

CARDIOPULMONARY RESUSCITATION (CPR)

	ADULT (adolescent and older)	CHILD (1 year to adolescent)	INFANT (<1 year old)
Airway:	➔ Head tilt – Chin Lift ➔ Suspected Trauma: jaw thrust without head extension. If airway can not be maintained, use a head tilt/chin-lift. Manually stabilize the head and neck , avoid using an immobilization device		
Breathing: (initial)	2 breaths at 1 second/breath	2 effective breaths at 1 second/breath	
Rescue breaths: without chest compressions	10 - 12 breaths/minute	12 - 20 breaths/minute	
Rescue breaths: for CPR with advanced airway	8 – 10 breaths/minute		
Foreign body airway obstruction:	Abdominal thrusts (A.K.A. - Heimlich Maneuver) conscious patient <i>Chest compressions if patient becomes unresponsive</i>		Back slaps & chest thrusts
Circulation: Pulse check ≤ 10 seconds	Carotid		Brachial or femoral
Compression landmarks:	Lower half of the sternum between nipples		Just below nipple line (lower half of the sternum)
Compression method:	Mechanical CPR device (if available) Heel of one hand, other hand on top	Heel of one hand, or same as adult	2 or 3 fingers, or 2 thumbs encircling (2 rescuers)
Compression depth:	1½ to 2 inches	⅓ to ½ the depth of the chest (approx.)	
Compression rate:	100/minute (approx.)		
Compression/Ventilation ratio:	30:2	30:2 (1 rescuer) 2 minutes = 5 cycles 15:2 (2 rescuers) 2 minutes = 8-10 cycles	
Defibrillation:	Use adult pads	AED after 2 minutes of CPR (as above) Use pediatric system for child 1 – 8 years old	Not recommended if using an AED.
	Witnessed Arrest: Immediate Shock ➔ CPR ➔ Rhythm Check Unwitnessed Arrest: CPR ➔ Rhythm Check ➔ Shock (If appropriate)		For ALS providers follow appropriate PALS guidelines

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ADDITIONAL INFORMATION:

1. Minimize interruptions in chest compressions
2. Use a mechanical compression device whenever possible
 - 2.1 Refer to manufacturer's instructions for specific information regarding mechanical CPR device
 - 2.2 Upon ROSC, you must discontinue mechanical CPR device **AND** ResQPOD®
3. Defer advanced airway insertion rather than interrupt chest compressions. Do not interrupt chest compressions to place an advanced airway. If after 2 minutes of continuous chest compressions with BVM support an immediate endotracheal airway can not be obtained, consider use of supraglottic airway.
4. Emphasis is on high quality, uninterrupted CPR - "push hard and fast" – allow for complete recoil
5. Two minutes CPR between drug doses
6. Once an advanced airway is established, give continuous chest compression without pauses for breaths. Avoid hyperventilation
7. Check rhythm q 2 minutes
8. Defibrillation: Device specific. While both monophasic and biphasic wave form defibrillators are acceptable, biphasic is preferred. Energy level is dependant upon the manufacturer
9. Newborn: Unresponsive, not breathing but has a pulse: 40-60 ventilations / minute. Compression/ventilation ratio: 3:1 (90 compressions : 30 ventilations per minute)
10. Unresolved or persistent arrest, look for and treat:

➔ Hypovolemia	➔ Toxins
➔ Hypoxia or ventilation problem	➔ Tamponade (cardiac)
➔ Hydrogen Ion (acidosis)	➔ Tension pneumothorax
➔ Hypo / Hyperkalemia	➔ Thrombosis (coronary/pulmonary)
➔ Hypoglycemia	➔ Trauma (hypovolemia or ICP)
➔ Hypothermia	
11. ***If patient regains ROSC, refer to Therapeutic Hypothermia (see page 145)***

MECHANICAL CPR DEVICES:

12. PURPOSE: Effective and uninterrupted compressions are important for survival; AHA/ERC Guidelines for CPR (Cardio-Pulmonary Resuscitation) 2005 emphasize the significance of compressions to provide critical blood flow to vital organs and in the end to increase the chances of a successful survival. Mechanical CPR allows for consistent, quality CPR that enables caregivers to focus on other aspects of resuscitation while maximizing effectiveness of therapeutic interventions
13. Indications:
 - ▶ Use mechanical CPR devices wherever manual CPR is indicated
 - ▶ IMPORTANT NOTE: If ROSC is obtained, mechanical CPR device must be discontinued
14. Contraindications:
 - ▶ Refer to manufacturer's documentation
15. Approved Devices:
 - ▶ Both the AutoPulse® and LUCAS™ devices are approved for use in Alameda County. You are required to be trained by your agency in the use of the mechanical CPR device your agency employs

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PIT CREW ROLES:

The roles and responsibilities detailed below are guidelines. There may be fewer personnel on hand for these roles. It is important that there is always a Pit Crew Leader (similar to an Incident Commander on a scene of any MCI). This concept is known as 'The Pit Crew' concept and is the standard of care for resuscitations in Alameda County. The roles are as follows:

Position and Responsibilities

Pit Crew Leader:

- Overall team leader
- Assigns roles
- Monitors time intervals (2 min. CPR, drug intervals, etc.)
- Assures quality of CPR
- Assures use of proper equipment and adjuncts (e.g., EtCO₂)
- Serves as scribe (field notes)
- Supervises and assigns crowd control
- Supervises DNR/POLST issues
- Performs NO patient care
- Secure and completes LUCAS study form (if used during resuscitation) *
- Responsible for overall conduct of resuscitation

Airway Leader:

- Performs appropriate airway techniques, procedures
- Supervises airway decisions
- Uses confirmatory adjuncts
- Completes PCR at hospital (if appropriate) (with med leader)
- Communicates with law/family as needed
- Defibrillates if medication leader not available
- Inserts advanced airway (see [page 116](#)) * (**NOTE:** If ET insertion cannot be performed without interrupting chest compressions, you **MUST** use a supraglottic airway. Do not interrupt chest compressions to place an advanced airway)

Medication Leader:

- Defibrillates
- Initiates IV or IO
- Administers (or supervises) medications
- Tracks and notifies team of all monitor changes
- Completes PCR (with airway leader)
- Communicates with family/law as needed
- Terminates resuscitative efforts (with team leader)
- Sets up mechanical CPR device* (see [page 9](#))
- Monitors mechanical CPR device* (see [page 9](#))

CPR Chief:

- Supervises and performs CPR (with team leader)
- Assists with equipment/medication setup
- Performs communications

Team Assistant:

- Assists with CPR
- Assists with communications
- Assists with setup

Team Leader/Airway Assistant (optional)

- Serves at assistant to team leader
- Assists airway leader

* Indicates vital task to be completed