



INLAND COUNTIES EMERGENCY MEDICAL AGENCY POLICY AND PROTOCOL MANUAL

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VENTRICULAR ASSIST DEVICE (VAD)

I. PURPOSE

To establish guidelines for EMS field personnel in the prehospital assessment, treatment and transport of patients who have a Ventricular Assist Device (VAD).

II. FIELD ASSESSMENT/TREATMENT INDICATORS

- The EMS field personnel shall first assess the patient and not the device. Utilize the American Heart Association's C-A-B recommendations, with one (1) addition:
 - C-Circulation/**Connections (Device)**
 - A-Airway
 - B-Breathing
- Clinical assessment of the patient is essential and the **most** important clinical observation (i.e., level of consciousness, skin signs, adequate perfusion).
- Follow appropriate ICEMA protocols for the patients' condition.
- There are no medication contraindications in relation to the VAD.
- If defibrillation or cardioversion is necessary, follow the appropriate ICEMA protocol. The pump is insulated, so electrical therapy should not be an issue.
- A patient with a VAD might not have a palpable pulse as this is a continuous flow device. However, they do have a heart rate and rhythm. The 12-lead ECG or heart monitor will show the patient's native heart rhythm and will not necessarily reflect the patient's circulatory function. Treat arrhythmias according to ICEMA protocols, except for chest compressions.
- Waveform capnography monitoring is appropriate as pulse oximetry may not be measurable or it may be inaccurate.
- VAD patients may not have a systolic and diastolic blood pressure obtainable by standard methods using a manual or automatic blood pressure cuff. It may be possible to auscultate. The mean arterial blood pressure (MAP) typical range is 70 - 90 mm Hg. To calculate the MAP, use the formula below:

$$\text{MAP} = \text{SBP} + (2 \times \text{DBP})$$
$$\text{MAP} = \frac{\text{SBP} + (2 \times \text{DBP})}{3}$$

MAP = mean arterial pressure
SBP = systolic blood pressure
DBP = diastolic blood pressure

III. PROCEDURE

- A patient with a VAD will most likely have a trained companion with them. The companion is familiar with the VAD and emergency troubleshooting. The companion should accompany the patient during transport and be responsible for the VAD whenever possible.
- VAD patients and their companions are taught to call 9-1-1 in an emergency, then page the on call VAD Coordinator immediately. The VAD Coordinator will typically be on the telephone to provide additional assistance to the EMS field personnel when they arrive.
- Contact information for the VAD Coordinator and the VAD Implant Center is usually attached to or located inside the patients' VAD equipment bag.
- When transporting these patients to the appropriate hospital, the VAD emergency bag, power module, power base unit, batteries, charger, and backup controller **must** all be brought to the hospital.
- Transport decision must be made by both the on call VAD Coordinator and the base hospital, typically transported to the nearest appropriate VAD Implant Center (Loma Linda University Medical Center in ICEMA region), with preference given to their implanting center whenever possible.

NOTE: If the paramedic on scene has assessed the patient and observed the following:

- The patient is unresponsive and is asystole on the cardiac monitor, **and**
- All connections to the device have been assessed and not producing a "hum" over the apex of the heart upon auscultation, **and**
- Waveform Capnography is less than 10 and MAP is less than 50, **then** chest compressions can be performed as a last resort for patient condition.