

**West Michigan Regional MCC
Procedures
HIGH PERFORMANCE CPR (HP-CPR)**

Date: April 9, 2018

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High Performance CPR (HP-CPR) - Optional

This procedure is an outline of High Performance CPR and is to be followed for all adult cardiac arrest patients. High Performance CPR improves a victim's chances of survival.

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	

Pre-Medical Control

MFR/EMT/SPECIALIST/PARAMEDIC

1. Confirm cardiac arrest using **Patient Assessment Protocol**.
 - a. Confirm unresponsiveness.
 - b. Assess the patient for signs of absent or ineffective breathing. Agonal gasps are **not** signs of normal breathing.
 - c. Check for a carotid pulse for at least 5 seconds, but not more than 10 seconds.

Note: Providers should assess the breathing and pulse simultaneously.

2. Move patient to hard flat surface where there is ample room for team dynamics. Begin care using High Performance CPR, utilizing the C-A-B (Compression, Airway, Breathing) sequence. **Apply an AED as soon as one is available.**

Note: There may not be enough responders to initially fill all the roles outlined in the team diagram. As staffing levels increase, fill the positions as outlined.

3. **Rescuer 1** - Take position to perform chest compressions.
 - a. Push hard, at least 2 to 2.4 inches deep (1/3 the depth of the patient chest), and fast (100-120 compressions/minute) and let the chest recoil fully between each compression.
 - b. A 30:2 compression to ventilation ratio should be maintained. Ventilate to chest rise and avoid excessive ventilations.
 - c. Keep pauses in CPR to a minimum. Chest compression fraction (CCF), the percentage of time in which chest compressions are done by rescuers during arrest, should be greater than 80 percent.
4. **Rescuer 2** - Upon arrival assess Rescuer 1 for CPR effectiveness, and relieve Rescuer 1 on chest compressions if necessary. The rescuer not on chest compressions should take position for ventilations, and ensure the AED has been placed if available.
 - a. The rescuer providing ventilations should maintain the patient airway with basic airway adjunct (OPA/NPA) and provide ventilations at a rate of 2 breaths per 30 compressions utilizing a bag-valve-mask. See **Emergency Airway Procedure**.

MCA Name: **West Michigan Regional Medical Control Consortium**

Section 7.26

MCA Board Approval Date: **04/09/2018**

MDHHS Approval Date **April 30, 2018**

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5. **Rescuer 3** - Upon arrival will typically take up position to assist with chest compressions, on the opposite side from the rescuer currently providing them.
 - a. Rescuers **MUST** switch compressors at least every 2 minutes. It is highly encouraged to do so more often to avoid fatigue and ensure the quality of compressions.
 - b. If rescuer 3 is part of the ALS crew (there are only two other responders on scene), the most appropriate crew member should assume this role until additional first responders are available.

6. **Rescuer 4** - Assume the role of team leader in conjunction with the primary ALS provider on scene. As team leader, this person should oversee the performance of high-quality CPR and high-performance team dynamics. The team leader should ensure the quality of CPR by monitoring the following components:
 - a. Chest compression fraction (CCF)
 - b. Chest compression rate
 - c. Chest compression depth
 - d. Chest compression recoil
 - e. Quality ventilations

7. Any additional arriving rescuers should supplement the activities in the roles identified above.

8. When in the sequence above ALS arrives, the primary ALS provider will work in conjunction with the team leader and direct all ALS care. **BLS procedures being performed should not be interrupted. Vascular access and advanced airway, although important, should not interrupt high-quality CPR.**
 - a. If good chest rise and compliance are present, there may not be a need for an immediate advanced airway.
 - b. As soon as appropriate, introduce an advanced airway. Once an advanced airway is in place compressions should be continuous. Give 1 breath every 6 seconds.

The intent is to achieve a CCF of at least 80% by aggressively minimizing interruptions to chest compressions.

Post-Medical Control

1. Additional BLS and/or ALS care as ordered.
2. Consider termination of resuscitation per **Termination of Resuscitation Protocol**.

Notes:

1. **Excellent high-quality CPR is a priority.**
 - a. **Chest compression fraction of 80% or greater.** Keep pauses in compressions to a minimum.
 - i. Continue CPR while monitor/AED is charging and immediately after shock is delivered.
 - ii. Non-ALS providers should only pause for pulse checks when signs of return of spontaneous circulation (ROSC) are present.
 - iii. ALS providers should pause **no more than** every 2 minutes to attempt monitor and pulse checks, or upon signs of ROSC.
 - b. **Chest compression rate of 100-120 per minute.** Use real-time measuring devices and/or metronome if available.
 - c. **Compress at least 2 to 2.4 inches in depth.**
 - d. **Allow full chest recoil.** Avoid leaning on the patient's chest.

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- e. **Avoid excessive ventilation.** Minimize rate and tidal volume. Excessive ventilations can cause an increase in intra-thoracic pressure, inhibiting blood return to the heart. Use chest rise as an indicator of quality ventilations.
2. **High performance team dynamics are essential to maintaining high-quality CPR.**
 - a. Follow assigned roles as indicated above.
 - b. Use closed-loop communication to ensure quality of care (when the sender gives a message, the receiver repeats this back).
 - c. Although a primary function of the team leader, all team members should ensure the high-quality aspects, with emphasis on uninterrupted chest compressions at all times.
3. Medical cardiac arrest patients undergoing attempted resuscitation should not be transported unless ROSC is achieved or transport is ordered by medical control. Refer to **Cardiac Arrest – ROSC Protocol**.
4. If an automated compression device (ACD) is available, it may be considered after at least 5 minutes of manual high-quality CPR. This time is intended to ensure immediate start to chest compressions without delay, as well as early defibrillation of patients in an initial shockable rhythm.
5. Chest compressions should not be interrupted during the placement of the AED/cardiac monitor pads.
6. Use of HP-CPR checklists, metronome and CPR feedback devices are strongly encouraged.

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Rescuer 2: Assess Rescuer 1 for effectiveness; switch if necessary. Otherwise, assume airway.

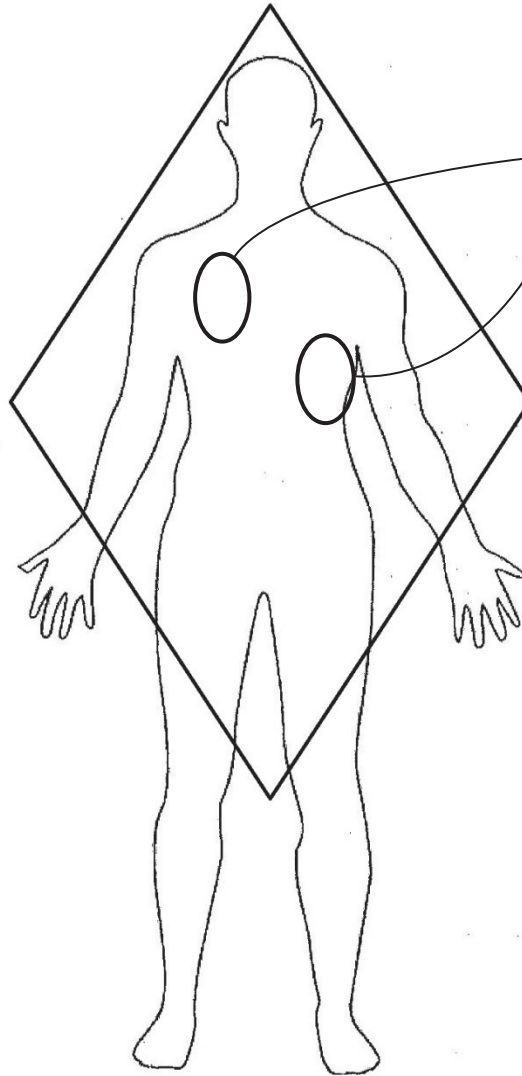


Place AED

As soon as possible!



Rescuer 3: Position opposite side of rescuer providing chest compressions. Switch compressors at least every two minutes.



Rescuer 1: Initiates CPR, if indicated.



Rescuer 4: Assume team leader. Oversee effectiveness of the high-quality CPR.