ADVANCED AIRWAY

PURPOSE

The purpose of this policy is to outline the clinically indicated and required steps for advanced airway management and highlight the steps of basic airway management. The approved advanced airway management procedure for the adult patient consists of endotracheal intubation or insertion of a supraglottic airway device.

AUTHORITY

Health and Safety Code 1797.220 and 1798 California Code of

Regulations, Title 22, Division 9

POLICY

A. The Yolo EMS approved advanced airway management procedures for adult patients consist of the following:

1. Endotracheal Intubation
2. Insertion of a King Airway device

B. The preferred method of airway management for pediatric patient age twelve (12) and under is Bag-Valve-Mask (BVM) ventilation. Intubation in this age group should be performed only if BVM ventilation is unsuccessful or impossible.

C. ALS (Paramedic) personnel are authorized to perform any of the advanced airway skills listed in this policy.

AEMT & LALS personnel are authorized to perform the skill of insertion of a King Airway device only. LALS personnel may not intubate.

D. BLS personnel are authorized to perform the skill of insertion of a King Airway device **only** if their provider has been authorized by the Yolo EMS Agency as an approved EMT optional skills provider and they have successfully completed an approved training program. BLS personnel may not intubate.

E. Defer advanced airway insertion rather than interrupt chest compressions in the cardiac arrest patient.

F. ALS / LALS and BLS personnel must confirm correct advanced airway placement with physical assessment (auscultation, observation of chest rise, visualization of the tube passing through the cords, etc.) in addition to one or more of the following methods:

1. Waveform Capnography (Preferred)
2. Capnometry
3. Colorimetric end-tidal CO_2 detector device

G. ALS / LALS personnel must re-confirm correct advanced airway placement utilizing the methods

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listed above on any patient where the airway has been established by a BLS provider. ALS / LALS personnel assume responsibility for the advanced airway once they have arrived on scene and established patient care.

H. An ALS / LALS provider who establishes an advanced airway shall accompany the patient to the hospital if the patient is transported. This does not apply to multiple patient incidents or when patient care is appropriately transferred to another ALS / LALS provider (Air Ambulance, Air Rescue). In these cases, the receiving ALS / LALS provider must re-confirm correct advanced airway placement immediately upon transfer of patient care.

I. Advanced airway placement must be re-confirmed by the EMT, Advanced EMT, or Paramedic utilizing the methods listed above, any time there is concern about the patency of the airway or any time there is a movement of the patient; including but not limited to:

1. Movement of the patient onto the ambulance gurney
2. Movement of the patient into or out of the ambulance
3. Movement of the patient from the ambulance gurney to the hospital gurney when able.

If the advanced airway is determined to no longer be patent during a re- confirmation assessment, appropriate measures must be immediately taken to re- establish the patency of the airway. This may include removal of the advanced airway and the utilization of BLS airway measures until the advanced airway can be appropriately re-established. The paramedic shall confirm that the advanced airway remains patent when the patient is transferred from the ambulance gurney to the hospital gurney and any concerns must be reported immediately to the receiving ED physician.

INDICATIONS

A. Non-trumatic cardiac and/or respiratory arrest.
B. Traumatic cardiac and/or respiratory arrest.
C. Severe ventilator compromise where the airway cannot be adequately maintained by BLS techniques.

PROCEDURE

A. Endotracheal Intubation – (ALS – Paramedic personnel only):

1. Definition: An intubation attempt is defined as the introduction of an endotracheal tube past the patient's teeth.

2. Make no more than **one (1) total attempt per patient** at placing the endotracheal tube. This attempt should not last longer than fifteen (15) seconds. If unsuccessful after one (1) attempt at endotracheal intubation, use a supraglottic airway (King Tube).

3. If patient has Cormack-Lehane grade of three to four (3 or 4), epiglottis is not or is barley visable, consider primary use of a supraglottic airway. Paramedic may use King Tube.

4. Pediatric intubation should be performed **only** if BVM ventilation is unsuccessful or impossible. *Note:* If unable to maintain respirations using BVM device in pediatric patient, endotracheal tube is indicated.

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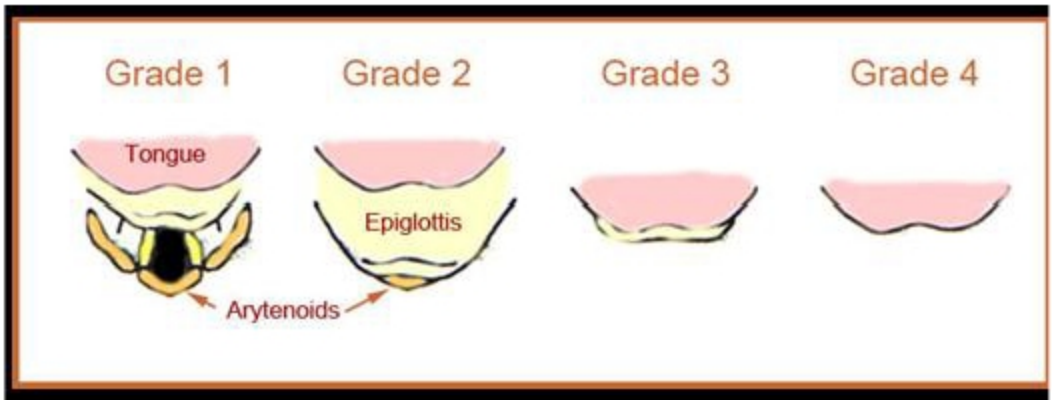
Cormack-Lehane Scale



B. Supraglottic Airway Device (King Tube) – This device is **required in adult cardiac arrest** if unable to adequately ventilate using the BVM; as it can be performed during chest compressions. It may be used in other cases at the paramedic's discretion and it must be used after one (1) unsuccessful attempt at endotracheal intubation.

1. The King Airway comes in three sizes:

   a. Size 3 – Patient between 4 and 5 feet tall
   b. Size 4 – Patient between 5 and 6 feet tall
   c. Size 5 – Patient over 6 feet tall

2. The King Airway devices are not to be used in patients < 4 feet tall.

C. Confirm Advanced Airway Placement:

Auscultate both lung fields for breath sounds, confirm chest rise with ventilation. Listen over left upper quadrant of the abdomen for air in the stomach.

Attach an approved end-tidal CO_2 detector (colorimetric device), capnometry or waveform capnography unit, that must remain in place until arrival at the hospital, **Waveform Capnography is preferred and must be used if available.**

All devices used to confirm advanced airway placement must be documented on the PCR (EDD, $ETCO_2$ – colorimetric or capnography)

If there is any doubt as to the proper placement of the endotracheal tube, visualize the pharynx and vocal cords with laryngoscope and use capnography. If still in doubt, suction the patient, deflate the cuff and remove the endotracheal tube

DOCUMENTATION

All devices used to confirm tube placement must be documented on the PCR:

1. Method of confirmation (wave form capnography/capnometry – REQUIRED).
2. Description of waveform (e.g. - box, shark fin, straight line, bumpy line, etc.).

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3. Capnometry number in mmHg (e.g. 15 mmHg).
4. Visualization, auscultation, chest rise; in addition to waveform capnography.
5. Depth of insertion, size of tube or supraglottic airway and method of securing tube.

CROSS REFERENCES

Policy and Procedure Manual

EMT Scope of Practice

Advanced EMT Scope of Practice

Paramedic Scope of Practice

Cardiac Arrest Resuscitation

Airway Obstruction

Respiratory Arrest

EtCo2 Monitoring

King Airway Device

IO POLICY

PURPOSE

To provide an alternative technique for establishing vascular access in critical adult and pediatric patients when peripheral IV access is difficult or time-sensitive.

AUTHORITY

Health and Safety Code 1797.220 and 1798

California Code of Regulations, Title 22, Division 9, Section 100169

INDICATIONS

A. Intraosseous infusion is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is difficult, impossible or too time-consuming to perform.

B. If a peripheral IV cannot be established after two attempts or within 60-90 seconds of elapsed time.

C. For adult and pediatric patients, weighing 3 kg or more, who present with one or more of the following clinical conditions:

1. Cardiac arrest

2. Hemodynamic instability (B/P <90 mmHg and clinical signs of shock)

3. Imminent respiratory failure

4. Status epilepticus with prolonged seizure activity greater than 10 minutes, and refractory to IN / IM anticonvulsants

5. Toxic conditions requiring immediate IV access for antidote

D. IO placement may be considered prior to peripheral IV attempts in cases of cardiopulmonary or traumatic arrest, in which it may be obvious that attempts at placing an IV would likely, be unsuccessful or too time consuming, resulting in a delay of life-saving fluids or drugs.

CONTRAINDICATIONS

A. Fracture or suspected vascular compromise of the selected tibia or humerus.

B. Previous significant orthopedic procedures (IO within 24 hours; prosthesis).

C. Inability to locate anatomical landmarks for insertion.

D. Skin infection overlying the area of insertion.

IO POLICY

SITE SELECTION, PREPARATION AND INSERTION NOTES

A. In small children (3-12 kg), the tibial tuberosity cannot be palpated as a landmark, so the insertion site is two finger-breadths below the patella in the flat aspect of the medial tibia.

B. In larger children (13-39 kg) the insertion site is located on the flat aspect of the medial tibia one finger-breadth below the level of the tibial tuberosity. If the tibial tuberosity is not palpable, insert two finger-breadths below the patella in the flat aspect of the medial tibia.

C. For adults, proximal or distal tibial sites are preferred. If unavailable, the humeral site may be utilized as a site of last resort by providers who choose to approve their paramedic personnel to access this optional site:

1. The proximal tibial site is one finger-breadth medial to the tibial tuberosity.

2. The distal tibial site is two finger-breadths above the medial malleolus (inner aspect of ankle) in the midline of the shaft of the tibia.

3. Humeral insertion site is considered a site of last resort and may only be utilized by paramedic personnel who are adequately trained and approved by their provider to access this site (Intraosseous Infusion – Optional Humeral Site)

4. Prep the surface with a recognized antiseptic agent and wipe dry with a sterile gauze pad.

5. Insert the device according to manufacture specific directions

6. Syringe flush catheter with 10 ml of normal saline. Remember, No Flush = No Flow. If the patient responds to painful stimuli, SLOWLY (over 1 to 2 minutes) administer 0.5 mg/kg of 2% Lidocaine (not to exceed 50 mg) prior to saline flush. Consider additional bolus of saline if flow rates slower than expected.

7. Utilize a blood pressure cuff or pressure bag to help infuse fluids.

8. Dress site, secure tubing.

OPTIONAL SECONDARY HUMERAL INSERTION SITE

A. Providers may choose whether or not to allow their personnel to utilize the humerus as a secondary insertion site for patients who meet criteria for IO insertion and for whom utilization of the primary tibia insertion site is contraindicated.

B. Humeral insertion site selection:

IO POLICY

Expose the shoulder and place the patient's arm against the patient's body, resting the elbow on the stretcher or ground and the forearm resting on the abdomen. Note the humeral head on the anterior-superior aspect of the upper arm, or the anterior-lateral shoulder. Palpate and identify the mid-shaft humerus and continue palpating toward the proximal end (humeral head). Near the shoulder feel for the small protrusion, this is the base of the greater tubercle and the insertion site. With the opposite hand, pinch the anterior and inferior aspects of the humeral head, while confirming the identification of the greater tubercle. This will help ensure that you have located the midline of the humerus.

C. Providers choosing to utilize this optional insertion site will ensure that all of their paramedic personnel are adequately trained and approved to access this site.

PRECAUTIONS AND POSSIBLE COMPLICATIONS

A. Chest compressions (if indicated), airway and breathing should be established first in accordance with other protocols.

B. No more than one attempt in each tibia or humerus.

C. Local infiltration of fluids / drugs into the subcutaneous tissue due to improper needle placement.

D. Cessation of the infusion due to clotting in the needle, or the bevel of the needle being lodged against the posterior cortex.

E. Osteomyelitis or sepsis.

F. Fluid overload.

G. Fat or bone emboli.

H. Fracture.

YEMSA APPROVED IO DEVICES

The following IO devices have been approved for use in the S-SV EMS Region:

A. Bone Injection Gun (B.I.G.)®

B. EZ-IO®

C. Manual pediatric IO device – bone marrow type needles, 15 and 18 gauge size

KING AIRWAY

PURPOSE

To define the indications and use of the King Airway in the prehospital setting by Paramedic, Advanced EMT, or approved EMT personnel.

AUTHORITY

Health and Safety Code 1797.220 and 1798

California Code of Regulations, Title 22, Division 9, Section 100169

POLICY

Paramedic, Advanced EMT, or approved EMT personnel may use the King Airway as an option for advanced airway management.

PROCEDURE

A. **Indications**: Patients who require assisted ventilation and meet criteria for an advanced airway:

1. Cardiac arrest.
2. Respiratory arrest or severe compromise AND unable to adequately ventilate with BVM.
3. May be used as a primary airway or after one or more unsuccessful endotracheal intubation attempts (paramedic personnel only).

B. The following contraindications shall be observed:

1. Conscious patients with a gag reflex.
2. Patients under four (4) feet tall.
3. Known cases of esophageal diseases, suspected ingestion of caustic substances or extensive airway burns.
4. Laryngectomy with stoma.

C. Placement:

1. Select appropriate sized King Airway:
   a. Size 3 – Patient between 4 and 5 feet tall (55 ml air)
   b. Size 4 – Patient between 5 and 6 feet tall (70 ml air)
   c. Size 5 – Patient over 6 feet tall (80 ml air)
2. Check King Airway cuffs to ensure patency. Deflate tube cuffs. Leave

KING AIRWAY

syringe attached. Lubricate the tip of the tube with water soluble lubricant.

3. Oxygenate with 100% oxygen.

4. Position the head. The ideal position is the "sniffing position". A neutral position can also be used if trauma is suspected.

5. Hold the King Tube at the connector with the dominate hand.

6. With non-dominate hand, hold mouth open and apply chin lift.

7. Using a lateral approach, introduce tip into mouth.

8. Advance the tip behind the base of the tongue while rotating tube back to midline so that the blue orientation line faces the chin of the patient.

9. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.

10. Inflate cuffs based on size according to Section 1 above.

11. Attach bag-valve to King Airway. While gently bagging the patient to assess ventilation, withdraw the airway until ventilation is easy and free flowing.

12. Attach bag valve device and verify placement by **ALL** of the following:

    a. Rise and fall of the chest
    b. Bilateral breath sounds
    c. Absent epigastric sounds
    d. CO2 measurement (colorimetric capnography)

13. If there is any question about the proper placement of the King Airway, deflate the cuffs and remove the device, ventilate the patient with a BVM for 30 seconds and repeat.

14. Secure the tube with tape or commercial tube holder. Note depth marking on tube.

15. Continue to monitor the patient for propter tube placement throughout prehospital treatment and transport.

D. Troubleshooting:

1. If placement is unsuccessful, remove tube, ventilate via BVM and repeat the sequence of steps.

2. If unsuccessful on second attempt, BLS airway management should be resumed.

KING AIRWAY

3. Most unsuccessful placements relate to failure to keep tube in midline during placement.

E. Additional Information:

1. Cuffs can be lacerated by broken teeth or dentures. Remove dentures before placing tube.

2. Do not force tube, as airway trauma can occur.

F. Documentation:

Document time of placement and results of tube placement checks performed throughout the resuscitation and transport.

CROSS REFERENCES

Policy and Procedure Manual

EMT Scope of Practice
Advanced EMT Scope of Practice
Paramedic Scope of Practice
Cardiac Arrest Resuscitation
Aystole/PEA
VF/VT: Pulseless
Airway Obstruction
Respiratory Arrest
Ingestions and Overdoses
Altered Level of Consciousness
Trauma Patient Care

MUCOSAL ATOMIZATION DEVICE (MAD)

PURPOSE

To define the indications and use of the Mucosal Atomization Device (MAD) in the prehospital setting by paramedic personnel.

AUTHORITY

Health and Safety Code 1797.220 and 1798 California Code of

Regulations, Title 22, Division 9

OVERVIEW

In the absence of an established IV, intranasal is a rapid route offering a high level of bio-availability of the medication being administered. The intranasal route can reduce the risk of needlesticks while delivering effective medication levels.

The rich vasculature of the nasal cavity provides a direct route into the bloodstream for medications that easily cross the mucous membranes. Due to this direct absorption into the bloodstream, rate and extent of absorption are relatively comparable to IV administration.

INDICATIONS

Paramedic and Advanced EMT personnel may utilize the Mucosal Atomization Device (MAD) as an alternative drug delivery adjunct for patients without IV access who require urgent medication administration.

MEDICATIONS THAT MAY BE ADMINISTERED VIA INTRANASAL (IN) ROUTE:

A. Glucagon

B. Naloxone (Narcan)

C. Midazolam (Versed) – **5 mg/ml concentration required**

PROCEDURE

A. Determine appropriate medication dose per applicable protocol.

B. Draw up medication into a syringe using appropriate transfer needle.

C. Purge air from syringe.

D. Place mucosal atomization device on the end of the syringe and screw into place.

E. Gently insert the atomizer into the nare. Stop once resistance is met.

F. Rapidly administer the medication when patient fully exhales and before inhalation.

MUCOSAL ATOMIZATION DEVICE (MAD)

ADMINISTER ½ DOSE IN EACH NOSTRIL.

G. Do not exceed 1.0 ml per nostril.

H. Evaluate the effectiveness of the medication, if desired effect has not been achieved, consider repeating and/or changing route of administration.

CONTRAINDICATIONS

A. Epistaxis.

B. Nasal Trauma.

C. Nasal Septal Abnormalities.

D. Nasal Congestion / Discharge.

PRECAUTIONS

A. Nasal administration does not always work for every patient.

B. Nasal administration is less likely to be effective if the patient has been abusing inhaled vasoconstrictors such as cocaine.

CROSS REFERENCES

Policy and Procedure Manual

Advanced EMT Scope of Practice

Paramedic Scope of Practice

Tachycardia with Pulses

Bradycardia

Respiratory Arrest

Ingestions and Overdoses

General Medical

Altered Level of Consciousness

Sedation

Seizure

MUCOSAL ATOMIZATION DEVICE (MAD)

Hypothermia

Pediatric Respiratory Arrest

Pediatric Overdose and/or Poisoning

Pediatric Altered Level of Consciousness

Pediatric Sedation

Pediatric Seizure

MUCOSAL ATOMIZATION DEVICE (MAD)

PRE-EXISTING VASCULAR ACCESS DEVICES (PVAD)

PURPOSE

To provide vascular access utilizing a Pre-Existing Vascular Access Device (PVAD) for patients in extremis when no other vascular access is available.

AUTHORITY

California Health and Safety Code 1797.220 and 1798.

California Code of Regulations, Title 22, Division 9, Chapters 3 and 4.

DEFINITION

A Pre-Existing Vascular Access Device (PVAD) is an indwelling catheter / device placed into one of the central veins, to provide vascular access for those patients requiring long-term intravenous therapy or hemodialysis.

POLICY

Paramedics and Advanced EMTs may access pre-existing vascular devices on any patient who is in extremis and no other vascular access is available or appropriate. The types of catheters used are:

A. Indwelling catheter / device exiting externally inserted into the superior vena cava or right atrium (Broviac, Hickman, PICC and others).

B. Hemodialysis shunt (fistulas / grafts): used to divert blood flow from an artery to a vein.

C. Internally implanted devices (Portacaths, etc.): access that is subcutaneous requiring entry through the skin and special equipment to access. These types of devices are **Not approved for use by Yolo EMS personnel.**

INDICATIONS

Only in the absence of any other observable vascular access, when the patient has:

A. Cardiopulmonary arrest

B. Extremis due to circulatory shock

C. Critical need for pharmacological intervention

COMPLICATIONS

A. **Infection:** Due to the location of the catheter, strict adherence to aseptic technique is crucial when handling a PVAD.

1. Use of sterile gloves is recommended;

PRE-EXISTING VASCULAR ACCESS DEVICES (PVAD)

2. Prep injectable port and surrounding skin with chlorhexidine prior to attaching I.V. tubing;

3. Use new supplies if equipment becomes contaminated;

4. Re-cover port with sterile dressing and securely tape.

B. **Air Embolism:** The PVAD provides a direct line into the central circulation; introduction of air into these devices can be hazardous

APPROVED INFUSIONS

A. Intravenous solutions

B. All medications **except diazepam (Valium) as it interacts with silicone causing crystallization of the medications and deterioration of the silicone.**

PROCEDURE

A. Do not remove injection cap from catheter.

B. Do not use a syringe smaller than 10 ml to prevent catheter damage from excess infusion pressure.

C. Always expel air from syringe prior to administration.

D. Follow all medications with 5 ml of saline to avoid clots.

E. Do not inject medications or fluids if resistance is met when establishing patency.

F. Do not allow I.V. fluids to run dry.

G. Do not manipulate or remove an indwelling catheter under any circumstances.

H. Should damage occur to the external catheter, clamp immediately between the skin exit site and the damaged area to prevent air embolism or blood loss.

CONTINUOUS QUALITY IMPROVEMENT

A copy of the completed PCR for any patient on whom a pre-existing vascular access device is utilized must be forwarded to the YEMSA within 30 days for Continuous Quality Improvement purposes.

SKILLS VERIFICATION
CARDIOVERSION/DEFIBRILLATION

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to recognize the need for both cardioversion and a defibrillatory shock and properly perform both procedures on an adult patient.

EQUIPMENT: Defibrillation manikin, monitor/defibrillator, adult defibrillation paddles with conductive medium or adult defibrillation patches, arrhythmia simulator.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a defibrillation manikin representing a patient with a pulse in unstable V-Tach or SVT. The candidate will assess the patient and treat appropriately to include the delivery of a minimum of two (2) synchronized cardioversion shocks. The candidate will them be advised that the patient has deteriorated into cardiac arrest with a rhythm of pulseless V-Tach or V-Fib. The candidate will re-assess the patient and treat appropriately by delivering multiple unsynchronized defibrillatory shocks.

EVENT	DOES	DOES NOT
1. States the indications for Syncronized Cardioversion in an adult pt. • Unstable SVT or V-Tach with serious signs or symptoms of poor perfusion		
2. States or demonstrates the use of appropriate PPE		
3. Recognizes V-Tach or SVT on the monitor and that patient is unstable		
4. Considers pre-cardioversion sedation (verbalizes) Midazolam 0.1 mg / kg slow IVP / IO (max dose 4 mg) Midazolam 0.2 mg / kg IM / IN (max dose 8 mg)		
5. Properly applies hands free defibrillator patches or conductive medium		
6. Ensures that "SYNC" button on the monitor is activated and that the synchronization indicators are active on the QRS complex		
7. Selects appropriate cardioversion energy level 50 J if rhythm is SVT 100 J if rhythm is V-Tach		
8. Charges defibrillator		
9. If not using hands free defibrillator patches, places paddles on appropriate landmarks with firm pressure		
10. Says "CLEAR" and visually checks that other rescuers are clear of patient		

SKILLS VERIFICATION
CARDIOVERSION/DEFIBRILLATION

EVENT	DOES	DOES NOT
11. Delivers cardioversion by holding down the shock button until the defibrillator discharges		
12. Re-assesses and properly identifies rhythm on the monitor		
13. Repeats steps 6 – 12 a minimum of one (1) time using the appropriate energy level SVT – 100 J, 200 J, 300 J, 360 J V-Tach – 200 J, 300 J, 360 J		
***** Candidate is advised that patient has become pulseless and apneic*****		
14. Recognizes V-Tach or V-Fib on the monitor		
15. Re-assess patient to confirm absence of spontaneous pulse		
16. Turns off "SYNC" button and selects appropriate defibrillation energy level Biphasic – 200 J, or manufacturer's recommended energy dose Monophasic – 360 J		
17. Charges defibrillator		
18. If not using hands free defibrillator patches, places paddles on appropriate landmarks with firm pressure		
19. Says "CLEAR" and visually checks that other rescuers are clear of patient		
20. Delivers defibrillation shock		
21. Starts CPR x 2 minutes		
22. Reassesses patient rhythm		
23. Repeats steps 14 – 22 a minimum of one (1) time		

SKILLS VERIFICATION
CONTINOUS POSITIVE AIRWAY PRESSURE (CPAP)

NAME _____ DATE _____

ALS/LALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly identify the indications for CPAP and properly apply and use the device

EQUIPMENT: Manikin or simulated patient, oxygen source, required CPAP equipment (device specific), appropriate mask sizes, stethoscope.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a manikin or simulated patient who has pulmonary edema and is in moderate – severe respiratory distress. The candidate will correctly assemble and apply the CPAP device and properly inform / instruct the patient on its use.

EVENT	DOES	DOES NOT
1. States the indications for the application and use of CPAP • Age > 8 years old • Moderate – Severe respiratory distress • CHF with acute pulmonary edema • Near drowning		
2. States the contraindications for the application and use of CPAP < 8 years old Respiratory or cardiac arrest Agonal respirations Severe decreased LOC SBP < 90 • S/S of pneumothorax • Inability to maintain airway patency • Major trauma, especially Head Injury with increased ICP or significant • chest trauma • Facial anomalies		
3. States the complications for the application and use of CPAP • Hypotension • Pneumothorax Corneal drying		
4. States or demonstrates the use of appropriate PPE		
5. Properly assemble equipment (device specific) including selection of the appropriate size mask		
6. Properly informs / instructs patient on device application and use		

SKILLS VERIFICATION
CONTINOUS POSITIVE AIRWAY PRESSURE (CPAP)

EVENT	DOES	DOES NOT
7. Properly applies device to patient		
8. Selects appropriate device settings or Oxygen flow rate / adjusts as necessary		
9. Reassess patient for proper fit, use and airway patency		
10. Explains / demonstrates the proper procedure for administering NTG to a patient on CPAP • Unhook or remove the CPAP mask temporarily, administer the NTG sublingually and immediately replace the CPAP mask (should be done as quickly as possible)		

SKILLS VERIFICATION
INTRAOSSEOUS INFUSION - MANUAL

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly insert a manual intraosseous needle in a pediatric patient, check for proper needle placement, stabilize the needle, and administer fluid.

EQUIPMENT: Intraosseous needle, IO manikin or long bone (such as a tibia) from chicken or other animal, gauze roller bandage or other material to maintain proper position of long bone, flush solution, IV solution , IV administration set, three-way stopcock, blood pressure cuff or pressure bag appropriate syringes, recognized antiseptic agent, appropriate PPE.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a long bone and requested to initiate an intraosseous infusion.

EVENT	DOES	DOES NOT
1. States the indications for intraosseous infusion in a pediatric patient • Weight 3 kg or more • Unable to achieve IV access rapidly (within 60-90 seconds) and present with one or more of the following conditions: o Cardiac Arrest o Hemodynamic instability (SBP < 90 & signs of shock) o Imminent respiratory failure o Status epilepticus with prolonged seizure activity > 10 minutes and refractory to IM / IN anticonvulsants o Toxic conditions requiring immediate IV access for antidote		
2. States the contraindications for intraosseous infusion Fracture or suspected vascular compromise of the selected tibia Previous significant orthopedic procedures (IO within previous 24 hours; prosthesis Inability to locate anatomical landmarks for insertion • Skin infection overlying the area of insertion •		
3. States or demonstrates the use of PPE •		
4. Assembles equipment and fills syringe with flush solution (if necessary)		
5. Selects proper / approved anatomical site for IO infusion • 1 – 3 cm distal to tibial tuberosity on anteromedial surface of proximal tibia		
6. Preps IO site using aseptic technique		

SKILLS VERIFICATION
INTRAOSSEOUS INFUSION - MANUAL

EVENT	DOES	DOES NOT
7. Inserts IO needle at the proximal tibial site, directing the needle caudally		
8. Penetrates the bone with firm pressure and a rotary ("screwdriver") motion. Identifies a "pop" and a sudden lack of resistance signaling		
9. Stabilizes device, removes stylet and places in sharps container		
10. Attaches syringe and aspirates for marrow contents and / or slowly infuses 2 – 3 ml of NS while observing the site for absence of infiltration to confirm patency		
11. Administers 0.5 mg / kg of 2% lidocaine (not to exceed 50 mg) if patient responds to painful stimuli (may be verbalized)		
12. Syringe flushes catheter with 10 ml of NS to establish infusion (No Flush = No Flow)		
13. Attaches IV administration set and administers proper fluid by applying pressure to the fluid bag		
14. Properly secures device		
15. Checks administration rate and IO site for infiltration		

SKILLS VERIFICATION
INTRAOSSEOUS INFUSION

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly insert an intraosseous needle using a powered device, check for proper needle placement, stabilize the needle and administer fluid.

EQUIPMENT: Powered IO insertion device, intraosseous needle, IO manikin or long bone (such as a tibia) from chicken or other animal, gauze roller bandage or other material to maintain proper position of long bone, IV solution, IV administration set, IV extension set, blood pressure cuff or pressure bag, appropriate syringes, recognized antiseptic agent and appropriate PPE.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a long bone and requested to initiate an intraosseous infusion.

EVENT	DOES	DOES NOT
1. States the indications for intraosseous infusion • Weight 3 kg or more • Unable to achieve IV access rapidly (within 60-90 seconds) and present with one or more of the following conditions: o Cardiac Arrest o Hemodynamic instability (SBP < 90 & signs of shock) o Imminent respiratory failure o Status epilepticus with prolonged seizure activity > 10 minutes and refractory to IM / IN anticonvulsants o Toxic conditions requiring immediate IV access for antidote		
2. States the contraindications for intraosseous infusion • Fracture or suspected vascular compromise of the selected site • Previous significant orthopedic procedures (IO within previous 24 hours; prosthesis) • Inability to locate anatomical landmarks for insertion • Skin infection overlying the area of insertion		
3. States or demonstrates the use of PPE		
4. Selects proper / approved anatomical site for IO infusion • Small Children (3-12 kg) – two finger-breadths below the patella in the flat aspect of the medial tibia • Larger Children (13-39 kg) – flat aspect of the medial tibia one finger-breadth below the level of the tibial tuberosity • Adults – proximal or distal tibial sites may be utilized • Optional Adult – humeral head (base of the greater tubercle)		

SKILLS VERIFICATION
INTRAOSSEOUS INFUSION

EVENT	DOES	DOES NOT
5. Preps IO site using aseptic technique		
6. Primes IV extension set with saline for unresponsive patient or lidocaine 2% for conscious patient		
7. Properly inserts the IO needle according to the device specific manufacturers guidelines		
8. Removes stylet from catheter and places it in approved sharps container		
9. Attaches the primed IV extension set to the IO catheter		
10. Administers 0.5 mg / kg of 2% lidocaine (not to exceed 50 mg) if patient responds to painful stimuli (may be verbalized)		
11. Syringe flushes catheter with 10 ml of NS to establish infusion (No Flush = No Flow)		
12. Attaches IV administration set and administers proper fluid by applying pressure to the fluid bag		
13. Properly secures device		
14. Checks administration rate and IO site for infiltration		

SKILLS VERIFICATION
KING AIRWAY DEVICE

NAME _____ DATE _____

ALS/LALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly place a King Airway device esophageal, and ventilate within an acceptable time frame.

EQUIPMENT: Adult intubation manikin, King Airway device, appropriate syringe, tape or tube holder, stethoscope, BVM, End tidal $C0_2$ detection device, lubricant appropriate for manikin, appropriate PPE.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with an intubation manikin on which ventilation is being performed with a BVM and an OPA is already in place. An EMT trained rescuer is available to assist with ventilating the patient. The candidate will correctly place the King Airway device and ventilate the patient.

EVENT	DOES	DOES NOT
1. States the proper size of tube to use for the patient • Size 3 – Patient between 4 and 5 feet tall (45 - 60 ml air) • Size 4 – Patient between 5 and 6 feet tall (60 - 80 ml air) • Size 5 – Patient over 6 feet tall (70 - 90 ml air)		
2. States Indications • Cardiac Arrest • Respiratory arrest or severe compromise **and** unable to adequately ventilate with BVM • May be used as a primary airway or after one or more unsuccessful endotracheal intubation attempts		
3. States Contraindications Conscious patient with a gag reflex Patients < four (4) feet tall Known cases of esophageal diseases, suspected ingestion of caustic substances or extensive airway burns • Laryngectomy with stoma •		
4. States or demonstrates the use of appropriate PPE		
5. Ensures patient is pre-oxygenated with 100% oxygen		
6. Checks / prepares airway device • Inflates both cuffs and checks for leaks		
7. Lubricates distal tip of the device (may be verbalized)		
8. Positions the head properly (neutral or slightly flexed position)		

SKILLS VERIFICATION
KING AIRWAY DEVICE

EVENT	DOES	DOES NOT
9. Performs a tongue-jaw lift		
10. Inserts King Airway device into mouth laterally with blue stripe near corner of mouth		
11. Advances tip behind the base of the tongue while rotating tube back to midline with blue stripe facing chin of patient		
12. Advances tube without undue force until base of connector is aligned with teeth or gums		
13. Inflates cuff with appropriate volume of air		
14. Attaches BVM to airway and while ventilating patient, gently withdraws tube until ventilation is easy and free-flowing		
15. Adjusts cuff inflation if needed to obtain seal of airway with peak pressures used		
16. Confirms placement and ventilation by observing chest rise, auscultation over the epigastrium, and bilaterally over each lung		
17. Confirms tube placement with Capnography or $C0_2$ detection device		
18. Properly secures King Airway device using tape or tube holder		

SKILLS VERIFICATION
NEEDLE CHEST DECOMPRESSION

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly decompress a tension pneumothorax.

EQUIPMENT: Decompression manikin or simulated chest, Minimum 14ga x 3" catheter, stethoscope, one way valve, tape, alcohol wipe or recognized antiseptic agent, appropriate PPE.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a decompression manikin or simulated chest and will correctly demonstrate the ability to decompress a tension pneumothorax.

EVENT	DOES	DOES NOT
1. States the indications for Needle Decompression: • Unstable **and** decreased or absent breath sounds on one side of chest		
2. States the approved sites for Needle Decompression: • Anterior – 2nd intercostals space, mid-clavicular line – preferred site • Lateral – 4th or 5th intercostals space, mid-axillary line (must be above the anatomic nipple line) – alternate site		
3. States the minimum catheter size required for Needle Decompression: • Minimum 14 ga x 3" catheter		
4. States the number of attempts allowed without obtaining voice orders from a base hospital: • Two attempts only on the affected side		
5. States or demonstrates the use of PPE		
6. Identifies the appropriate landmarks for placement • Able to locate both preferred and alternate sites		
7. Prepares the area using aseptic technique		
8. Removes the end cap from the catheter (may attach syringe)		
9. Inserts the needle into the skin at a 90° angle just over the superior border of the rib		
10. Advances the catheter until a gush of air is heard & air is freely aspirated		
11. Removes the needle and leaves the catheter in place		
12. Attaches a one-way valve		
13. Secures the catheter / tubing to the chest wall		
14. Rechecks breath sounds and closely monitors cardio-respiratory status		

SKILLS VERIFICATION
PEDIATRIC ENDOTRACHEAL INTUBATION

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly intubate the trachea, and ventilate within an acceptable time frame.

EQUIPMENT: Pediatric intubation manikin, towel roll, endotracheal tubes, laryngoscope handle, pediatric laryngoscope blades, malleable stylet, 10 ml syringe, tape or tube holder, stethoscope, BVM, suction device, End tidal $C0_2$ detection device and / or Esophageal Detector Device (EDD), lubricant for manikin, PPE.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with an intubation manikin on which ventilation is being performed with a BVM and an OPA is already in place. An EMT trained rescuer is available to assist with ventilating the patient. The candidate should correctly intubate the patient.

EVENT	DOES	DOES NOT
1. States the proper size of tube to use for the patient • Use of length based tape or other approved method		
2. States indication for pediatric intubation • Only if bag-valve-mask ventilation is unsuccessful or impossible		
3. States or demonstrates the use of appropriate PPE		
4. Ensures patient is pre-oxygenated with 100% oxygen		
5. Checks ET cuff by inflating it with appropriate amount of air		
6. Attaches laryngoscope blade to handle and checks light		
7. Ensures suction device is available and working		
8. If stylet is used, inserts it so end is not protruding past end of endotracheal tube		
9. Places patient's head in correct position for pediatric intubation including placing a towel roll under the patients scapula		
10. Instructs rescuer to stop ventilations		
11. Inserts blade into mouth while displacing tongue		
12. Applies upward lifting action with laryngoscope WITHOUT using manikin's teeth as a fulcrum		

SKILLS VERIFICATION
PEDIATRIC ENDOTRACHEAL INTUBATION

EVENT	DOES	DOES NOT
13. Visualizes glottic opening		
14. Inserts ET tube from right pharynx, passing the tube through the glottic opening		
15. Removes laryngoscope		
16. Inflates cuff with sufficient volume of air to ensure a seal (5-10 ml) and disconnects syringe immediately		
17. Attaches BVM to ET tube and ventilates		
18. Confirms placement and ventilation by observing chest rise, auscultation over the epigastrium, and bilaterally over each lung		
19. Confirms tube placement with Capnography or Esophageal Detector Device (EDD) and $C0_2$ detection device		
20. Each intubation attempt should take no longer than 30 seconds.		
21. Properly secures ET tube using tape or tube holder		
22. Reevaluates tube placement after each patient movement		

SKILLS VERIFICATION
PEDIATRIC CARDIOVERSION/DEFIBRILLATION

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to recognize the need for both cardioversion and a defibrillatory shock and properly perform both procedures on a pediatric patient.

EQUIPMENT: Defibrillation manikin, monitor/defibrillator, pediatric defibrillation paddles with conductive medium or pediatric defibrillation patches, arrhythmia simulator.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with a defibrillation manikin representing a patient with a pulse in unstable V-Tach or SVT. The candidate will assess the patient and treat appropriately to include the delivery of a minimum of two (2) synchronized cardioversion shocks. The candidate will them be advised that the patient has deteriorated into cardiac arrest with a rhythm of pulseless V-Tach or V-Fib. The candidate will re-assess the patient and treat appropriately by delivering multiple unsynchronized defibrillatory shocks.

EVENT	DOES	DOES NOT
1. States the indications for Synchronized Cardioversion in a pediatric pt. • Unstable V-Tach or SVT with serious signs or symptoms of poor perfusion • States that Synchronized Cardioversion for a pediatric patient is a Base / Modified Base hospital order only		
2. States or demonstrates the use of appropriate PPE		
3. Recognizes V-Tach or SVT on the monitor and that patient is unstable		
4. Properly applies hands free defibrillator patches or conductive medium		
5. Ensures that "SYNC" button on the monitor is activated and that the synchronization indicators are active on the QRS complex		
6. Selects appropriate cardioversion energy level • 0.5 – 1 J / kg		
7. Charges defibrillator		
8. If not using hands free defibrillator patches, places pediatric paddles on appropriate landmarks with firm pressure		
9. Says "CLEAR" and visually checks that other rescuers are clear of patient		
10. Delivers cardioversion by holding down the shock button until the defibrillator discharges		

SKILLS VERIFICATION
PEDIATRIC CARDIOVERSION/DEFIBRILLATION

EVENT	DOES	DOES NOT
11. Re-assesses and properly identifies rhythm on the monitor		
12. Repeats steps 6 – 12 a minimum of one (1) time using the appropriate energy level • 2 J / kg		
***** Candidate is advised that patient has become pulseless and apneic*****		
13. Recognizes V-Tach or V-Fib on the monitor		
14. Re-assess patient to confirm absence of spontaneous pulse		
15. Turns off "SYNC" button and selects appropriate defibrillation energy level 2 J / kg for initial shock 4 J / kg for subsequent shocks		
16. Charges defibrillator		
17. If not using hands free defibrillator patches, places pediatric paddles on appropriate landmarks with firm pressure		
18. Says "CLEAR" and visually checks that other rescuers are clear of patient		
19. Delivers defibrillation shock		
20. Starts CPR x 2 minutes		
21. Reassesses patient rhythm		
22. Repeats steps 14 – 22 a minimum of one (1) time		

SKILLS VERIFICATION
TRANSCUTANEOUS CARDIAC PACING (TCP)

NAME _____ DATE _____

ALS AGENCY _____ EVALUATOR _____

OBJECTIVE: The candidate will demonstrate the ability to correctly identify the need for Transcutaneous Cardiac Pacing on a patient and to properly implement the procedure.

EQUIPMENT: Adult manikin, cardiac monitor with pacing capabilities, rhythm generator, EKG and pacing electrodes, razor / 4x4's / other appropriate skin prep items.

PERFORMANCE CRITERIA AND CONDITIONS: The candidate will be presented with an adult patient in unstable bradycardia. The candidate will identify that the patient is unstable and properly apply and implement Transcutaneous Cardiac Pacing on the patient.

EVENT	DOES	DOES NOT
1. States the indications for TCP • Serious signs and symptoms of poor perfusion caused by bradycardia (Unstable Bradycardia)		
2. States or demonstrates the use of appropriate PPE		
3. Properly prepares and checks equipment		
4. Explains procedure to patient and family and informs that discomfort may occur secondary to nerve stimulation or muscle contraction		
5. Considers pain relief and administers if appropriate (may verbalize) • Midazolam 0.1 mg/kg IV / IO (max dose 4 mg) or 0.2 mg / kg IM / IN (max dose 8 mg) – may repeat x 1 after 2 minutes **OR** • Morphine Sulfate 2 – 5 mg IV / IO		
6. Properly places ECG electrodes on patient's chest, far away from pacing electrodes to ensure clear signal. Ensures that ECG electrodes remain attached during demand pacing		
7. Properly places pacing electrodes (combo-patches) on patients chest (May be necessary to place pacing electrodes front / back depending on patients size)		
8. Selects pacing mode on the cardiac monitor		
9. Selects patient rate - start at 80 BPM (common rate is 60-90 BPM)		
10. Selects and sets current to 10 mA and increases by 10 mA increments while assessing for mechanical capture		

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SKILLS VERIFICATION
TRANSCUTANEOUS CARDIAC PACING (TCP)

EVENT	DOES	DOES NOT
11. States when capture of electrical stimulus occurs, Recognizes capture on the ECG Recognizes mechanical capture by patient evaluation of cardiac output, pulses, increase in BP and improved circulatory status		
12. After achieving mechanical capture, adjusts to lowest current that maintains capture		
13. Able to distinguish failure of capture, under-sensing and over-sensing		

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Yolo Emergency Medical Service Agency
137 N. Cottonwood Street, Suite 2601
Woodland, CA 95695 – (530) 666-8645

SKILLS COMPETENCY VERIFICATION SUMMARY
OPTIONAL SCOPE EMT

Provider Agency:

Completion Date: Calendar Year:

Optional Scope Skill

☐ ETAD ☐ King Airway ☐ Epinephrine by Auto Injector ☐ Mark 1/DouDots

NAME	EMT #	DATE OF VERIFICATION
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I certify that all information on this form, to the best of my knowledge, is true and correct.

Evaluator Signature Date

Print Name and Title of above signature

Form may be mailed or dropped off at the address above.
The YEMSA drop box is across from the stairs at the Yolo County Health Dept., Bauer Building.
(same address as above)

Yolo Emergency Medical Service Agency
137 N. Cottonwood Street, Suite 2601
Woodland, CA 95695 – (530) 666-8645

SKILLS COMPETENCY VERIFICATION SUMMARY

Provider Agency:

Name: Calendar Year:

Certification or License #:

Completion Date:

SKILLS VERIFICATION	DATE OF VERIFICATION	EVALUATOR INITIALS
1. Adult Endotracheal Intubation		
2. King Airway Device		
3. Adult Cardioversion/Defibrillation		
4. Needle Chest Decompression		
5. Transcutaneous Cardiac Pacing		
6. Intraosseous Infusion – Powered Device		
7. Continuous Positive Airway Pressure – CPAP		
8. Pediatric Endotracheal Intubation		
9. Pediatric Cardioversion/Defibrillation		
10. Intraosseous Infusion (Manual Pediatric)		

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