

DEPARTMENT OF  
**HEALTH AND HUMAN SERVICES**

Promoting and protecting health, well-being, self-sufficiency, and safety of all in Marin County.



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**To:** Marin County EMS Constituents

**From:** Dustin Ballard, MD; Medical Director  
Marin County EMS Agency

**Date:** February 22, 2021

**Re:** Interim Policy Memo 2021: ALS PR 5, ATG 6, BTG 2, PC1, PTG2

Due to the COVID-19 Pandemic, the typical Policy and Procedure cycle for 2020 was cancelled in lieu of as needed interim policy memos. This memo captures one policy/procedure addition (local optional scope iGel ALSPR5) and updates (PC1, PTG2, ATG6 and BTG2).

These changes are effective March 1, 2021.

Key highlights below:

**ALS PR 5 (new iGel procedure)**

- Approved for local optional scope of practice 12/2020
- ALS Supraglottic device option approved for use in the same indications as King Airway device
- Procedure for insertion similar to King Airway but without an inflatable cuff
- King Airway device will continue to be approved as a supraglottic airway option
- Additional educational materials for procedure available upon request
- Providers responsible for state-mandated CQI reporting if they choose to adopt

**ATG 6 ALS Determination of Death**

- Medical and traumatic determination of death now with separate pathways
- Updated trauma criteria for determination of death as well as additional considerations to consult with the Trauma Center
- Added language to address scene and bystander safety considerations

**BTG 2 BLS Determination of Death**

- Broadened GGB and Richmond/SRF Bridge jumper to “Significant mechanism of injury”
- Added language to address scene considerations

**PC1 and PTG2**

- Clarified repeat dosing of amiodarone in pediatric cardiac arrest (MR x 2 for refractory VF/VT). Protocol book stickers for PC1 will be produced by the EMS Agency

Please note that the following policies reference the above updated policies.

**ATG 6 referenced policies:**

4613 and C2

**ALS PR5 referenced policies:**

5010, GPC, ALS PR3, ALS PR9

# i-gel AIRWAY PROCEDURE

ALWAYS USE STANDARD PRECAUTIONS

## INDICATION

- When airway and ventilation cannot be adequately maintained by BVM or other BLS techniques and intubation is anticipated to be difficult or intubation is unsuccessful after one attempt (cardiac arrest patients) or two attempts (respiratory arrest patients)

## CONTRAINDICATION

- Any patient with an intact gag reflex
- Patient with known esophageal disease
- Patients who have ingested caustic substances
- Tracheal stoma
- Patient < 4 feet tall or < 12 years of age

## EQUIPMENT

- i-gel or i-gelO2 airway device
- Water soluble lubricant
- Portable suction device
- Capnometry/capnography
- Stethoscope

Size	Patient Size	Color	Patient Weight
3	Small Adult	Yellow	30-60kg
4	Medium Adult	Green	50-90kg
5	Large Adult	Orange	90 +kg

## PROCEDURE

- Open airway and pre-oxygenate with BVM for 1-3 minutes with 100% O2 at a rate of not less than 12 ventilations per minute. Avoid hyperventilation in cardiac arrest.
- Apply a thin layer of water-soluble lubricant to the back, sides, and front of the cuff. Ensure that no bolus of lubricant remains in the bowl of the cuff.
- Position the head into the “sniffing” position or neutral position if trauma is suspected.
- Remove dentures or removeable plates before inserting tube.
- Without exerting excessive force, glide the device downwards and backwards along the hard palate with a continuous but gentle push until definitive resistance is felt. A horizontal line at the middle of the integral bite block represents the correct position of the teeth.
- Attach bag-mask device to i-gel airway
- Verify placement using all of the following:
  - Rise and fall of chest
  - Bilateral breath sounds
  - Absence of epigastric sounds
  - Capnometry/capnography or Colormetric Device
- Secure the tube with tape or commercial tube holder.

## SPECIAL CONSIDERATIONS

- If there is any doubt about the proper placement of the i-gel airway, remove device; ventilate the patient with BVM for 30 seconds and repeat sequence of steps.
- If unsuccessful on second attempt, resume BLS airway management.
- If an excessive air leak during IPPV is noticed, use one or all of the following:
  - Hand ventilate the patient with gentle and slow squeezing of the reservoir bag.
  - Limit estimated tidal volume to no more than 5ml/kg.
- If all of the above fail then change to one size larger i-gel.

# ALS DETERMINATION OF DEATH

## Indications

Patient in cardiac arrest who does not meet criteria for BLS determination of death and does not have a valid DNR order. **Excludes MCI incidents where triage principles preclude the initiation of CPR and circumstances where scene or bystander safety is threatened.**

Apply leads and document rhythm in two leads for a minimum of 1 minute. DOD can be made prior to, or immediately after initiating resuscitation when:

- MEDICAL**  
ALL must be present
- Presenting rhythm is asystole
  - Event was NOT witnessed
  - Bystander CPR was NOT initiated
  - Absence of potentially reversible cause of cardiac arrest
  - No AED or manual shock delivered

- TRAUMA**  
ALL must be present
- Evidence of significant trauma or blood loss
  - Pulseless
  - Apneic
  - Absence of potentially reversible cause of arrest

- If DOD cannot be made:**
- Perform ALS resuscitation for 20 minutes on scene
  - If patient is in refractory V-Fib after 3 shocks, immediately transport to nearest STEMI receiving center
  - If no ROSC, resuscitation may be discontinued, and determination of death made when ANY of the following are present:
    - A valid DNR or POLST form becomes available and precludes continuation of resuscitation efforts
    - ETCO<sub>2</sub> ≤ 10mmHg and the rhythm is asystole or PEA

Does patient meet all above criteria?

**YES**  
Do not initiate resuscitation

**NO**  
Initiate Resuscitation

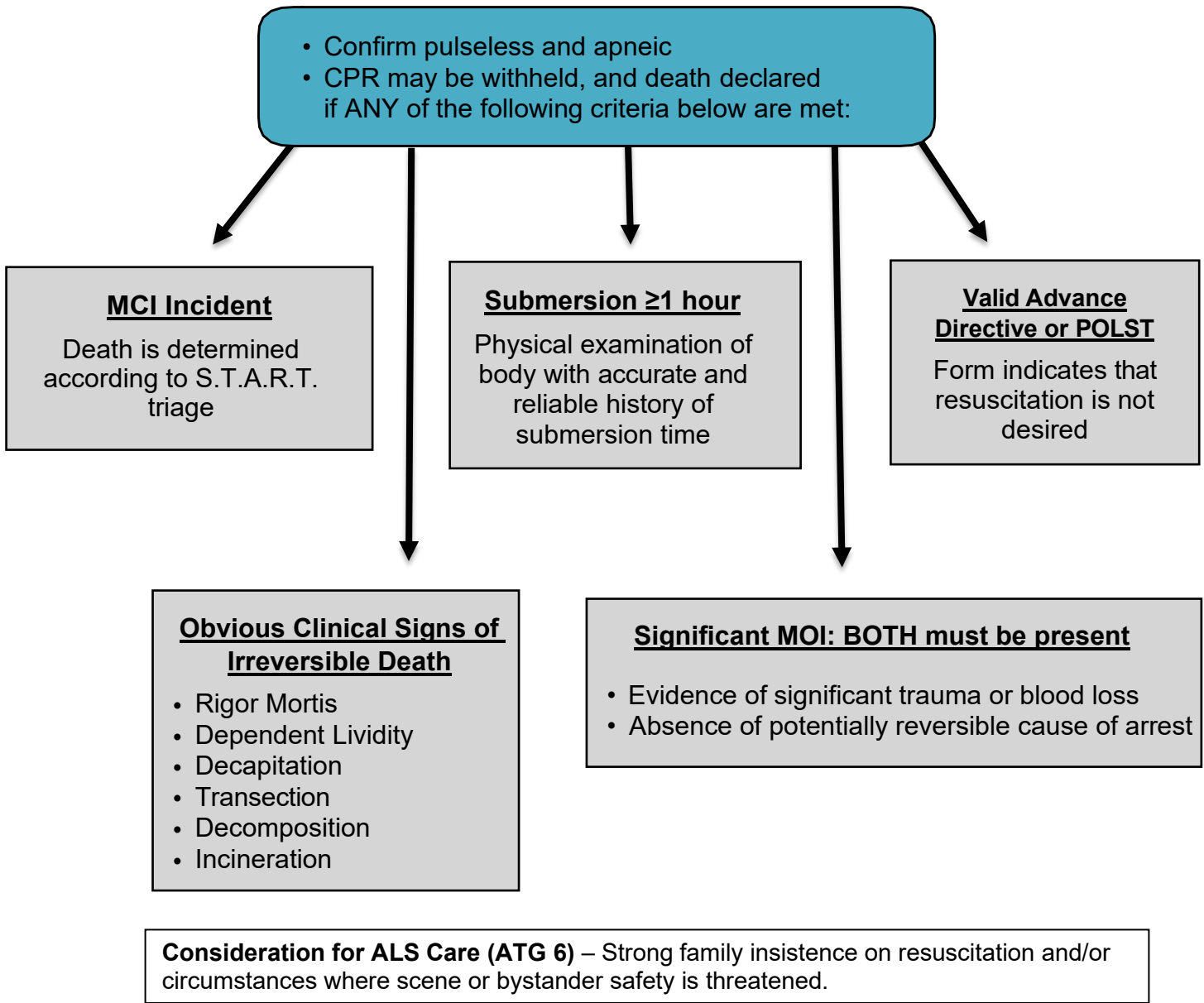
**If determination of death still cannot be made**  
Continue resuscitation for an additional 10 minutes (30 minutes total). Resuscitation may be discontinued and determination of death made if ROSC has not occurred

- Consult Trauma Center for further care and destination decision
- If consult is not available, the patient should be transported to the time closest facility if they have any of the following:
  - Patients with unmanageable airway
  - Uncontrolled external hemorrhage
  - CPR in progress (unless transporting to SRC for refractory V-Fib)

- PHYSICIAN CONSULT**
- Evidence exists that resuscitative efforts are not desired or appropriate and above criteria is not met
  - ETCO<sub>2</sub> >10mm/Hg after 30 minutes of resuscitation efforts

- When patient meets criteria for determination of death in the field:**
- Notify the appropriate law enforcement agency and remain on scene until released by law enforcement
  - Complete a Field Determination of Death form at scene and leave one copy for coroner if patient is transferred to coroner

# BLS DETERMINATION OF DEATH



**When patient meets criteria for declaration of death in the field:**

- Notify the appropriate law enforcement agency if applicable
- Remain on the scene until law enforcement or coroner arrive if applicable
- Complete a Field Determination of Death Form at scene and leave one copy for coroner if applicable

# PEDIATRIC CARDIAC ARREST

**START CPR**

- Give O2 via BVM
- Attach monitor/defibrillator
- Prepare for immediate transport

Assess Rhythm

**VF/pVT**

**Asystole/PEA**

**CPR 2 min**

- IO/IV access

**CPR 2 min**

- IO/IV access
- **Epinephrine**
- Repeat every 3-5min

Shockable Rhythm?

Shockable Rhythm?

**CPR 2 min**

- **Epinephrine**
- Repeat every 3-5 min
- Consider advanced airway

**CPR 2 min**

- Treat reversible causes

Shockable Rhythm?

Shockable Rhythm?

**CPR 2 min**

- **Amiodarone**
- Treat reversible causes

• Yes: follow VF/pVT  
 • No: continue with Asystole/PEA  
 • ROSC: Go to policy C 10

**CPR Ratios**

- One rescuer: 30:2
- Two rescuer: 15:2

**Airway Management**

- BLS airway is preferred
- Avoid excessive ventilation
- Place younger child in sniffing position for neutral airway positioning
- Consider advanced airway only if patient height > color coded resuscitation tape **and** unable to ventilate with BVM
- Laryngoscopy for ETT must occur with CPR in progress.
- **Do not interrupt CPR for >10 seconds for tube placement**
- Use ETCO2
- Maintain SpO2 94-99%
- 1 breath every 6 sec.

**Drug Therapy**

- **Epinephrine** 0.01mg/kg (0.1mg/ml) IV/IO
- Repeat every 3-5 min
- **Amiodarone** 5mg/kg IV/IO followed by or diluted in 20-30ml NS
- MR x 2 for refractory VF/pVT
- Max single dose: 300mg

**Reversible Causes**

- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponate (cardiac)
- Toxins
- Thrombus
- Trauma

# PEDIATRIC MEDICATIONS

DRUG	CONCENTRATION	STANDARD DOSE
Adenosine	6mg/2ml	0.1mg/kg rapid IV/IO push, followed by 5ml NS flush <i>Max first dose:</i> 6mg <i>Repeat:</i> x1 (double the dose); <i>Max dose:</i> 12mg
Albuterol	2.5mg/3ml NS	2.5mg/3ml NS
Amiodarone	150mg/3ml	<u>Pulseless Arrest:</u> 5mg/kg IV/IO, followed by or diluted in 20-30ml NS <i>Repeat:</i> x2 for refractory VF/pVT <i>Max single dose:</i> 300mg <u>Tachycardia with poor perfusion:</u> 5mg/kg IV/IO over 20-60 min
Atropine	1mg/10ml	<u>Bradycardia:</u> 0.02mg/kg IV/IO Minimum dose 0.1mg, <i>Single max dose:</i> 0.5mg <i>Repeat:</i> x1 <u>Organophosphate Poisoning:</u> 0.05mg/kg IV/IO <i>Repeat:</i> q5-10 min <i>Max dose:</i> 4mg or until relief of symptoms
Dextrose 10%	D10%	<u>ALOC (Neonate):</u> 2ml/kg IV/IO <u>ALOC (&gt;Neonate):</u> 5ml/kg IV/IO
Diphenhydramine (Benadryl)	50mg/ml or 50mg/10ml	1mg/kg IV/IO/IM <i>IV/IO max dose:</i> 25mg/min <i>IM max dose:</i> 50mg
Epinephrine	1mg/ml EpiPen Jr @ 0.15mg	<u>Allergic Reaction:</u> 0.01mg/kg IM (0.01mg/kg) <i>Max dose:</i> 0.6mg (0.6ml) EpiPen Jr @: repeat as needed in 5 min <u>Upper Airway/Stridor:</u> 5mg in 5ml via nebulizer
Epinephrine	1mg/10ml or 0,1mg/ml	0.01mg/kg (0.1ml/kg) IV/IO
Fentanyl	100mcg/2ml	1mcg/kg slow IV/IO/IN <i>Repeat:</i> q5 min <i>Max dose:</i> 3mcg/kg For IN: divide dose evenly between nostrils
Glucagon	1mg/ml	0.03mg/kg IM <i>Max dose:</i> 1mg
Ipratropium (Atrovent)	500mcg/2.5ml Unit dose	500mcg/2.5ml Unit dose
Lidocaine 2%	20mg/ml	0.5mg/kg slowly <i>Repeat:</i> x1 1/2 of initial bolus <i>Max dose:</i> 40mg

# PEDIATRIC MEDICATIONS

DRUG	CONCENTRATION	STANDARD DOSE
Midazolam (Versed)	2mg/ml IN: 5mg/ml	<p><u>Cardioversion</u>: 0.05mg/kg slow IV/IO <i>Max dose</i>: 1mg</p> <p><u>Seizure</u>: IV/IO: 0.05mg/kg <i>Repeat</i>: q3 min <i>Max dose</i>: 5mg IM: 0.1mg/kg <i>Repeat</i>: x1 in 10 min IN: 0.2mg/kg <i>Max dose</i>: 5mg</p>
Morphine	10mg/10ml 10mg/ml	<p><u>Pain Management</u>: 0.1mg/kg (0.1ml/kg) slow IV/IO/IM <i>Repeat</i>: x1 in 15 min if IV/IO, 30 min if IM</p> <p><u>Burns</u>: 0.1mg/kg IV/IO/IM in incremental doses up to <i>max dose</i>: 0.3mg/kg</p>
Naloxone (Narcan)	2mg/2ml	0.1mg/kg (0.25ml/kg) IV/IO/IM
Ondansetron (Zofran)	4mg	<p><u>Patients ≥4 years</u>: 4mg ODT or slow IV over 30 seconds</p> <p><u>Patients 2-4 years</u>: 2mg ODT or slow IV over 30 seconds</p>
Sodium Bicarbonate	50mEq/50ml	1mEq/kg IV/IO