

NWC EMSS Skill Performance Record

Mechanical Circulatory Support (MCS) using a Ventricular Assist Device

Name:	1 st attempt: <input type="checkbox"/> Pass <input type="checkbox"/> Repeat
Date:	2 nd attempt: <input type="checkbox"/> Pass <input type="checkbox"/> Repeat

Notes: Unit runs on electricity provided by a Power Base Unit (PBU) during stationary use or by rechargeable batteries worn during mobile use. Because blood bypasses aortic valve, there may be no pulse, especially with continuous flow pumps.

Performance standard	Attempt 1 rating	Attempt 2 rating
0 Step omitted (or leave blank) 1 Not yet competent: Unsuccessful; required critical or excess prompting; marginal or inconsistent technique 2 Successful; competent with correct timing, sequence & technique, no prompting necessary		
*State purpose of MCS: Assist a failing heart by taking blood out of LV, through the pump, & back into ascending aorta – reduces need for native heart to pump blood through aortic valve, reducing cardiac workload & O ₂ demand.		
Response to a pt. with a VAD <input type="checkbox"/> Call VAD Coordinator immediately if known – phone number from pt or caregiver or one of the listed centers below if specific Coordinator unknown <input type="checkbox"/> Get history/instructions, VAD parameters from family/caregiver. Patients will be on anticoagulation medications – get list of all meds Patients will often have pacemakers and/or Internal Cardioverter Devices (ICDs). <input type="checkbox"/> Ask if pt is looking, feeling, or acting differently than their baseline		
Decision tree responsive patient <input type="checkbox"/> Assess ABCs: SpO ₂ waveforms may be flat; without amplitude despite accurate readings <input type="checkbox"/> If breathing labored; O ₂ per SOP <input type="checkbox"/> Assess circulation: May NOT have a pulse (NORMAL); check cap refill, color, temp, mental status <input type="checkbox"/> Listen for VAD sounds LUQ (when working device makes a quiet whiling sound) <input type="checkbox"/> Look and listen for alarms; pt & caregivers can help troubleshoot alarms		
Decision tree unresponsive patients <input type="checkbox"/> Airway, breathing assessment/Rx per SOP <input type="checkbox"/> Quick check for driveline or wire existing abdomen, batteries, cable, system controller <input type="checkbox"/> Caution removing clothes, especially using trauma scissors – DON'T CUT CABLES OR WIRES <input type="checkbox"/> Assess circulation: May NOT have a pulse (NORMAL); check cap refill, color, temp, mental status <input type="checkbox"/> Listen for VAD sounds LUQ (when working device makes a quiet whiling sound) <input type="checkbox"/> Look and listen for alarms; pt & caregivers can help troubleshoot alarms – see below <input type="checkbox"/> Consider other causes of AMS: stroke, cardiogenic shock, respiratory arrest, hyper or hypoglycemia – Rx per SOP		
State common causes of VAD alarms Pt not connected to power properly <input type="checkbox"/> Check all connections; fix loose connections <input type="checkbox"/> ✓ Driveline connection to System Controller <input type="checkbox"/> ✓ System Controller to battery clip <input type="checkbox"/> ✓ Batteries “engaged” in battery clips – NEVER DISCONNECT BOTH BATTERIES AT THE SAME TIME or pump will stop <input type="checkbox"/> ✓ System controller in cable connected to wall unit <input type="checkbox"/> Have pt/caregiver show how to silence alarms, use a hand pump if applicable		
Patient condition exists where low or no flow (cardiac output) is present <input type="checkbox"/> Do they appear to be in cardiogenic shock? Can be from electrical disruption to pump or pump malfunction (rare) <input type="checkbox"/> If yes, start SOPs; contact VAD Coordinator – provide assessments and VAD parameters if able <input type="checkbox"/> Transport to nearest VAD Center if possible; if no airway – transport to nearest hospital <input type="checkbox"/> Avoid external chest compressions if possible: Pose a risk due to location of outflow graft on aorta & inflow conduit in the LV apex. Dislodgement could lead to fatal hemorrhage. Contact VAD Coordinator for instructions re: CPR. Get instructions for hand pumping if applicable. CHEST COMPRESSIONS ARE ALLOWED if patient is unconscious and non-breathing.		
ECG findings: <input type="checkbox"/> VADs fix the plumbing - electrical conduction system should be intact; Do NOT expect asystole; pt may be conscious w/ V-fib <input type="checkbox"/> ECG waveforms may have a lot of artifact due to the device. <input type="checkbox"/> Can have dysrhythmias but are better tolerated because pump continues to function despite irregular rhythm – Rx dysrhythmias with drugs per SOP		
Caveats on DEFIBRILLATION		

Performance standard		Attempt 1 rating	Attempt 2 rating
0	Step omitted (or leave blank)		
1	Not yet competent: Unsuccessful; required critical or excess prompting; marginal or inconsistent technique		
2	Successful; competent with correct timing, sequence & technique , no prompting necessary		
Majority of VAD pts can be shocked without disconnecting the percutaneous lead from the System Controller or stopping the pump prior to delivering the shock; but older units may need to be disconnected first and hand pumped before defib			
<input type="checkbox"/> Contact VAD Coordinator BEFORE defibrillating <input type="checkbox"/> Only shock if pt. is unresponsive with poor perfusion/decreased circulation per cap refill (remember, no pulse is normal) and if you cannot contact VAD coordinator <input type="checkbox"/> Do not defibrillate over the pump; defibrillate at nipple line or above. Anterior-posterior pad placement preferred. <input type="checkbox"/> Warning: If VAD stops operating & blood is stagnant in pump & conduits for > a few min (depending on pt's anticoagulated state) there is risk of stroke and/or thromboembolism if device is restarted. Retrograde flow may occur during pump stoppage.			
Transport to nearest VAD center if possible			
Bring all VAD equipment if possible: batteries, battery clips, power base, plugs, battery charger (pt cannot be out of power)			
Allow family member/caregiver to ride in ambulance if possible			
Notes: NO MRIs - CT Scans are ok; avoid water submersion; avoid contact with strong magnets or magnetic fields			

Scoring: All steps must be independently performed in correct sequence with appropriate timing and all starred (*) items must be explained/ performed correctly in order for the person to demonstrate competency. Any errors or omissions of these items will require additional practice and a repeat assessment of skill proficiency.

Rating: (Select 1)

- ☐ **Proficient:** The paramedic can sequence, perform and complete the performance standards independently, with expertise and to high quality without critical error, assistance or instruction.
- ☐ **Competent:** Satisfactory performance without critical error; minimal coaching needed.
- ☐ **Practice evolving/not yet competent:** Did not perform in correct sequence, timing, and/or without prompts, reliance on procedure manual, and/or critical error; recommend additional practice

CJM 6/19

Preceptor (PRINT NAME – signature)

Heartmate XVE & Heartmate II

Illinois Mechanical Circulatory Support Implant Centers	
Advocate Christ Medical Center - Oak Lawn	1-877-684-4327
Amita Health Alexian Brothers Medical Center	847-437-5500 ask operator to page LVAD Coordinator
Loyola University Medical Center - Maywood	1-708-216-8000
Northwestern Memorial Hospital - Chicago	1-312-695-9611
Rush University Medical Center - Chicago	1-312-656-6813
OSF Saint Francis Medical Center - Peoria	1-309-655-4101
University of Chicago Medical Center - Chicago	1-773-753-1880 id# 4823

