

# Basics of the Left Ventricular Assist Device (LVAD)

## What is an LVAD?

An LVAD is a special heart pump that supports heart function and blood flow for the left side of the heart. The three LVAD's you may see from the Advanced Heart Failure Program at Strong Memorial Hospital are the following:



### IMPORTANT:

Contact UR Medicine VAD Team at Strong Memorial Hospital

1-800-892-4964

585-273-3760

## Assessment Basics

LVAD Patients should have a “humming” noise when you auscultate heart sounds.

**PATIENTS MUST REMAIN ON POWER AT ALL TIMES. Unless you are LVAD trained, you should maintain the patient on wall (AC) power at all times.**

Patient will have either Power Module or Mobile Power Unit (MPU)

(Used when patient is at rest. Plugs into AC wall outlet.)



Mobile Power Unit



Power Module

- Ensure that the Power Module or MPU is plugged in and receiving power. The green power symbol should be lit.
- Connect power cables, white to white and black to black.
  - Align the half-circle shapes to make a whole circle and engage.
  - Firmly push together the two connections.
  - Securely hand tighten the connector nut.

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## Vital Sign Frequency:

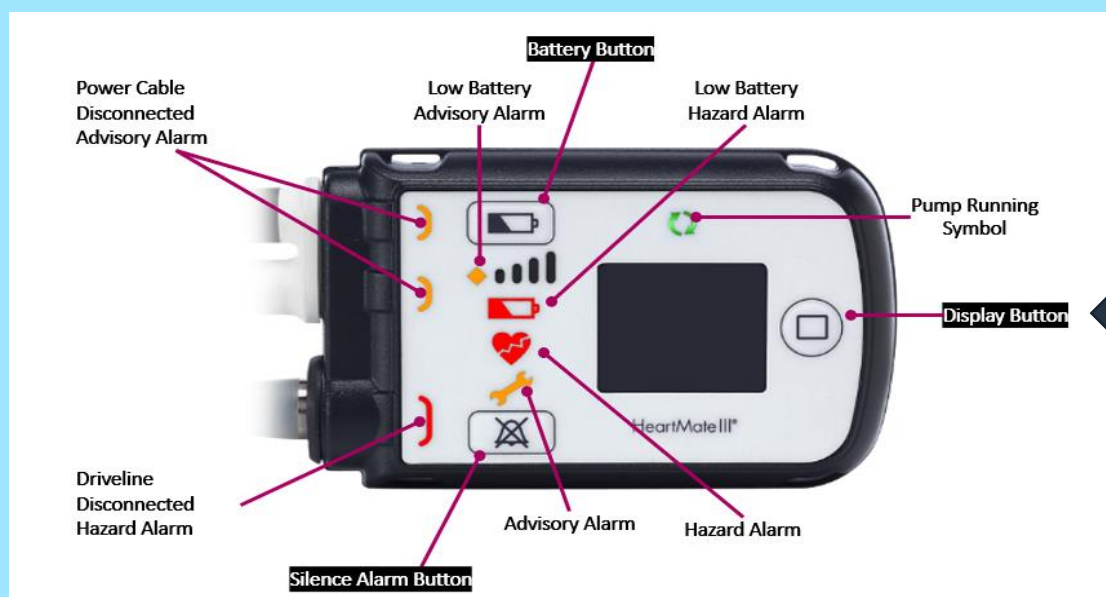
LVAD patients should have a *Doppler* blood pressure taken. This is usually representative of the MAP. To obtain a Doppler you will need a BP cuff, Doppler, and ultrasound gel.

Watch the video by scanning the QR code on how to perform a Doppler BP. You may utilize manual cuff and calculate a MAP if the patient has a palpable radial pulse.



LVAD patients have a screen that displays different numbers that help to understand the functioning of the VAD and the patient's hemodynamic state.

A complete set of the patient's VS should be taken upon admission. A complete set includes: Doppler BP(MAP), HR and rhythm, RR, Temp, Pain scale **AND** a set of VAD Parameters: **Speed, Flow, PI and Power.**



Recommendation: A complete set of VS should be repeated every hour. If the patient's condition is deemed stable a complete set can be monitored every 4- 8 hours.


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## Reviewing Alarms on the Controller:

### How to Interrogate HMII or HM3 Controller Alarm History



**Step 1:** Press Display  and Silence Button at the same time to pull up most recent alarm,

**Step 2:** Press the  to scroll through last 6 alarms

*This HM3 patient, he/she had 1 sec low flow alarm on 10/21/16 8:52 am.*

HeartMate II



### Driveline Dressing

Find the percutaneous lead (the driveline exiting the abdomen and connected to the controller).

The driveline dressing is a sterile dressing change. If it is soiled or loose please watch the video for instruction on how to change the dressing.

HeartMate 3



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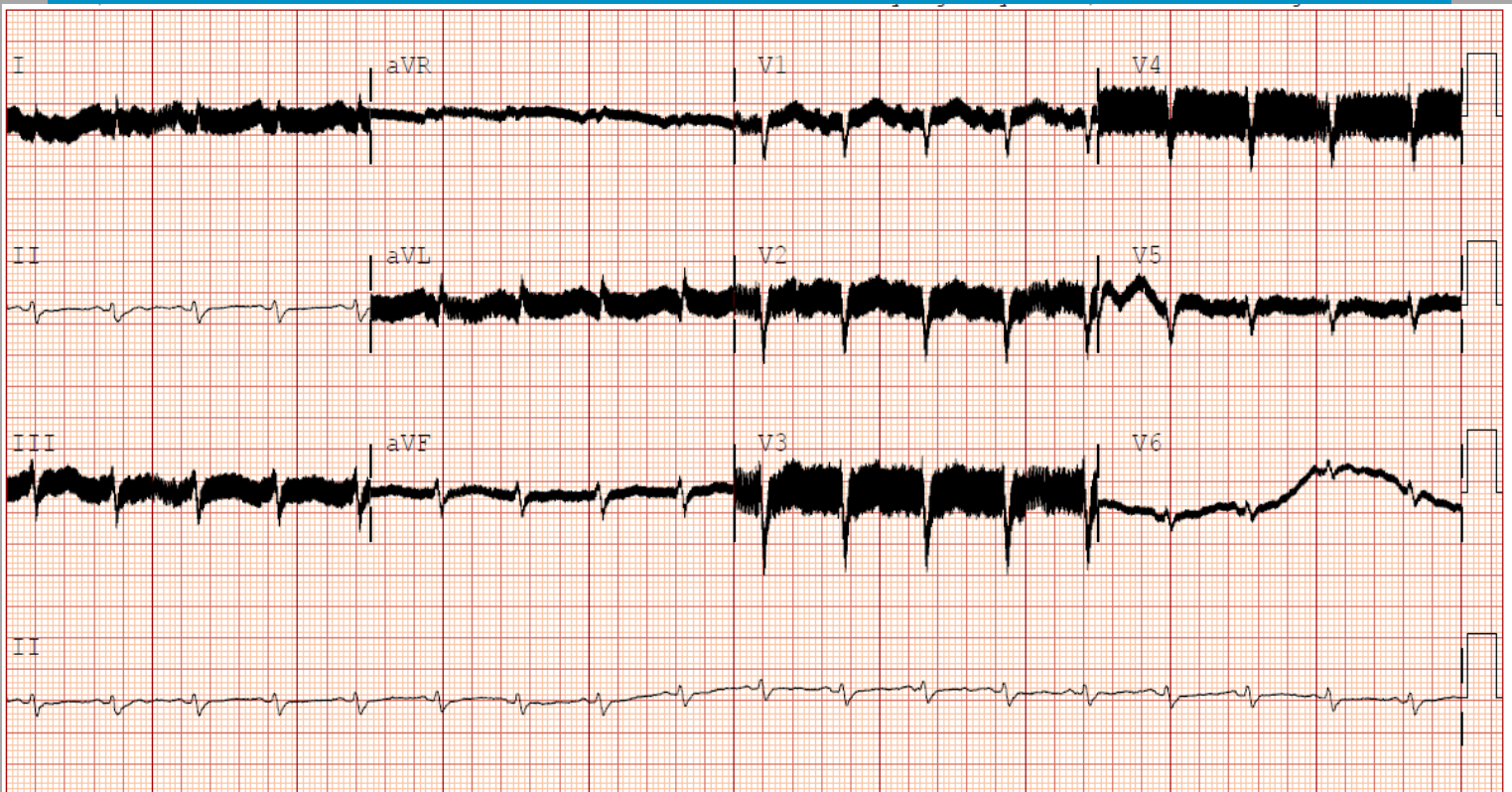
## Arrhythmia Advice:

- In general, patients on an LVAD tolerate arrhythmias well due to the continuous LVAD flow.
- Patients may be asymptomatic and responsive in “lethal” rhythms.
- Patients may or may not have a pacemaker or ICD.
- A frequent cause for EMS transport to the hospital will be ICD shocks.
- It is important to monitor VAD flow and BP in these patients and follow ACLS protocols for arrhythmias.
- It is important to restore them back to a normal rhythm because it will eventually affect the right heart.
- Arrhythmias can cause low flow, low power and low PI
- The patient may present with *s/s* of RVF
- Defibrillating is ok if necessary- it will not hurt or interfere with their LVAD equipment.

## 12 lead EKGs:

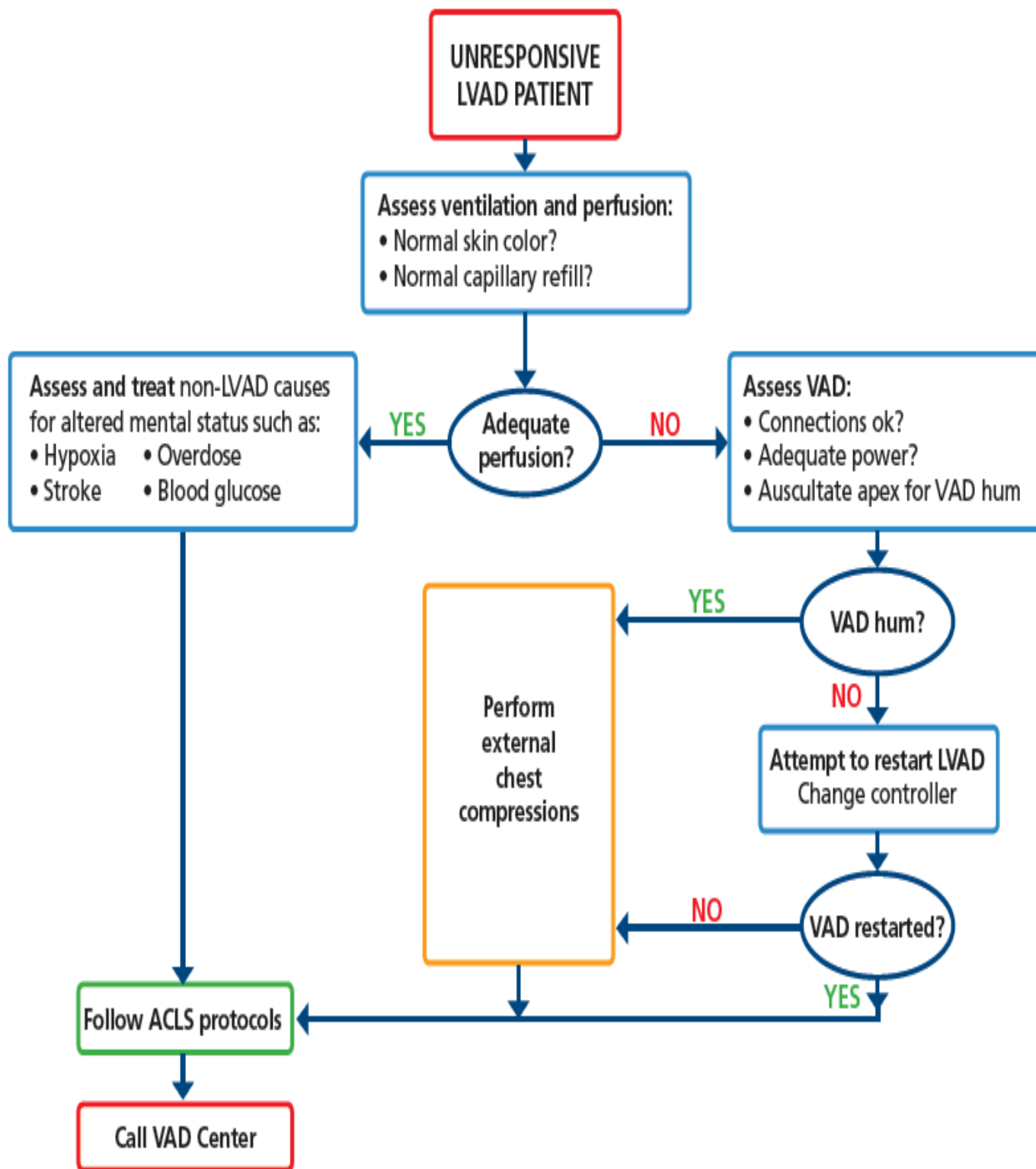
HM3 patients tend to have a “thick” EKG appearance. This is due to the electromagnetic interference from the magnet housed in the pump.

High frequency noise can be noted particularly in limb leads I, III, AVL, V5, V6. Moving the V leads around *sometimes* helps get a better tracing.



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## ASSESSMENT OF THE UNRESPONSIVE LVAD PATIENT



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**Resources:** UR Medicine VAD Program educational resources can be found at  
[www.vadresources.urmc.edu](http://www.vadresources.urmc.edu)

**General questions:** Please call Monday-Friday (585) 273-3760

Advanced Heart Failure Program  
601 Elmwood Avenue  
Rochester, NY 14642

Add this link to your mobile home  
screen: [hf.urmc.edu](http://hf.urmc.edu)



**Please scan for:**

- Stroke guidelines
- Code guidelines
- Low Flow algorithm

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