*** PARAMEDIC ALERT ***

No. 2011-08

Date: December 2, 2011

Topic: PROTOCOL/POLICY UPDATE

Effective: January 1, 2012

Attention: All EDC EMS and Base Hospital Providers

The following protocols and policies have been updated to correct omissions, errors, and/or confusing formats that have been identified by the Medical Advisory Committee:

- ✓ Bradycardia
- ✓ Narrow-Complex Tachycardia
- ✓ Wide-Complex Tachycardia
- ✓ Pulseless Arrest
- ✓ CHF/Pulmonary Edema
- ✓ ALS Equipment Inventories

Also, included in this mid-cycle update is a new EMS Communications policy which is intended to improve communications between the EMS Agency and the various provider agencies.

Please be prepared for a January 1st implementation of these important and necessary changes.

Thank you,

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EL DORADO COUNTY EMS AGENCY
POLICY AND PROCEDURE MANUAL
UPDATE #2012 - 1
To be effective January 1st 2012

TITLE	ACTION	COMMENTS
Protocols: ➢ Bradycardia	Replace	ADULT Overall reformatting was needed to correct a problem with the previous algorithm version that didn't allow for TCP in unstable non-high degree block patients. PEDIATRIC Change in pediatric ET dose of atropine to meet AHA guidelines. Was: 0.03 mg/kg. Now: 0.04-0.06 mg/kg.
➢ Narrow-Complex Tachycardia	Replace	Protocol was completely reformatted to meet the new 2010 AHA guidelines. ADULT Adenosine was removed from any irregular narrow (or wide) tachycardic rhythms. Also removed was the second 12 mg dose of Adenosine. The new dosing regimen is 6 mg rapid IVP w/ 10cc flush. If no conversion a single 12 mg dose should be given rapid IVP w/10cc flush. For a total max of 18 mg. We removed the E versus M Zoll biphasic wording and replaced with "70/75" joules for the initial setting. The wording was unnecessary because each respective monitor/defibrillator will only default to one or the other setting. An "irregular" section was added to the unstable portion of the protocol. AHA recommends joule settings of 120 for any irregular narrow rhythm that requires synchronized cardioversion. PEDIATRIC An irregular section was added. The joule settings were changed to meet PALS recommendations. They are now 0.5-1 J/kg initially, followed by 2 J/kg for any subsequent synchronized cardioversion. There is no differentiation in joule settings between regular and irregular tachycardias for pediatrics.

➢ Wide-Complex Tachycardia	Replace	Protocol was completely reformatted to meet the new 2010 AHA guidelines. ADULT Precordial thump has been removed. The wording regarding E versus M series monitor joule settings was replaced with 70/75 same as narrow complex tachycardia. Unstable section was divided into regular and irregular. For unstable irregular wide complex rhythms the initial joule setting is now 120 and is UNSYNCHRONIZED as per AHA recommendations. A note was added to not delay cardioversion if patient is unresponsive. PEDIATRIC The joule settings were changed to meet PALS recommendations. They are now 0.5-1 J/kg initially, followed by 2 J/kg for any subsequent synchronized cardioversion. There is no differentiation in joule settings between regular and irregular tachycardias for pediatrics. A note was added to not delay cardioversion if patient is unresponsive.
➢ Pulseless Arrest	Replace	Old algorithm format was replaced with an easier to follow block sequence. PEDIATRIC The joule settings for subsequent defibrillations are still 4 j/kg, however AHA now allows for up to 10 j/kg (not to exceed the adult dose) for refractory v-fib. This will be at the treating paramedic's discretion.
➢ CHF	Replace	New format more clearly defines when to use NTG and CPAP. The goal of the protocols was to place focus on CPAP as primary treatment modality with NTG paste being secondary and only used when patient is moderate to severe.

EL DORADO COUNTY EMS AGENCY
POLICY AND PROCEDURE MANUAL
UPDATE #2012 - 1
To be effective January 1st 2012

Policy: ➢ Communications	New Policy Add	This policy defines how communications between the EMS Agency and provider agencies will be conducted. The goal is to close the loop on important communications and eliminate holes and duplications.
➢ ALS Equipment	Replace	The following items were added: • 100 cc bags of normal saline (Optional) The minimum inventory on these items was changed: • Buretrols • Adenosine

EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

Supersedes: Protocol dated July 1, 2012
Effective: January 1, 2012
Reviewed: November 2011
Scope: ALS – Adult/Pediatric

EMS Agency Medical Director

BRADYCARDIA

ADULT ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort.

Obtain and transmit 12 lead EKG (Do not delay therapy).

PROTOCOL PROCEDURE: *Flow of protocol presumes that bradycardia is continuing. If response or condition changes, see appropriate protocol. If at any time a stable patient becomes unstable, go to the "inadequate perfusion" section of this protocol.*

ADEQUATE PERFUSION

Monitor/observe patient, see below if condition changes

INADEQUATE PERFUSION

Establish IV/IO

↓

Suspected vasovagal episode: Give 250 mL Fluid Bolus before continuing down algorithm

↓

Give Atropine

↓

If Atropine is ineffective or if delay in IV/IO being established begin **TCP** ASAP. *(If TCP improves hypotension, consider pain management)*

↓

Contact Base

DOPAMINE
2-10 µg/kg/min IV/IO infusion may be ordered for hypotension

Doses/Details:

Atropine:
IV/IO: 0.5 mg q 3-5 min. (Max. of 3 mg).

ET: 1 mg followed by 5 mL normal saline flush and 5 normal ventilations q 3-5 min. (Max. 6 mg).

Max. dose for adolescents is 2 mg IV/ 4 mg ET.

Dopamine:
2-10 µg/kg/min. IV/IO infusion.

TCP (Do not delay if high degree block is present): 60-80 bpm

References:
- Pain Management Procedure
- Transcutaneous Pacing Procedure
- 12 Lead EKG Procedure

PEDIATRIC ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Begin ventilation with BVM if HR< 60; if no improvement in 1 minute start CPR.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort.

Obtain and transmit 12 lead EKG (Do not delay therapy).

PROTOCOL PROCEDURE: *Flow of protocol presumes that bradycardia is continuing. If response or condition changes, see appropriate protocol. If at any time a stable patient becomes unstable, go to the "inadequate perfusion" section of this protocol.*

ADEQUATE PERFUSION

Monitor/observe patient, see below if condition changes

INADEQUATE PERFUSION

Perform CPR
If no improvement with oxygen and ventilation
↓
Establish IV/IO
↓
Give Epinephrine
↓
If increased vagal tone or primary AV block:
Give Atropine
↓
Consider TCP
(If TCP improves hypotension, consider pain management)
↓
Contact Base

Doses/Details:

Epinephrine:
IV/IO: 0.01 mg/kg (1:10,000: 0.1 mL/kg)

ET: 0.1 mg/kg (1:1,000: 0.1 mL/kg) followed by 5 mL NS or SW flush and 5 normal ventilations

Repeat every 3 – 5 min.

Atropine:
IV/IO: 0.02 mg/kg may repeat dose once in 5 min. (Min. dose is 0.1 mg; Max. total dose of 1 mg).

ET: 0.04-0.06 mg/kg followed by 5 mL NS or SW flush and 5 normal ventilations. May repeat dose once in 5 min. (Max. 6 mg).

TCP:
80-100 bpm

References:
- Pain Management Procedure
- Transcutaneous Pacing Procedure
- 12 Lead EKG Procedure

EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

Supersedes: Protocol dated July 1, 2011
Effective: January 1, 2012
Reviewed: November 2011
Scope: ALS – Adult/Pediatric

EMS Agency Medical Director

NARROW COMPLEX TACHYCARDIA

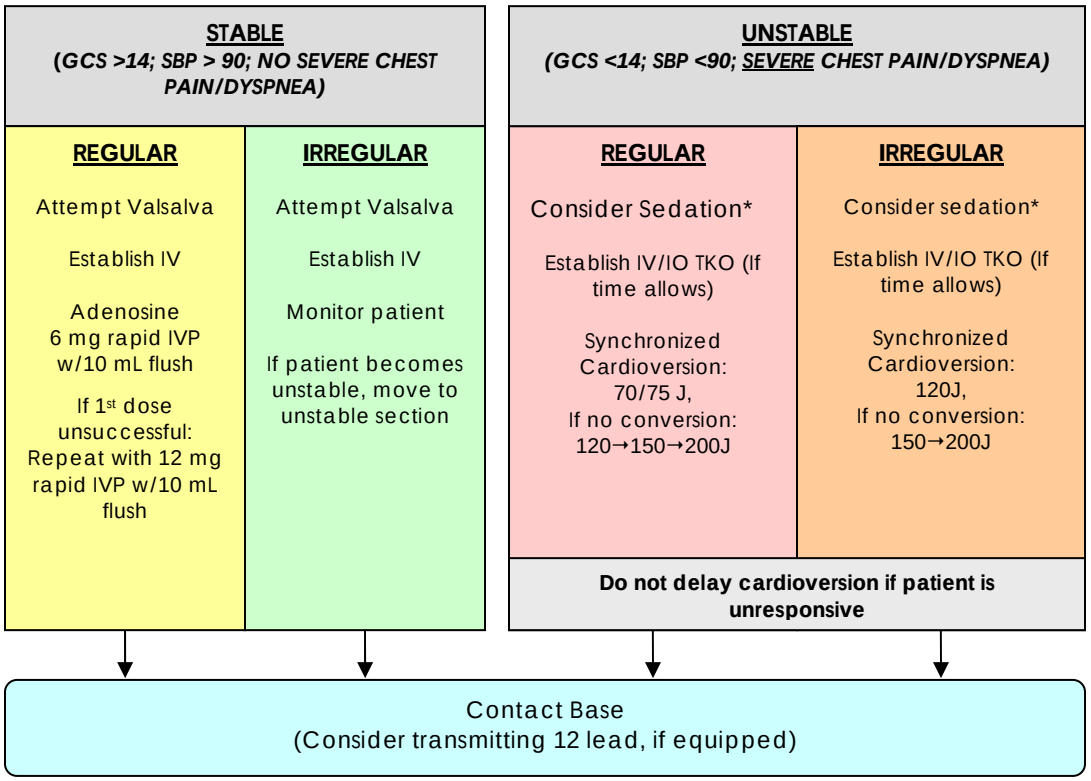
ADULT ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort.

PROTOCOL PROCEDURE: *Flow of protocol presumes that narrow complex tachycardia is continuing. If response or condition changes, see appropriate protocol. Rate related symptoms are uncommon in rates < 150 BPM. If the patient remains stable and rhythm does not convert, transport to appropriate hospital. If at any time the patient becomes unstable, go to the unstable section of this protocol.*



- *If patient is awake **consider sedation** with Versed 2.5 mg IV/IO push q 5 min/ 5 mg IN/IM

PEDIATRIC ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort.

PROTOCOL PROCEDURE: *Flow of protocol presumes that narrow complex tachycardia is continuing. If response or condition changes, see appropriate protocol. Supra-ventricular tachycardia is defined as pulse rate > 220 in infants (<1 year) and > 180 in children. If the patient remains stable and rhythm does not convert, transport to appropriate hospital. If at any time the patient becomes unstable, go to the unstable section of this protocol.*

STABLE
(GCS > 14; ADEQUATE PERFUSION; NO SEVERE CHEST PAIN/DYSPNEA)

REGULAR

Attempt Valsalva/Ice Pack

Establish IV

Adenosine
0.1 mg/kg rapid IVP w/5 mL flush

If 1st dose unsuccessful:
Repeat with 0.2 mg/kg rapid IVP w/5 mL flush (Max of 0.3 mg/kg)

IRREGULAR

Attempt Valsalva/Ice Pack

Establish IV

Monitor patient

If patient becomes unstable, move to unstable section

UNSTABLE
(GCS <14; *INADEQUATE PERFUSION*; SEVERE CHEST PAIN/DYSPNEA)

If patient is alert:
Consider sedation with Versed 0.1 mg/kg diluted in 2-3 mL NS slow IV/IO push or 0.1 mg/kg IM or IN.

Establish IV/IO (If time allows)

Synchronized Cardioversion:
0.5-1 J/kg. Repeat as needed at 2 J/kg

Do not delay cardioversion if patient is unresponsive

Contact Base
(Consider transmitting 12 lead if, equipped)

- **Adenosine Info:** Dosing Maximums: First dose: 6 mg/Second dose: 12 mg
- *If patient is awake **consider sedation** with Versed 0.1 mg/kg diluted in 2-3 mL NS slow IV/IO push or 0.1 mg/kg IM or IN

EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

Supersedes: Protocol dated July 1, 2011
Effective: January 1, 2012
Reviewed: November 2011
Scope: ALS – Adult/Pediatric

EMS Agency Medical Director

WIDE-COMPLEX TACHYCARDIA

ADULT ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort and obtain a 12 lead EKG as soon as reasonably possible.

PROTOCOL PROCEDURE: *Flow of protocol presumes that wide-complex tachycardia is continuing. If response or condition changes, see appropriate protocol. If the patient remains stable and rhythm does not convert, transport to appropriate hospital. If at any time the patient becomes unstable, go to the unstable section of this protocol. If delays in synchronized cardioversion occur and clinical condition is critical, go to immediate unsynchronized shocks.*

STABLE
(*GCS >14; SBP > 90; NO SEVERE CHEST PAIN/DYSPNEA*)

REGULAR (MONOMORPHIC)	***IRREGULAR (POLYMORPHIC)***
Establish IV Adenosine 6 mg rapid IVP w/10 mL flush If 1st dose unsuccessful: Repeat with 12 mg rapid IVP w/10 mL flush Consider: Amiodarone IV /IO Infuse 150 mg (Add 150 mg to 100 mL of Normal Saline in a Volutrol/Buretrol and infuse total contents over 10 minutes) May repeat Amiodarone as per above	Establish IV Amiodarone IV /IO Infuse 150 mg (Add 150 mg to 100 mL of Normal Saline in a Volutrol/Buretrol and infuse total contents over 10 minutes) May repeat Amiodarone as per above

UNSTABLE
(GCS <14; SBP <90; SEVERE CHEST PAIN/DYSPNEA)

REGULAR (MONOMORPHIC)	**IRREGULAR* (POLYMORPHIC)**
Consider sedation* Establish IV/IO TKO (If time allows) Synchronized Cardioversion: 70/75 J Amiodarone IV /IO Infuse 150 mg (Add 150 mg to 100 mL of Normal Saline in a Volutrol/Buretrol and infuse total contents over 10 minutes) Repeat: Synchronized Cardioversion at: 120→150→200J May repeat Amiodarone as per above	Consider sedation* Establish IV/IO TKO (If time allows) Unsynchronized Cardioversion at 120 J Amiodarone IV /IO Infuse 150 mg (Add 150 mg to 100 mL of Normal Saline in a Volutrol/Buretrol and infuse total contents over 10 minutes) Repeat: Unsynchronized Cardioversion at: 150→200J May repeat Amiodarone as per above ***For Torsades De Pointe** administer 2 gm MAGNESIUM SULFATE diluted in 10 mL SW slow IV/IO push over 1-2 minutes prior to administration of Amiodarone

Contact Base
(Consider transmitting 12 lead, if equipped)

- *If patient is awake **consider sedation** with Versed 2.5 mg IV/IO push q 5 min/ 5 mg IN/IM. DO NOT DELAY CARDIOVERSION if patient is unresponsive
- For Amiodarone sensitivity/allergy contact base for Lidocaine order.

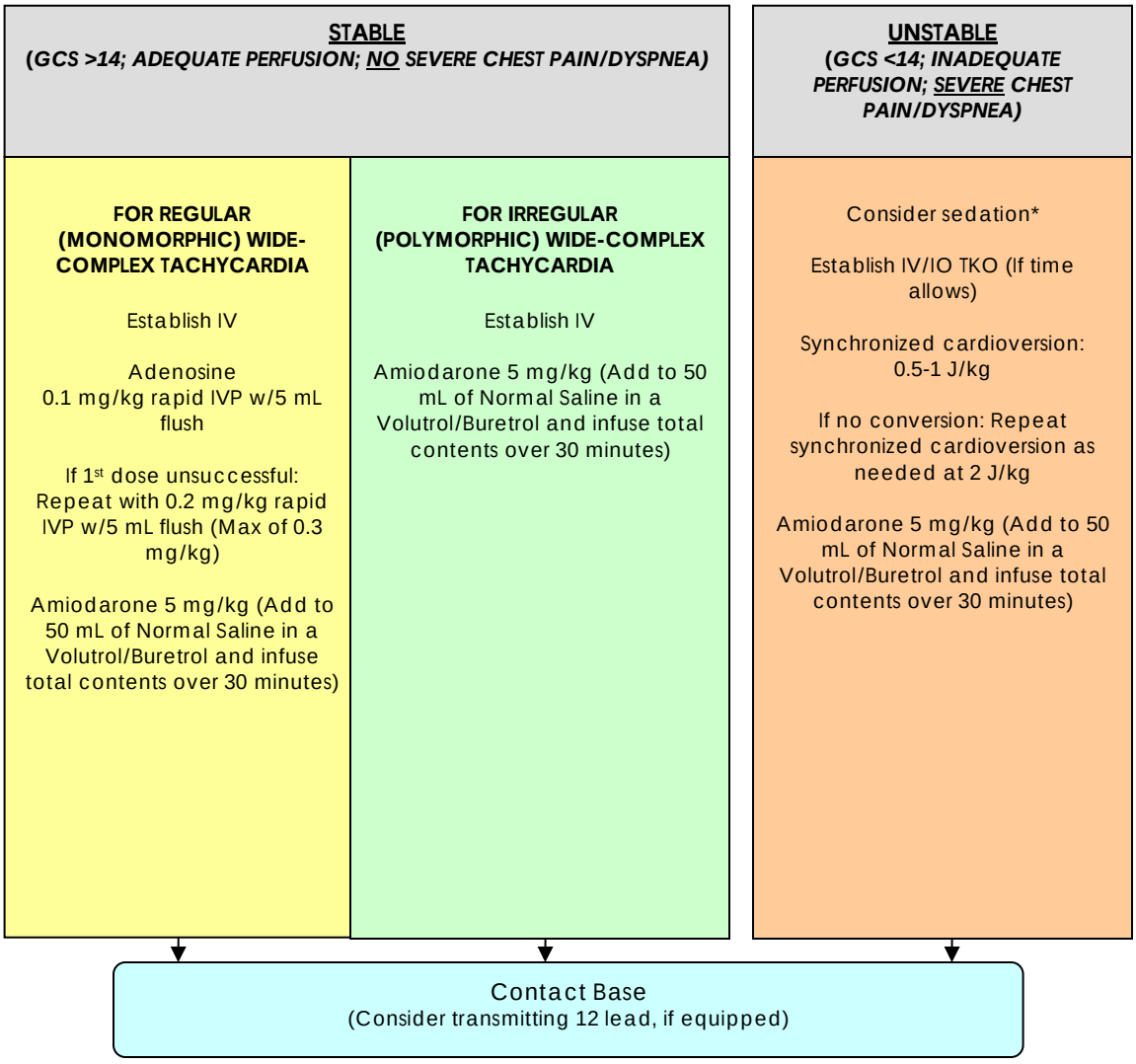
PEDIATRIC ALGORITHM

ABCs / ROUTINE MEDICAL CARE - Be prepared to support ventilation with appropriate airway adjuncts and circulation with external chest compressions.

Administer oxygen at the appropriate flow rate, preferably high flow via non re-breather mask.

Place patient in position of comfort and obtain a 12 lead EKG as soon as reasonably possible.

PROTOCOL PROCEDURE: *Flow of protocol presumes that wide complex tachycardia is continuing. If response or condition changes, see appropriate protocol. If the patient remains stable and rhythm does not convert, transport to appropriate hospital. If at any time the patient becomes unstable, go to the unstable section of this protocol. If delays in synchronized cardioversion occur and clinical condition is critical, go to immediate unsynchronized shocks.*



- **Adenosine Info:** Dosing Maximums: First dose: 6 mg/Second dose: 12 mg
- *If patient is awake **consider sedation** with Versed 0.1 mg/kg diluted in 2-3 mL NS slow IV/IO push or 0.1 mg/kg IM or IN. DO NOT DELAY CARDIOVERSION if patient is unresponsive
- For Amiodarone sensitivity or allergy contact base for lidocaine order.

EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

Supersedes: Protocols dated July 1, 2011
Effective: January 1, 2012
Reviewed: November 2011
Scope: BLS/ALS – Adult/Pediatric

EMS Agency Medical Director

PULSELESS ARREST

BLS TREATMENT (ADULT)

1. Confirm unresponsiveness and check carotid pulse for no more than 10 seconds.
2. **CABs -** Start CPR as per current guidelines. Support ventilation with appropriate airway adjuncts.
3. **Unwitnessed arrest**:

   Both BLS and ALS Personnel: If the arrest is not witnessed by EMS personnel while on scene or more than 4 minutes has elapsed since the arrest, perform 2 minutes (5 cycles) of CPR prior to attaching AED/EKG.

   Witnessed arrest

   ALS Personnel: Attach EKG and refer to ALS PULSELESS ARREST algorithm.

   BLS Personnel: Attach AED to patient, if so equipped. If shock advised, deliver shock per *AED Procedure. Immediately follow shock, and each subsequent shock, with 2 minutes of CPR (starting with compressions).

BLS PERSONNEL ONLY:

1. Continue CPR until patient care transfer to ALS personnel.
2. Establish airway with Esophageal Tracheal Airway Device, if so equipped and trained.

ALL PERSONNEL If Return of Spontaneous Circulation (ROSC):

1. Re-assess the patient's vital signs and effectiveness of ventilations frequently.
2. If patient is resuscitated and has:
   - **Effective spontaneous respirations:** Apply high flow oxygen, place patient in left lateral recumbent position and be prepared to suction airway.
   - **Ineffective or absent respirations**: Assist/provide ventilations and be prepared to suction airway.

When supporting ineffective or absent respirations do not over-ventilate the patient. Administer 10-12 ventilations per minute without an advanced airway, 8-10 with an advanced airway.

PROTOCOL PROCEDURE:

Flow of protocol presumes pulseless arrest is continuing. Effective CPR with a minimum of interruptions should be the primary objective. Consider possible cause (H's and T's) and treat accordingly. If correctable cause is suspected or condition changes refer to appropriate protocol.

ADULT ALS ALGORITHM

ASYSTOLE/PEA

1) Do 5 cycles of CPR between each procedure.
2) Establish IV/IO.
3) Give Epinephrine IV/IO: 1 mg 1:10,000 May repeat q 3-5 min.
4) Insert advanced airway.
5) If no IV/or IO give Epinephrine via ET: 2 mg 1:1,000 dilute in 5-10 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min.
6) Consider Sodium Bicarbonate 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD.

PULSELESS VT/VF

1) Do 5 cycles of **CPR** between each procedure.
2) Give 1 shock*, then immediately resume CPR.
3) Establish IV/IO.
4) Give Epinephrine 1 mg 1:10,000 IV/IO. May repeat q 3-5 min.
5) Check rhythm. If indicated give 1 shock*, then immediately resume CPR. Deliver shocks every 2 minutes if VF/VT continues.
6) Give Amiodarone: 300 mg Slow IV/IO push over 1-2 minutes.
7) Consider Magnesium Sulfate 2 Gm IV/IO diluted in 10 mL NS or SW for Torsades de pointes.
8) Check rhythm. If indicated give 1 shock*, then immediately resume CPR. Deliver shocks every 2 minutes if VF/VT continues.
9) Insert advanced airway.
10) If no IV/or IO give Epinephrine via ET: 2 mg 1:1,000 dilute in 5-10 mL NS or SW followed by 5 normal ventilations.
11) Repeat Amiodarone 5 min after first dose: 150 mg Slow IV/IO push over 1-2 minutes.

***Joule settings:**

- **Monophasic:** 360J
- **Physio-Control® Biphasic:** 150J
- **Zoll® Biphasic:** 120J (increase to 150J, then 200J for each subsequent shock)

- Consider **Sodium Bicarbonate** 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD
- Consider **Gastric Tube** upon establishing an advanced airway
- Resuscitate on scene until there is return of spontaneous circulation (ROSC), consider pronouncement if resuscitation is not successful or transport per base station order. See Determination of Death Policy
- **If ROSC achieved, contact base station for consideration of therapeutic hypothermia**

During CPR:

- Push hard and fast (at least100/min)
- Press at least 2" deep while Ensuring full chest recoil
- 1 cycle of CPR: 30/2, minimize interruptions
- Avoid hyperventilation
- Ventilate at 8 -10 breaths per minute without compression pauses when an advanced airway is in place
- Rotate compressors every two minutes
- Check rhythm every 2 minutes

Consider possible correctable causes H's and T's:

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypo-/hyperkalemia
Hypoglycemia
Hypothermia
Toxins
Tamponade, cardiac
Tension pneumothorax
Thrombosis (coronary or pulmonary)
Trauma

BLS TREATMENT (PEDIATRIC)

1. Confirm unresponsiveness and check carotid pulse for no more than 10 seconds.
2. **CABs -** Start CPR as per current guidelines. Support ventilation with appropriate airway adjuncts.
3. **Unwitnessed arrest**:

   Both BLS and ALS Personnel: If the arrest is not witnessed by EMS personnel while on scene or more than 4 minutes has elapsed since the arrest, perform 2 minutes (5 cycles) of CPR prior to attaching AED/EKG.

   Witnessed arrest:

   ALS Personnel: Attach EKG and refer to pediatric ALS algorithm.

   BLS Personnel: Attach AED to patient if so equipped. If shock advised, deliver shock per *AED Procedure. Immediately follow shock, and each subsequent shock, with 2 minutes of CPR (starting with compressions).

BLS PERSONNEL ONLY:

1. Continue CPR until patient care transfer to ALS personnel.

ALL PERSONNEL If Return of Spontaneous Circulation (ROSC):

1. Re-assess the patient's vital signs and effectiveness of ventilations frequently.
2. If patient is resuscitated and has:
   - **Effective spontaneous respirations:** Apply high flow oxygen, place patient in left lateral recumbent position and be prepared to suction airway.
   - **Ineffective or absent respirations**: Assist/provide ventilations and be prepared to suction airway.

When supporting ineffective or absent respirations do not over-ventilate the patient. Administer 12 -20 ventilations per minute without an advanced airway, 8-10 with an advanced airway.

PROTOCOL PROCEDURE:

Flow of protocol presumes pulseless arrest is continuing. Effective CPR with a minimum of interruptions should be the primary objective. Consider possible cause (H's and T's) and treat accordingly. If correctable cause is suspected or condition changes refer to appropriate protocol.

PEDIATRIC ALS ALGORITHM

ASYSTOLE/PEA

1. Do 5 cycles of CPR between each procedure.
2. Establish IV/IO.
3. Give **Epinephrine** IV/IO: 0.01 mg/kg (1:10,000: 0.1 mL/kg). May repeat q 3-5 min.
4. Insert advanced airway.
5. If no IV/or IO give Epinephrine via ET: 0.1 mg/kg (1:1,000: 0.1 mL/kg) dilute in 3-5 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min.
6. Consider Sodium Bicarbonate 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD.

PULSELESS VT/VF

1) Do 5 cycles of **CPR** between each procedure.
2) Give 1 shock*, then immediately resume CPR.
3) Establish IV/IO.
4) Give Epinephrine IV/IO 0.01 mg/kg (1:10,000: 0.1 mL/kg).
5) Check rhythm. If indicated give 1 shock*, then immediately resume CPR. Deliver shocks every 2 minutes if VF/VT continues.
6) Give Amiodarone: 5 mg/kg mg Slow IV/IO push over 1-2 minutes.
7) Insert advanced airway.
8) If no IV/or IO give Epinephrine via ET: 0.1 mg/kg (1:1,000: 0.1 mL/kg) dilute in 3-5 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min.
9) Repeat Amiodarone q min: 5 mg Slow IV/IO push over 1-2 minutes. (Max of 15 mg/kg).

***Joule settings:**
1st dose: 2 j/kg
2nd and subsequent doses: 4 j/kg
Consider increasing joules not to exceed 10J/kg or adult dose for refractory VF.

During CPR:

- Push hard and fast (at least100/min)
- Press at least 2" deep while Ensuring full chest recoil
- 1 cycle of CPR: 30:2 (1 rescuer) - 15/2 (2 rescuer)
- Avoid hyperventilation
- Ventilate at 8 -10 breaths per minute without compression pauses when an advanced airway is in place
- Rotate compressors every two minutes
- Check rhythm every 2 minutes

Consider possible correctable causes (H's and T's):

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypoglycemia
- **H**ypothermia
- **T**oxins
- **T**amponade, cardiac
- **T**ension pneumothorax
- **T**hrombosis (coronary or pulmonary)
- **T**rauma

EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

Supersedes: Protocol dated July 1, 2011
Effective: January 1, 2012
Reviewed: November 2011
Scope: BLS/ALS – Adult

EMS Agency Medical Director

CHF/PULMONARY EDEMA

BLS TREATMENT

ABCs / ROUTINE MEDICAL CARE – place patient in sitting position with legs down. Be prepared to support ventilation with appropriate airway adjuncts.

Administer at appropriate flow rate. If patient is in obvious respiratory distress high flow oxygen via non re-breather mask is indicated.

If patient is in severe distress attempt to assist breathing with BVM after explaining procedure to patient.

PROTOCOL PROCEDURE: *Flow of protocol presumes that condition is continuing. If patient is in severe respiratory distress due to excessive fluid in the lungs, immediate, rapid transport is essential with treatment performed en route.*

ALS ALGORITHM

STABLE (Normal respiratory effort, normal oxygen saturation, speaks in full sentences, and No ALOC)	**UNSTABLE** (Increased/increasing respiratory effort, low oxygen saturation, difficulty speaking, or signs of decreased level of consciousness)
1) NORMAL SALINE - Establish a saline lock. 2) Monitor patient's condition and transport. If patient's condition worsens, move to UNSTABLE section.	If Patient is HYPOTENSIVE: Refer to shock protocol. For NORMOTENSIVE/HYPERTENSIVE patients: 1) CPAP - start with 7.5 cm valve and 100% O_2 flow rate and titrate to patient's condition. Be prepared to support ventilation with appropriate airway adjuncts. Monitor and record vital signs every 5 minutes. Be prepared for possible hypotension. If hypotension develops, switch to 5.0 cm valve. 2) NTG* - Apply 1" of NTG Paste to patient's skin. (Systolic BP < 100 mm Hg, NTG should be withheld or discontinued by wiping off with a clean towel). 3) NORMAL SALINE - Establish saline lock or IO. *NTG should be withheld in patients who have taken erectile dysfunction medications (Viagra, Cialis, or Levitra) within 48 hours. Watch for respiratory depression. If respiratory status and "drive" continues to deteriorate, intubation may be indicated.

Contact Base

EL DORADO COUNTY EMS AGENCY
FIELD POLICIES

Supersedes: ALS Equipment policies dated July 1, 2011
Effective: January 1, 2012
Reviewed: November 2011
Scope: ALS Personnel

EMS Agency Medical Director

ALS UNIT MINIMUM EQUIPMENT INVENTORIES

PURPOSE:
A standardized inventory control program will ensure that effective levels of ALS equipment and medications are maintained and carried on approved ALS provider units.

DEFINITION:
Minimum Equipment Inventory - A minimum inventory of equipment and medication that is required to be carried on approved Advanced Life Support (ALS) units. More equipment may be carried if deemed appropriate by an ALS provider.

ALS Transporting Unit - An ALS ambulance that is capable of transporting patients.

ALS Non-Transporting Unit – An engine, squad, truck, or other type of response unit that is capable of providing full ALS on a full or part–time basis.

ALS Assessment Unit - An engine, squad, truck, or other type of response unit that is capable of providing limited ALS on a full or part–time basis.

POLICY:
1) The EMS Medical Director has the authority to set the minimum standard for ALS equipment and medications that are to be maintained. This standard shall meet State and local policies, protocols and regulations, and shall ensure the capability to provide an ALS level of patient care. Each ALS provider shall implement an inventory control program to ensure that all ALS units have appropriate ALS equipment and that medications are stocked to at least the minimum level inventory required.
2) When determining what inventory your unit(s) will carry, keep in mind the potential for multiple patients and/or multiple calls before restocking. For non-transporting and assessment units this limited inventory may necessitate restocking from the ALS transporting unit prior to transport of the patient in order for the non-transporting unit to stay "in-service".
3) Records of daily inventory shall be retained by the ALS provider for a minimum of twenty-four (24) months.
4) **For non-transporting and assessment units**: Providers with issues in regards to controlled substances (morphine sulfate and midazolam) may request an exception to this equipment inventory by submitting a letter to the EMS Agency Medical Director requesting that they not be required to carry morphine sulfate or midazolam. This letter must describe the reason(s) that the provider desires to exclude these medications from their inventory. The EMS Agency Medical Director will either approve or deny the exception and will notify the provider in writing of his or her decision.

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	AIRWAY
2	2	1	Needle Thoracostomy Kits Consisting of: • 2 1/2" 10 -16 Gauge Cath • 10 mL Syringe • Normal Saline Acorn or Vial • One Way Valve • Chlorahexadine Prep/Swab
1	1	1	Needle Cricothyroidotomy Kits Consisting of: • ENK Flow Modulator • Reinforced 10-14 Gauge Cath (At least 2 ½" long) • Chlorahexadine Prep/Swab • 5 mL Syringe • Normal Saline Acorn or Vial • Twill Tape
1	N/A	N/A	Main Oxygen Tank w/2 Flow Meters (Minimum oxygen level of 750 PSI)
2	2	1	Portable Oxygen Tanks (Minimum oxygen level of 500 PSI)
1	1	1	Portable Oxygen Regulator
1	1	Opt.	N2O2/CPAP Adapter (Pigtail)
1	1	1	Adult BVM w/Mask &O2 Supply Tubing
1	1	1	Child BVM w/Mask & O2 Supply Tubing
1	1	1	Infant BVM w/Mask & O2 Supply Tubing
2	1	Opt.	Peep Valves
6	1	1	Adult Nasal Cannulas
2	1	Opt.	Pediatric Nasal Cannulas
6	1	1	Adult Non-Rebreather Masks
2	1	1	Pedi Non-Rebreather Masks
2	1	Opt.	Infant Non-Rebreather Masks
2	1	Opt.	AeroEclipse Nebulizers
2	1	1	Nebulizers for Inhaled Meds
2*	1*	Opt.	Nebulizer Mask (*optional if non-re-breather mask can be converted to nebulizer mask)
2	1	Opt.	Nebulizer BVM Adapters

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	AIRWAY continued
2	1	1	Intubation Kit(s) Consisting of: • Oropharyngeal Airways Sizes #1 thru #6 • Nasopharyngeal Airways Sizes 20 FR – 36 FR • Uncuffed Endotracheal Tubes Sizes 2.5 – 5.5 (including half sizes) • Cuffed Endotracheal Tubes Sizes 6.0 – 9.0 (half sizes are optional) • Endotrol Endotracheal Tubes Sizes 6.0, 7.0, and 8.0 • Adult Laryngoscope Handle (pediatric sized handle is optional) • Full Set of Disposable Laryngoscope Blades (straight and curved) • 10 mL Syringe • Stylettes (1 adult and 1 pediatric) • 2 ET Securing Devices • Magil Forceps (1 adult and 1 pediatric) • Spare Laryngoscope Batteries (1 set for each handle) • BAAM Device • 4 Water Soluble Lubricating Jelly Packets • End Tidal CO2 Detectors (1 adult and 1 pediatric)) • ET Tube Introducer (ETTI)/Bougie
1	1	1	King Airway Device Set Consisting of: • King LT or LTS-D Airways in sizes 2, 2.5, 3, 4*, & 5* • Water based lubricant • 60 cc or 90 cc syringe (If a 60 cc syringe is used, multiple fillings may be required) *Alternative to King sizes 4 & 5: Combitube Set Consisting of: • Combitube SA (small adult) • 140 mL Syringe • 12 mL Syringe • Deflector • 10 French Suction Catheter
1	1	1	Pulse Oximeter
1	Opt.	Opt.	Spare SPO2 Sensor
2	Opt.	Opt.	Pedi Pulse Oximetry Sensors
1	Opt.	Opt.	Nitrous Delivery System: 1 Matrx Unit/ 1 Mask/ 5 Mouthpieces
1*	1*	Opt.	WhisperFlow® CPAP Generator Model # OC 7894 (*Or Equivalent Single Use Disposable Model)
1*	1*	Opt.	Male Adapted Oxygen Hose (*Not req. if disposable model is used)
1*	1*	Opt.	WhisperPak® CPAP Kits Containing: • Head Strap • 7.5 and 5.0 CM Valves • Large and Medium Masks • Filter • Tubing (*Not required if disposable model is used)

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	SUCTION
1	NA	NA	On Board Suction Unit
1	1	Opt.	Battery Operated Portable Suction Unit
3	Opt.	Opt.	Spare Suction Canisters/Bags W/ Lids
3	1	Opt.	Suction Connecting Tubing
3	1	Opt.	Yankauer/Tonsil Tip Catheters
2	1	Opt.	#10 French Suction Catheters
2	1	Opt.	#14 French Suction Catheters
2	1	Opt.	#16 French Suction Catheters
1	1	Opt.	Meconium Aspirator
1	1	Opt.	60 cc Syringe (Luer tapered style tip)
2	1	Opt.	#8 French Pediatric Feeding Tubes
2	Opt.	Opt.	#14 French Salem Sump NG Tube
Opt.	Opt.	1*	Hand Held Suction Device (*Optional if battery powered suction is carried)

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	EKG
1	Opt.	Opt.	12 Lead/ETCO2 Capable Monophasic or Biphasic Monitor/Defibrillator w/Pacing **(defibrillator must be tested daily)**
N/A	1	1	Monophasic or Biphasic Monitor/Defibrillator w/Pacing **(Test defibrillator daily)**
1	Opt.	Opt.	12 Lead Cables
2	1	1	ECG Leads (Cables)
2	1	1	Spare ECG Paper
8	2	2	Adult Electrode Sets
4	1	1	Pediatric Electrode Sets
2	2	1	Pedi Multi-Function Defibrillation/Pacing Pads
2	1	1	Spare Monitor Batteries
1*	1*	1*	Defibrillation Gel/Gel Pads *Required only if paddles are carried
1	Opt.	Opt.	ETCO2 Set (cable and adult and pediatric adapters)

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	IV
8	2	1	Normal Saline IV Solutions 1000 mL
Opt.	Opt.	Opt.	Normal Saline IV Solution 100 mL
8	2	1	IV Administration Sets (Macro-Drip)
Opt.	Opt.	Opt.	Adjustable IV drip tubing may be used in lieu of macro/micro drip tubing. If used, the inventory of all drip tubings may be reduced by 50%.
2	1	Opt.	IV Administration Sets (Micro-Drip)
2	Opt.	Opt.	IV Administration Sets (Blood Y)
5	2	2	Saline Locks
2	1	1	Buretrol Sets (150 mL each)
3	1	1	Normal Saline Vials or Preloaded Syringes 5-10mL
2	Opt.	Opt.	Dial-A-Flows
2	Opt.	Opt.	3 Way Valve w/Extensions
4	2	1	Blood Tube Sets
4	2	1	Vacutainer Barrels
8	4	1	Vacutainer Luer Adapters
1	1	1	Blood Glucose Meter **(Calibrate weekly and upon opening a new box of test strips)**
1	1	1	Box of Glucose Meter Test Strips
1	1	1	Glucose Meter Testing Solution (High and Low) Must be replaced 90 days after initial opening.
8	3	2	Lancets
10	5	3	Isopropyl Alcohol Preps
5	1	1	Betadine Pads
30	10	5	Chlorahexadine Preps/Swabs
2	1	1	Prep Razors
4	2	2	Penrose Drains/Tourniquets (Latex Free)
4	1	1	Rolls of Transpore Tape 1”
10	2	2	Sterile IV Site Covers
6	2	Opt.	14 ga. IV Catheters
6	2	1	16 ga. IV Catheters
8	2	2	18 ga. IV Catheters 1.25”
8	2	2	20 ga. IV Catheters 1.25”

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	IV continued
4	1	1	22 ga. IV Catheters 1.25”
Opt.	Opt.	Opt.	23 ga. Butterfly Catheter
Opt.	Opt.	Opt.	25 ga. Butterfly Catheter
1	1	Opt.*	1 EZ-IO Bag with the Following Supplies: • 1 EZ-IO® Driver • 2 EZ-IO® LD Needles (Large Adult) • 2 EZ-IO® Adult Needles • 2 EZ-IO® Pediatric Needles • 2 EZ-Connect Tubings • 1 Pressure Bag • 1 Lidocaine HCl 2%/100 mg. Pre-Load (Recommended) • 2 10 mL Normal Saline Preloaded Syringes (Recommended) • 1 EZ-IO Wristband • 4 Chlorahexadine Preps/Swabs • 2 Sterile 4x4 Dressings • 1 EZ-Stabilizer *Assessment units may use EZ-IO needle manually without the driver and only carry one of each needle size and other supplies.
4	2	Opt.	Twin Catheters
5	2	1	1 mL Syringes w/Insulin Needle
5	2	1	3 mL Syringes
6	2	1	5 mL Syringes
8	1	1	10 mL Syringes
3	1	Opt.	20 mL Syringes
4	2	2*	18 ga. Transfer or Injection Needles *Assessment units may carry either 18 or 20 ga.
4	2	Opt.	20 ga. Transfer or Injection Needles
5*	2*	Opt.*	Filter Needles in Assorted Sizes (*mandatory if carrying ampules)
5	2	1	MAD Intranasal Atomizers

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	MEDs
100 G	50 G	Opt.	Activated Charcoal (without Sorbitol)
36 mg	18 mg	6 mg	Adenocard
15 mg	5 mg	Opt.	Albuterol Sulfate
4	2	1	Albuterol / Atrovent Mixed (DuoNeb)
1200 mg	450 mg	300 mg	Amiodarone in 150 mg Preloaded Syringes or 3 mg Vials
1 bttl	1 bttl	1 bttl	Aspirin (Chewable 80 mg.)
3 mg	2 mg	1 mg	Atropine Sulfate/1 mg. Pre-Load Syringes
16 mg	8 mg	Opt.	Atropine Sulfate/8 mg. Vial
2 G	1 G	Opt.	Calcium Chloride 10%/1 G. Pre-Load Syringes
75 G	25 G	25 G	50% Dextrose/25 G. Pre-Load Syringes
50 ml	25 ml	Opt.	Sterile Water for Injection
100 mg	50 mg	50 mg	Diphenhydramine 50 mg Vials or Pre-load Syringes
2 bags	1 bag	Opt.	Dopamine 400 mg in 250 mL (Plus Drip Chart)
10 mg	5 mg	2 mg	Epinephrine 1:10,000 Pre-Load Syringes 1 mg/10 mL
60 mg	30 mg	3 mg*	Epinephrine 1:1000 Multi-Dose 30 mL Vials (*may use ampules)
2 mg	1 mg	1 mg	Glucagon
15 ml	6 ml	Opt.	Inhalation Solution In 3 mL Acorns/Pillows
400 mg	200 mg	100 mg	Lidocaine HCl 2%/100 mg. Pre-Load
30 ml	15 ml	Opt.	Lidocaine Viscous 2%/15 mL
40 ml	20 ml	Opt.	Lidocaine 1% w/Epinephrine 1:100,000 (*Optional if Neosynephrine is carried)
4 g	2 g	Opt.	Magnesium Sulfate
32 mg	20 mg*	8 mg*	Morphine Sulfate (Supplied in 4 mg Carpujets) (*Optional w/ Medical Director's approval)
8 mg	4 mg	2 mg	Narcan

Key:
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ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	MEDs continued
1*	1*	Opt.	Neosynephrine Spray (up to a 1% solution) (*Opt.if Lido w/ Epi is carried)
2 bttl	1 bttl	1 bttl	Nitrolingual Spray
3 G	1 G	Opt.	Nitro Bid Ointment (NTG Paste) 2% (30g tube or 1g packets)
2 bttl	Opt.	Opt.	Nitronox (*at least one completely full)
20 mg	8 mg	Opt.	Ondansetron Oral Dissolving Tablets (4 mg each)
20 mg	8 mg	4 mg	Ondansetron Vials or Pre-load Syringes 4 mg/2 mL
30 G	15 G	15 G	Oral Glucose 15 g
150 mEq	100 mEq	Opt.	Sodium Bicarbonate/50 mEq. Pre-Load Syringes
15 mg	10 mg	5 mg*	Versed (5 mg/mL concentration) (*Optional w/ Medical Director's approval)

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	INFECTION CONTROL
1*	1*	1*	Hepa (P100)Masks. N95 mask may also be carried, but a minimum of one P100 mask *PER PARAMEDIC is required for high level procedures such as intubation
2	1	1	Disposable Gowns
1	1	1	Hand Cleaner Bottle/ Wipes
2		1	Sharps Containers
1	1	1	Protective Eye Glasses Per Paramedic
1	Opt.	Opt.	Disinfectant Spray
5	2	2	Large Bio-Hazard Bags
2 sets	Opt.	Opt.	Non-Latex Sterile gloves (XL, L, M)
1	1	1	Non-Latex Protective Gloves (*1 box sized for each crewmember)
2	2	2	Emesis Bag/Basin
1	Opt.	Opt.	Post Exposure Kit, containing: 2 Red Top and 1 Purple Top Blood Tube(s), and set of instructions

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	TRAUMA
10	5	5	Sterile 4x4 Dressings
4" stack	Opt.	Opt.	Non-Sterile 4x4 Dressings
5	2	2	Roller Gauze 4.5"
5	2	2	Combine Dressings 5" x 9"
2	1	1	Multi Trauma Dressings
2	2	1	Petroleum Gauze
2	5	5	Adhesive Bandages
1 box	1	1	Triangular Bandages
1	1*	1*	Burn Kit consisting of: • *Face Mask • *2 - Sheets • *2 - 15"x20" Dressings • 2 - 12"x15" Dressings • 2 - 12'x12" Dressings *Only items with an asterisk are required on non-transporting and assessment units.
2	1	1	1000 mL Sterile Irrigation Solution
4	1	1	2" Cloth Tape Rolls
2	1	1	Elastic Bandages
2	1	1	Trauma Shears
4	2	1	Hot Packs
4	2	1	Cold Packs
2	1	1	Backboards
1	Opt.	Opt.	Scoop Stretcher
6	3	1	Adult Cervical Collars of appropriately assorted sizes
1	1	1	Child Cervical Collars
1	1	1	Infant Cervical Collars
4	1	1	Head Immobilizer Sets
2	1	1	Backboard Straps
1	Opt.	Opt.	KED
2	Opt.	1	Sam Splints
2	2	Opt.	Cardboard Arm Splints
2	2	Opt.	Cardboard Leg Splints
1	1	1	Adult Traction Splint (Sager, Hare, or Kendrick)
1	1	Opt.	Pediatric traction Splint (Kendrick Traction Device)
1	Opt.	Opt.	Pediatric Immobilizer

Key:
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* = See notes for special information

ALS TRANSPORTING UNIT	ALS NON-TRANSPORTING UNIT	ALS ASSESSMENT UNIT	MISCELLANEOUS
1	1	1	OB Kit
1	1	1	Penlight
2	NA	NA	Blankets
6	NA	NA	Sheets
1	NA	NA	Pillow
4	NA	NA	Pillow Cases
Opt.	NA	NA	Rain Cover
2	2	Opt.	Emergency/CHP Blankets
1	NA	NA	Bedpan
1	NA	NA	Urinal
2	NA	NA	Soft Restraint Sets
1	NA	NA	Hard Leather or Other Hard Padded Restraint Set
1	NA	NA	Med Net Radio
Opt.	Opt.	Opt.	Stuffed Animal
1	1	1	MCI Triage Kit Consisting of: • Triage Tags 25 ALL-RISK TX5420 • All appropriate triage tracking forms and documents
Opt.	Opt.	Opt.	Clipboard
1	1	1	Patient Care Protocols
5	3	2	PCR Forms
2	2	1	PCR Continuation Forms
5	3	1	Notice of Privacy Rights (HIPAA) Forms
1	1	1	Broselow Tape
1	1	1	Ring Cutter
1	N/A	N/A	Child Car Seat/Restraint System
1	Opt.	Opt.	Hand Cuff Key
1	1	Opt.	Padded Hemostats
Opt.	Opt.	Opt.	Automatic CPR Device (Lucas or AutoPulse)

Key:
Opt. = Optional
N/A = Not applicable
* = See notes for special information

EL DORADO COUNTY EMS AGENCY
ADMINISTRATIVE POLICIES

Supersedes: N/A
Effective: January 1, 2012
Reviewed: N/A
Scope: Administrators

EMS Agency Medical Director

EMS COMMUNICATIONS

PURPOSE:
To ensure dissemination of information in an orderly fashion that accounts for all recipients to clearly understand the message being relayed. Provide all users the ability to classify communications into categories by importance and take appropriate action in accordance with this policy and the communication being received.

DEFINITIONS:

POLICY:

1. All agencies that interface with EDCEMSA shall be responsible to understand and abide by this policy.

2. Each provider agency, base hospital, or affiliated agency shall designate a primary point of contact person and a secondary point of contact person to be utilized in the event that the primary is not available. The point of contact person is responsible for the dissemination of information to all applicable personnel (as identified on the communiqué) and also, when indicated, confirmation of response back to the EDCEMSA.

3. All electronic communications shall be classified as follows;
    a. Email
    b. Memo
    c. Bulletin
    d. Safety Bulletin
    e. Paramedic Alert

4. Each of these communications shall be interpreted as follows:
    a. Email
        i. General communication – No Action necessary, of low importance.
    b. Memo
        i. General communication – Must be read by all recipients, of moderate importance. No reply required.
    c. Bulletin
        i. General Communication – Must be read by all recipients, of High importance – Reply confirmation required to sender.
    d. Safety Bulletin –
        i. Safety Issue– Must be forwarded to agency representative and distributed to all EMS personnel – of Very High importance – Reply confirmation required, sender shall confirm all recipients have acknowledged bulletin, sender must keep a record of confirmation on file.
    e. Paramedic Alert –
        i. Protocol or other operational change – Must be forwarded to agency representative and distributed to all EMS personnel - of Very High importance – Reply confirmation required, sender shall confirm all

recipients have acknowledged bulletin, sender must keep a record of confirmation on file.

5. Timelines –
    a. All communications requiring confirmation must be acknowledged within 14 days of dispersal.

6. Failure to comply –
    a. Any recipient or member agency representative that fails to comply with this policy will be subject to review and counseling by the Director of the EMSA or his designee as necessary to ensure communications are being consistently distributed and received.
    b. Identified problems will be forwarded to the El Dorado County Fire Chiefs Association for review and comment.