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

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 gentile 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.

<table>
<thead>
<tr>
<th>Size</th>
<th>Patient Size</th>
<th>Color</th>
<th>Patient Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Small Adult</td>
<td>Yellow</td>
<td>30-60kg</td>
</tr>
<tr>
<td>4</td>
<td>Medium Adult</td>
<td>Green</td>
<td>50-90kg</td>
</tr>
<tr>
<td>5</td>
<td>Large Adult</td>
<td>Orange</td>
<td>90+ kg</td>
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</tbody>
</table>
**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:**

<table>
<thead>
<tr>
<th>MEDICAL</th>
<th>TRAUMA</th>
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</thead>
<tbody>
<tr>
<td><strong>ALL must be present</strong></td>
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</tr>
<tr>
<td>• Presenting rhythm is asystole</td>
<td>• Evidence of significant trauma or blood loss</td>
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<tr>
<td>• Event was NOT witnessed</td>
<td>• Pulseless</td>
</tr>
<tr>
<td>• Bystander CPR was NOT initiated</td>
<td>• Apneic</td>
</tr>
<tr>
<td>• Absence of potentially reversible cause of cardiac arrest</td>
<td>• Absence of potentially reversible cause of arrest</td>
</tr>
<tr>
<td>• No AED or manual shock delivered</td>
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</tbody>
</table>

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
  - ETCO2 ≤ 10mmHg and the rhythm is asystole or PEA

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

**PHYSICIAN CONSULT**

- Evidence exists that resuscitative efforts are not desired or appropriate and above criteria is not met
- ETCO2 ≥10mm/Hg after 30 minutes of resuscitation efforts

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**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

MCI Incident
Death is determined according to S.T.A.R.T. triage

Submersion ≥1 hour
Physical examination of body with accurate and reliable history of submersion time

Valid Advance Directive or POLST
Form indicates that resuscitation is not desired

Obvious Clinical Signs of Irreversible Death
• Rigor Mortis
• Dependent Lividity
• Decapitation
• Transection
• Decomposition
• Incineration

Significant MOI: BOTH must be present
• Evidence of significant trauma or blood loss
• Absence of potentially reversible cause of arrest

Consideration for ALS Care (ATG 6) – Strong family insistence on resuscitation and/or circumstances where scene or bystander safety is threatened.
**PEDIATRIC CARDIAC ARREST**

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

**Assess Rhythm**

**VF/pVT**
- CPR 2 min
  - IO/IV access

**Asystole/PEA**
- CPR 2 min
  - IO/IV access
  - Epinephrine
    - Repeat every 3-5 min

**Shockable Rhythm?**
- Yes
  - CPR 2 min
    - Epinephrine
      - Repeat every 3-5 min
    - Consider advanced airway

- No
  - CPR 2 min
    - Treat reversible causes

**Shockable Rhythm?**
- Yes
  - CPR 2 min
    - Amiodarone
      - Treat reversible causes

- No
  - CPR 2 min
    - IO/IV access
    - Epinephrine
      - Repeat every 3-5 min

**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

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<tr>
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<th>STANDARD DOSE</th>
</tr>
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| Adenosine             | 6mg/2ml       | 0.1mg/kg rapid IV/IO push, followed by 5ml NS flush  
  *Max first dose:* 6mg  
  *Repeat:* x1 (double the dose); *Max dose:* 12mg |
| Albuterol             | 2.5mg/3ml NS  | 2.5mg/3ml NS  |
| Amiodarone            | 150mg/3ml     |  
  *Pulseless Arrest:* 5mg/kg IV/IO, followed by or diluted in 20-30ml NS  
  *Repeat:* x2 for refractory VF/pVT  
  *Max single dose:* 300mg  
  *⊓ Tachycardia with poor perfusion:* 5mg/kg IV/IO over 20-60 min |
| Atropine              | 1mg/10ml      |  
  *Bradycardia:* 0.02mg/kg IV/IO  
  Minimum dose 0.1mg,  
  *Single max dose:* 0.5mg  
  *Repeat:* x1  
  *Organophosphate Poisoning:* 0.05mg/kg IV/IO  
  *Repeat:* q5-10 min  
  *Max dose:* 4mg or until relief of symptoms |
| Dextrose 10%          | D10%          |  
  *ALOC (Neonate):* 2ml/kg IV/IO  
  *ALOC (>Neonate):* 5ml/kg IV/IO |
| Diphenhydramine (Benadryl) | 50mg/ml or 50mg/10ml | 1mg/kg IV/IO/IM  
  *IV/IO max dose:* 25mg/min  
  *IM max dose:* 50mg |
| Epinephrine           | 1mg/ml        |  
  *Allergic Reaction:* 0.01mg/kg IM (0.01mg/kg)  
  *Max dose:* 0.6mg (0.6ml)  
  EpiPen Jr ®: repeat as needed in 5 min  
  *Upper Airway/Stridor:* 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  
  *Repeat:* q5 min  
  *Max dose:* 3mcg/kg  
  For IN: divide dose evenly between nostrils |
| Glucagon              | 1mg/ml        | 0.03mg/kg IM  
  *Max dose:* 1mg |
| Ipratropium (Atrovent) | 500mcg/2.5ml Unit dose | 500mcg/2.5ml Unit dose |
| Lidocaine 2%          | 20mg/ml       | 0.5mg/kg slowly  
  *Repeat:* x1 1/2 of initial bolus  
  *Max dose:* 40mg |
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| Midazolam (Versed)          | 2mg/ml              | **Cardioversion:** 0.05mg/kg slow IV/IO  
                             | IN: 5mg/ml                      | **Max dose:** 1mg                |
|                             |                     | **Seizure:**  
                             |                             | IV/IO: 0.05mg/kg  
                             |                             | **Repeat:** q3 min          |
|                             |                     |  
                             |                             | **Max dose:** 5mg              |
|                             |                     | IM: 0.1mg/kg                    | **Repeat:** x1 in 10 min       |
|                             |                     | **Max dose:** 5mg               |
| Morphine                    | 10mg/10ml 10mg/ml   | **Pain Management:** 0.1mg/kg (0.1ml/kg) slow IV/IO/IM  
                             |                             | **Repeat:** x1 in 15 min if IV/IO, 30 min if IM |
|                             |                     | **Burns:** 0.1mg/kg IV/IO/IM in incremental doses up to **max dose:** 0.3mg/kg |
| Naloxone (Narcan)           | 2mg/2ml             | 0.1mg/kg (0.25ml/kg) IV/IO/IM                                                |
| Ondansetron (Zofran)        | 4mg                 | **Patients ≥4 years:** 4mg ODT or slow IV over 30 seconds  
                             |                             | **Patients 2-4 years:** 2mg ODT or slow IV over 30 seconds |
| Sodium Bicarbonate          | 50mEq/50ml          | 1mEq/kg IV/IO                    |