

# Treating patients with Left Ventricular Assist Device (LVAD)

24/7 UR Medicine Advanced Heart Failure Team:  
**1-800-892-4964**  
**585-273-3760**

UR Medicine Transfer Center:  
**1-800-499-9298**  
**585-275-4999**

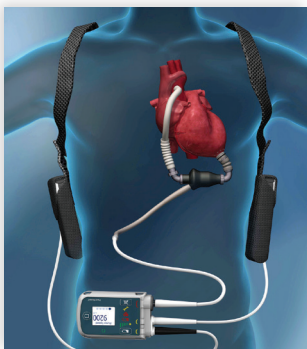
A Left Ventricular Assist Device (LVAD) is an internal heart pump used to treat heart failure.

The pump provides continuous blood flow from the left ventricle to the aorta. It requires an external controller and batteries.

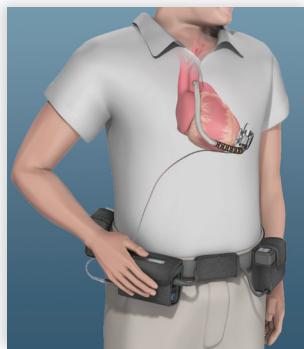
**When caring for a person with an LVAD, follow these steps:**

- Listen for a humming sound where the heart is
- Find the percutaneous lead (the driveline exiting the abdomen and connected to the controller)
- Verify controller is connected to adequate power
- Identify and treat life-threatening events as you would with any other patient
- **Reversal of INR is reserved for life-threatening injuries and should be discussed with the attending cardiac surgeon**
- Cardioversion/defibrillation can be performed on an LVAD patient

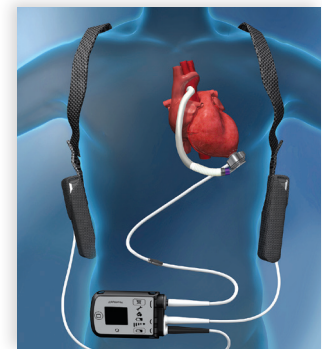
## TYPES OF CONTINUOUS FLOW LEFT VENTRICULAR ASSIST DEVICES



**HeartMate II™**  
Axial Flow Pump  
Speed: 8000-10000 rpms  
Flow: 4 – 6 lpm  
Power: 4 – 6 watts  
Pulsatility Index: 4 – 7  
MAP: 70 – 90 mm Hg  
Warfarin/Aspirin  
Pair of Batteries = 10 – 12 hours  
Emergency Battery in Controller



**Heartware HVAD™**  
Centrifugal Flow Pump  
Speed: 2400-3200 rpms  
Flow: 4 – 6 lpm  
Power: 3 – 5 watts  
Pulsatility Index: Not applicable  
MAP: 70 – 90 mm Hg  
Warfarin/Aspirin  
Pair of Batteries = 8 – 12 hours  
No Emergency Battery in Controller

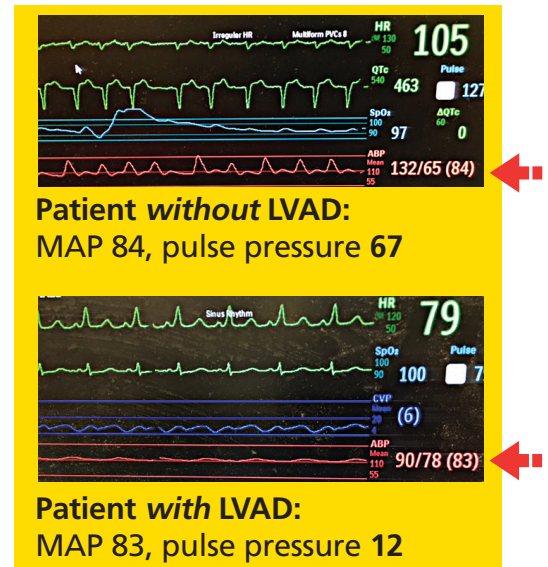


**HeartMate 3™**  
Centrifugal Flow Pump  
Speed: 4800-6500 rpms  
Flow: 4 – 6 lpm  
Power: 3 – 5 watts  
Pulsatility Index: 2 – 6  
MAP: 70 – 90 mm Hg  
Warfarin/Aspirin  
Pair of Batteries = 15 hours  
Emergency Battery in Controller

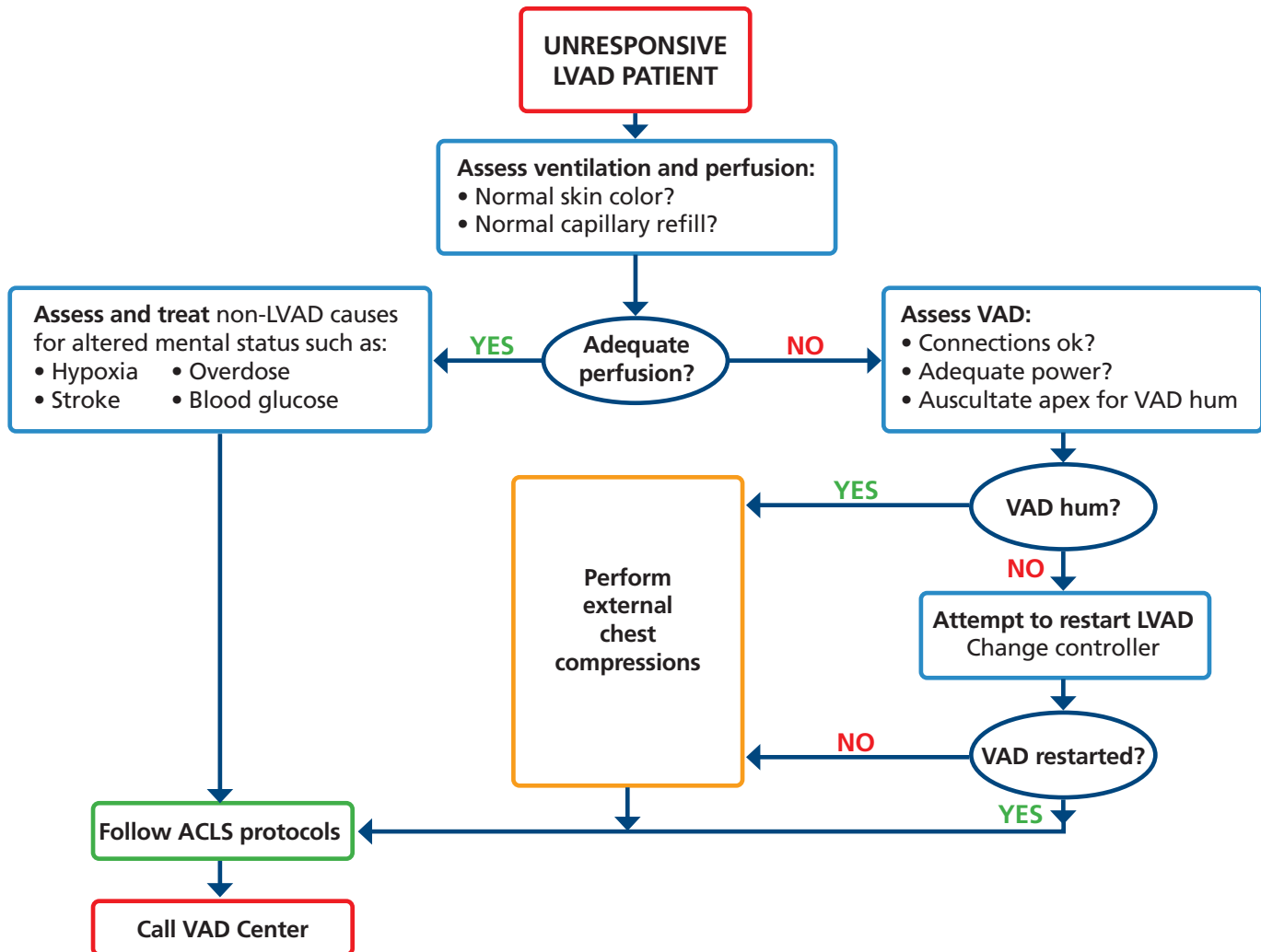
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## Understanding LVAD Vital Signs

- The patient may have a weak or absent radial pulse
- Assess adequate perfusion based on mentation, skin color and capillary refill
- Measure blood pressure by Doppler if the patient does not have a palpable radial pulse
  - › Find arterial flow with Doppler
  - › Increase cuff pressure until signal goes away
  - › Decrease pressure until signal returns
  - › Opening sound is considered the MAP
  - › Goal MAP <90 mm Hg
- May utilize manual cuff and calculate a MAP if patient has a palpable radial pulse



## ASSESSMENT OF THE UNRESPONSIVE LVAD PATIENT



### LVAD Resource Materials for Community Providers

UR Medicine VAD Program educational resources can be found at [www.vadresources.urmc.edu](http://www.vadresources.urmc.edu)  
For questions, please email our VAD Educator Lisa Fowler, [lisa\\_chemotti@urmc.rochester.edu](mailto:lisa_chemotti@urmc.rochester.edu)