

# West Michigan Regional MCC

## Adult Treatment Procedure LVAD

Date: April 9, 2018

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### *Left Ventricular Assist Devices*

This procedure applies to the management of all patients who have a Left Ventricular Assist Device (LVAD).

An LVAD is a mechanical pump that is used to support heart function and blood flow in people who have weakened hearts. The device takes blood from the lower chamber of the heart and pumps it to the body and vital organs, just as a healthy heart would.

**Adopting MCAs will have an “X” under their MCA name. If no “X” is present, the MCA has not approved or adopted the protocol.**

Allegan	Barry	Clare	Ionia	Isabella	Kent	Mason
X			X		X	X
Montcalm	Muskegon	N. Central	Newaygo	Oceana	Ottawa	
X	X	X	X	X	X	

### Medical First Responder/Basic Life Support

1. *Above all else please remember that these patients, along with their families, have been well trained in the care of themselves and their devices. LISTEN TO THEM!*
2. Evaluate breathing and assist with or provide ventilations, as needed
3. If the patient is unconscious, unresponsive to stimuli, and pulseless listen to the patient’s chest, as if listening for heart sounds. With a functioning LVAD you should hear a continuous whirling sound.
4. If you hear the whirling sound of the LVAD, DO NOT PERFORM CPR. The LVAD has been surgically placed into the left ventricle and CPR could dislodge this device, causing death.
5. If you cannot hear the device, then CPR should be performed per **Cardiac Arrest Protocol**.
6. Locate the colored sticker/tag on the LVAD controller, usually found at the patient’s waist, and match this to the color-coded EMS guide.<sup>1</sup>
7. **Call the emergency alternative number on the back of the device to speak to the on-call LVAD physician.**
8. Using the EMS LVAD guide, intervene appropriately based on the type of alarm and device.<sup>2</sup>

### Notes:

- *In a majority of these patients a pulse will not be palpable. This occurs because the LVAD unloads the ventricle in a continuous fashion and therefore the aortic valve may not open with each contraction.*
- *A manual blood pressure may not be obtainable, but with an automated cuff you should be able to obtain a pressure with a narrow pulse pressure. **Your treatment of the patient will be based on the mean arterial pressure (MAP). In these patients, the normal range for MAP is greater than 60 mmHg and less than 90 mmHg. (Look at the MEAN pressure on the automated BP)***
- *Pulse oximetry may not be accurate due to the continuous flow nature of the LVAD.*
- *Patients most always carry a “backup bag” which contains 2 extra fully charged batteries, and a second controller. Please make sure to always bring this emergency backup equipment with them to the hospital.*

### Advanced Life Support (Follow appropriate protocol)

<sup>1</sup> The most current version of the LVAD EMS Guide is required on all licensed Life Support vehicles.

<sup>2</sup> The EMS guide and education may be accessed at <http://www.mylvad.com/content/ems>

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In addition to the BLS care above:

1. *Above all else please remember that these patients, along with their families, have been well trained in the care of themselves and their devices. LISTEN TO THEM!*
2. **Call the emergency alternative number on the device for the on-call LVAD physician.**
3. Perform cardiac monitoring
4. Evaluate a 12 lead ECG if chest pain or ischemic equivalent symptoms
5. If patient meets STEMI criteria on 12 lead ECG, follow STEMI procedures
6. All dysrhythmias should be treated in accordance with appropriate Dysrhythmia Protocol.
7. For conscious electrical defibrillation, the patient may be sedated with Versed per the *Sedation Procedure* if the MAP is greater than 65mmHg.
8. Record and monitor continuous O<sup>2</sup> saturation; sometimes not obtainable with LVAD patients. In addition, you may utilize End Tidal CO<sup>2</sup> (capnography).
9. If evidence of dehydration, bolus 250 ml of Normal Saline (NS) with a max of 500 ml of NS until patient is normotensive, ( $\geq 65$  mmHg MAP). If patient shows signs of Congestive Heart Failure (crackles on auscultation of lungs, JVD or peripheral edema) withhold fluid bolus.
10. Minimize on scene time when possible
11. Transport these patients to the closest LVAD center. Bring the significant other or caretaker if possible to act as an expert on the device, especially if the patient is unconscious or unreliable.
12. Refer to the LVAD EMS guide for further information on field care of these devices.