

2023 SLOEMSA Yearly Update Class



Supraglottic Airways, Pre-Existing Vascular Access Devices,
and IO Expansion

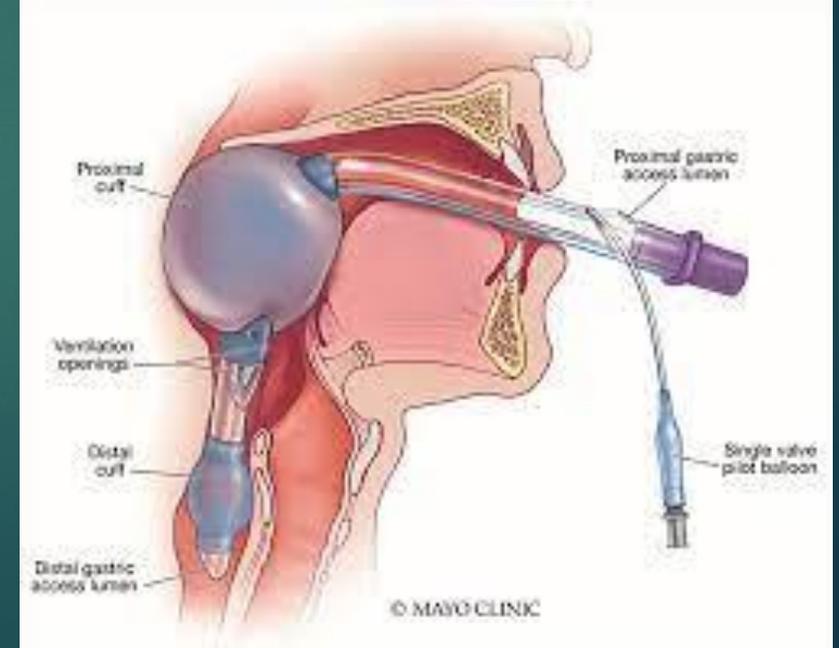
Supraglottic Airways



- ▶ The Emergency Medical Care Committee (EMCC) have given their recommendation for Supraglottic airways to be added to our ALS Provider's Scope of Practice.
- ▶ Information regarding SGAs:
 - ▶ What is an SGA
 - ▶ Description of the i-Gel SGA
 - ▶ Indications for SGA
 - ▶ How to use
 - ▶ Policies affected by SGA addition

What is a Supraglottic Airway Device?

- ▶ A Supraglottic Airway Device (SGA) is an advance airway that can be inserted into the pharynx to allow ventilation without the need for direct visualization when inserting.
- ▶ An SGA rests on top of the patient's epiglottic opening and does not pass between the patient's vocal cords, allowing easy placement into the pharynx.
- ▶ Using the mask of the SGA and mild pressure caused by securing the SGA to the patient, this provides a mild barrier to assist in keeping fluids and vomitus from entering the lower airway.



i-Gel Supraglottic Airway Device

- ▶ i-Gels have been recommended for utilization in San Luis Obispo County.
- ▶ Three sizes have been approved for use:
 - ▶ Size 3: Small Adult 34-60 kg
 - ▶ Size 4: Medium Adult 50-90 kg
 - ▶ Size 5: Large Adult 90+ kg
- ▶ Some features of the i-Gel include:
 - ▶ Integrated bite block, no external bite block needed.
 - ▶ Non-inflated cuff, eliminates need to manually inflate.
 - ▶ Internal gastric channel to funnel vomitus from the cuff to the distal end of the i-Gel.
- ▶ At this time, Supraglottic Airway Device utilization is not allowed for pediatrics.

Features and benefits

The i-gel® has a host of features that provide significant benefits to the patient and the clinician.

15mm connector

Reliable connection to any standard catheter mount or connection

Proximal end of gastric channel

Clearly displayed product information

For quick easy reference. Includes confirmation of size and weight guidance

Position guide (adult sizes only)

Easy confirmation of optimum insertion depth

Gastric channel

The i-gel® incorporates a gastric channel (except size 1). It provides an early warning of regurgitation, allows for the passing of a nasogastric tube to empty the stomach contents and facilitates venting

Integral bite block

Reduces the possibility of airway channel occlusion

Buccal cavity stabiliser

Aids insertion and eliminates the potential for rotation

Epiglottic rest

Reduces the possibility of epiglottic 'down folding' and airway obstruction

The non-inflatable cuff

Made from a unique soft gel-like material allowing ease of insertion and reduced trauma

Distal end of gastric channel



The adult sizes of i-gel® can be used as a conduit for intubation under fiberoptic guidance in a known or unexpectedly difficult intubation



i-Gel Resus-Pack

- ▶ i-Gel SGAs supplied by BoundTree come individually packed in a “Resus-Pack”.
- ▶ Resus-Packs include the i-Gel SGA, securing strap, and lubrication.
- ▶ Each individual pack has a 3-year expiration date.
- ▶ Per Policy#205 Attachment A: EMS Equipment and Supply List, SLOEMSA shall require a minimum of one size 3, two size 4s, and one size 5 SGA in each ALS unit/apparatus



When to use:

▶ Indications:

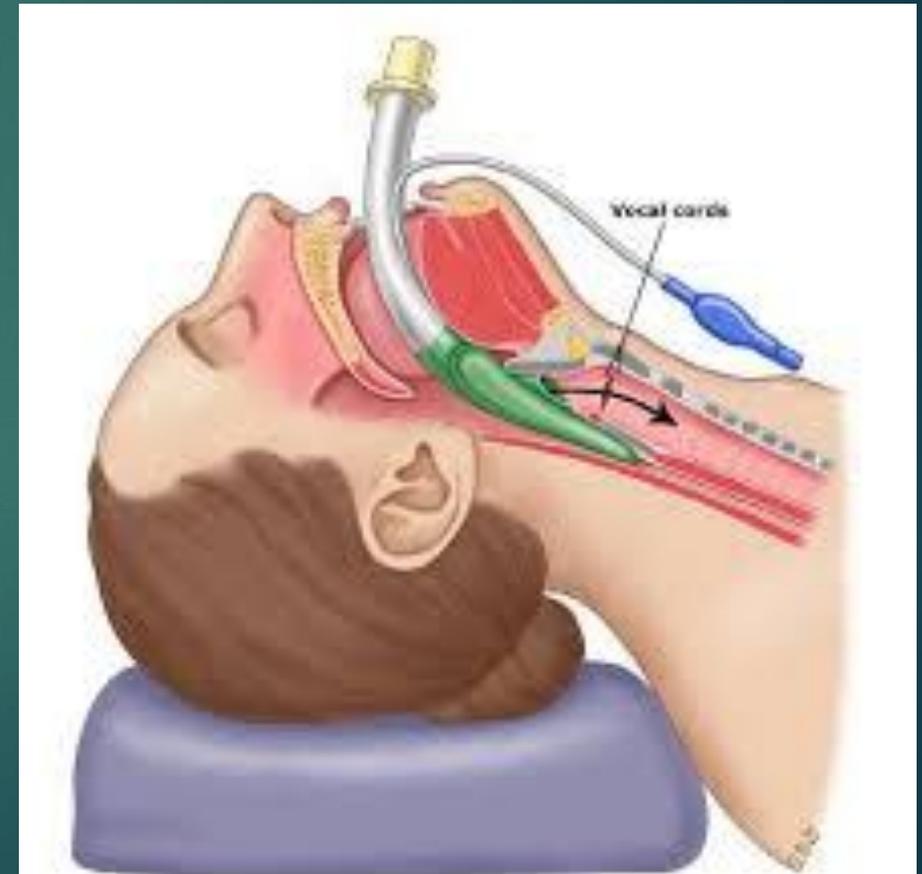
- ▶ Patients with a respiratory compromise
- ▶ ROSC patients requiring airway stabilization
- ▶ Situations where the airway cannot be adequately maintained by BLS techniques

▶ Option for Primary vs Back-up to Endotracheal Intubation

- ▶ Option for Primary: Incorporates one visualization of the patient's airway and determining if that airway would be easily accessible or difficult to access (resulting in a large amount of time without an advanced airway).
- ▶ Back-up to Endotracheal Intubation: If Endotracheal intubation efforts are unsuccessful after the 1st attempt, continue with BLS airway and re-evaluate airway positioning before 2nd attempt while considering SGA usage. Following 2nd attempt without success, proceed to SGA usage.

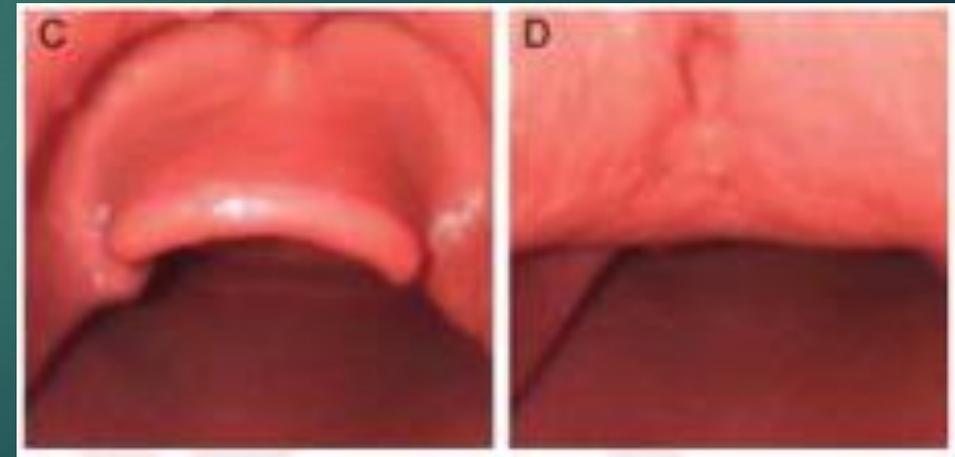
▶ Contraindications:

- ▶ Intact gag reflex
- ▶ Easily visualized vocal cords resulting in a higher chance of endotracheal intubation.
- ▶ Any sort of injury to the airway that could cause edema.
- ▶ Airway blockage (foreign body, anaphylaxis)



When to use:

- ▶ Procedure #717: Endotracheal Intubation:
 - ▶ “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”.
- ▶ Procedure #718: Supraglottic Airway Device:
 - ▶ “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”.
- ▶ Procedure #717: Endotracheal Intubation:
 - ▶ “If ET intubation efforts are unsuccessful after the 1st attempt, continue with a BLS airway, re-evaluate the airway positioning before the 2nd attempt. After first failed attempt, consider use of Supraglottic Airways”.
 - ▶ “If ET intubation efforts are unsuccessful after the 2nd attempt, continue with a BLS airway and proceed to Supraglottic Airways”.



Why is this addition happening?

- ▶ An alternate Advanced Airway is needed to supplement Endotracheal Intubation.
 - ▶ San Luis Obispo County is one of the last counties not utilizing some form of a Supraglottic Airway
- ▶ Advanced Airway utilization has been declining.
 - ▶ 2022 Endotracheal Intubation Review:
 - ▶ 87 Calls Indicated ETI
 - ▶ 30 Attempted Intubations
 - ▶ 22 Successful Intubations
 - ▶ 13 On First Try
- ▶ SLOEMSA is proceeding with i-Gel SGA due to its reliability
 - ▶ Out of the 34 LEMSAs across the State of California, approximately 80% of counties are utilizing i-Gel
 - ▶ Simplistic placement without additional preparation needed.

LEMSA	Back -up Airway Only	Option for Primary	i-Gel	King LTS-D	air-Q	LMA Supreme
Alameda		x	x			
Contra Costa		x	x			
Kern		x		x		
Los Angeles		x		x		
Marin		x	x			
Merced		x		x		
Napa		x		x		
Orange		x		x		
Sacramento		x	x			
San Francisco		x		x		
Santa Barbara		x			x	
Santa Clara	x					x
Tuolumne		x	x			
Ventura		x		x		
Yolo	x		x	x		
Coastal Valleys	x		x			
Mountain-Valley		x	x	x		
Norcal		x	x			
North Coast		x	x			
Sierra-Sac Valley	x		x	x		
El Dorado		x		x		
Imperial		x		x		
Monterey		x	x			
Riverside		x	x			
San Benito		x		x		
San Diego	x			x		
San Mateo		x		x		
Santa Cruz		x		x		
Solano		x		x		
Central California		x	x			
Inland Counties	x		x			
San Joaquin	x		x			

How to Use:

- ▶ Select appropriate tube size
- ▶ While preparing the tube, have assistive personnel open the airway, and clear any foreign objects. Pre-oxygenate with 100% oxygen via BLS airway and BVM.
- ▶ 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.
- ▶ Grasp the lubricated i-Gel device firmly along the integral bite-block. Position the device so that the i-Gel cuff outlet is facing towards the chin of the patient.
- ▶ 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.
- ▶ Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.



How to Use:

- ▶ Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.
- ▶ 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.
- ▶ Attach a BVM. While gently bagging the patient to assess ventilation, carefully withdraw the airway until ventilation is easy and free flowing.
- ▶ Confirm proper position by auscultation, chest movement, and verification of ETCO₂ by waveform capnography.
- ▶ The i-Gel should be secured down per manufacturer recommendation.



Policies affected by SGA:

- ▶ Addition of Procedure #717: Endotracheal Intubation
- ▶ Addition of Procedure #718: Supraglottic Airway Device
- ▶ Revision of Protocol #602: Airway Management
 - ▶ Includes language for Procedure #717 and #718 and requires confirmation of placement.
- ▶ Revision of Policy #205 Attachment A
 - ▶ Includes minimum requirements per unit/apparatus
- ▶ Revision of Protocol #641: Cardiac Arrest (Atraumatic)
 - ▶ Includes use of ETI or SGA if the airway is not patent or with maintained ROSC
- ▶ Revision of Policy #342 Attachment C: Advance Airway Maneuver Form
 - ▶ Re-organized with addition of SGAs.

Endotracheal Intubation

FOR USE IN PATIENTS >34 KG

BLS

Universal Protocol #601

Pulse Oximetry – O₂ administration per Airway Management Protocol #602

ALS Standing Orders

- Indications:
 - Patients with a respiratory compromise.
 - ROSC patients requiring airway stabilization
 - 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 1st attempt, continue with a BLS airway, re-evaluate the airway positioning before the 2nd attempt. After first failed attempt, consider use of Supraglottic Airways (reference Procedure #718).
- If ET intubation efforts are unsuccessful after the 2nd attempt, continue with a BLS airway and proceed to Supraglottic Airway Procedure #718.
- Patients who have an advanced airway established should be 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

- 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 in order to assist in oxygenation.

Supraglottic Airway Device

FOR USE IN PATIENTS >34 KG

BLS

Universal Protocol #601

Pulse Oximetry – O₂ administration per Airway Management Protocol #602

ALS Standing Orders

- Patients who meet indications for **Endotracheal Intubation Procedure #717**
- Patients who after the ALS Provider has visualized the patient's airway and has determined that their airway will be difficult to access.
- SGA use is not approved for pediatric use. SGA shall only be used for patients >34kg.

I-GEL

- Monitor End-tidal capnography throughout use.
- Select appropriate tube size.

3	Small Adult	30-60kg
4	Medium Adult	50-90kg
5	Large Adult	90+kg

- 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.
- 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.
- 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.
- 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.
- Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
- Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.
- 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.
- 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).
- Confirm proper position by auscultation, chest movement and verification of ETCO₂ by waveform capnography.
- The i-gel should be secured down per manufacturer recommendation.
- Patients who have an advanced airway established should be 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.
- 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).

- 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.

AIRWAY MANAGEMENT

ADULT	PEDIATRIC (<34 kg)
BLS	
<ul style="list-style-type: none"> • Universal Protocol #601 • Administer O₂ as clinical symptoms indicate (see notes below) • Pulse oximetry • Patients with O₂ Sat ≥ 94% without signs or symptoms of hypoxia or respiratory compromise should not receive O₂ • When applying O₂ use the simplest method to maintain O₂ Sat ≥ 94% • Do not withhold O₂ if patient is in respiratory distress • Foreign Body/Airway Obstruction <ul style="list-style-type: none"> ○ Use current BLS choking procedures ○ Basic airway adjuncts and suctioning as indicated and tolerated 	<p style="text-align: center;">Same as Adult (except for newborns)</p> <ul style="list-style-type: none"> • Newborn (< 1 day) follow AHA guidelines – Newborn Protocol #651
BLS Elective Skills	
<ul style="list-style-type: none"> • Moderate to Severe Respiratory Distress <ul style="list-style-type: none"> ○ CPAP as needed – CPAP procedure #703 	<p style="text-align: center;">CPAP not used for patients ≤34 kg</p>
ALS Standing Orders	
<ul style="list-style-type: none"> • Foreign Body/Airway Obstruction If obstruction not relieved with BLS maneuvers <ul style="list-style-type: none"> ○ Visualize and remove obstruction with Magill forceps ○ If obstruction persists consider – Needle Cricothyrotomy Procedure #704 ○ Upon securing airway monitor O₂ Sat and ETCO₂ – Capnography Procedure #701 • Endotracheal intubation – as needed to control airway – Procedure #717 • Supraglottic Airway – as needed to control airway if indicated – Procedure #718 • Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705 	<ul style="list-style-type: none"> • Foreign Body/Airway Obstruction If obstruction not relieved with BLS maneuvers <ul style="list-style-type: none"> ○ Visualize and remove obstruction with Magill forceps ○ If obstruction persists consider – Needle Cricothyrotomy Procedure #704 ○ Upon securing airway monitor O₂ Sat and ETCO₂ – Capnography Procedure #701 • Needle thoracostomy with symptoms of tension pneumothorax – Needle Thoracostomy Procedure #705
Base Hospital Orders Only	
<ul style="list-style-type: none"> • Symptomatic Esophageal Obstruction <ul style="list-style-type: none"> ○ Glucagon 1mg IV followed by rapid flush. Give oral fluid challenge 60 sec after admin - check a blood sugar prior • As needed 	<ul style="list-style-type: none"> • Symptomatic Esophageal Obstruction <ul style="list-style-type: none"> ○ Glucagon 0.1mg/kg IV not to exceed 1mg followed by rapid flush. Give oral fluid challenge 60 sec after admin - check a blood sugar prior

- As needed

Notes

- Oxygen Delivery
 - Mild distress – 0.5-6 L/min nasal cannula
 - Severe respiratory distress – 15 L/min via non-rebreather mask
 - Moderate to severe distress – CPAP 3-15 cm H₂O
 - Assisted respirations with BVM – 15 L/min
- Pediatric intubation is no longer an approved ALS skill – maintain with BLS options
- Patients requiring an advanced airway shall decide which airway to use based on 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.
- 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.
- 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:
 - Auscultation of lung and stomach sounds.
 - Colorimetric CO₂ Detector Device.
 - Esophageal Bulb Detection Device.



- Epinephrine Drip start at 10 mcg/min IV/IO infusion
 - Consider for extended transport
 - See formulary for mixing instructions
 - See notes for mixing instructions
OR
 - Epinephrine Drip start at 1 mcg/kg, up to max of 10 mcg/min IV/IO infusion
 - Consider for extended transport
 - See formulary for mixing instructions
- Contact STEMI Receiving Center (French Hospital)
- Refractory V-Fib or V-Tach not responsive to treatment
 - Request for a change in destination if patient rearrests en route
 - Termination orders when unresponsive to resuscitative measures
 - As needed
- Contact appropriate Base Station per Base Station Report Policy #121 - Atraumatic cardiac arrests due to non-cardiac origin (OD, drowning, etc.)

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
- **Oral Intubation and Supraglottic Airways (Adults) – Utilize if airway is not patent or with maintained ROSC**
- 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 ≥ 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 ETCO₂ values < 10mmHg, 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 ≤ 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

County of San Luis Obispo
 EMS Equipment and Supply List

Policy 205 - Attachment A

11/22/2022

Description	Strength/Size	ALS Transport Minimum	ALS First Responder Minimum	ALS Special Use Medic Minimum	ALS Wildland Unit Minimum	BLS First Responder Minimum † Elective skills as required
AIRWAY						
Endotracheal tubes:	sizes-3.0, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0	1 each	1 each	1 each	1 each	0
Laryngoscope handles, with extra batteries		2	2	1	1	0
Laryngoscope blades:	Miller # 0, 1, 2, 3, 4 Macintosh # 1, 2, 3,	1 each	1 each	1 each	1 each	0
i-Gel Supraglottic Airways	Size 3 and Size 5	1 each	1 each	1 each	1 each	0
i-Gel Supraglottic Airways	Size 4	2 each	2 each	1 each	1 each	0
Magill forceps (pediatric and adult)		1 each	1 each	1 each	1 each	0

Advance Airway Maneuver Form

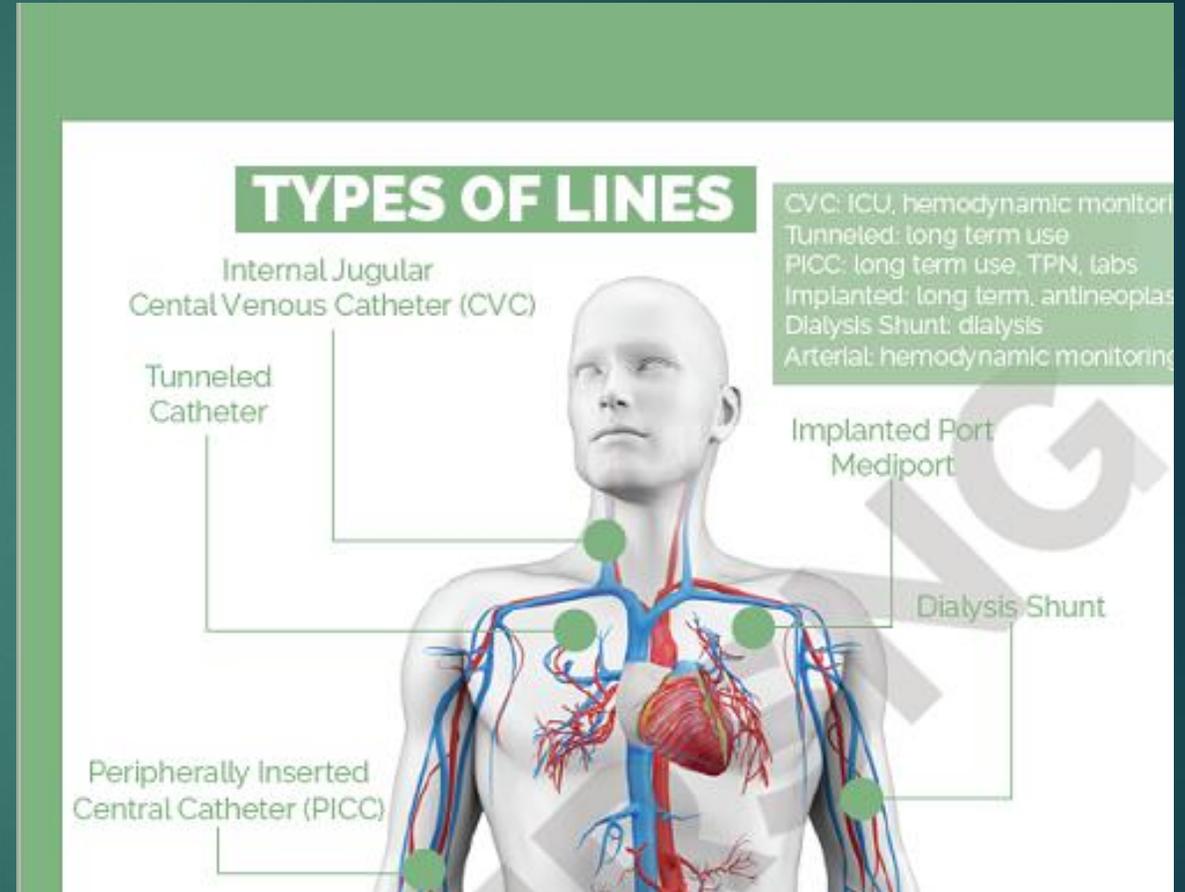
Date: _____ Incident: _____ Receiving Hospital: _____		Medic/RN/Intern #: _____ Agency: _____	
Patient Information Gender: M F N/A Age: _____ Weight: _____ Height: _____	Indication for Intubation <input type="checkbox"/> Medical Cardiac Arrest/ROSC <input type="checkbox"/> Traumatic Arrest <input type="checkbox"/> Respiratory Arrest/Hypoventillation <input type="checkbox"/> Airway Protection/Injury/Obstruction <input type="checkbox"/> Other (Specify why in Medic Comments)	O2 CO2 Initial _____ Lowest _____ Highest _____	
First Attempt Success: <input type="checkbox"/> Yes <input type="checkbox"/> No Airway: <input type="checkbox"/> ETI <input type="checkbox"/> SGA Size: _____ Depth: _____ ETI Info: Blade: <input type="checkbox"/> Mac <input type="checkbox"/> Miller <input type="checkbox"/> Video Adjunct: Suction Bougie Other Adj: _____	Second Attempt Success: <input type="checkbox"/> Yes <input type="checkbox"/> No Airway: <input type="checkbox"/> ETI <input type="checkbox"/> SGA Size: _____ Depth: _____ ETI Info: Blade: <input type="checkbox"/> Mac <input type="checkbox"/> Miller <input type="checkbox"/> Video Adjuncts: Suction Bougie Other Adj: _____	Third Attempt Success: <input type="checkbox"/> Yes <input type="checkbox"/> No Airway: <input type="checkbox"/> ETI <input type="checkbox"/> SGA Size: _____ Depth: _____ ETI Info: Blade: <input type="checkbox"/> Mac <input type="checkbox"/> Miller <input type="checkbox"/> Video Adjunct: Suction Bougie Other Adj: _____	
If ETI/SGA was not placed, provide reasoning why in medic comments and indicate alternative airway management techniques used: <input type="checkbox"/> BVM <input type="checkbox"/> OPA <input type="checkbox"/> NPA <input type="checkbox"/> Needle Cric			
Airway Confirmation Methods Used <input type="checkbox"/> ETCO2 (Required by Policy) <input type="checkbox"/> Colorimetric <input type="checkbox"/> Bulb Detection Device <input type="checkbox"/> Lung/Epigastric Sounds	Results: Waveform Present: _____ Colorimetric Color: _____ Lung Sounds: _____ Gastric Sounds: _____	Patient Outcome: _____ _____ _____	
Medic Comments: _____ _____ _____			
Signatures: Paramedic that placed Airway: _____ Paramedic/Physician that Verified: _____			
Once this form is completed, send to PH_EMSA@co.slo.ca.us			

PVAD/IO Expansion Summary

- ▶ Additions to existing Procedure #710: Vascular Access and Monitoring
 - ▶ Addition of PVAD utilization
 - ▶ Addition of Humoral IO Access
 - ▶ Elimination of the two IV start rule prior to IO access, paramedic discretion
 - ▶ Elimination of GCS < 8 rule for IO utilization
 - ▶ Lidocaine administration post IO placement

What is PVAD?

- ▶ PVAD stands for Pre-Existing Vascular Access Devices (PVAD).
- ▶ Types of PVADs include Peripherally Inserted Central Catheter (PICC Line), Midline IV Catheter, tunneled/non-tunneled Central lines, dialysis shunts, and implanted med ports.

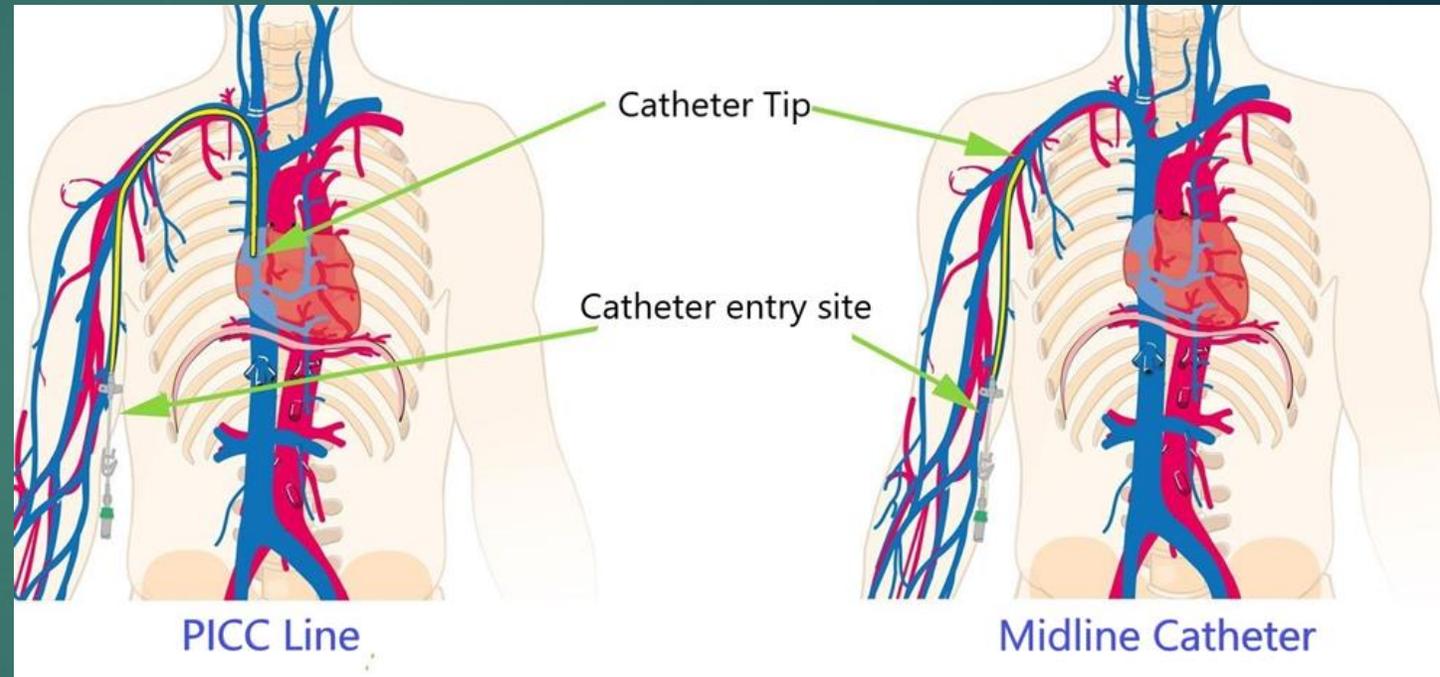


What is approved/not approved for use?

- ▶ Per SLOEMSA procedure #710, paramedics can now access Peripherally Inserted Central Catheters (PICC Line) and Midline IV catheters via standing orders.
- ▶ Access to tunneled/non-tunneled Central Lines for patients in extremis or cardiac arrest via base hospital order.
- ▶ Implanted Port access is not allowed in SLO County.

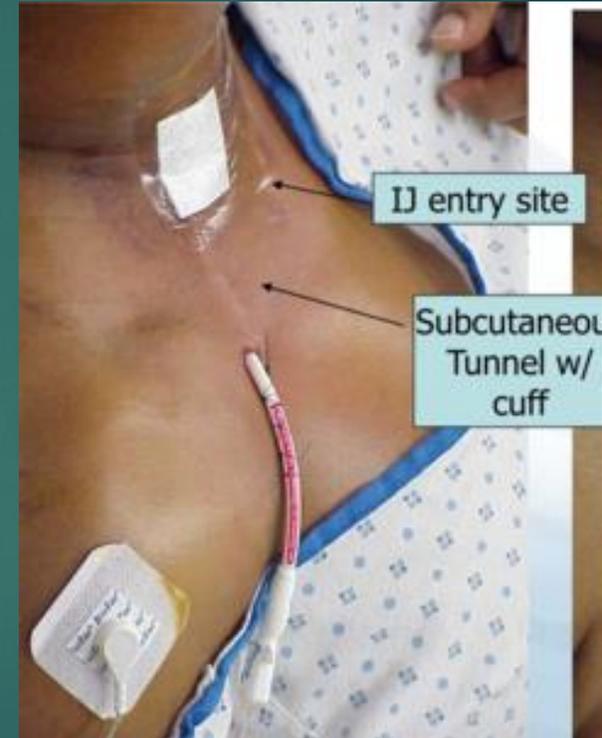
PICC and Midline IV Catheters

- ▶ PICC line stands for peripherally inserted central catheter. PICC line is a catheter which is inserted into a vein in the upper arm and guided (threaded) into the superior vena cava. This tube may have one or two openings, or lumens.
- ▶ Midline IV is a vascular access device intended for placement into a peripheral vein in the upper arm; basilic, cephalic, or one of the two brachial veins, with the internal tip located level at or near the level of the axilla and distal to the shoulder. Standard midlines can range from 10 to 20 centimeters in length and can have a single lumen or double lumen.



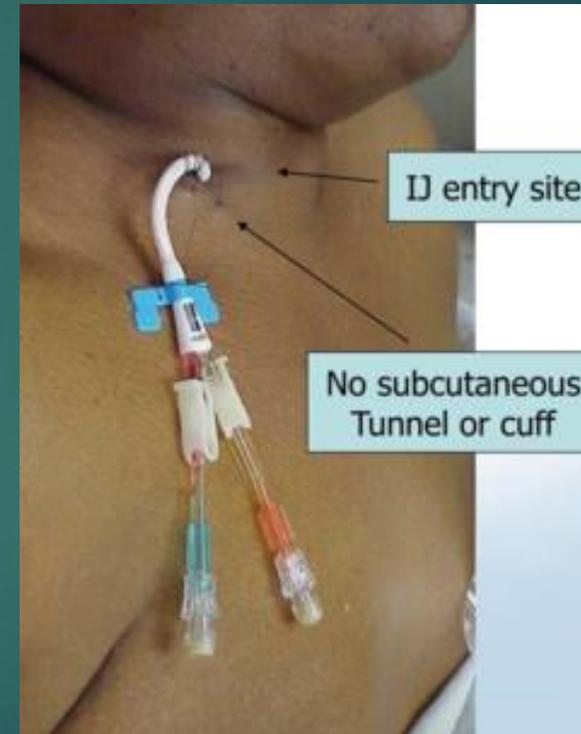
Tunneled Central Lines

- ▶ Tunneled central line is a catheter that is tunneled under the skin before entering a large vein. It is commonly placed in the neck into the internal jugular vein and extends down to a larger vein just above the heart (cavoatrial junction). The catheter is tunneled underneath the skin a few inches above the nipple line, and it has a small cuff that helps to secure it. The catheter can be single, double, or triple lumen. It can be called several different names including Hickman, Broviac, or Groshong.



Non-Tunneled Central Lines

- ▶ Non-tunneled central lines are placed percutaneously with the catheter exiting the skin in the vicinity of the venous cannulation site (jugular, subclavian, femoral). These catheters are mostly used for temporary venous access. Non-tunneled central lines may be single, double, or triple lumen.



Implanted Med Ports

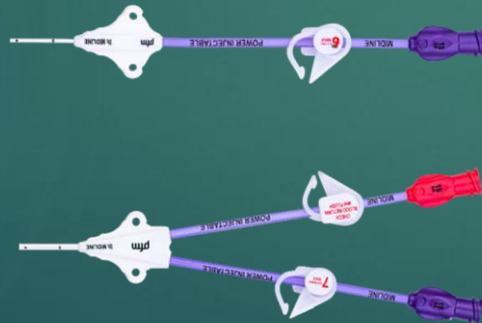
- ▶ A quarter-sized disk that is placed either surgically or by an interventional radiologist just beneath the skin in the chest or abdomen. The disk is connected to a catheter that is inserted into a large vein. Fluids, drugs, or blood products can be infused, or blood drawn through a needle that is inserted into the disk through the skin. Examples of manufacturer's names: Port-o-cath, Infusaport, Lifeport.
- ▶ Implanted ports are NOT to be accessed by paramedics in San Luis County. Implanted ports shall only be utilized if access has already been obtained by a provider with a higher level of care and a base order has been obtained.



Procedure #710 PVAD Addition

▶ Additions:

- ▶ Routine access for medication/fluid administration through PICC and Mid lines as standing orders while following appropriate preparation and procedure.
- ▶ Access of Tunneled and Non-Tunneled Central Lines via Base Order for patients in Extremis or Cardiac Arrest.



▶ Access Procedure:

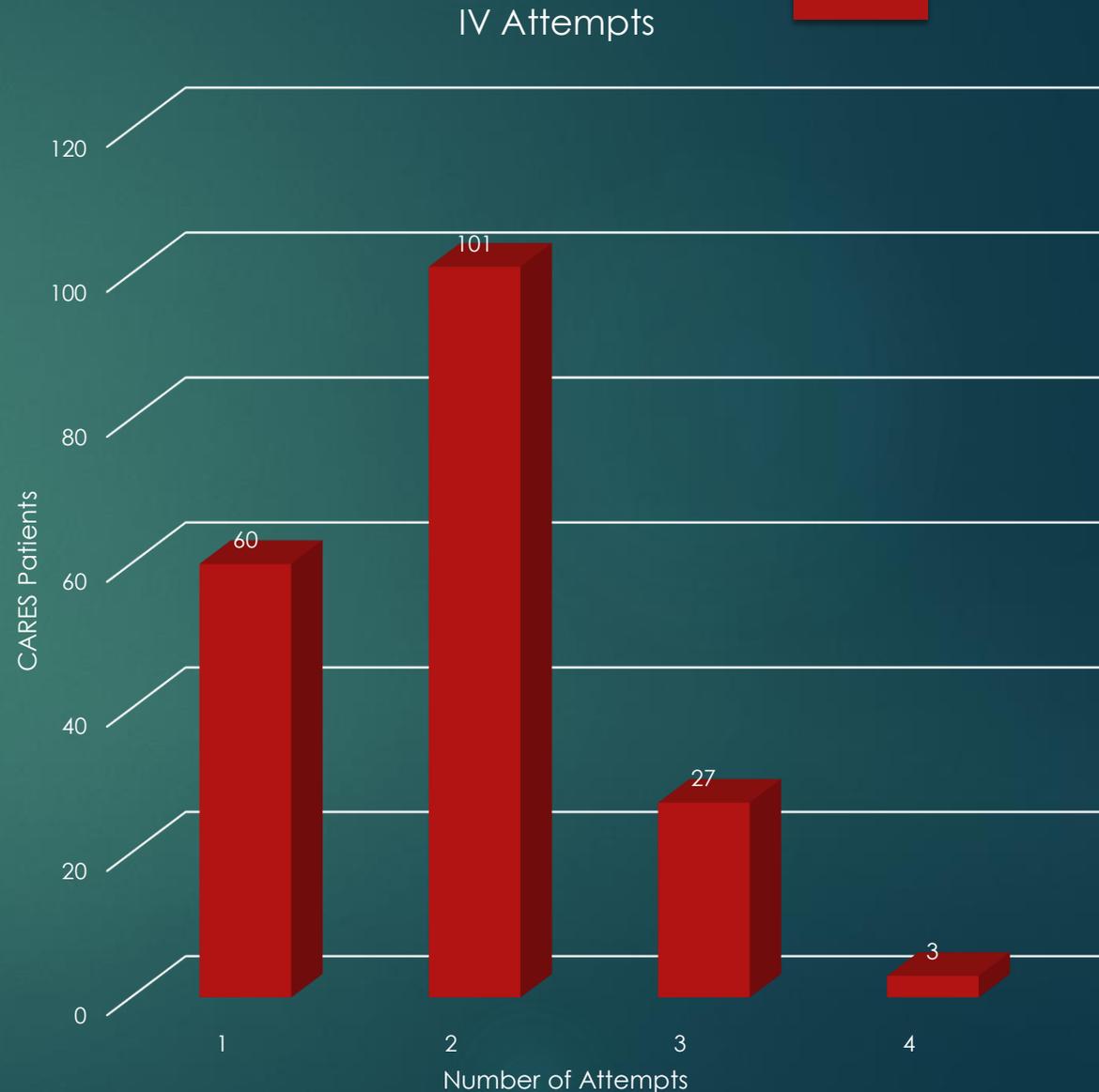
- ▶ Wipe the access port with an alcohol pad.
- ▶ Ensure that if line is a dual lumen that you utilize the line for medication and not for blood.
- ▶ Attach 10ml syringe and draw up 5-10ml of fluid out of the line or until blood is noted in the syringe.
- ▶ Discard filled syringe and flush the line with an entire 10ml saline flush.
- ▶ Administer medication into line followed by an entire 10ml saline flush.
- ▶ Wipe down port and replace any protective cap (if one was present).
- ▶ ALS providers may attach a saline bag for an infusion after the PVAD has been properly aspirated.

Procedure #710 IO Revisions and Humoral Access Additions

- ▶ Intraosseous access has been opened as an option for primary for patients presenting with difficult vasculature.
- ▶ “When establishing IV/IO access in a critical patient, ALS Providers will take the following into consideration:”
 - ▶ When assessing a patient’s vasculature and determining access to be difficult, an ALS Provider may proceed straight to IO access. Further IV attempts will continue following IO placement.
 - ▶ If the first attempt at IV placement fails, an ALS Provider may consider placement of an IO prior to a second attempt.
 - ▶ External Jugular access should be considered prior to IO placement.
- ▶ Humoral IO placement will become available via Base Hospital Order if:
 - ▶ Unable to gain access to the tibial plateau or plateau is nonexistent.
 - ▶ Tibial plateau is preferred for IO placement over humoral.
- ▶ If the patient becomes responsive to painful stimuli following IO placement, administer Lidocaine 0.5 mg/kg to a max dose of 40mg. Push slowly through IO over 60 seconds.

Why is this change occurring?

- ▶ ALS Providers should be able to use PVADs that have already been placed and ready to be used
 - ▶ Use of PVADs is part of State of California ALS Scope of Practice
 - ▶ While caring for patients in extremis or cardiac arrest, utilizing a line that is already in place will save time and tissue.
- ▶ We are wanting to minimize time spent on procedures and re-prioritize that time to be spent on treatments.
 - ▶ During a 2022 CARES Study, it was found that a large amount of time was spent on cardiac arrests attempting to gain vascular access. With the ability to quickly start los, time and tissue can be saved.
- ▶ An alternate IO site is needed to provide ALS providers with a backup when tibial plateaus are unable to be accessed.



VASCULAR ACCESS AND MONITORING

ADULT

PEDIATRIC (≤34KG)

BLS

- Universal Protocol #601
- In stable patients, providers may monitor and turn off IV lines of isotonic balanced salt solutions without medication or electrolyte additives and flowing at a maintenance rate

BLS Optional

Pulse Oximetry – O₂ administration per Airway Management Protocol #602

ALS Standing Orders

- Establish IV with drip set or saline lock as appropriate.
- Tibial Intraosseous (IO) placement may be utilized for:
 - Patients in extremis or cardiac arrest with hemodynamic instability/respiratory distress/cardiac arrest. AND
 - Unable to establish following attempt(s) or general suspicion of the inability to establish vascular access.
- Attempts to establish vascular access shall be continued even if IO is successful.
- If patient becomes responsive to painful stimuli following IO administration:
 - Lidocaine 0.5mg/kg (Total max dose of 40mg) slow IO push over 60 seconds.
- ALS providers can monitor and administer medications through a Pre-existing Vascular Access Device (PVAD). These pre-existing catheters are:
 - Peripheral Inserted Central Catheter (PICC Line)
 - Midline IV Catheters
- PVAD access procedure:
 - Wipe the access port with an alcohol pad to ensure aseptic technique.
 - Ensure that if your line is a dual lumen line that it is the line designated for medication administration (do not use the line utilized for blood, this can be identified by a red colored catheter or stated on the catheter).
 - Attach a 10ml syringe and draw up 5-10ml of fluid out of the line until blood is noted in the syringe. This is to ensure the line is not pre-loaded with heparin.
 - Discard the filled syringe and flush the line with an entire 10cc saline flush. This is to ensure that the line is clean and ready for medication administration.
 - Connect the syringe with the desired medication and administer according to the appropriate formulary. Follow the medication administration with an entire 10cc saline flush.
 - If any sort of cap was used to cover the port, ensure the cap is wiped down and placed back on the port following use.
 - If the patient is needing an infusion from a saline bag, ALS Providers may connect the IV line to the PVAD after the line has been aspirated per instructions listed above. After the infusion is finished, ensure the line is flushed with a 10cc saline flush, and wipe the port with an alcohol pad. If any sort of cap was used to cover the port, ensure the cap is wiped down and placed back on the port following use.

Base Hospital Orders Only

- Pain management if patient becomes conscious after establishing IO access
- Humeral IO Placement
- Access to tunneled/non-tunneled Central Lines for patients in extremis or cardiac arrest. Access of these central lines shall follow the PVAD access procedure listed above.
- As needed

Notes

- Peripheral IV placement is preferred to IO placement – including the external jugular.
- Tibial plateau is preferred for IO placement over humeral placement. Humeral IO placement shall only be utilized if the Tibial plateau is unable to be accessed.
- When establishing IV/IO access in a patient in extremis or cardiac arrest, ALS Providers will take the following into consideration:
 - When assessing a patient's vasculature and determining access to be difficult, an ALS Provider may proceed straight to IO access. Further IV attempts will continue following IO placement.
 - If the first attempt at IV placement fails, an ALS provider may consider placement of an IO prior to a second attempt.
- External Jugular (EJ) access should always be considered prior to IO placement.
- If a patient becomes responsive to painful stimuli following IO placement, Lidocaine may be administered to assist with pain management during fluid/medication administration. The total amount of Lidocaine administered to the patient shall not exceed 40mg.

Test

The test is conducted through the Class Marker program. The link below will take you to the actual test. Before you take the test, it will ask you for a valid email, personal password, and passcode MICN2023. Your results will automatically be delivered to the EMS Agency. This will serve as proof of completion of the MICN EMS Update Class. You have two attempts to pass the test. To pass, you must receive a score of at least 80%. If you are unable to pass the test in two attempts, please contact your MICN Liaison

Helpful resources to have on hand for the test:

- Procedure #710 Vascular Access
- Procedure #717: Endotracheal Intubation
- Procedure #718: Supraglottic Airway Device
- Protocol #602: Airway Management
- Protocol #641: Cardiac Arrest (Atraumatic)
- SLO EMSA APP (for policies, procedures, and protocols)
- SLO County EMS Agency Website (for policies, procedures, and protocols)

TEST LINK