BASE GUIDELINES

1. Monitor any cardiac rhythm. Note: The ECG heart rate will be different from the pulse rate since the VAD is not synchronized with the native heart. The pulse rate reflects the rate supporting perfusion.
2. Establish IV access.
3. Treat symptoms and signs according to applicable treatment guidelines.
4. Defibrillation/cardioversion pads placement is not affected by the LVAD.
   ▶ VAD patients may also have an Implanted Cardioverter-Defibrillator (ICD) or pacing ICD.
5. Ventricular dysrhythmias may continue to perfuse through the VAD pump.
6. For pulmonary edema with hypotension and ‘red heart’ alarm initiate hand pumping in first generation (displacement pulsatile) VADs.
   ▶ Thoratec HeartMate™ VADs operated either as a pulsatile displacement pump (first generation) or as a nonpulsatile axial turbine (second generation).
7. Loss of cardiac output from VAD failure and a ‘red heart’ alarm may present as dyspnea, nausea, hypotension, syncope, loss of consciousness or pulmonary edema. In the absence of a ‘red heart’ alarm look for other causes.
8. For hypotension with lungs clear and no signs of CHF/pulmonary edema:
   ▶ Normal Saline, infuse 20 mL/kg (maximum single bolus of 250 mL), may repeat twice to maintain perfusion.
9. Collect all VAD equipment including the power base unit, spare batteries, spare controller unit and hand pump (for first generation VADs) as directed by the caregiver and VAD Program Coordinator (if on the telephone) and transport with the patient and caregiver.

ALS STANDING ORDER

1. Assess patient and establish telephone contact with the patient’s Left Ventricular Assist Device (LVAD) coordinator to determine a pre-established treatment management plan.
2. Contact Base Hospital/CCERC (pediatric base preferred) and provide report of event and pre-established treatment plan.
3. If patient is apneic and unresponsive or unconscious:
   ▶ Initiate CPR (including chest compressions)
4. Vital sign measurements may be misleading or not possible to measure; indications of poor perfusion (poor cardiac output) include:
   - Altered level of consciousness
   - Dyspnea
   - Nausea, vomiting
   - Poor skin perfusion signs, diaphoresis
5. For hypotension with clear lungs and no signs of CHF/pulmonary edema:
   ▶ Normal Saline, infuse 20 mL/kg, may repeat 2 times to maintain perfusion.
6. Obtain blood glucose and document finding, if blood glucose equal to or less than 60, administer one of:
   ▶ Oral glucose preparation, if awake, can tolerate, and airway reflexes are intact.
   ▶ 10% Dextrose 5 mL/kg IV/IO (maximum dose 250 mL)
   ▶ Glucagon 0.5 mg IM if unable to establish IV
7. Remain in contact with Base Hospital/CCERC for further orders and destination.
10. Do not separate the patient from the caregiver. The caregiver will be trained in managing the VAD equipment.

11. Transport to the CCERC.