ventricle. In the event the distal tip (pigtail) of the Impella becomes displaced, call MD stat. Also notify Abiomed Clinical Support at 800-422-8666.

**Orders:**
- □ CBC, CMP, Magnesium, EKG, and echo on arrival to unit.
- □ CBC, BMP, Magnesium, and CXR every am while on Impella support
- □ Accu-Checks q 6 hours with regular insulin medium dose correction scale. If Diabetic consult Pharmacy for diabetes management.
Anticoagulation:

- Heparin infusion - PTT Protocol
  Initiate Impella Heparin Nomogram **below if heparinized purge solution does not meet anticoagulation requirements** in achieving PTT of 42 - 56. Heparin premixed bag 25,000 units in 250 mL 0.45 NaCl to be infused through a Sigma Spectrum pump.

**Goal PTT = 42-56 seconds**

**Bolus:** No bolus

**Infusion:** Start heparin drip at 3 units/kg/hour. Starting rate = _____________ ml/hr. Check PTT 4 hours after drip started.

### Heparin Titration:

Write order and send to Pharmacy for any rate change

<table>
<thead>
<tr>
<th>PTT (seconds)</th>
<th>Dosing Adjustment</th>
<th>Check PTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 40</td>
<td>Increase rate by 2 mL per hour</td>
<td>6 hours</td>
</tr>
<tr>
<td>41 to 49</td>
<td>Increase rate by 1 mL per hour</td>
<td>6 hours</td>
</tr>
<tr>
<td>50 to 70</td>
<td>Maintain rate, at goal</td>
<td>Next a.m.*</td>
</tr>
<tr>
<td>71 to 85</td>
<td>Decrease rate by 1 mL per hour</td>
<td>6 hours</td>
</tr>
<tr>
<td>86 to 100</td>
<td>Stop heparin infusion for 30 min and decrease by 2 mL per hour</td>
<td>6 hours</td>
</tr>
<tr>
<td>101 to 150</td>
<td>Stop heparin infusion for 1 hour, and decrease by 2 mL per hour</td>
<td>6 hours</td>
</tr>
<tr>
<td>Greater than 150</td>
<td>Stop heparin infusion for 1 hour, and decrease by 2 mL per hour</td>
<td>2 hours</td>
</tr>
<tr>
<td></td>
<td>Recheck PTT. Call Physician and Anticoagulation Service (ext. 6000)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Then follow Protocol. <strong>Do not increase rate if repeat PTT is &lt; 50.</strong></td>
<td></td>
</tr>
</tbody>
</table>

* If within first 24 hours, repeat PTT in 6 hours, otherwise monitor daily

### Purge Infusion for Impella pump: (Choose one)

- Purge Solution - Dextrose 5% 1000 ml with 12,500 units of Heparin (Concentration = 12.5 units/ml)
- Purge Solution - Dextrose 5% 1000 ml with 25,000 units of Heparin (Concentration = 25 units/ml)
- Purge Solution - Dextrose 5% 1000 ml with 50,000 units of Heparin (Concentration = 50 units/ml)
  - Connect the purge solution to infuse via the yellow sidearm of the Impella device. The purge solution should always be infused by the Automated Impella Controller console.
  - Notify MD and Abiomed clinical support for any purge pressure alarms.
  - Notify MD and Abiomed clinical support for a purge infusion rate < 4 cc/hour or > 25 cc/hour.
  - The purge cassette should be changed every 96 hours.

**Date** / **Time**

**Physician Signature**

---

**DOCTOR'S ORDERS**

**BOTTOM EDGE OF PATIENT LABEL**

REV 03/17; SD40-3