COUNTY OF MARIN

DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Promoting and protecting health, well-being, self-sufficiency, and safety of all in Marin County.

MARIN HEALTH & HUMAN SERVICES
Health, Well-being & Safety

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Date: February 28, 2019

To: Holders of EMS Policy and Procedure Manuals

From: Devin Tsai, MD
Interim EMS Agency Medical Director

Subject: **Update to Policy Manual**

Please find the 2019 update to the EMS Policy and Procedure Manual. These new and revised policies and procedures are effective **March 1, 2019.**

Revised Policies and Procedures include:

- 5010 Provider Equipment List
- ATG 6 Determination of Death
- ATG 7 Adult Medications
- BLS 3 Bronchospasm/COPD/Asthma
- C 1 Ventricular Fibrillation/Pulseless Ventricular Tachycardia
- GPC Cardiac Arrest
- GPC 9 Suspected Abuse/Neglect/Human Trafficking/Inflicted Physical Injury
- N 4 CVA
- R 7 Toxic Inhalation

New Policies:

- BLS 7 Anaphylaxis
- GPC 16 Pediatric Patient Transports
- GPC 16a Pediatric Patient Transports Flow Chart

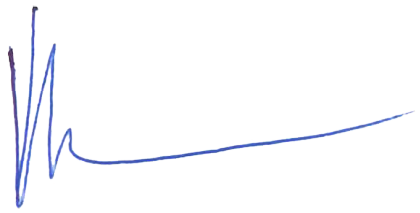
COUNTY OF MARIN

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Division of Public Health Services
Emergency Medical Services Agency

Policy and Procedure Manual

March 1, 2019



Kim Bowman, EMS Administrator, EMS Agency

Devin Tsai, MD, Interim Medical Director, EMS Agency

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
AIRWAY EQUIPMENT				
Airways:				
· Oropharyngeal (Sizes 0 – 6)	2 each	1 each	1 each	2 each
· Nasopharyngeal, soft rubber (sizes 14Fr., 18Fr., 22Fr., 26Fr., 28Fr., 30Fr., 32Fr., 34Fr., 36Fr.)	2 each	1 each	1 each	2 each
Atomizer for intranasal medication administration (MAD device)	2	2	2	3
King Airway				
· Size 3	0	0	1	2
· Size 4	0	1	1	2
· Size 5	0	0	1	2
Continuous Positive Airway Pressure Device	0	0	(optional)	1
Intubation Equipment				
· Laryngoscope handle (battery powered)	0	1	1	1
· Additional batteries	0	0	2	2
· Blades (curved 1 - 4)	0	1 x #4	1 each	1 each
· Blades (straight 0 – 4)	0	1 x #4	1 each	1 each
· Bulbs (extra or disposable)	0	0	1	1
· Magill forceps (adult and pediatric)	0	0	1	1 each
· Endotracheal tubes				
sizes 6.0-8.0 mm: cuffed	0	Size 7.5 = 1	1 each	2 each
· Disposable stylets (adult)	0	1	1	2
· End-Tidal CO2 Detectors				
Adult – Colormetric	0	1	1	2
OR				
Capnograph or digital (optional)	0	0	1	1
· Esophageal Detector Device (optional if Capnometer is utilized)	0	1	1	1
· Endotracheal Tube Introducer (ETTI)	0	1	1	2
· ET Tube Holder (adult)	0	0	1	2
· Meconium Aspirator	0	0	1	1
Videolaryngoscopy (adult)	0	0	optional	optional
Nebulizer				
· Hand-held OR Patient activated	0	0	1	2
· In-line nebulizer equipment with T-piece	0	0	1	2

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Oxygen Equipment and Supplies				
· Fixed tank in vehicle with regulator; M-tank or H-tank	1	0	0	1
· Regulator	1	0	1	1
· Portable tank (minimum D tank)	2	0	1	2
· Adult face masks: transparent, non-rebreathing; Child/infant: simple or non-rebreathing	4 each 2, 2	0	1 each	4 each 2,2
· Nasal cannulas (adult, child, infant)	4 each 2, 2	0	1 each	4 each 2,2
· Portable Pulse Oximetry	Optional	optional	Optional	1
Pleural Decompression kit: ≥14g needle, ≥2 ¼ inches long; Heimlich valve; occlusive dressing;10 ml syringe	0	1	1	1
Resuscitation bag-valve-mask (BVM) Adult, pediatric, infant	1 each	1 adult	1 each	2,1,1
Suction Equipment and Supplies				
· Suction apparatus – Portable / battery powered	1	1 portable self contained unit	1 portable self contained unit	1
· Suction apparatus – Wall Mount	1	0	0	1
· Pharyngeal tonsil tip (rigid)	2	equivalent	equivalent	2
· Suction catheters: 6 Fr, 8 Fr, 10 Fr, 14 Fr, 16 Fr, 18 Fr	2 each	0	0	2 each
· Suction canister (spares)	2	0	0	2
· Suction tubing	2	0	0	2
DRESSING MATERIALS				
Bandages				
· Bulk non-sterile	1 box / pkg	0	0	1 box
· 4 x 4” sterile gauze pads	12	6	12	12
· 10 x 30” universal dressings	2	0	2	2
· ABD Pads	6	0	0	6
· 40” triangular bandage with safety pins	4	2	2	4
· Elastic bandage 3” (Ace)	2	2	2	2
· Occlusive dressing	4	2	2	4
* Hemostatic dressings (must be CA EMSA approved)	optional	optional	optional	optional
· Roller bandages (2”, 3”, 4”, or 6”)	6	2	3	6
Band-Aids (Assorted)	1 box	0	1 box	1 box
Burn Sheets (sterile) or commercial burn kit	2	2	2	2
Cold Packs / Hot Packs	4ea / 4ea	2 each	2 each	4ea / 4ea
Tape (1” and 2”)	2 each	1” = 2 rolls	1 each	2 each
Trauma shears	1	1	1	1

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
EQUIPMENT AND SUPPLIES				
Alcohol swabs	12	6	12	12
Bedpan OR Fracture Pan/Covered Urinal	1	0	0	1
Betadine swabs or solution	0	4	4	8
Blanket - disposable	2	2	1	2
Blood Pressure Cuffs (adult, large arm, thigh, pediatric, infant)	1 each	1 adult	1 x adult, thigh, pedi	1 each
Bulb Syringe	1	0	1	1
Drinking Water (one gallon)	1	0	0	1
Emesis basin/ disposable bag/ Covered waste container	2	0	1	2
EMS Field Manual Patient Care (8000) Series	1		1	1
Glucometer	1	1	1	1
Irrigation Equipment				
· Saline (sterile) 1000 ml	2	0	1	2
· Tubing for irrigation	2	0	1	2
Length based color-coded resuscitation tape (most current)	0	0	1	1
Lubricant, water soluable	4	0	4 packs	4 packs
Mechanical CPR device	0	0	0	1
Monitor/defibrillator equipment				
· Cardiac monitor – (portable) must have strip recorder, defibrillator/transcutaneous pacing ability for child / adult. May be biphasic or monophasic (biphasic preferred)	0	0	12-lead optional (pacing optional)	1
· ECG electrodes	0	0	0	1 box
· 12-lead ECG capability	0	0	0	1 set
· A.E.D.	1	1	1	0
OB Delivery				
Separate and sterile kit includes: Towels, 4” x 4” dressing, umbilical tape or clamp, sterile scissors or other cutting utensil, bulb suction, sterile gloves, and blanket	1	0	1	1
· Thermal absorbent blanket and head cover, aluminum foil roll, or appropriate heat-reflective material (enough to cover newborn)	1	0	1	1
· Appropriate heat source for ambulance compartment	1	0	0	1
Pen Light	1	1	1	1
Sharps container	1	1	1	2
Sheet, pillow case, blanket, towel	4 each	0	0	4 each
Pillow	2	0	0	2 or equivalent
Stethoscope	1	1	1	1
Thermometer (with core temp capability)	Optional	0	0	1
Triage tags	20	6	20	20
Biohazard bags (large and small)	4 each	2 small	2 each	4 each
PPE kit (gloves, gown, booties, face shield, cap)	2 per person	0	1per person	2 per person

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Disposable gloves S/M/L	Box	6 pair	Box	Box
Face protection mask – N95 or P100	2 pp	0	1 pp	2 pp
Stair chair or equivalent	1	0	0	1
Scoop stretcher or breakaway flat	Optional	0	0	Optional
Road Flares or Equivalent (30 min)	6	0	0	6
Flashlight	1	0	0	1
Marin County Map	1	0	Optional	1
Vehicle Emergency Lights	Set	0	Optional	Set
MERA Radio	1	Optional	Optional	1
Company Radio	1	Optional	Optional	1
Spare Tire	1	0	Optional	1
Fire Extinguisher	1	0	Optional	1
IMMOBILIZATION and RESTRAINT DEVICES				
Cervical collars – adjustable Sizes to fit all patients over 1 yr old (adult/pedi)	4, 2	1	2, 1	4, 2
Head immobilization device	4	0	2	4
Pediatric Ambulance Transportation Device	1	0	0	1
Spinal immobilization (radiolucent) backboard	2	0	1	2
· Strap system, adult	2	0	1	2
· K.E.D. or equivalent	1	0	0	1
Splints (vacuum/cardboard/equivalent)				
· Short, medium, long	2 each	1 moldable	1 each	2 each
Traction splint, adult / pediatric	1 each	0	0	1 each
Quick release synthetic soft restraints (or padded leather)	1	0	0	1
IV EQUIPMENT / SYRINGES / NEEDLES				
Arm board (Short)	0	0	1	2
Catheters – 1" long 14g, 16g, 18g, 20g, 22g, 24g	0	2 each	2 each	4 each
Intraosseous Equipment – adult and pedi				
· IO needles and/or mechanical device	0	0	optional	1
· Extra batteries if needed by model	0	0	0	1
Intravenous Solutions - 0.9% NL Saline				
· 100 cc bag	0	1000 cc total	1	2
· 1000 cc bag	0	0	2	6
Glucose Paste, 15 gm/ tube	2 tubes	2 tubes	2 tubes	2 tubes
Pressure Infusion Bags	0	0	0	1
Saline Lock	0	0	2	4
Extension set (saline lock)	0	0	2	4

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Syringes				
· 1 cc TB with removable needle	0	2	2	4
· 3 cc with 25 g x 5/8/" needle	0	0	0	4
· 10 cc without needle	0	2	1	2
· filter needle	0	2	2	2
· 30 cc without needle	0	0	0	2
Constriction band	0	2	2	2
Three way stop cock	0	0	1	2
Tubing – with adjustable flow				
· macro drip (10gtt/cc – 15gtt/cc- adjustable)	0	2	2 each	4 each
· micro drip (60 micro gtts/cc)	0	0	1	2
- vented (for Acetaminophen IV admin)	0	optional	Optional	1
MEDICATIONS AND SOLUTIONS				
Acetaminophen (Tylenol/Ofirmev), 1000mg / 100ml	0	Optional	Optional	2
Adenosine, 6 mg in 2 ml NS	0	0	18 mg	36 mg
Albuterol Unit Dose	0	1 MDI w/ Spacer	3	9
Amiodarone, 150 mg in 3 cc NS	0	3	3	6
ASA (chewable), 81 mg	1 bottle	1 bottle	1 bottle	1 bottle
Atropine, 1 mg in 10 ml	0	2	3	10
Calcium Chloride 10%, 1 gm in 10 ml	0	0	1	2
Check and Inject Kit (EMS Agency approved providers only)	2	0	0	0
CYANOKIT (or hydroxocobalamin equivalent)	0	0	0	1
Dextrose 10%	0	0	1	2
Diphenhydramine, 50 mg/1ml	0	4	2	4
Duo-Dote (Nerve Gas Auto-injector)	See County policy			
Epinephrine 1 mg/1 ml (multidose)	0	4	1	2
Epinephrine 1 mg/10 ml	0	4	3	9
Glucagon, 1 mg	0	1 mg	1 mg	2 mg
Ipratroprium (Atrovent), Unit Dose	0	0	1	4
Lidocaine 2% (20mg/ml)	0	0	0	2
Midazolam, 2 mg/2 ml	0	10	optional	4
Midazolam, 5 mg/1 ml	0	0	optional	optional
Morphine Sulfate, 10 mg/1 ml	0	6	optional	3
Naloxone (Narcan), 2 mg/ 5 ml	0	2	3	6
Narcan Nasal Spray	1 kit	0	0	0
Nitroglycerine, 0.4mg /tablet or spray	0	1 container	1 container	1 container
Ondansetron (Zofran) 4mg PO tablet	0	6	4	8
Ondansetron (Zofran) 4mg/2ml	0	0	1	4
Sodium Bicarbonate, 50 mEq/ 50 ml	0	0	1	2
Sublimaze (Fentanyl), 100mcg/2 ml	0	optional	optional	optional

ADULT MEDICATIONS
AUTHORIZED/ STANDARD DOSE

DRUG	CONCENTRATION	STANDARD DOSE
Acetaminophen (Tylenol / Ofirmev)	**1000 mg/ 100 ml**	***Pain:*** **1000 mg IV over 15 – 20 min.**
Adenosine (Adenocard)	**6 mg/ 2 ml**	**6 mg 1st dose, 12 mg 2nd dose (rapid IV/IO push) followed by 20 ml saline flush after each dose**
Albuterol	**2.5 mg/ 3ml NS**	**5 mg/ 6 ml NS; (MDI: Fireline only)**
Amiodarone	**150 mg/ 3ml**	***VFib or Pulseless VTach:*** **300 mg IV/ IO push followed by one 150MG push in 3-5 min.** ***Perfusing/Recurrent VTach*****–150 mg IV/ IO over 10 min. (15 mg/ min); MR q 10 min. as needed**
Aspirin (chewable)	**Variable**	**162-325 mg PO**
Atropine	**1 mg/ 10 ml**	***Bradycardia:*** **0.5 mg IV/ IO, MR q 3-5 min. to max of 3 mg.** ***Organophosphate Poisoning:*** **2.0 mg slowly IV/ IO; MR 2-5 min. until drying of secretions**
Calcium chloride 10%	**1 GM/ 10 ml**	***Crush syndrome:*** **1gm IV/ IO slowly over 5 min. for suspected hyperkalemia (flush line with NS before & after administration)**
CYANOKIT	**5 GM / vial**	***Smoke inhalation:*** **5 gm IV/IO over 15 minutes; MR x 1 if severe signs; Max. dose = 10 gm**
Dextrose 10%	**25 GM/250 ml**	**125 ml bolus IV/IO over 10 minutes; recheck BG and repeat as needed**
Diphenhydramine (Benadryl)	**50 mg/ 1ml**	***Allergic reaction:*** **50 mg IV/ IO/ IM; max 50 mg** ***Phenothiazine reaction*****: 1 mg/ kg slowly IV/ IO; max 50 mg.** ***Motion sickness****:* **1 mg/kg IM/IV to maximum dose of 50 mg; maximum IV rate is 25 mg/minute**
Epinephrine	**1 mg/ 1ml** **EpiPen® (0.3mg) auto-injector (or EMS Agency approved equivalent)**	***Allergic Reaction/ Anaphylaxis:*** **0.3mg IM or EpiPen®; MR x 1 in 5 minutes** ***Bronchospasm/ Asthma/ COPD:*** **0.3mg IM or EpiPen®; MR x 1 in 5 minutes**

Epinephrine	**0.1mg/ 1ml**	***Cardiac Arrest:*** **1mg (10 ml) IV/ IO followed by 20 ml NS flush q 3-5 min.**
Epinephrine (Push-Dose)	**0.1mg/ 1 ml**	**☎*SBP<80 in Pulmonary Edema, Pacing, Bradydysrhythmias, Non-Traumatic Shock, Anaphylaxis, Sepsis:*** **Mix 1mL Epinephrine (0.1mg/mL concentration) with 9mL Normal Saline in a 10mL syringe. Administer 1mL IV/IO every 3-5 minutes, titrate to maintain a SBP >80mmHg**
Fentanyl (Sublimaze) *** *opioid***	**100 mcg/ 2 ml**	***Pain Management:*** **IV/IO: 50 mcg slowly; MR q 5 minutes, max. dose 200 mcg. IN: 1 mcg/kg (administer ½ dose in each nare; max. single dose = 100 mcg). IM: 1 mcg/kg; max. single dose = 100 mcg; MR in 30 minutes at ½ initial dose.**
Glucose Paste	**15 GM / tube**	**30 GM PO**
Glucagon	**1 mg/ vial**	**1 mg IM**
Ipratropium (Atrovent)	**500 mcg per unit dose (2.5 ml)**	**500 mcg**
Lidocaine 2% (preservative free)	**20 mg / 1 ml**	**IO insertion: infuse 20-40 mg IO over 30-60 seconds**
Nerve gas Auto-Injector Kit contains: **Atropine** **Pralidoxime Chloride (2 PAM)**	**2 mg (0.7 ml)** **600 mg (2 ml)**	***Small Exposure to vapors/ liquids:*** **1 dose of both medications (Atropine & 2-PAM), MR X1 in 10 minutes.** ***Larger exposure to liquids/ vapors:*** **3 doses initially (both medications)**
Midazolam (Versed)	**2 mg/2 ml (IV/IO/IM)** **5 mg/1 ml (IN)**	***Cardioversion/ Pacing/Seizure:*** **1 mg slow IV/ IO; MR 1 mg q 3 min.; Max dose = 0.05 mg/kg** **For IN: 5 mg (2.5 mg in each nostril). For IM: 0.1 mg/kg; MR x 1 in 10 minutes.** ***Sedation:*** **see specific policy**
Morphine Sulfate *** *opioid***	**10 mg/ 1ml**	***Chest Pain:*** **2-5 mg slow IV/IO; MR q 2-3 min. to max of 10 mg** ***Pain Management/ Trauma Patient:*** **5 mg slow IV/ IO, MR q 5 min if SBP >100; max dose 20 mg**
Naloxone (Narcan)	**2 mg/ 2 ml**	**0.4 - 4.0mg IV/IO/IM/IN; MR as necessary**
Nitroglycerine	**0.4 mg/ tablet or spray**	**1 SL; MR q 5 min. if SBP > 100**
Ondansetron (Zofran)	**4 mg**	**4 mg ODT/IM or slow IV over 30 seconds; MR x 1 in 10 minutes**
Sodium Bicarbonate	**50 mEq/ 50 ml**	**1 mEq/ kg IV/ IO**

NOTE: If the above concentrations become unavailable, providers may use alternate available concentrations or packaging.

BRONCHOSPASM/ ASTHMA/ COPD
BLS

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

- Acute or progressive shortness of breath, chest discomfort, wheezing, cyanosis

☎ PHYSICIAN CONSULT

- **EpiPen** (or equivalent) for severe respiratory symptoms

TREATMENT

- BLS RMC
- Mild to moderate (alert, may be unable to speak full sentences, limited accessory muscle use)
  - Assist patient with own medication if available
- Severe symptoms (altered mental status, minimal air movement, inability to speak, cyanosis)
  - Administer Adult or Pediatric ☎ **EpiPen** (or equivalent); If no improvement, MR in 5 minutes with physician consult

SPECIAL CONSIDERATION

- Suspect carbon monoxide in cases of exposure to fire; do not rely on pulse oximetry in this setting

DOCUMENTATION - ESSENTIAL ELEMENTS

- Physical finding of wheezing, decreased lung sounds
- Administration of oxygen

RELATED POLICIES/ PROCEDURES

- Auto Injector EpiPen BLS PR 4
- Epinephrine Check and Inject BLS PR 4a

ANAPHYLAXIS
BLS

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

- Patients experiencing anaphylactic reaction after exposure to common allergens (stings, drugs, nuts, seafood, medications). The following symptoms may be present:
  - Stridor
  - Bronchospasm / wheezing / diminished breath sounds
  - Severe abdominal pain
  - Respiratory distress (nasal flaring or grunting in pediatric patients)
  - Tachycardia
  - Shock (SBP < 100)
  - Edema of the tongue, lips, face
  - Generalized urticaria / hives

☎ PHYSICIAN CONSULT

- Necessity for a second dose **EpiPen®** (or equivalent)

EQUIPMENT

- Auto injector **EpiPen®** (or equivalent)
- Auto injector **EpiPen Jr.®** (or equivalent)
- High flow O2
- Pulse oximetry

SPECIAL CONSIDERATION

- Elderly patients with signs of anaphylaxis and history of hypertension or heart disease should still be given epinephrine with caution. If concerned, physician consult.
- Training shall include the manufacturer's instructions as well as demonstration of skills competency every two years after initial training according to Title 22, Div. 9, Chapter 2.
- Training in this procedure is the responsibility of the provider agency who desires to utilize this procedure

DOCUMENTATION- ESSENTIAL ELEMENTS

- Past medical history, including previous allergic reactions and hospitalizations
- Physical findings including breath sounds
- Medication administered
- Administration of oxygen

DETERMINATION OF DEATH - ALS

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

Patient in cardiac arrest who does not meet criteria for BLS Determination of Death and does not have a valid DNR order.

PROCEDURE

- Confirm pulseless and apneic. Apply leads and document rhythm in two monitoring leads for one minute or in one lead if an AED is the only available monitor.
- Determination of death can be made prior to, or immediately after, initiating resuscitation when:
  - Medical (**ALL** must be present)
    - The presenting rhythm is asystole
    - Event was unwitnessed
    - Effective bystander CPR was not initiated, based on CPR guidelines/paramedic judgment
    - **No evidence of potentially reversible cause of arrest (e.g. hyperkalemia or hypothermia)**
    - No AED or manual shock delivered
  - Trauma (**EITHER** may be present)
    - MCI incident where triage principles preclude initiation of CPR
    - Blunt, penetrating or profound multi-system trauma with asystole or PEA
- If patient is in refractory VFib (3 unsuccessful shocks), immediately transport to the nearest available STEMI Receiving Center.
- If determination of death cannot be made, perform ALS resuscitation for 20 minutes on scene.
  - If the above procedures have been completed without ROSC, resuscitation may be discontinued, and determination of death made when **ANY** of the following are present:
    - Information (e.g. valid DNR or POLST form) becomes available which precludes continuation of resuscitation efforts
    - ETCO2 ≤ 10mm/Hg and the rhythm is asystole or PEA
- If determination of death can still not be made for medical arrests, continue resuscitation for ten additional minutes (30 minutes total) at which point resuscitation may be discontinued and determination of death made if ROSC has not occurred.

☎ PHYSICIAN CONSULT

- Evidence exists that resuscitative efforts are not desired or appropriate (e.g. family request) and above criteria is not met
- ETCO2 > 10mm/Hg after 30 minutes of resuscitation efforts

- When applicable, notify the appropriate law enforcement agency and remain on the scene until law enforcement or coroner arrives
- Complete the Determination of Death form and leave a copy at the scene if the patient will be transferred to the coroner

DOCUMENTATION- ESSENTIAL ELEMENTS

- Criteria for discretionary determination of death (i.e., DNR or valid POLST form)
- Name and phone number of physician authorizing termination of resuscitation
- When possible, attach copy of DNR to PCR or include type of DNR and physician information

RELATED POLICIES/ PROCEDURES

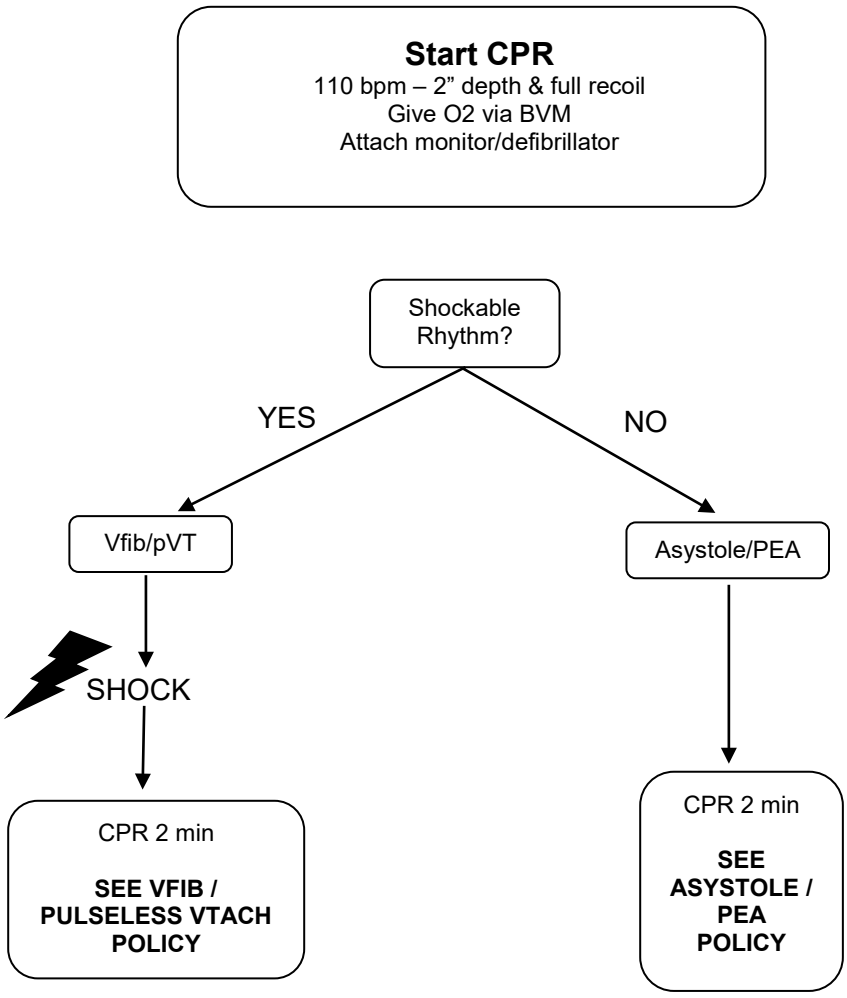
- Determination of Death BLS 5
- DNR/POLST GPC 7
- Cardiac Policies: Asystole C3; PEA C2; Cardiac Arrest Policy, VFib/Pulseless VTach C1
- Cold Induced Injuries E2
- Trauma Triage and Destination Guideline Policy 4613

ADULT CARDIAC ARREST

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

- Unresponsive; no breathing or has agonal respirations; no pulse



Critical Information:

- Witnessed vs Unwitnessed
- Consider pre-cordial thump if witnessed and defibrillator not immediately available
- Compress at 110 bpm. Use metronome or similar device
- Mechanical CPR is mandatory during transportation.
- Change compressors every 2 minutes
- Minimize interruptions
- If hypothermic < 95F, delay compressions for 3 minutes; focus on ventilations and active rewarming
- Defibrillate per manufacturer's recommendations.
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

BLS Airway Management

- *BLS airway is preferred during the first 5 min*
- Use two-person BLS airway management whenever possible
- Avoid excessive ventilation
- 30:2 compression/ventilation ratio

ALS Airway Management

- King Airway/Video laryngoscopy (VL)
- Laryngoscopy for ETT must occur with CPR in progress. Do not interrupt CPR for >10 seconds for tube placement
- Use continuous ETCO2 to monitor CPR effectiveness and advanced airway placement.
- Maintain O2 sat 94-99%
- 1 breath every 6 seconds

Special Considerations

- If patient is in refractory Vfib (3 unsuccessful shocks), transport to nearest available STEMI Receiving Center. Otherwise, provide resuscitation on scene until ROSC or when patient meets Determination of Death criteria
- Regardless of the above, transportation is warranted in the following situations: unsafe scene conditions, unstable airway, hypothermia/hyperthermia as a primary cause of arrest, any patient pulled from a fire in cardiac arrest
- To assure ROSC continues, remain on scene for 5-10 minutes and then transport to a STEMI Receiving Center

SUSPECTED ABUSE/NEGLECT/HUMAN TRAFFICKING/INFLICTED PHYSICAL INJURY

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

- Identification and guidelines for reporting and treating suspected child abuse (persons < 18 years of age), dependent adults between the ages of 18 and 64 years (those with physical or mental limitations restricting their ability to carry out normal activities), domestic abuse (intimate partner violence, includes dating relationships), human trafficking, and elder adults (≥ 65 years)
- Abuse is defined as harmful, wrongful, neglectful or improper treatment which may result in physical or mental injury.
- Physical injury includes any injury that is self-inflicted or inflicted by another person or any assaultive or abusive contact

TREATMENT

- BLS/ ALS RMC
- Treat and transport the patient per Destination Guidelines Policy GPC 4
- If patient or patient's DDM (Designated Decision Maker) refuses transportation to the hospital and patient's life is not in imminent danger:
  - Leave the scene, contact law enforcement, establish radio contact with the intended receiving hospital, describe situation including reasons for suspecting abuse.
- If patient or patient's DDM refuses transportation to the hospital and patient's life is in imminent danger:
  - Stay on the scene, request local law enforcement agency to respond and place patient in protective custody.
- If abuse is suspected in individuals other than the patient:
  - Follow the procedures stated above for imminent and/ or non-imminent danger.
- Contact the local law enforcement agency and/or one of the following protective service agencies by phone within 24 hours and submit completed report within 36 hours of incidence:
  - Marin Children and Family Services Emergency Response, 415-473-7153. State of California Report of Suspected Child Abuse Report SS 8583 (see GPC 9A)
  - Marin County Adult Protective Services, 415-473-2774. State of California Report of Suspected Dependent Adult/ Elder Abuse Form SOC 341 (see GPC 9B)
  - Dependent Adult/ Elder Abuse Form SOC 341 (see GPC 9B)
- For inflicted physical injury:
  - Health care provider shall place a telephone call to the law enforcement agency with investigative jurisdiction as soon as practically possible.
  - A written report shall be completed (OES form 2-920) and submitted to the law enforcement agency within two working days.
  - Both telephone and written reports shall be submitted if the patient has expired.
  - The pre-hospital providers at the scene shall determine who amongst them submits the reports.

CRITICAL INFORMATION

- Common findings in victims of child abuse are as follows:
  - Suspicious fractures in children < 3 years
  - Multiple fractures
  - Unexplained bruising
  - Starvation/ dehydration

- Common findings in parents/ guardian of abused child/ elder/ domestic partners/ human trafficking/ dependent adult are as follows:
  - Contradictory stories regarding patient's injury
  - Evasive answers in questions
  - Anger directed towards or little concern for the patient
  - Drug use
  - Inability to locate guardian

RELATED POLICIES/ PROCEDURES

- California Department of Social Services, Welfare & Institution Code (SS 15630, 15658 (a) (1), 8583
- Destination Guidelines Policy GPC 4

PEDIATRIC PATIENT TRANSPORTS

PURPOSE

To provide guidance regarding the safe transport of the pediatric patient in an ambulance

GENERAL INFORMATION

- Under normal circumstances, transportation of a child in any of the following ways is not permissible:
    - Unrestrained
    - On a parent/caregiver's lap or held in their arms
    - Using only horizontal stretcher straps if the child cannot be properly restrained according to the stretcher manufacturer's specifications for proper restraint of patients
    - On the bench seat or any seat perpendicular to the forward motion of the vehicle
- "Car seat" refers to a size appropriate car seat which has rear and/or forward facing belt paths and which has been secured appropriately.
- "CRS" refers to a child restraint system designed specifically for ambulance stretcher use and which has been properly secured.

POLICY

- The child's age and weight shall be considered when utilizing an appropriate restraint system.
- Use of child's own carseat can be considered for the following (children <2yrs must be rear facing):
    - No other restraint systems are available
    - Minor vehicle crash (ie: "fender bender")
- The child shall be secured by the harness within the seat at all times. Whenever possible, procedures should be performed around the harness straps.
- Transportation of a child who is not a patient:
    - Consider delaying transport until additional vehicles are available if it will not compromise other patient care or transport.
    - Preferred: Transport child in a vehicle other than an ambulance using a car seat.
    - Alternative: Transport child using a car seat in the front passenger seat of the ambulance with the airbags off OR transport in a car seat properly installed onto or built into rear-facing EMS provider captain's chair
- Transportation of a child requiring monitoring or interventions
    - Preferred: Transport using a CRS
    - Alternative: With the child's head at the top of the stretcher, secure the child to the stretcher with three horizontal straps and one vertical strap across each shoulder.
- Transportation of a child who requires cervical spinal immobilization, spinal motion restriction, or lying flat:
    - Preferred: Use CRS. When appropriate, use cervical collar and secure child to stretcher.
- Transportation of a child or children requiring transport as part of a multiple patient transport (newborn with mother, multiple children, etc):
    - Preferred: If possible, transport each as a single child according to guidance above. Additional resources may be necessary.
    - Preferred for mother and newborn: Transport the newborn in a car seat properly installed onto or built into the rear-facing EMS provider captain's chair, facing the rear of the ambulance. Even with childbirth in the field, make every attempt to transport the infant in a car seat or CRS.
    - Alternative for mother and newborn: Transport the newborn in a CRS secured appropriately to stretcher. Transport mother in rear-facing EMS provider captain's chair if mother is medically stable. Consider the use of additional units to accomplish safe transport

RELATED POLICIES/PROCEDURES

Spinal Motion Restriction (SMR) GPC 13
Pediatric Transportation Flowchart

No Injury/Illness

Preferred
Transport in a non-EMS vehicle using car seat

Transport in car seat in front passenger seat with airbag in OFF position

OR

Transport in car seat in REAR-FACING captain's chair. Place caregiver on stretcher

OR

Leave child on-scene WITH adult caregiver

Ill/Injured

Preferred
Transport in CRS; secured to the stretcher

Secure child to stretcher with 3 horizontal straps and vertical straps across each shoulder

Spinal Immobilization

Preferred
Secure child to CRS, when appropriate, use cervical collar and secure to stretcher

If child is secured to a spine board, secure board to stretcher with horizontal straps and one vertical strap across each shoulder

Multiple Patients

Preferred
Transport each as single patient using appropriate procedures

Preferred
Mother and Newborn: Transport newborn in car seat in REAR-FACING captain's chair. Transport mother on stretcher

OR

Mother and Newborn: Transport newborn in CRS secured to the stretcher. Transport mother in rear-facing captain's chair if mother medically stable

OR

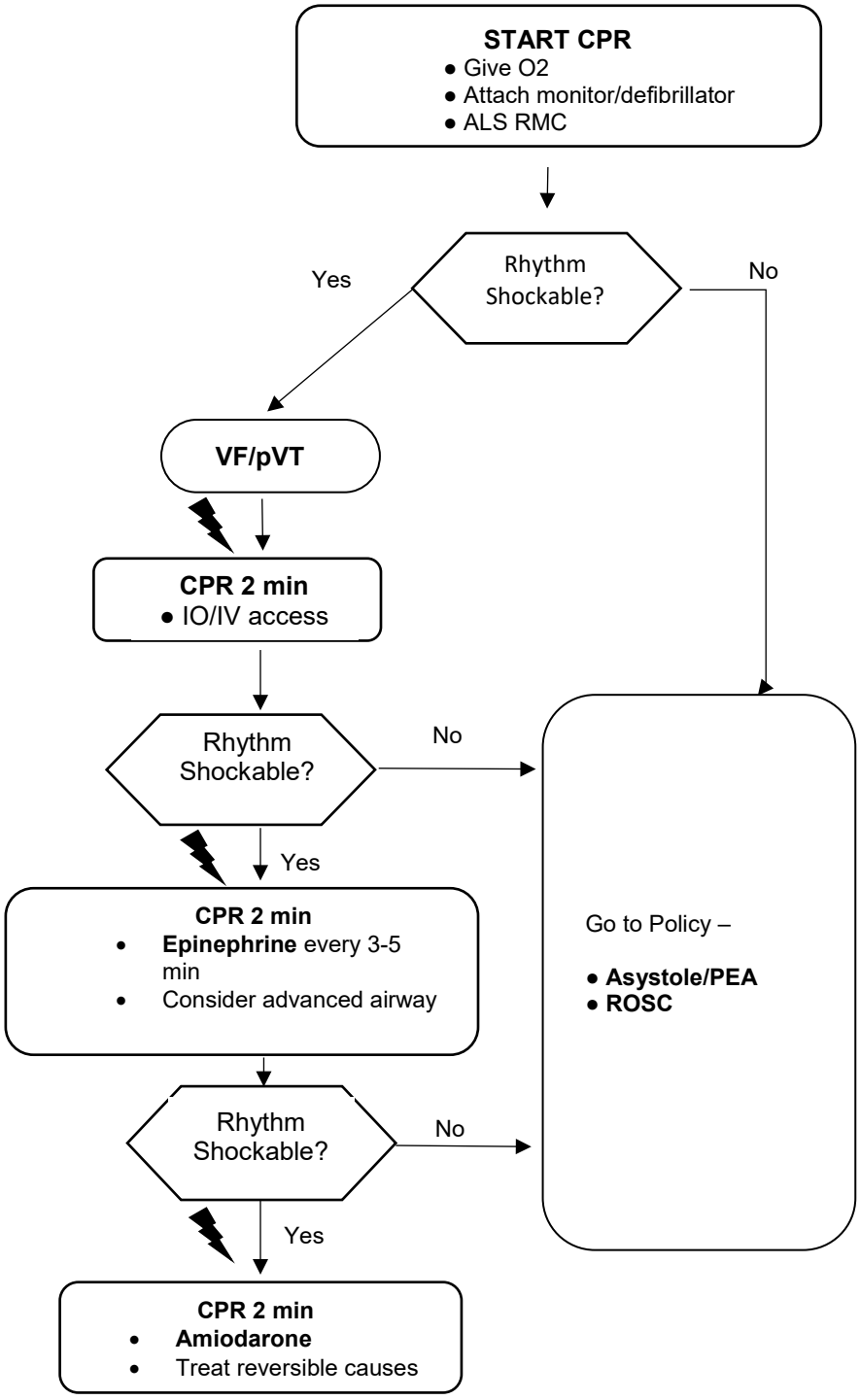
Consider use of additional units, transport non-patient children in non-EMS vehicles

TRANSPORTATION OF A CHILD IN ANY OF THE FOLLOWING WAYS IS NOT ALLOWED UNDER NORMAL CIRCUMSTANCES:

- Unrestrained
- On a parent/caregiver's lap or held in their arms
- Using only horizontal stretcher straps if the chid cannot be properly restrained according to manufacturer specifications
- On the bench seat or any seat perpendicular to the forward motion of the vehicle

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

ALWAYS USE STANDARD PRECAUTIONS



For refractory Vfib (3 unsuccessful shocks), transport to nearest available STEMI Receiving Center

Critical Information:

- Witnessed vs Unwitnessed
- Consider pre-cordial thump if witnessed and defibrillator not immediately available
- Compress at 110 bpm. Use metronome or similar device
- Mechanical CPR is mandatory during transportation
- Change compressors every 2 minutes
- Minimize interruptions
- If hypothermic <95F, delay compressions for 3 minutes; focus on ventilations and active rewarming
- Defibrillate per manufacturer's recommendations.
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

BLS Airway Management:

- *BLS airway is preferred during the first 5 minutes*
- Use two-person BLS airway management whenever possible
- Avoid excessive ventilation
- 30:2 compression/ventilation ratio

ALS Airway Management:

- King Airway / Video Laryngoscopy (VL)
- Laryngoscopy for ETT must occur with CPR in progress. Do not interrupt CPR for >10 seconds for tube placement
- Use continuous ETCO2 to monitor CPR effectiveness and advanced airway placement.
- Maintain O2 sat 94-99%
- 1 breath every 6 seconds

Drug Therapy:

- **Epinephrine** 1mg (0.1mg/ml concentration) IV/IO q 3-5 minutes
- **Amiodarone** first dose: 300mg IV/IO; second dose 150mg IV/IO in 3-5 minutes. If rhythm converts to ROSC after Amiodarone, consider infusion of **Amiodarone drip** (150mg in 100ml NS, 1mg/min = 40 gtts/min with 60 gtt/ml tubing)

Reversible Causes:

- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo-/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

CEREBROVASCULAR ACCIDENT (STROKE)

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

Sudden onset of weakness/paralysis, speech or gait disturbance

TREATMENT

- ALS RMC
  - Secure IV access (antecubital preferred) if patient meets Early Stroke Notification criteria
  - Elevate head of bed 20-30% elevation or place in left lateral decubitus
- If last known well < 4.5 hours *and* blood glucose level > 60, provide **Early Stroke Notification** if *any* are true:
  - Abnormal Cincinnati Prehospital Stroke Scale (CPSS) score
  - Abnormal Visual Fields Assessment
  - Abnormal Cerebellar Assessment
  - Symptoms are most likely due to stroke and not a stroke mimic
- If the patient meets criteria for early notification
  - During radio report, provide patient identifying information – hospital medical record number if known and/or last name and DOB of patient
  - Rapidly transport to patient's preferred Primary Stroke Center (PSC), as long as the estimated transport time is not > 15 minutes longer than the closest PSC.
    - Preferred PSC: patient's preference or PSC with patient's medical records
    - No preferred PSC: transport to the closest PSC
  - Notify family members/medical decision maker that their immediate presence at the hospital is critical for optimal care
  - Bring names and best phone numbers for the patient's medical decision maker and whoever last saw the patient normal whenever possible
- If high suspicion of rapidly progressive intracranial bleed (sudden, witnessed onset of coma or rapidly deteriorating GCS especially in setting of severe headache) transport to Marin General Hospital

DOCUMENTATION- ESSENTIAL ELEMENTS

- Criteria for Early Stroke Notification
- Choose CVA as Primary Impression
- **Name and contact information for patient family member/decision maker and/or those who had last seen the patient normal (e.g., skilled nursing personnel)**
- Documentation of CPSS and hospital notification
- Time last known well (document in military time). If time last known to be well is unknown or indeterminate, document and report
- Blood glucose level
- Any LOC
- Any seizure activity
- GCS
- History of intracranial hemorrhage
- Serious head injury within 2 months
- Taking anticoagulant medications (e.g. Warfarin/ Coumadin, Pradaxa/Dabigatran, Xarelto/Rivaroxaban, Eliquis/Apixaban, Lovenox/Enoxaparin)
- Improving neurological deficit

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- Prehospital / Hospital Contact Policy 7001
- Ambulance Diversion Policy 5400
- Coma/ALOC N1

Cincinnati Pre-Hospital Stroke Scale (CPSS)

Facial Droop (the patient shows teeth or smiles)
___Normal: both sides of the face move equally
___Abnormal: Right side of the face does not move as well as the left
___Abnormal: Left side of the face does not move as well as the right

Arm Drift (the patient closes their eyes and extends both arms straight out for 10 seconds)
___Normal: both arms move the same, or both arms do not move at all
___Abnormal: Right arm either does not move, or drifts down compared to the left
___Abnormal: Left arm either does not move, or drifts down compared to the right

Speech (the patient repeats “The sky is blue in Cincinnati.” or another sentence)
___Normal: the patient says the correct words with no slurring of words
___Abnormal: the patient slurs words, says the wrong words, or is unable to speak

Visual Fields/Cerebellar Assessment

Visual Fields Assessment
___Normal: patient able to count fingers in all four visual field quadrants
___Abnormal: patient unable to correctly count fingers in one or more visual field quadrants

Cerebellar Assessment (finger-to-nose)
___Normal: patient able to move their index finger from their nose to the examiner’s finger
___Abnormal: Patient exhibits clumsy/unsteady movements or “overshoots”

TOXIC INHALATION

ALWAYS USE STANDARD PRECAUTIONS

INDICATION

- Respiratory distress caused by inhalation of toxic gases
- Symptoms may include headache, malaise, dizziness, nausea/vomiting, seizures, hypotension, coma; may be associated with cherry- red color of mucous membranes (late sign)
- Consider carbon monoxide (CO) poisoning or cyanide poisoning with any patient exposed to products of combustion toxic gases in an enclosed area
- ONLY if patient exhibits serious signs and symptoms of smoke inhalation (e.g. unconscious/unresponsive, hypotension, and/or severely ALOC) treat with **CYANOKIT** (hydroxocobalamin)

TREATMENT

- Rapid removal of patient from toxic environment
- ALS RMC
- Administer high flow oxygen despite normal oxygen saturation levels
- If wheezing - **Albuterol** 5 mg in 6 ml **NS** via HHN, repeat as indicated
- CO monitoring, if available
  High Suspicion of CO poisoning:
  - Any patient (non-smoker) with CO level >9%
  - Any patient (smoker) with CO level >12%

  At Risk for CO poisoning (at risk=pregnant, children <6y, elderly, patients with history of respiratory problems)
  - Any “at risk” patient (nonsmoker) with CO level >4%
  - Any “at risk” patient (smoker) with CO level >8%
  - Any patient with CO symptoms and confirmed source of CO
- ONLY if patient exhibits serious signs and symptoms of smoke inhalation (e.g. unconscious/unresponsive, hypotension, and/or severely ALOC) treat with **CYANOKIT** (hydroxocobalamin):
  - Adult: 5 g IV/IO infusion over 15 minutes. May repeat once if severe signs of poisoning and lack of clinical response to first dose; MAX total dose of 10 g.
  - Pediatric: Not approved.

DOCUMENTATION – ESSENTIAL ELEMENTS

- Nature of exposure
- CO levels
- At-risk criteria