THORATEC VENTRICULAR ASSIST DEVICES

1. **Contact 24 hour mechanical heart specialist: (509) 481-7996 or (509) 474-7326.** If no answer, contact Sacred Heart Medical Center Operator (509-474-3131), who will locate the call person.

2. Emergency Scenarios

Scenario	Response
VAD Failure (VAD has stopped pumping)	Hand pumping should be started if the Thoratec Driver* fails and backup Thoratec Driver is unavailable. If patient on Bi-VADs, hand pump both VADs. Hand pump at rate of 60-90 strokes per minute or compress hand pump as soon as bladder within Thoratec VAD refills completely (VADs are external, can be seen on abdomen). VAD blood flow is approximately 60 ml times hand pump rate. Fully monitor patient during transport.
VAD Working – Blood Flows Low – ECG Abnormal **(Only Applies if patient has single VAD not Bi-VADs)**	A patient with a single VAD is dependent on ventricular function of the side not mechanically assisted. With arrhythmia, decreased function of opposite ventricle will affect VAD flows. The VAD may be able to maintain flow high enough to keep patient from going into shock. Blood flow is read on Thoratec Driver Display. **If patient is symptomatic, initiate appropriate therapy to correct arrhythmia and optimize heart function.** **-**LVAD Patient: If blood flow falls below 2 liters per minute, increase flows by giving large amounts of IV volume and correct arrhythmia. -RVAD Patient: Do not administer large amounts of IV volume; correct arrhythmia.
LVAD Working – "Reduced Flow Rate" Alarm – ECG Normal	Suspected internal bleeding (hypovolemia). **If patient is symptomatic, initiate appropriate therapy to stabilize patient including volume replacement.**

3. If patient has an LVAD (single or in Bi-VADs) and LVAD is working properly, it is providing patient's cardiac output and is not in time with patient's real heart (**Patient's EKG rate will not equal pulse rate. Instead, pulse should be at rate of the Thoratec LVAD or Hand Pump**).
4. Large bore peripheral venous access should be established on patient.
5. Perform routine CODE procedure, if indicated, including cardiac compressions.
6. Transport patient with companion and bring equipment:
   - ✓ Hand pumps
   - ✓ Extra batteries
   - ✓ Primary and backup Thoratec Drivers*
7. Patient or companion to hand pump VAD(s), if driver fails to function.
8. Patient should be transported to **Sacred Heart Medical Center**, if possible.
9. Hand Pumping:
   - I. Hand pumping is only to be performed if both primary and backup Thoratec Drivers fail to operate or are unavailable.
   - II. Disconnect driveline from Driver and press that end of driveline into Hand Pump bulb.
   - III. If Bi-VADs and only one VAD fails to pump, disconnect both driveline and hand pump both VADs. This ensures roughly same flow to avoid **pulmonary edema**.
   - IV. Compress bulbs at approximately same rate that the patient was running, if in doubt, 60 to 90 compressions per minute.
   - V. Check radial pulse, it should correspond to rate of bulb compressions.

*The Thoratec Driver supplies air pressure and vacuum to pump the VAD(s). It can be powered by 2 batteries located within case. A separate battery charger is kept at patient's residence. The Thoratec Driver can also be powered by an AC adapter. Ensure 2 batteries installed and unplug AC adapter cable from Thoratec Driver prior to transport. Display shows L: (LVAD) Rate (bpm), and Flow (L/min) and R: (RVAD) Rate (bpm), and Flow (L/min)