COUNTY OF SAN MATEO
EMERGENCY MEDICAL SERVICES

PROCEDURE NO:	PROC 27
DATE ISSUED:	6/2017
DATE TO BE REVIEWED:	6/2019

High Performance CPR
Triangle of Life Procedure

The following outlines the procedure for High Performance (HP) CPR with two, three, four, and five-person response crews.

2-Person Rescuer Response (Ambulance only first)-assumes EMT & Paramedic.

Rescuer 1: (EMT) Shake & shout, no pulse check, open airway, move to floor in an area where a 5-person crew would have adequate space, and begin compressions.

Rescuer 2: (Paramedic) If available, activate metronome at 110 bpm, cut shirt, attach defibrillator pads, charge, analyze and defibrillate if needed. Assemble BVM with $EtCO_2$ and deliver ventilation with every 10th compression on the upstroke. While analyzing the monitor, switch with the compressor. Defibrillate immediately if shockable rhythm (needs to be a paramedic). Switch doing compressions with Rescuer 1 every 2 minutes.

3-Person Rescuer Response (Engine or Truck Company first)-assumes only one Paramedic; crew discretion if more than one.

Rescuer 1: (EMT) Shake & shout, no pulse check, open airway, move to floor in an area where a 5-person crew would have adequate space, and begin compressions.

Rescuer 2: (EMT) If available, activate metronome at 110 bpm, cut shirt, attach defibrillator pads. Deliver ventilation every 10th compression on the upstroke**.** Switch doing compressions with Rescuer 1 every 2 minutes.

Rescuer 3: (Paramedic) Assemble BVM with $EtCO_2$, use 2-thumbs up technique to maintain mask seal, and coach compressions. Defibrillate immediately if shockable rhythm (needs to be a paramedic). Paramedic should assess for fatigue in the compressor role.

4-Person Rescuer Response (At least two Paramedics).

Rescuer 1: (EMT) Shake & shout, no pulse check, open airway, move to floor in an area where a 5-person crew would have adequate space, and begin compressions.

Rescuer 2: (EMT) If available, activate metronome at 110 bpm, cut shirt, attach defibrillator pads. Deliver ventilation every 10th compression on the upstroke**.** Switch doing compressions with Rescuer 1 every 2 minutes.

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Rescuer 3: (Paramedic) Assemble BVM with $EtCO_2$, use 2-thumbs up technique to maintain mask seal, and coach compressions. Defibrillate immediately if shockable rhythm (needs to be a paramedic). Paramedic should assess for fatigue in the compressor role.

Rescuer 4: (Paramedic) Follows direction of Rescuer 3. ALS: IV/IO, medications, advanced airway as needed, BLS airway may be fine. If intubating, do not stop compressions. Gather pertinent information and medications from witnesses/family. May need to rotate into compressor role.

5-Person Rescuer Response (At least two paramedics).

Rescuer 1: (EMT) Shake & shout, no pulse check, open airway, move to floor in an area where a 5-person crew would have adequate space, and begin compressions.

Rescuer 2: (EMT) If available, activate metronome at 110 bpm, cut shirt, attach defibrillator pads. Deliver ventilation every 10th compression on the upstroke**.** Switch doing compressions with Rescuer 1 every 2 minutes**.**

Rescuer 3: (Paramedic) Assemble BVM with $EtCO_2$, use 2-thumbs up technique to maintain mask seal, and coach compressions. Defibrillate immediately if shockable rhythm (needs to be a paramedic). Paramedic should assess for fatigue with the compressor role.

Rescuer 4: (Paramedic) Follows direction of Rescuer 3. ALS: IV/IO, medication, advanced airway as needed, BLS airway may be fine. If intubating, do not stop compressions. Gather pertinent information and medications from witnesses/family. May need to rotate into compressor role.

Rescuer 5 or Additional Rescuer either EMT or Paramedic:
Follows direction of Rescuer 3. Gather pertinent information and medications from witnesses/family. May need to rotate into compressor role.

TEAM PRIORITIES

- Know your role. Coach others on their role as needed, especially Rescuer 3. Rescuer 3 should assess for fatigue in the compressor role.
- Initially move the patient to a place where resuscitation can be performed. Make sure patient is in a place that can accommodate 5 Rescuers.
- Do not stop chest compressions for more than 3 seconds.
- Proper positioning with the triangle of life.
- Continuous chest compressions using a metronome set at 110 bpm, if available.
- Synchronized ventilations of approximately 100 mL during the 10th upstroke of compressions.
- Charge the defibrillator during the 18th cycle of CPR - this will allow time to be ready to defibrillate at the 2-minute cycle. Dump the charge if a non-shockable rhythm.
- 30 minute resuscitation on scene unless pulses present.
- Monitor perfusion with capnography.
- Two cycles of 2 minute CPR would be 4 minutes for timing of administering Epinephrine every 3-5 minutes.

- Once pulses are present then an approved mechanical compression device can be applied and used during transport as needed or if resources are critically limited due to proximity of the responding incoming unit(s).
- An organized rhythm on the monitor with an $EtCO_2$ > 20 mmHg may indicate the presence of a pulse.
- Intubation shall be attempted on all cardiac arrests except those with ROSC AND effective spontaneous breathing and is an important step in the High Performance CPR process.
- Once the necessary personnel have arrived on a cardiac arrest response with High Performance CPR in progress, the order in which to approach intubation shall be video laryngoscopy (if applicable), direct laryngoscopy, Bag Valve Mask, and lastly, if you are unable to ventilate with a Bag Valve Mask, King Airway placement. King Airway and Bag Valve Mask are not definitive advanced airways and physician consultation ***MUST*** be made for approval of termination of efforts.
- An IV or IO shall be established prior to ceasing resuscitation unless unable after attempts per protocol. IO route is likely to provide the quickest route for medications. If unable to establish intravascular or intraosseous access, physician consultation ***MUST*** be made for approval of termination of efforts.
- The Base Hospital can be contacted any time there is a question about clinical care.
- For pronouncement of the patient who remains in PEA after resuscitative efforts per protocol, make base hospital contact to terminate the resuscitation. Be prepared to report what the $EtCO_2$ is to the physician. Remember that an $EtCO_2$ > 20mmHg likely means ROSC has been achieved.