

# Clinical Advisory Subcommittee of the Emergency Medical Care Committee



## Meeting Agenda

**10:15 A.M. Thursday, February 15<sup>th</sup>, 2023**

**Location: SLOEMSA Conference Room**

2995 McMillan Ave, Ste 178

San Luis Obispo, CA 93401

### Members

CHAIR: Dr. Stefan Teitge, *County Medical Society*  
 Dr. Heidi Hutchinson, *ED Physician Tenet*  
 Dr. Kyle Kelson, *ED Physician Tenet*  
 Dr. Lucas Karaelias, *ED Physician Dignity*  
 Diane Burkey, *MICNs*  
 Rob Jenkins, *Fire Service Paramedics*  
 Nate Otter, *Ambulance Paramedics*  
 Paul Quinlan, *Fire Service EMTs*  
 Lisa Epps, *Air Ambulance*  
 Jeffrey Hagins, *Air Ambulance*  
 Arneil Rodriguez, *Ambulance EMTs*  
 Casey Hidle, *Lead Field Training Officer*  
 VACANT, *Medical Director Appointee*

### Staff

STAFF LIAISON: Ryan Rosander, *EMS Coordinator*  
 VACANT, *EMS Division Director*  
 Dr. William Mulkerin, *Medical Director*  
 Rachel Oakley, *EMS Coordinator*  
 VACANT, *EMS Coordinator*  
 Alyssa Vardas, *EMS Admin Assistant III*

AGENDA	ITEM	LEAD
Call to Order	Introductions	Dr. Teitge
	Public Comment	
Summary Notes	Review of Summary Notes October 19 <sup>th</sup> 2023	
Discussion	<p><b>Protocol and Procedure Revisions:</b></p> <ul style="list-style-type: none"> <li>Revised Protocol #602: Airway Management</li> <li>Revised Protocol #641: Cardiac Arrest Atraumatic</li> <li>Revised Protocol #661: Traumatic Cardiac Arrest</li> <li>Revised Procedure #717: Endotracheal Intubation</li> <li>Revised Procedure #718: Supraglottic Airway Device</li> </ul>	Ryan
Adjourn	<p><b>Declaration of Future Agenda Items</b></p> <ul style="list-style-type: none"> <li>Roundtable on Future Agenda Items</li> </ul>	Dr. Teitge
	<p><b>Next meeting date – Thursday April 18<sup>th</sup>, 2024</b></p> <p>1015 hrs – <b>EMSA Conference Room</b>                      2995 McMillan Ave. Suite 178                      San Luis Obispo, CA 93401</p>	



# Clinical Advisory Subcommittee of the Emergency Medical Care Committee



## Meeting Minutes

**10:15 A.M. Thursday, October 19th, 2023**

**Location: SLOEMSA Conference Room**

2995 McMillan Ave, Ste 178

San Luis Obispo, CA 93401

### Members

X CHAIR: Dr. Stefan Teitge, *County Medical Society*  
 X Dr. Heidi Hutchinson, *ED Physician Tenet*  
 X Dr. Kyle Kelson, *ED Physician Tenet*  
 Dr. Lucas Karaelias, *ED Physician Dignity*  
 X Diane Burkey, *MICNs*  
 X Rob Jenkins, *Fire Service Paramedics*  
 X Nate Otter, *Ambulance Paramedics*  
 Paul Quinlan, *Fire Service EMTs*  
 Lisa Epps, *Air Ambulance*  
 Jeffrey Hagins, *Air Ambulance*  
 Arneil Rodriguez, *Ambulance EMTs*  
 Casey Hidle, *Lead Field Training Officer*  
 Tim Benes, *Medical Director Appointee*

### Staff

X STAFF LIAISON: David Goss, *EMS Coordinator*  
 Vince Pierucci, *EMS Division Director*  
 X Dr. William Mulkerin, *Medical Director*  
 X Ryan Rosander, *EMS Coordinator*  
 X Rachel Oakley, *EMS Coordinator*  
 Sara Schwall, *EMS Admin Assistant III*

AGENDA	ITEM	LEAD
Call to Order 1016	Introductions	Dr. Teitge
	Public Comment	
Summary Notes	No additions – R. Jenkins motions, H. Hutchinson 2nds, Finalized	
Discussion	<p><b>Introduction of Ketamine:</b></p> <ul style="list-style-type: none"> <li>- Effects Policy #603 and adds Ketamine to formulary</li> <li>- Used for moderate to severe pain with multisystem trauma, head, thoracic, or ABD injuries.</li> <li>- Dosages and adverse effects discussed.</li> <li>- No pediatric dosages.</li> </ul> <p>Discussion:</p> <ul style="list-style-type: none"> <li>- R. Jenkins suggests eliminating Blood Pressure as a guideline, group agrees.</li> <li>- H. Hutchinson suggests having Ketamine as a standing order for patients with opioid tolerance, group agrees.</li> </ul> <p>Motion to approve addition of Ketamine with amendments:</p> <p>R. Jenkins motions.</p> <p>H. Hutchinson 2nds</p>	David

	All present in favor	
Adjourn - 1047	<b>Future Agenda Items:</b> <ul style="list-style-type: none"> <li>- SGA and Advanced Airway alterations</li> </ul>	Dr. Teitge
	<b>Next meeting date</b> – Thursday December 21 <sup>st</sup> , 2023  1015 hrs – <b>EMSA Conference Room</b> 2995 McMillan Ave. Suite 178 San Luis Obispo, CA 93401	

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COUNTY OF SAN LUIS OBISPO HEALTH AGENCY

PUBLIC HEALTH DEPARTMENT

Penny Borenstein, MD, MPH Health Officer/Public Health Director

MEETING DATE	February 15 <sup>th</sup> , 2024
STAFF CONTACT	Ryan Rosander, EMS Coordinator 805.788.2513 rrosander@co.slo.ca.us
SUBJECT	Airway/Cardiac Arrest Management
SUMMARY	<p>After implementing SGA in the County of San Luis Obispo on 07/01/2023, discussions with multiple stakeholders have occurred about the confusion surrounding when to initiate a supraglottic airway (SGA), especially for cardiac arrest. Furthermore, SGA adoption went through the committee process as a perceived backup airway to endotracheal intubation (ETI). After multiple discussions, SLOEMSA has decided to send SGA, ETI, airway management, and atraumatic/traumatic cardiac arrest management back through the committee process for further clarification. The changes are as follows;</p> <p>Protocol #602: Airway Management</p> <ul style="list-style-type: none"> <li>• Adding provider discretion for which ALS airway to use, ETI or SGA.</li> <li>• Removed all language about first visualizing a patient’s airway/vocal cords before determining which ALS airway to utilize.</li> </ul> <p>Procedure #717: Endotracheal Intubation</p> <ul style="list-style-type: none"> <li>• Revised ETI indications to include cardiac arrest regardless of ROSC.</li> <li>• Removed situations where airway cannot be maintained by BLS techniques from indications list.</li> <li>• Removed language about BLS airway use, this is covered in BLS protocols.</li> <li>• Added after 2<sup>nd</sup> ETI attempt the provider shall proceed to SGA.</li> <li>• Added the definition of compromised airway in reference to ETI indications.</li> <li>• Added ETI is indicated during cardiac arrest if provider feels they can do so without interruption in HPCPR otherwise, proceed directly to SGA.</li> <li>• Added PCR documentation component if ALS airway cannot be established.</li> </ul> <p>Procedure #718: Supraglottic Airway Device</p> <ul style="list-style-type: none"> <li>• Removed all language about having to first visualize a patient’s airway/vocal cords before SGA utilization.</li> <li>• Added SGA is indicated in cardiac arrest.</li> <li>• Added PCR documentation component if ALS airway cannot be established.</li> <li>• Removed all language about having to first visualize a patient’s airway/vocal cords and then determine which ALS airway to utilize.</li> </ul>

Emergency Medical Services

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www.slocounty.ca.gov/ems

	<p>Protocol #641: Cardiac Arrest (Atraumatic)</p> <ul style="list-style-type: none"> <li>• Adding provider discretion to ETI or SGA utilization but shall utilize ALS airway.</li> <li>• Removing ROSC language to ALS airway utilization.</li> <li>• Added PCR documentation component if ALS airway cannot be established.</li> </ul> <p>Protocol #661 Traumatic Cardiac Arrest</p> <ul style="list-style-type: none"> <li>• Shall utilize Oral Intubation or Supraglottic Airways (Adults), provider discretion.</li> <li>• Added PCR documentation component if ALS airway cannot be established.</li> </ul> <p>Following adoption, revisions to protocols #602, #641, #661 and procedures #717 and #718 would be sent to the Operations Subcommittee for review and subsequently to EMCC for Adoption. Potential implementation date would be July 1<sup>st</sup>, 2024, with training occurring during the 2024 SLOEMSA Update Class.</p>
<b>REVIEWED BY</b>	Dr. William Mulkerin, SLOEMSA Staff
<b>RECOMMENDED ACTION(S)</b>	Recommended revisions to protocols #602, #641, #661 and procedures #717, #718 for adoption by CAC and move to Operations Agenda.
<b>ATTACHMENT(S)</b>	Protocols: #602, #641, #661 Procedures: #717, #718

AIRWAY MANAGEMENT	
ADULT	PEDIATRIC (≤34 kg)
BLS	
<ul style="list-style-type: none"> <li>• Universal Protocol #601</li> <li>• Administer O<sub>2</sub> as clinical symptoms indicate (see notes below)</li> <li>• Pulse oximetry</li> <li>• Patients with O<sub>2</sub> Sat ≥ 94% without signs or symptoms of hypoxia or respiratory compromise should not receive O<sub>2</sub></li> <li>• When applying O<sub>2</sub> use the simplest method to maintain O<sub>2</sub> Sat ≥ 94%</li> <li>• Do not withhold O<sub>2</sub> if patient is in respiratory distress</li>   <li>• <b>Foreign Body/Airway Obstruction</b> <ul style="list-style-type: none"> <li>○ Use current BLS choking procedures</li> <li>○ Basic airway adjuncts and suctioning as indicated and tolerated</li> </ul> </li> </ul>	<p style="text-align: center;">Same as Adult (except for newborns)</p> <ul style="list-style-type: none"> <li>• Newborn (&lt; 1 day) follow AHA guidelines – Newborn Protocol #651</li> </ul>
BLS Elective Skills	
<ul style="list-style-type: none"> <li>• <b>Moderate to Severe Respiratory Distress</b> <ul style="list-style-type: none"> <li>○ <b>CPAP</b> as needed – CPAP procedure #703</li> </ul> </li> </ul>	<p style="text-align: center;">CPAP not used for patients ≤34 kg</p>
ALS Standing Orders	
<ul style="list-style-type: none"> <li>• <b>Foreign Body/Airway Obstruction</b> If obstruction not relieved with BLS maneuvers                             <ul style="list-style-type: none"> <li>○ Visualize and remove obstruction with Magill forceps</li> <li>○ If obstruction persists, consider – Needle Cricothyrotomy Procedure #704</li> <li>○ Upon securing airway monitor O<sub>2</sub> Sat and ETCO<sub>2</sub> – Capnography Procedure #701</li> </ul> </li> <li>• Endotracheal intubation – as indicated to control airway – Procedure #717</li> <li>• Supraglottic Airway – as indicated to control airway <b>if indicated</b> – Procedure #718</li> <li>• Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Foreign Body/Airway Obstruction</b> If obstruction not relieved with BLS maneuvers                             <ul style="list-style-type: none"> <li>○ Visualize and remove obstruction with Magill forceps</li> <li>○ If obstruction persists, consider – Needle Cricothyrotomy Procedure #704</li> <li>○ Upon securing airway monitor O<sub>2</sub> Sat and ETCO<sub>2</sub> – Capnography Procedure #701</li> </ul> </li> <li>• Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705</li> </ul>
Base Hospital Orders Only	
<ul style="list-style-type: none"> <li>• <b>Symptomatic Esophageal Obstruction</b> <ul style="list-style-type: none"> <li>○ <b>Glucagon</b> 1mg IV followed by rapid flush. Give oral <u>fluid</u> challenge 60 sec after admin - check a blood sugar prior</li> </ul> </li> <li>• As needed</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Symptomatic Esophageal Obstruction</b> <ul style="list-style-type: none"> <li>○ <b>Glucagon</b> 0.1mg/kg IV not to exceed 1mg followed by rapid flush. Give oral <u>fluid</u> challenge 60 sec after admin - check a blood sugar prior</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• As needed</li> </ul>
<b>Notes</b>	
<ul style="list-style-type: none"> <li>• Oxygen Delivery             <ul style="list-style-type: none"> <li>○ Mild distress – 0.5-6 L/min nasal cannula</li> <li>○ Severe respiratory distress – 15 L/min via non-rebreather mask</li> <li>○ Moderate to severe distress – CPAP 3-15 cm H2O</li> <li>○ Assisted respirations with BVM – 15 L/min</li> </ul> </li> <li>• Pediatric intubation is no longer an approved ALS skill – maintain with BLS options</li> <li>• Patients requiring an advanced airway, providers shall decide which ALS airway to utilize based on <b>discretion</b> <del>the complexity of the patient’s anatomy. If the patient’s vocal cords are easily visualized, then Endotracheal Intubation shall be utilized. If the patient’s vocal cords are difficult or unable to be visualized, then a Supraglottic Airway Device shall be utilized.</del></li> <li>• <del>During assessments of an airway for advanced airway placement, an attempt at visualization shall be defined as placement of a laryngoscope blade and the lifting of the patient’s jaw in order to visualize vocal cords. An attempt at ETI shall be defined as attempting to pass the tube through the patient’s vocal cords without success.</del></li> <li>• After placement of any advanced airway, providers shall verify placement of the advanced airway by waveform capnography and a minimum of one additional method. This additional method can be any of the following:             <ul style="list-style-type: none"> <li>○ Auscultation of lung and stomach sounds.</li> <li>○ Colorimetric CO2 Detector Device.</li> <li>○ Esophageal Bulb Detection Device.</li> </ul> </li> </ul>	

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## Endotracheal Intubation

### FOR USE IN PATIENTS >34 KG

#### BLS

Universal Protocol #601

Pulse Oximetry – O<sub>2</sub> administration per Airway Management Protocol #602

#### ALS Standing Orders

- Indications:
  - Patients with a respiratory compromise.
  - ~~ROSC~~-Patients requiring airway stabilization, including cardiac arrest and ROSC.
  - ~~Situations where the airway cannot be adequately maintained by BLS techniques.~~
- Contraindications:
  - Intact gag reflex
  - ~~If patient presents with an easily accessible airway (able to visualize the patient's vocal cords), ETI will be indicated.~~
- Prepare, position, and oxygenate the patient with 100% Oxygen. Ideal positioning is keeping the ears in line with the sternal notch.
- Consider use of video laryngoscopy when available.
- Select appropriate size ET tube and consider the need for endotracheal introducer (Bougie); have suction ready.
- Using the laryngoscope, visualize vocal cords.
- Determine how accessible the patient's airway is. If the patient has a complex airway (unable to visualize the vocal cords due to surrounding anatomy) which would be difficult and time consuming to intubate, consider the use of a supraglottic airway device Procedure # 718.
- Visualization of vocal cords will take no longer than 10 seconds.
- Visualize tube/bougie passing through vocal cords.
- Inflate the cuff with 3-10mL of air.
- Apply waveform capnography (reference Policy #701).
- Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium.
- If ET intubation efforts are unsuccessful after the 1<sup>st</sup> attempt, ~~continue with a BLS airway,~~ oxygenate and re-evaluate the airway positioning before the 2<sup>nd</sup> attempt. After first failed attempt, consider use of Supraglottic Airways (reference Procedure #718).
- If ET intubation efforts are unsuccessful after the 2<sup>nd</sup> attempt, oxygenate and ~~continue with a BLS airway and~~ provider shall then proceed to Supraglottic Airway Procedure #718.
- Patients who have an advanced airway established shall have that airway secured with tape or a commercial device. Devices and tape should be applied in a manner that avoids compression of the front and sides of the neck, which may impair venous return from the brain.

- If the patient has a suspected spinal injury:
  - Open the airway using a jaw-thrust without head extension.
  - If airway cannot be maintained with jaw thrust, use a head-tilt/chin-lift maneuver.
  - Manually stabilize the head and neck rather than using an immobilization device during CPR.
- Following placement of the Endotracheal Tube, if the patient is noted to have an ETCO2 less than 10, the ALS Provider shall extubate the patient and oxygenate prior to an additional attempt.

**Base Hospital Orders Only**

As needed

**Notes**

- Respiratory compromise is defined as any condition that prevents the movement of oxygenated air into and out of the lungs. This includes cardiac arrests
- ETI during cardiac arrest is indicated if the ALS provider can accomplish intubation without interruption in HPCPR. With ALS provider judgement, determines ETI cannot be accomplished, provider shall proceed to Supraglottic Airway Procedure #718
- If the provider cannot accomplish an ALS airway, they should document in the PCR why an ALS airway wasn't accomplished
- ~~During the initial visualization of the patient's airway if the ALS provider determines the airway to be difficult (unable to visualize the patient's vocal cords), ETI will not be utilized and ALS providers will reference Procedure 718 for SGA.~~
- After placement of the Endotracheal Tube, providers shall verify placement of the ETI by waveform capnography and a minimum of one additional method. This additional method can be any of the following:
  - Auscultation of lung and stomach sounds.
  - Colorimetric CO2 Detector Device
  - Esophageal Bulb Detection Device
- During placement of an ETI, apneic oxygenation is recommended to be utilized when available. If appropriate, providers shall place a nasal cannula onto the patient prior to the intubation attempt and continue use of the nasal cannula during placement to assist in oxygenation

<b>Supraglottic Airway Device</b>															
<b>FOR USE IN PATIENTS &gt;34 KG</b>															
<b>BLS</b>															
Universal Protocol #601															
Pulse Oximetry – O <sub>2</sub> administration per Airway Management Protocol #602															
<b>ALS Standing Orders</b>															
<ul style="list-style-type: none"> <li>Patients who meet indications for <b>Endotracheal Intubation Procedure #717</b></li> <li><del>Patients who after the ALS Provider has visualized the patient's airway and has determined that their airway will be difficult to access.</del></li> <li>ALS provider judgement.</li> <li>SGA use is not approved for pediatric use. SGA shall only be used for patients &gt;34kg.</li> </ul>															
<b>I-GEL</b>															
<ul style="list-style-type: none"> <li>Monitor End-tidal capnography throughout use.</li> <li>Select appropriate tube size.</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="background-color: yellow; width: 30px;"></td> <td style="text-align: center;">3</td> <td style="text-align: center;">Small Adult</td> <td style="text-align: center;">30-60kg</td> </tr> <tr> <td style="background-color: green; width: 30px;"></td> <td style="text-align: center;">4</td> <td style="text-align: center;">Medium Adult</td> <td style="text-align: center;">50-90kg</td> </tr> <tr> <td style="background-color: orange; width: 30px;"></td> <td style="text-align: center;">5</td> <td style="text-align: center;">Large Adult</td> <td style="text-align: center;">90+kg</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>While preparing tube, have assistive personnel open the airway, and clear of any foreign objects. Pre-oxygenate with 100% oxygen via bls airway and BVM.</li> <li>Apply water soluble lubricant to the distal tip and posterior aspect (only) of the tube, taking care to avoid introduction of the lubricant into or near the ventilatory openings.</li> <li>Grasp the lubricated i-gel firmly along the integral bite block. Position the device so that the i-gel cuff outlet is facing towards the chin of the patient.</li> <li>Position patient into "sniffing position" with head extended and neck flexed. The chin should be gently pressed down before proceeding to insert the i-Gel.</li> <li>Introduce the leading soft tip into the mouth of the patient in the direction towards the hard palate.</li> <li>Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.</li> <li>At this point the tip of the airway should be located into the upper esophageal opening and the cuff should be located against the laryngeal framework. The incisors should be resting on the integral bite-block.</li> <li>Attach a BVM. While gently bagging the patient to assess ventilation, carefully withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).</li> <li>Confirm proper position by auscultation, chest movement and verification of ETCO<sub>2</sub> by waveform capnography.</li> <li>The i-gel should be secured down per manufacturer recommendation.</li> <li>Patients who have an advanced airway established shall have that airway secured with tape or a commercial device. Devices and tape should be applied in a manner that avoids compression of the front and sides of the neck, which may impair venous return from the brain.</li> </ul>					3	Small Adult	30-60kg		4	Medium Adult	50-90kg		5	Large Adult	90+kg
	3	Small Adult	30-60kg												
	4	Medium Adult	50-90kg												
	5	Large Adult	90+kg												

- Ensure proper documentation of placement of the i-Gel placement including verification methods.

**Base Hospital Orders Only**

As needed

**Notes**

**Contraindications**

- Gag reflex. •Caustic ingestion. •Known esophageal disease (e.g., cancer, varices, or stricture).

- SGA during cardiac arrest is indicated
- If the provider cannot accomplish an ALS airway, they should document in the PCR why an ALS airway wasn't accomplished
- ~~Following visualization of the patient's airway and determining the patient's airway to be accessible (able to visualize the patient's vocal cords), SGA shall not be utilized and ALS providers shall reference Procedure #717 for ETI.~~
- To verify patency and placement of the SGA Device, providers shall verify placement of the i-Gel device by waveform capnography and a minimum of one additional method. This additional method can be any of the following:
  - Auscultation of lung sounds
  - Colorimetric CO2 Detector Device
  - Esophageal Bulb Detection Device
- During placement of an SGA, apneic oxygenation is recommended to be utilized when available. If appropriate, providers shall place a nasal cannula onto the patient prior to i-Gel placement and continue use of the nasal cannula during placement in order to assist in oxygenation.

<b>CARDIAC ARREST (ATRAUMATIC)</b>	
<b>ADULT</b>	<b>PEDIATRIC (≤34 KG)</b>
<b>BLS Procedures</b>	
<ul style="list-style-type: none"> <li>• Universal Algorithm #601</li> <li>• High Performance CPR (HPCPR) (10:1) per Procedure #712                             <ul style="list-style-type: none"> <li>• Continuous compressions with 1 short breath every 10 compressions</li> </ul> </li> <li>• AED application (if shock advised, administer 30 compressions prior to shocking)</li> <li>• Pulse Oximetry                             <ul style="list-style-type: none"> <li>• O<sub>2</sub> administration per Airway Management Protocol #602</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Same as Adult (except for neonate)</li> <li>• Neonate (&lt;1 month) follow AHA guidelines</li> <li>• CPR compression to ventilation ratio                             <ul style="list-style-type: none"> <li>• Newborn – CPR 3:1</li> <li>• 1 day to 1 month – CPR 15:2</li> <li>• &gt;1 month – HPCPR 10:1</li> </ul> </li> <li>• AED – pediatric patient &gt;1 year</li> <li>• Use Broselow tape or equivalent if available</li> </ul>
<b>ALS Procedures</b>	
<p style="text-align: center;"><b>Rhythm analysis and shocks</b></p> <ul style="list-style-type: none"> <li>• At 200 compressions begin charging the defibrillator while continuing CPR</li> <li>• Once fully charged, stop CPR for rhythm analysis</li> <li>• <b>Defibrillate V-Fib/Pulseless V-tach</b> – Shock at 120J and immediately resume CPR                             <ul style="list-style-type: none"> <li>• Subsequent shock, after 2 mins of CPR: 150J, then 200J</li> <li>• Recurrent V-fib/Pulseless V-tach use last successful shock level</li> </ul> </li> <li>• <b>No shock indicated</b> – dump the charge and immediately resume CPR</li> </ul> <p style="text-align: center;"><b>V-Fib/Pulseless V-Tach and Non-shockable Rhythms</b></p> <ul style="list-style-type: none"> <li>• <b>Epinephrine 1:10,000</b> 1mg IV/IO repeat every 3-5 min                             <ul style="list-style-type: none"> <li>• Do not give epinephrine during first cycle of CPR</li> </ul> </li> </ul> <p style="text-align: center;"><b>V-Fib/Pulseless V-Tach</b></p> <ul style="list-style-type: none"> <li>• <b>Lidocaine</b> 1.5mg/kg IV/IO repeat once in 3-5 min (max total dose 3 mg/kg)</li> </ul>	<ul style="list-style-type: none"> <li>• <b><u>Emphasize resuscitation and HPCPR rather than immediate transport</u></b></li> </ul> <p style="text-align: center;"><b>Rhythm analysis and shocks</b></p> <ul style="list-style-type: none"> <li>• Coordinate compressions and charging same as adult</li> <li>• <b>Defibrillate V-Fib/Pulseless V-Tach</b> – shock at 2 J/kg and immediately resume CPR                             <ul style="list-style-type: none"> <li>• Subsequent shock, after 2 mins of CPR: 4J/kg</li> <li>• Recurrent V-Fib/Pulseless V-tach use last successful shock level</li> </ul> </li> <li>• <b>No shock indicated</b> – dump the charge and immediately resume CPR</li> </ul> <p style="text-align: center;"><b>V-Fib/Pulseless V-Tach and Non-shockable Rhythms</b></p> <ul style="list-style-type: none"> <li>• <b>Epinephrine 1:10,000</b> 0.01 mg/kg (0.1 ml/kg) IV/IO not to exceed 0.3mg, repeat every 3-5 min                             <ul style="list-style-type: none"> <li>• Do not give epinephrine during first cycle of CPR</li> </ul> </li> </ul> <p style="text-align: center;"><b>V-Fib/Pulseless V-Tach</b></p> <ul style="list-style-type: none"> <li>• <b>Lidocaine</b> 1 mg/kg IV/IO repeat every 5 min (max total dose 3 mg/kg)</li> </ul>
<b>Base Hospital Orders Only</b>	
<p style="text-align: center;">ROSC with Persistent Hypotension</p> <ul style="list-style-type: none"> <li>• <b>Push-Dose Epinephrine 10 mcg/ml</b> 1ml IV/IO every 1-3 min</li> </ul>	<p>Contact closest Base Hospital for additional orders</p> <p style="text-align: center;"><b>ROSC with Persistent Hypotension for Age</b></p>

<ul style="list-style-type: none"> <li>Repeat as needed titrated to SBP &gt;90mmHg</li> <li><u>See notes for mixing instructions</u></li> </ul> <p style="text-align: center;"><b><u>OR</u></b></p> <ul style="list-style-type: none"> <li><b>Epinephrine Drip</b> start at 10 mcg/min IV/IO infusion             <ul style="list-style-type: none"> <li>Consider for extended transport</li> <li><u>See formulary for mixing instructions</u></li> </ul> </li> </ul> <p><b>Contact STEMI Receiving Center (French Hospital)</b></p> <ul style="list-style-type: none"> <li>Refractory V-Fib or V-Tach not responsive to treatment</li> <li>Request for a change in destination if patient rearrests en route</li> <li>Termination orders when unresponsive to resuscitative measures</li> <li>As needed</li> </ul> <p><b>Contact appropriate Base Station per Base Station Report Policy #121</b> – Atraumatic cardiac arrests due to non-cardiac origin (OD), drowning, etc.)</p>	<ul style="list-style-type: none"> <li><b>Push-Dose Epinephrine 10 mcg/ml</b> 1 ml IV/IO (0.1 ml/kg if &lt;10kg) every 1-3 min             <ul style="list-style-type: none"> <li>Repeat as needed titrated to age appropriate SBP</li> <li><u>See notes for mixing instructions</u></li> </ul> </li> </ul> <p style="text-align: center;"><b><u>OR</u></b></p> <ul style="list-style-type: none"> <li><b>Epinephrine Drip</b> start at 1 mcg/min, up to max of 10 mcg/min IV/IO infusion             <ul style="list-style-type: none"> <li>Consider for extended transport</li> <li><u>See formulary for mixing instructions</u></li> </ul> </li> <li>As needed</li> </ul>
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**Notes**

- Mixing Push-Dose Epinephrine 10 mcg/ml (1:100,000):** Mix 9 ml of Normal Saline with 1 ml of **Epinephrine 1:10,000**, mix well.
- Use manufacturer recommended energy settings if different from listed
- Assess for reversible causes
- Tension PTX, hypoxia, hypovolemia, hypothermia, hyperkalemia, hypoglycemia, overdose
- Vascular access – IV preferred over IO – continue vascular access attempts even if IO access established)
- Shall** utilize Oral Intubation or Supraglottic Airways (Adults), **provider discretion** –Utilize if airway is not patent or with maintained ROSC
- ~~During the initial visualization of the patient’s airway if~~
- If the provider cannot accomplish an ALS airway, they should document in the PCR why an ALS airway wasn’t accomplished**
- Adult ROSC that is maintained:
  - Obtain 12-lead ECG and vital signs
  - Transport to the nearest STEMI Receiving Center **regardless of 12-lead ECG reading**
  - Maintain O2 Sat greater than or equal to 94%
  - Monitor ETCO2
- ~~Protect airway with oral intubation or Supraglottic Airway~~
  - With BP < 100 mmHg, contact SRC (French Hospital) for fluid, or pressors
  - Termination for patients > 34 kg – Contact SRC (French Hospital) for termination orders
  - If the patient remains pulseless and apneic following 20 minutes of resuscitative measures

- Persistent ETCO<sub>2</sub> values < 10 mmHg, consider termination of resuscitation
- Documentation shall include the patient's failure to respond to treatment and of a non-viable cardiac rhythm (copy of rhythm strip)
- Pediatric patients less than or equal to 34 kg
- Stay on scene to establish vascular access, provide for airway management, and administer the first dose of epinephrine followed by 2 min of HPCPR
- Evaluate and treat for respiratory causes
- Use Broselow tape if available
- Contact and transport to the nearest Base Hospital
- Receiving Hospital shall provide medical direction/termination for pediatric patients

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<b>TRAUMATIC CARDIAC ARREST</b>	
<b>ADULT</b>	<b>PEDIATRIC (≤34KG)</b>
<b>BLS</b>	
<ul style="list-style-type: none"> <li>• Universal Protocol #601</li> <li>• Obvious Death – see Prehospital Determination of Death Policy #125</li> <li>• Follow HPCPR guidelines for CPR (10:1) and minimize interruptions (&lt; 5 seconds)</li> </ul>	Same as Adult
<b>BLS Optional</b>	
Pulse Oximetry – O <sub>2</sub> administration per Airway Management Protocol #602	
<b>ALS Standing Orders</b>	
<p><b>Traumatic arrest <u>with</u> signs of life on EMS arrival and &lt; 20 min from trauma center or hospital</b></p> <ul style="list-style-type: none"> <li>• Do not delay transport</li> <li>• Perform ALS treatments en route</li> <li>• <b>Normal Saline</b> up to 500 mL – repeat x1 if no ROSC or SBP of &lt; 90 mmHg</li> <li>• <b>Do not use Epinephrine or Lidocaine</b> unless the arrest is suspected to be of medical origin</li> <li>• Resuscitate and treat for reversible causes, i.e. hypoxia, hypovolemia, tension pneumothorax</li> <li>• For suspected tension pneumothorax see Needle Thoracostomy Procedure #705</li> </ul> <p><b>Traumatic arrest <u>with absent</u> signs of life on EMS arrival</b></p> <ul style="list-style-type: none"> <li>• With absent signs of life consider non-initiation – Prehospital Determination of Death Policy #125</li> </ul>	<p style="text-align: center;">Same as Adult (except as noted below)</p> <ul style="list-style-type: none"> <li>• <b>Normal Saline</b> 20 mL/kg IV/IO – reassess and repeat</li> </ul>
<b>Base Hospital Orders Only</b>	
<ul style="list-style-type: none"> <li>• Traumatic arrest <u>with</u> signs of life on EMS arrival and &gt; 20 min from trauma center or hospital                         <ul style="list-style-type: none"> <li>○ Contact SLO Trauma Center for treatment and/or destination</li> </ul> </li> <li>• Termination of resuscitation</li> <li>• As needed</li> </ul>	Same as Adult
<b>Notes</b>	
<ul style="list-style-type: none"> <li>• Absent signs of life assessment include: pulseless, apneic, lack of heart and lung sounds, fixed and dilated pupils</li> <li>• Trauma Center is the preferred destination if equal or near equal distance</li> <li>• Do not delay transport for advanced airway or other treatment modalities</li> <li>• Consider medical origin in older patients with low probable mechanism of injury</li> <li>• Unsafe scene or other circumstances may warrant transport despite low potential for survival</li> <li>• Minimize disturbance of potential crime scene</li> <li>• <b>Shall utilize Oral Intubation or Supraglottic Airways (Adults), provider discretion</b></li> </ul>	

- If the provider cannot accomplish an ALS airway, they should document in the PCR why an ALS airway wasn't accomplished

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