AGENDA

ICEMA
MEDICAL ADVISORY COMMITTEE

April 22, 2021

1300

Zoom Meeting

Purpose: Information Sharing
Meeting Facilitator: Seth Dukes
Timekeeper: Ron Holk
Record Keeper: Ron Holk

	AGENDA ITEM	PERSON(S)	DISCUSSION/ACTION
I.	Welcome/Introductions	Seth Dukes	
II.	Approval of Minutes	Seth Dukes	Discussion/Action
III.	Discussion/Action Items		
	A. Standing EMS System Updates		
	1. Trauma Program 2. STEMI Program 3. Stroke Program	1. Loreen Gutierrez 2. Loreen Gutierrez 3. Loreen Gutierrez	1. Discussion 2. Discussion 3. Discussion
	B. EMS Trends		
	1. COVID-19 Update 2. Pediatric Readiness Survey	Amber Anaya	Discussion
	C. HEMS Utilization Task Force	Stephen Patterson	Discussion
	D. EMS Fellow Field Response	Loreen Gutierrez	Discussion/Action
	E. Technology Implementation for ICEMA EMS Providers and Hospitals	Tom Lynch	Discussion/Action
	F. Law Enforcement Restraints	Reza Vaezazizi/ Loreen Gutierrez	Discussion
	G. Narcan Administration	Pam Martinez/ Carly Crews	Discussion
	H. Assess and Refer	Reza Vaezazizi/ Loreen Gutierrez	Discussion/Action
	I. Data Quality Reports	Reza Vaezazizi/ Mark Roberts	Discussion
	J. Protocol Review/Update	Ron Holk/ Loreen Gutierrez	Discussion/Action
	1. 7010R1 - Standard Drug and Equipment List - BLS/LALS/ALS		

	2. 11010 - Medication - Standard Orders		
	3. 14010 - Respiratory Emergencies - Adult		
	4. 14050 - Cardiac Arrest - Adult		
IV.	Public Comment Period		
V.	Future Agenda Items		
VI.	Next Meeting Date: June 24, 2021		
VII.	Adjournment		
VIII.	Closed Session		
	A. Case Reviews		
	B. Loop Closure Cases		

MINUTES

ICEMA
MEDICAL ADVISORY COMMITTEE

February 25, 2021
1300

AGENDA ITEM		DISCUSSION/FOLLOW UP	RESPONSIBLE PERSON(S)
I.	Welcome/Introductions	Meeting called to order at 1302.	Seth Dukes
II.	Approval of Minutes	The October 22, 2020, minutes reviewed. Motion to approve. MSC: Joy Peters/Michael Neeki APPROVED Ayes: Brandon Woodward, Debbie Bervel, Michael Neeki, Seth Dukes, Kevin Parkes, Joy Peters, Susie Moss, Christopher Tardiff, Kenneth Fox, Stephen Patterson, Lisa Davis, Amanda Ward	Seth Dukes
III.	Discussion/Action Items		
	A. Standing EMS System Updates		
	1. Trauma Program 2. STEMI Program 3. Stroke Program	1. The trauma protocol will be updated to state the use of mechanical CPR device on traumatic arrest is not advised. 2. The first annual State STEMI/Stroke Summit will be on June 8 - 9, 2021.	1. Loreen Gutierrez 2. Loreen Gutierrez 3. Loreen Gutierrez
	B. EMS Trends		
	1. COVID-19 Update	Update provided regarding PPE orders, staffing, and hospital data. Requests for resource requests is trending downward.	Amber Anaya
	C. HEMS Utilization Task Force	The task force meetings have been changed to quarterly meetings. The next meeting is in April 2021.	Steve Paterson
	D. Use of Nitropaste in CPAP	Discussed use of Nitropaste for patients receiving CPAP in setting of acute respiratory distress and/or in addition to sublingual or spray as a standard item. Motion to add Nitropaste to other forms of NTG on the Standard Drug and Equipment List and Medication - Standard Orders protocols. MSC: Kenneth Fox/Susie Moss APPROVED	Seth Dukes

		Ayes: Brandon Woodward, Debbie Bervel, Michael Neeki, Seth Dukes, Kevin Parkes, Joy Peters, Susie Moss, Christopher Tardiff, Kenneth Fox, Stephen Patterson, Lisa Davis, Amanda Ward	
	E. Use of Versed in CPAP	Discussed use of Versed for anxiety in patients receiving CPAP. Motion to add Versed to appropriate protocols for patients receiving CPAP. MSC: Seth Dukes/Kenneth Fox APPROVED Ayes: Brandon Woodward, Debbie Bervel, Michael Neeki, Seth Dukes, Kevin Parkes, Joy Peters, Susie Moss, Christopher Tardiff, Kenneth Fox, Stephen Patterson, Lisa Davis, Amanda Ward	Seth Dukes
	F. Physician on Scene	Discussed updated protocol for physician on scene using EMS Fellows. Seth Dukes will provide updated protocol for review prior to future meetings.	Seth Dukes
	G. Research Project - Use of Ultrasound by EMS	Discussed research project regarding use of ultrasound by EMS providers. EMS providers were asked to forward interest to ICEMA.	Reza Vaezazizi
	H. Assess and Refer	Discussed the difference between the use of assess and refer and against medical advice.	Reza Vaezazizi
	I. Policy and Protocol Information	ICEMA will delay updating the annual Policy and Protocol Manual to allow for the upcoming 30-day public comment period.	Loreen Gutierrez
IV.	Public Comment Period		
V.	Future Agenda Items	- Assess and Refer	
VI.	Next Meeting Date	April 22, 2021	
VII.	Adjournment	Meeting adjourned at 1435.	

Attendees:

NAME	MAC POSITION	EMS AGENCY STAFF	POSITION
☐ P. Brian Savino - LLUMC ☒ Brandon Woodward - ARMC	Trauma Hospital Physicians (2)	☒ Reza Vaezazizi, MD	Medical Director
☐ Melanie Randall - LLUMC	Pediatric Critical Care Physician	☒ Tom Lynch	EMS Administrator
☐ Phong Nguyen - RDCH ☒ Debbie Bervel - SARH	Non-Trauma Base Physicians (2)	☒ Loreen Gutierrez	Specialty Care Coordinator
☐ Aaron Rubin - Kaiser	Non-Base Hospital Physician	☒ Ron Holk	EMS Coordinator
☒ Michael Neeki - Rialto FD	Public Transport Medical Director	☒ Amber Anaya	EMS Specialist
☒ Seth Dukes - AMR	Private Transport Medical Director		
☒ Kevin Parkes - Ontario FD	Fire Department Medical Director		
☒ Joy Peters - ARMC	EMS Nurses Representative		
☐ Leslie Parham - Chino Valley FD	EMS Officers Representative		
☐ VACANT	Public Transport Medical Representative (Paramedic/RN)		
☒ Susie Moss - AMR	Private Transport Medical Representative (Paramedic/RN)		
☒ Christopher Tardiff - AMR	Private Transport Field Paramedic		
☒ Kenneth Fox - BBFD	Public Safety Field Paramedic		
☐ Lance Brown - LLUMC	Specialty Center Medical Director		
☐ Mendy Hickey - SMMC	Specialty Center Coordinator		
☐ Troy Pennington - Mercy Air	Private Air Transport Medical Director		
☒ Stephen Patterson - Sheriff's Air Rescue	Public Air Transport Medical Director		
☐ VACANT	PSAP Medical Director		
☒ Lisa Davis - Sierra Lifeflight	Inyo County Representative		
☐ VACANT	Mono County Representative		
☒ Amanda Ward - Crafton Hills	EMT-P Training Program Representative		
☐ VACANT	ICEMA Medical Director Appointee		

STANDARD DRUG AND EQUIPMENT LIST - BLS/LALS/ALS

Each ambulance and first responder unit shall be equipped with the following functional equipment and supplies. **This list represents mandatory items with minimum quantities** excluding narcotics, which must be kept within the range indicated. All expiration dates must be current. All packaging of drugs or equipment must be intact. No open products or torn packaging may be used.

All ALS (transport and non-transport) and BLS transport vehicles shall be inspected annually.

MEDICATIONS/SOLUTIONS

Exchanged Medications/Solutions	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Adenosine (Adenocard) 6 mg			1	1
Adenosine (Adenocard) 12 mg			2	2
Albuterol Aerosolized Solution (Proventil) - unit dose 2.5 mg		4 doses	4 doses	4 doses
Albuterol MDI with spacer		1 SPECIALTY PROGRAMS ONLY	1 SPECIALTY PROGRAMS ONLY	1 SPECIALTY PROGRAMS ONLY
Aspirin, chewable - 81 mg tablet		2	1 bottle	1 bottle
Atropine 1 mg preload			2	2
Calcium Chloride 1 gm preload			1	1
Dextrose 10% in 250 ml Water (D10W)		2	2	2
Diphenhydramine (Benadryl) 50 mg			1	1
Epinephrine 1 mg/ml 1 mg		2	2	2
Epinephrine 0.1 mg/ml 1 mg preload			4	4
Glucagon 1 mg		1	1	1
Glucose paste	1 tube	1 tube	1 tube	1 tube
Ipratropium Bromide Inhalation Solution (Atrovent) unit dose 0.5 mg			4	4
Irrigating Saline and/or Sterile Water (1000 cc)	2	1	1	2
Lidocaine 100 mg			3	3
Lidocaine 2% Intravenous solution			1	1
Magnesium Sulfate 10 gm			1	1
Naloxone (Narcan) 2 mg preload	2	2	2	2
Nitroglycerine (NTG) - Spray 0.4 mg metered dose and/or tablets (tablets to be discarded 90 days after opening)		2	1	2
Nitroglycerine Paste 2% - 1g/1 inch Packet with paper applicators, **or** Nitroglycerine Paste 2% - 30g/1 inch Tube with applicators, **or** Nitroglycerine Paste 2% - 60g/1 inch Tube with applicators				2 1 1
Normal Saline for Injection (10 cc)		2	2	2
Normal Saline 100 cc			1	2
Normal Saline 250 cc			1	1
Normal Saline 500 ml and/or 1000 ml		2000 ml	3000 ml	6000 ml
Ondansetron (Zofran) 4 mg Oral Disintegrating Tablets (ODT)			4	4
Ondansetron (Zofran) 4 mg IM/IV			4	4

Exchanged Medications/Solutions	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Sodium Bicarbonate 50 mEq preload			2	2
Tranexamic Acid (TXA) 1 gm			2	2

Non-Exchange Controlled Substance Medications MUST BE DOUBLE LOCKED	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Fentanyl			200-400 mcg	200-400 mcg
Midazolam			20-40 mg	20-40 mg
Ketamine			120-1000 mg	120-1000 mg

AIRWAY/SUCTION EQUIPMENT

Exchanged Airway/Suction Equipment	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
CPAP circuits - all manufacture's available sizes			1 each	2 each
End-tidal CO2 device - Pediatric and Adult (may be integrated into bag)			1 each	1 each
Endotracheal Tubes cuffed - 6.0 and/or 6.5, 7.0 and/or 7.5 and 8.0 and/or 8.5 with stylet			2 each	2 each
ET Tube holders - adult		1 each	1 each	2 each
Mask - Adult & Pediatric non-rebreather oxygen mask	2 each	2 each	2 each	2 each
Mask - Infant Simple Mask	1	1	1	1
Nasal cannulas - pediatric and adult	2 each	2 each	2 each	2 each
Naso/Orogastric feeding tubes - 5fr or 6fr, and 8fr			1 each	1 each
Naso/Orogastric tubes - 10fr or 12fr, 14fr, 16fr or 18fr			1 each	1 each
Nasopharyngeal Airways - (infant, child, and adult)	1 each	1 each	1 each	1 each
Needle Cricothyrotomy Device - Pediatric and adult or Needles for procedure 10, 12, 14 and/or 16 gauge			1 each 2 each	1 each 2 each
One way flutter valve with adapter or equivalent			1	1
Oropharyngeal Airways - (infant, child, and adult)	1 each	1 each	1 each	1 each
Rigid tonsil tip suction	1		1	1
Small volume nebulizer with universal cuff adaptor		2	2	2
Suction Canister	1		1	1
Suction catheters - 6fr, 8fr or 10fr, 12fr or 14fr	1 each		1 each	1 each
Ventilation Bags - Infant 250 ml Pediatric 500 ml (or equivalent) Adult	 1 1 1	 1 1 1	 1 1 1	 1 1 1
Water soluble lubricating jelly		1	1	1

Non-Exchange Airway/Suction Equipment	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Ambulance oxygen source -10 L / min for 20 minutes	1			1
Flashlight/penlight	1	1	1	1
Laryngoscope blades - #0, #1, #2, #3, #4 curved and/or straight			1 each	1 each
Laryngoscope handle with batteries - or 2 disposable handles			1	1
Magill Forceps - Pediatric and Adult			1 each	1 each
Manual powered suction device		1		
Portable oxygen with regulator - 10 L /min for 20 minutes	1	1	1	1
Portable suction device (battery operated)	1		1	1
Pulse Oximetry device	(SEE OPTIONAL EQUIPMENT SECTION, PG. 5)	1	1	1
Stethoscope	1	1	1	1
Wall mount suction device	1 (BLS TRANSPORT ONLY)			1

IV/NEEDLES/SYRINGES/MONITORING EQUIPMENT

Exchanged IV/Needles/Syringes/Monitor Equipment	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Conductive medium or Pacer/Defibrillation pads			2 each	2 each
Disposable Tourniquets		2	2	2
ECG electrodes			20	20
EZ-IO Driver			1 each	1 each
EZ-IO Needles: 25 mm 45 mm			 2 each 1 each	 2 each 1 each
Glucose monitoring device with compatible strips and OSHA approved single use lancets	1	1	1	1
3-way stopcock with extension tubing			2	2
IV Catheters - sizes 14, 16, 18, 20, 22, 24		2 each	2 each	2 each
Macrodrip Administration Set Microdrip Administration Set (60 drops / cc)		3 1	3 1	3 2
Mucosal Atomizer Device (MAD) for nasal administration of medication	2	2	2	4
Pressure Infusion Bag (disposable)		1	1	1
Razors		1	2	2
Safety Needles - 20 or 21gauge and 23 or 25 gauge	2 each	2 each	2 each	2 each
Saline Lock Large Bore Tubing Needleless		2	2	2
Sterile IV dressing		2	2	2
Syringes w/wo safety needles - 1 cc, 3 cc, 10 cc catheter tip		2 each		
Syringes w/wo safety needles - 1 cc, 3 cc, 10 cc, 20 cc, 60 cc catheter tip			2 each	2 each

Non-Exchange IV/Needles/Syringes/ Monitor Equipment	BLS	LALS	ALS Non-Transport	ALS Transport
12-lead ECG Monitor and Defibrillator with TCP and printout			1	1
Blood pressure cuff - large adult or thigh cuff, adult, child and infant (one of each size)	1	1	1	1
Capnography monitor and supplies, may be integrated in the cardiac monitor			1	1
Needle disposal system (OSHA approved)	1	1	1	1
Thermometer - Mercury Free with covers	1	1	1	1

OPTIONAL EQUIPMENT/MEDICATIONS

Non-Exchange Optional Equipment/ Medications	BLS	LALS	ALS Non-Transport	ALS Transport
AED/defib pads - Adult (1), Pediatric (1)	1 each	1 each		
Automatic CPR device (FDA approved)	1	1	1	1
Automatic transport ventilator (Specialty Program Only - ICEMA approved device)			1	1
Backboard padding	1	1	1	1
Buretrol			1	1
Chemistry profile tubes			3	3
CPAP - (must be capable of titrating pressure between 2 and 15 cm H_2O)			1	1
Nerve Agent Antidote Kit (NAAK) - DuoDote or Mark I	3	3	3	3
EMS Tourniquet	1		1	1
Gum Elastic intubation stylet			2	2
Hemostatic Dressings *	1	1	1	1
IO Needles - Manual, Adult and Pediatric, Optional		Pediatric sizes only or EZ-IO needles and drivers	1 each	1 each
IV infusion pump			1	1
IV warming device		1	1	1
Manual IV Flow Rate Control Device			1	1
Manual powered suction device	1	1	1	1
Multi-lumen peripheral catheter			2	2
Needle Thoracostomy Kit (prepackaged)			2	2
Pulse Oximetry device	1			
Translaryngeal Jet Ventilation Device			1	1
Vacutainer			1	1

* Hemostatic Dressings

- Quick Clot, Z-Medica
  Quick Clot, Combat Gauze LE
  Quick Clot, EMS Rolled Gauze, 4x4 Dressing, TraumaPad
- Celox
  Celox Gauze, Z-Fold Hemostatic Gauze
  Celox Rapid, Hemostatic Z-Fold Gauze
- HemCon ChitoFlex Pro Dressing

NOTE:

- The above products are "packaged" in various forms (i.e., Z-fold, rolled gauze, trauma pads, 4"x4"pads) and are authorized provided they are comprised of the approved product.
- Hemostatic Celox Granules, or granules delivered in an applicator, are not authorized.

DRESSING MATERIALS/OTHER EQUIPMENT/SUPPLIES

Exchanged Dressing Materials/Other Equipment/ Supplies	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Adhesive tape - 1 inch	2	2	2	2
Air occlusive dressing	1	1	1	1
Ankle and wrist restraints, soft ties acceptable	1		1	1
Antiseptic swabs/wipes	10	10	10	10
Bedpan or fracture pan Urinal	1 (BLS TRANSPORT UNITS ONLY) 1 (BLS TRANSPORT UNITS ONLY)			1 1
Cervical Collars - Rigid Pediatric and Adult all sizes or Cervical Collars - Adjustable Adult and Pediatric	2 each 2 each	2 each 2 each	2 each 2 each	2 each 2 each
Cold Packs	2	2	2	2
Emesis basin or disposable bags and covered waste container	1	1	1	1
Head immobilization device	2	2	2	2
OB Kit	1	1	1	1
Pneumatic or rigid splints capable of splinting all extremities	4	2	2	4
Provodine/Iodine swabs/wipes or antiseptic equivalent		4	10	10
Roller bandages - 4 inch	6	3	3	6
Sterile bandage compress or equivalent	6	2	2	6
Sterile gauze pads - 4x4 inch	4	4	4	4
Sterile sheet for Burns	2	2	2	2
Universal dressing 10x30 inches	2	2	2	2

Non-Exchange Dressing Materials/Other Equipment/ Supplies	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
800 MHz Radio		1	1	1
Ambulance gurney	1 (BLS TRANSPORT UNITS ONLY			1
Bandage shears	1	1	1	1
Blood Borne Pathogen Protective Equipment - (nonporous gloves, goggles face masks and gowns meeting OSHA Standards)	2	1	2	2
Pediatric Emergency Measuring Tape (Broselow, etc.)		1	1	1

Non-Exchange Dressing Materials/Other Equipment/ Supplies	**BLS**	**LALS**	**ALS Non-Transport**	**ALS Transport**
Drinkable water in secured plastic container or equivalent	1 gallon			1 gallon
Long board with restraint straps	1	1	1	1
Pediatric immobilization board	1	1	1	1
Pillow, pillow case, sheets and blanket	1 set (BLS TRANSPORT UNITS ONLY			1 set
Short extrication device	1	1	1	1
Straps to secure patient to gurney	1 set (BLS TRANSPORT UNITS ONLY			1 set
Traction splint	1	1	1	1
Triage Tags - ICEMA approved	20	20	20	20

Medications listed in this protocol may be used only for the purposes referenced by the associated ICEMA Treatment Protocol.

For Nerve Agent Antidote Kit (NAAK) or medications deployed with the ChemPack see Appendix I (Page 12).

Adenosine (Adenocard) - Adult (ALS)

Stable narrow-complex SVT or Wide complex tachycardia:

Adenosine, 6 mg rapid IVP followed immediately by 20 cc NS bolus, and Adenosine, 12 mg rapid IVP followed immediately by 20 cc NS bolus if patient does not convert. May repeat one (1) time.

Reference #s 7010, 7020, 14040

Albuterol (Proventil) Aerosolized Solution - Adult (LALS, ALS)

Albuterol, 2.5 mg nebulized, may repeat two (2) times.

Reference #s 4060, 7010, 7020, 14010, 14070

Albuterol (Proventil) Metered-Dose Inhaler (MDI) - Adult (LALS, ALS - Specialty Programs Only)

Albuterol MDI, four (4) puffs every 10 minutes for continued shortness of breath and wheezing.

Reference #s 4060, 4080, 7010, 7020, 14120, 14140, 14190

Albuterol (Proventil) - Pediatric (LALS, ALS)

Albuterol, 2.5 mg nebulized, may repeat two (2) times.

Reference #s 7010, 7020, 14120, 14140, 14190

Albuterol (Proventil) Metered-Dose Inhaler (MDI) - Pediatric (LALS, ALS - Specialty Programs Only)

Albuterol MDI, four (4) puffs every 10 minutes for continued shortness of breath and wheezing.

Reference #s 4060, 4080, 7010, 7020, 14120, 14140, 14190

Aspirin, chewable (LALS, ALS)

Aspirin, 325 mg PO chewed (one (1) adult non-enteric coated aspirin) or four (4) chewable 81 mg aspirin.

Reference #s 4060, 4080, 5010, 7010, 7020, 14240

Atropine (ALS) - Adult

Atropine, 0.5 mg IV/IO. May repeat every five (5) minutes up to a maximum of 3 mg or 0.04 mg/kg.

Organophosphate poisoning:
Atropine, 2 mg IV/IO, repeat at 2 mg increments every five (5) minutes if patient remains symptomatic.

Reference #s 4060, 4080, 7010, 7020, 13010, 14030, 14260

Atropine - Pediatric (ALS)

Organophosphate poisoning - Pediatrics less than 14 years of age:
Atropine, 0.05 mg/kg IV/IO not to exceed adult dose of 2 mg, repeat at 0.1 mg/kg increments every five (5) minutes if patient remains symptomatic.

Reference #s 4060, 4080, 7010, 7020, 13010

Calcium Chloride - Adult (ALS)

*Calcium Channel Blocker Poisonings **(base hospital order only)**:*
Calcium Chloride, 1 gm (10 ml of a 10% solution) IV/IO.

Reference #s 5010, 7010, 7020, 13010

*For cardiac arrest with suspected hypocalcemia, hyperkalemia, hypermagnesemia or calcium channel blocker poisoning **(base hospital order only)**:*
Calcium Chloride, 1 gm (10 ml of a 10% solution) IV/IO.

Reference #s 7010, 7020, 14050

Calcium Chloride - Pediatric (ALS)

*Calcium Channel Blocker Poisonings **(base hospital order only)**:*
Calcium Chloride, 20 mg/kg IV/IO over five (5) minutes.

Reference #s 7010, 7020, 13010

Dextrose - Adult (LALS, ALS)

Hypoglycemia - Adult with blood glucose less than 80 mg/dL:
Dextrose 10% /250 ml (D10W 25 gm) IV/IO Bolus

Reference #s 4060, 4080, 5010, 7010, 7020, 8010, 13020, 13030, 14040, 14060

Dextrose - Pediatric (LALS, ALS)

Hypoglycemia - Neonates (0 - 4 weeks) with blood glucose less than 35 mg/dL or pediatric patients (more than 4 weeks) with glucose less than 60 mg/dL:
Dextrose 10%/250 ml (D10W 25 gm) 0.5 gm/kg (5 ml/kg) IV/IO

Reference #s 5010, 7010, 7020, 13020, 13030, 14150, 14160, 14170

Diphenhydramine - Adult (ALS)

Diphenhydramine, 25 mg IV/IO

Diphenhydramine, 50 mg IM

Reference #s 4060, 4080, 7010, 7020, 13010, 14010

Diphenhydramine - Pediatric (ALS)

Allergic reaction:

2 years to 14 years — Diphenhydramine, 1 mg/kg slow IV/IO, not to exceed adult dose of 25 mg, **or**

Diphenhydramine, 2 mg/kg IM not to exceed adult dose of 50 mg IM.

Reference #s 7010, 7020, 14140

Epinephrine (1 mg/ml) - Adult (LALS, ALS)

Severe Bronchospasm, Asthma Attack, Pending Respiratory Failure, Severe Allergic Reactions:

Epinephrine, 0.3 mg IM. May repeat after 15 minutes one (1) time if symptoms do not improve.

Reference # 14010

Epinephrine (0.1 mg/ml) - Adult (ALS)

For persistent severe anaphylactic reaction:

Epinephrine (0.1 mg/ml), 0.1 mg slow IVP/IO. May repeat every five (5) minutes as needed to total dosage of 0.5 mg.

Reference # 14010

Cardiac Arrest, Asystole, PEA:

Epinephrine (0.1 mg/ml), 1 mg IV/IO.

Reference #s 4060, 4080, 5010, 7010, 7020, 14010, 14050, 14260

Epinephrine (0.01 mg/ml) - Adult (ALS)

Post resuscitation, persistent profound nontraumatic shock and hypotension (Push Dose Epinephrine):

Prepare Epinephrine 0.01 mg/ml solution by mixing 9 ml of normal saline with 1 ml of Epinephrine 0.1 mg/ml in a 10 ml syringe. Administer 1 ml every one (1) to five (5) minutes titrated to maintain SBP more than 90 mm Hg.

Reference #s 4060, 4080, 5010, 7010, 7020, 11010, 14050, 14230

Epinephrine (1 mg/ml) - Pediatric (LALS, ALS)

Severe Bronchospasm, Asthma Attack, Pending Respiratory Failure, Severe Allergic Reactions:

Epinephrine, 0.01 mg/kg IM not to exceed adult dosage of 0.3 mg.

Reference #s 4060, 5010, 7010, 7020, 14120, 14140

Epinephrine (0.1 mg/ml) - Pediatric (ALS)

Anaphylactic reaction (no palpable radial pulse and depressed level of consciousness):

Epinephrine (0.1 mg/ml), 0.01 mg/kg IV/IO, no more than 0.1 mg per dose. May repeat to a maximum of 0.5 mg.

Cardiac Arrest:

1 day to 8 years	Epinephrine (0.1 mg/ml), 0.01 mg/kg IV/IO (do not exceed adult dosage)
9 to 14 years	Epinephrine (0.1 mg/ml), 1.0 mg IV/IO

Newborn Care:

Epinephrine (0.1 mg/ml), 0.01 mg/kg IV/IO if heart rate is less than 60 after one (1) minute after evaluating airway for hypoxia and assessing body temperature for hypothermia.

Epinephrine (0.1 mg/ml), 0.005 mg/kg IV/IO every 10 minutes for persistent hypotension as a base hospital order or in radio communication failure.

Reference # 14200

Epinephrine (0.01 mg/ml) - Pediatric (ALS)

Post resuscitation, profound shock and hypotension (Push Dose Epinephrine):

Prepare Epinephrine 0.01 mg/ml solution by mixing 9 ml of normal saline with 1 ml of Epinephrine 0.1 mg/ml in a 10 ml syringe. Administer 0.1 ml/kg (do not exceed adult dosage), every one (1) to five (5) minutes. Titrate to maintain a SBP more than 70 mm Hg.

Reference #s 5010, 7010, 7020, 11010, 14150, 14230

Fentanyl - Adult (ALS)

Chest Pain (Presumed Ischemic Origin):

Fentanyl, 50 mcg slow IV/IO over one (1) minute. May repeat every five (5) minutes titrated to pain, not to exceed 200 mcg.

Fentanyl, 100 mcg IM/IN. May repeat 50 mcg every 10 minutes titrated to pain, not to exceed 200 mcg.

Acute traumatic injuries, acute abdominal/flank pain, burn injuries, Cancer pain, Sickle Cell Crisis:

Fentanyl, 50 mcg slow IV/IO push over one (1) minute. May repeat every five (5) minutes titrated to pain, not to exceed 200 mcg IV/IO, **or**

Fentanyl, 100 mcg IM/IN. May repeat 50 mcg every 10 minutes titrated to pain, not to exceed 200 mcg.

Pacing, synchronized cardioversion:

Fentanyl, 50 mcg slow IV/IO over one (1) minute. May repeat in five (5) minutes titrated to pain, not to exceed 200 mcg.

Fentanyl, 100 mcg IN. May repeat 50 mcg every 10 minutes titrated to pain, not to exceed 200 mcg.

Reference #s 3050, 4060, 4080, 5010, 7010, 7020, 11020, 13030, 14070, 14090, 14100, 14240

Fentanyl - Pediatric (ALS)

Fentanyl, 0.5 mcg/kg slow IV/IO over one (1) minute. May repeat in five (5) minutes titrated to pain, not to exceed 100 mcg.

Fentanyl, 1 mcg/kg IM/IN, may repeat every 10 minutes titrated to pain not to exceed 200 mcg.

Reference #s 3050, 4080, 5010, 7010, 7020, 13030, 14180, 14190, 14240

Glucose - Oral - Adult (BLS, LALS, ALS)

Adult with blood glucose less than 80 mg/dL:
Glucose - Oral, one (1) tube for patients with an intact gag reflex and hypoglycemia.

Reference #s 7010, 7020, 13020, 14060, 14080, 14230

Glucose - Oral - Pediatric (BLS, LALS, ALS)

Hypoglycemia - Neonates (0 - 4 weeks) with blood glucose less than 35 mg/dL or pediatric patients (more than 4 weeks) with glucose less than 60 mg/dL:
Glucose - Oral, one (1) tube for patients with an intact gag reflex and hypoglycemia.

Reference #s 7010, 7020, 14170, 14160

Glucagon - Adult (LALS, ALS)

Glucagon, 1 mg IM/SC/IN, if unable to establish IV. May administer one (1) time only.

Beta blocker Poisoning (***base hospital order only***)*:*
Glucagon, 1 mg IV/IO

Reference #s 4060, 4080, 7010, 7020, 13010, 13030, 14060

Glucagon - Pediatric (LALS, ALS)

Hypoglycemia, if unable to establish IV:
Glucagon, 0.03 mg/kg IM/IN, if unable to start an IV. May be repeated one (1) time after 20 minutes for a combined maximum dose of 1 mg.

Reference #s 7010, 7020, 13030, 14160, 14170

Beta blocker poisoning ***(base hospital order only)****:*
Glucagon, 0.03 mg/kg IV/IO

Reference #'s 4060, 4080, 7010, 7020, 13010

Ipratropium Bromide (Atrovent) Inhalation Solution use with Albuterol Adult (ALS)

Atrovent, 0.5 mg nebulized. Administer one (1) dose only.

Reference #s 7010, 7020, 14010, 14070

Ipratropium Bromide (Atrovent) Metered-Dose Inhaler (MDI) use with Albuterol Adult (ALS - Specialty Programs Only)

When used in combination with Albuterol MDI use Albuterol MDI dosing.

Reference #s 4060, 4080, 7010, 7020, 14010, 14070

Ipratropium Bromide (Atrovent) Inhalation Solution use with Albuterol - Pediatric (ALS)

1 day to 12 months	Atrovent, 0.25 mg nebulized. Administer one (1) dose only.
1 year to 14 years	Atrovent, 0.5 mg nebulized. Administer one (1) dose only.

Reference #s 7010, 7020, 14120, 14140, 14190

Ipratropium Bromide (Atrovent) Metered-Dose Inhaler (MDI) use with Albuterol - Pediatric (ALS - Specialty Programs Only)

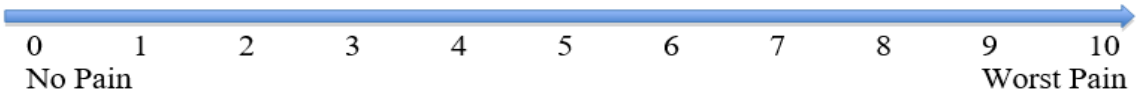
When used in combination with Albuterol MDI use Albuterol MDI dosing.

Reference #s 4060, 4080, 7010, 7020, 14120, 14140, 14190

Ketamine - Adult (ALS)

Acute traumatic injury, acute abdominal/flank pain, burn injuries, cancer related pain and sickle cell crisis:
Ketamine, 0.3 mg/kg to a max of 30 mg in a 50 - 100 ml of NS via IV over five (5) minutes. May repeat one (1) time, after 15 minutes, if pain score remains at five (5) or higher. Do not administer IVP, IO, IM, or IN.

This is the official pain scale to be used in patient assessment and documented on the PCR.



Reference #s 7010, 7020, 14100

Lidocaine - Adult (ALS)

VT (pulseless)/VF:
Initial Dose: Lidocaine, 1.5 mg/kg IV/IO

For refractory *VT (pulseless)/VF*, may administer an additional 0.75 mg/kg IV/IO, repeat one (1) time in five (5) to 10 minutes; maximum total dose of 3 mg/kg.

V-Tach, Wide Complex Tachycardia - with Pulses:
Lidocaine, 1.5 mg/kg slow IV/IO

May administer an additional 0.75 mg/kg slow IV/IO; maximum total dose of 3 mg/kg.

Reference #s 4060, 5010, 7010, 7020, 8010, 11020, 14040, 14050, 14090

Lidocaine - Pediatric (ALS)

Cardiac Arrest:

1 day to 8 years	Lidocaine, 1.0 mg/kg IV/IO
9 to 14 years	Lidocaine, 1.0 mg/kg IV/IO

May repeat Lidocaine at 0.5 mg/kg after five (5) minutes; maximum total dose of 3 mg/kg.

Reference #s 5010, 7010, 7020, 14150

Lidocaine 2% (Intravenous Solution) - Pediatric and Adult (ALS)

Pain associated with IO infusion:
Lidocaine, 0.5 mg/kg slow IO push over two (2) minutes, not to exceed 40 mg total.

Reference #s 5010, 7010, 7020, 11020

Magnesium Sulfate (ALS)

Polymorphic Ventricular Tachycardia:
Magnesium Sulfate, 2 gm IV/IO bolus over five (5) minutes for polymorphic VT if prolonged QT is observed during sinus rhythm post-cardioversion.

Eclampsia (Seizure/Tonic/Clonic Activity):
Magnesium Sulfate, 4 gm IV/IO slow IV push over three (3) to four (4) minutes.

Magnesium Sulfate, 10 mg/min IV/IO drip to prevent continued seizures.

Reference #s 5010, 7010, 7020, 8010, 14210

Severe Asthma/Respiratory Distress (ALS) ***(base hospital order only)****:*
Magnesium Sulfate, 2 gm slow IV drip over 20 minutes. Do not repeat.

Reference# 14010

Magnesium Sulfate - Pediatric (ALS)

Severe Asthma/Respiratory Distress ***(base hospital order only)****:*
Magnesium Sulfate, 50 mg/kg slow IV drip over 20 minutes. Do not exceed the adult dosage of 2 gm total. Do not repeat.

Reference # 14120

Midazolam (Versed) - Adult (ALS)

Behavioral Emergencies, with suspected excited delirium:
Midazolam, 2.5 mg IV/IO/IN. May repeat in five (5) minutes, **or**

Midazolam, 5 mg IM. May repeat in 10 minutes.

Maximum of three (3) doses using any combination of IV/IO/IM/IN may be administered. Contact base hospital for additional orders and to discuss further treatment options.

Reference # 14110

Seizure:

Midazolam, 2.5 mg IV/IO/IN. May repeat in five (5) minutes for continued seizure activity, **or**

Midazolam, 5 mg IM. May repeat in 10 minutes for continued seizure activity.

Assess patient for medication related reduced respiratory rate or hypotension.

Maximum of three (3) doses using any combination of IV/IO/IM/IN may be administered for continued seizure activity. Contact base hospital for additional orders and to discuss further treatment options.

Pacing, synchronized cardioversion:

Midazolam, 2 mg slow IV/IO push or IN

CPAP:

Midazolam, 1 mg slow IV/IO push may be administered one (1) time for anxiety related to application of CPAP. Contact base hospital for additional orders.

Reference #s 4060, 4080, 7010, 7020, 11020, 13020, 14060, 14210

Midazolam (Versed) - Pediatric (ALS)

Seizures:

Midazolam, 0.1 mg/kg IV/IO with maximum dose 2.5 mg. May repeat Midazolam in five (5) minutes, **or**

Midazolam, 0.2 mg/kg IM/IN with maximum dose of 5 mg. May repeat Midazolam in 10 minutes for continued seizure.

Assess patient for medication related reduced respiratory rate or hypotension.

Maximum of three (3) doses using any combination of IV/IO/IM/IN may be administered for continued seizure activity. Contact base hospital for additional orders and to discuss further treatment options.

Reference #s 7010, 7020, 14170

Naloxone (Narcan) - Adult (BLS)

For resolution of respiratory depression related to suspected opiate overdose:

Naloxone, 0.5 mg IM/IN, may repeat Naloxone 0.5 mg IM/IN every two (2) to three (3) minutes if needed.

Do not exceed 10 mg of Naloxone total regardless of route administered.

Reference #s 7010, 7020, 8030, 14060

Naloxone (Narcan) - Adult (LALS, ALS)

For resolution of respiratory depression related to suspected opiate overdose:

Naloxone, 0.5 mg IV/IO/IM/IN, may repeat Naloxone 0.5 mg IV/IO/IM/IN every two (2) to three (3) minutes if needed.

Do not exceed 10 mg of Naloxone total regardless of route administered.

Reference #s 4080, 7010, 7020, 14060

Naloxone (Narcan) - Pediatric (BLS)

For resolution of respiratory depression related to suspected opiate overdose:

1 day to 8 years	Naloxone, 0.1 mg/kg IM/IN (do not exceed the adult dose of 0.5 mg per administration)
9 to 14 years	Naloxone, 0.5 mg IM/IN

May repeat every two (2) to three (3) minutes if needed. Do not exceed the adult dosage of 10 mg total IM/IN.

Reference #s 7010, 7020, 8030, 14150, 14160

Naloxone (Narcan) - Pediatric (LALS, ALS)

For resolution of respiratory depression related to suspected opiate overdose:

1 day to 8 years	Naloxone, 0.1 mg/kg IV/IO/IM/IN (do not exceed the adult dose of 0.5 mg per administration)
9 to 14 years	Naloxone, 0.5 mg IV/IO/IM/IN

May repeat every two (2) to three (3) minutes if needed. Do not exceed the adult dosage of 10 mg total IV/IO/IM/IN.

Reference #s 7010, 7020, 14150, 14160

Nitroglycerin (NTG) (LALS, ALS)

Nitroglycerin, 0.4 mg sublingual/transmucosal.

One (1) every three (3) minutes as needed. May be repeated as long as patient continues to have signs of adequate tissue perfusion. **If a Right Ventricular Infarction is suspected, the use of nitrates requires base hospital contact.**

Nitroglycerin Paste; One (1) gram, one (1) inch transdermal.

Nitroglycerin is contraindicated if there are signs of inadequate tissue perfusion or if sexual enhancement medications have been utilized within the past 48 hours.

Reference #s 4060, 4080, 7010, 7020, 14010, 14240

Ondansetron (Zofran) - Patients four (4) years old to Adult (ALS)

Nausea/Vomiting:

Ondansetron, 4 mg slow IV/IO/ODT

All patients four (4) to eight (8) years old: May administer a total of 4 mgs of Ondansetron prior to base hospital contact.

All patients nine (9) and older: May administer Ondansetron 4 mg; may repeat two (2) times, at 10 minute intervals, for a total of 12 mgs prior to base hospital contact.

May be used as prophylactic treatment of nausea and vomiting associated with narcotic administration.

Reference #s 4080, 7010, 7020, 14090, 14180, 14220

Oxygen (non-intubated patient per appropriate delivery device)

General Administration (Hypoxia):
Titrate Oxygen at lowest rate required to maintain SPO_2 at 94%. Do not administer supplemental oxygen for SPO_2 more than 95%.

Chronic Obstructive Pulmonary Disease (COPD):
Titrate Oxygen at lowest rate required to maintain SPO_2 at 90%. Do not administer supplemental oxygen for SPO_2 more than 91%.

Reference #s 12010, 13010, 13020, 13030, 13050, 14010, 14020, 14030, 14040, 14060, 14070, 14090, 14120, 14130, 14140, 14160, 14170, 14180, 14190, 14200, 14210, 14220, 14230, 14240

Sodium Bicarbonate - Adult (ALS)

*Tricyclic Poisoning **(base hospital order only)**:*
Sodium Bicarbonate, 1 mEq/kg IV/IO

Reference #s 5010, 7010, 7020, 13010

*For cardiac arrest with suspected metabolic acidosis, hyperkalemia or tricyclic poisoning **(base hospital order only)**:*
Sodium Bicarbonate, 50 mEq IV/IO

Reference #'s 7010, 7020, 14050

Sodium Bicarbonate - Pediatric (ALS)

*Tricyclic Poisoning **(base hospital order only)**:*
Sodium Bicarbonate, 1 mEq/kg IV/IO

Reference #'s 7010, 7020, 13010

Tranexamic Acid (TXA) - Patients 15 years of age and older (ALS)

Signs of hemorrhagic shock meeting inclusion criteria:
Administer TXA 1 gm in 50 - 100 ml of NS via IV/IO over 10 minutes. Do not administer IVP as this will cause hypotension.

Reference #s 7010, 7020, 14090

APPENDIX I

Medications for self-administration or with deployment of the ChemPack.

Medications listed below may be used only for the purposes referenced by the associated ICEMA Treatment Protocol. Any other use, route or dose other than those listed, must be ordered in consultation with the Base Hospital physician.

Atropine - Pediatric (BLS, AEMT-Auto-injector only with training, ALS)

Known nerve agent/organophosphate poisoning with deployment of the ChemPack using:

Two (2) or more mild symptoms: Administer the weight-based dose listed below as soon as an exposure is known or strongly suspected. If severe symptoms develop after the first dose, two (2) additional doses should be repeated in rapid succession 10 minutes after the first dose; do not administer more than three (3) doses. If profound anticholinergic effects occur in the absence of excessive bronchial secretions, further doses of atropine should be withheld.

One (1) or more severe symptoms: Immediately administer (3) three weight-based doses listed below in rapid succession.

Weight-based dosing:

Less than 6.8 kg (less than 15 lbs):	0.25 mg, IM using multi-dose vial
6.8 to 18 kg (15 to 40 lbs):	0.5 mg, IM using AtroPen auto-injector
18 to 41 kg (40 to 90 lbs):	1 mg, IM using AtroPen auto-injector
More than 41 kg (more than 90 lbs):	2 mg, IM using multi-dose vial

Symptoms of insecticide or nerve agent poisoning, as provided by manufacturer in the AtroPen product labeling, to guide therapy:

Mild symptoms: Blurred vision, bradycardia, breathing difficulties, chest tightness, coughing, drooling, miosis, muscular twitching, nausea, runny nose, salivation increased, stomach cramps, tachycardia, teary eyes, tremor, vomiting, or wheezing.

Severe symptoms: Breathing difficulties (severe), confused/strange behavior, defecation (involuntary), muscular twitching/generalized weakness (severe), respiratory secretions (severe), seizure, unconsciousness, urination (involuntary).

NOTE: Infants may become drowsy or unconscious with muscle floppiness as opposed to muscle twitching.

Reference #s 11010, 13010, 13040

Diazepam (Valium) - Adult (ALS)

For seizures associated with nerve agent/organophosphate exposure ONLY with the deployment of the ChemPack:

Diazepam 10 mg (5 mg/ml) auto-injector IM (if IV is unavailable), **or**
Diazepam 2.5 mg IV

Reference # 13040

Diazepam (Valium) - Pediatric (ALS)

For seizures associated with nerve agent/organophosphate exposure ONLY with the deployment of the ChemPack:

Diazepam 0.05 mg/kg IV

Reference # 13040

Nerve Agent Antidote Kit (NAAK)/Mark I or DuoDote (containing Atropine/Pralidoxime Chloride for self-administration or with deployment of the ChemPack) - Adult

Nerve agent exposure with associated symptoms:

One (1) NAAK auto-injector IM into outer thigh. May repeat up to two (2) times every 10 to 15 minutes if symptoms persist.

Reference #s 7010, 7020, 13010, 13040

RESPIRATORY EMERGENCIES - ADULT

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

I. FIELD ASSESSMENT/TREATMENT INDICATORS

Symptoms of chronic pulmonary disease, wheezing, cough, pursed lip breathing, decreased breath sounds, accessory muscle use, anxiety, ALOC or cyanosis.

II. BLS INTERVENTIONS

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated, obtain oxygen saturation on room air, or on home oxygen if possible.

III. LIMITED ALS (LALS) INTERVENTIONS

- Perform activities identified in the BLS Interventions.
- Maintain airway with appropriate adjuncts, including advanced airway if indicated. Obtain oxygen saturation on room air or on home oxygen if possible.
- Administer Albuterol per ICEMA Reference #11010 - Medication - Standard Orders.

IV. ALS INTERVENTIONS

- Perform activities identified in the BLS and LALS Interventions.
- Administer Albuterol with Atrovent per ICEMA Reference #11010 - Medication - Standard Orders.
- Place patient on Continuous Positive Airway Pressure (CPAP), refer to ICEMA Reference #11020 - Procedure - Standard Orders.

  If systolic BP remains greater than 90 mm Hg, consider Midazolam per ICEMA Reference #11010 - Medication - Standard Orders for relief of anxiety related to CPAP mask.
- Consider advanced airway, refer to ICEMA Reference #11020 - Procedure - Standard Orders.

V. REFERENCES

Number	Name
11010	Medication - Standard Orders
11020	Procedure - Standard Orders.

ACUTE ASTHMA/BRONCHOSPASM/ALLERGIC REACTION/ANAPHYLAXIS

I. FIELD ASSESSMENT/TREATMENT INDICATORS

History of prior attacks, possible toxic inhalation or allergic reaction, associated with wheezing, diminished breath sounds or cough.

II. BLS INTERVENTIONS (For severe asthma and/or anaphylaxis **only**)

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated, humidified oxygen preferred.

III. LIMITED ALS (LALS) INTERVENTIONS

- Perform activities identified in the BLS Interventions.
- Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible.
- Administer Albuterol per ICEMA Reference #11010 - Medication - Standard Orders.
- For signs of inadequate tissue perfusion, initiate IV bolus of 300 ml NS. If signs of inadequate tissue perfusion persist may repeat fluid bolus one (1) time.
- If no response to Albuterol, administer Epinephrine (1 mg/ml) per ICEMA Reference #11010 - Medication - Standard Orders. Contact base hospital for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine.
- May repeat Epinephrine (1 mg/ml), per ICEMA Reference #11010 - Medication - Standard Orders, after 15 minutes one (1) time.

IV. ALS INTERVENTIONS

- Perform activities identified in the BLS and LALS Interventions.
- Administer Albuterol, with Atrovent per ICEMA Reference #11010 - Medication - Standard Orders.
- For suspected allergic reaction, consider Diphenhydramine per ICEMA Reference #11010 - Medication - Standard Orders.
- Place patient on Continuous Positive Airway Pressure (CPAP), refer to ICEMA Reference #11020 - Procedure - Standard Orders.
- If no response to Albuterol, administer Epinephrine per ICEMA Reference #11010 - Medication - Standard Orders. Contact base hospital for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine.
- May repeat Epinephrine (1 mg/ml) per ICEMA Reference #11010 - Medication - Standard Orders after 15 minutes one (1) time.
- For persistent severe anaphylactic reaction, administer Epinephrine (0.1 mg/ml) per ICEMA Reference #11010 - Medication - Standard Orders.
- Consider advanced airway, refer ICEMA Reference #11020 - Procedure - Standard Orders.

V. BASE HOSPITAL MAY ORDER THE FOLLOWING

- For severe asthma/respiratory distress that has failed to respond to the other previous treatments, administer Magnesium Sulfate per ICEMA Reference #11010 - Medication - Standard Orders.

VI. REFERENCES

Number	Name
11010	Medication - Standard Orders
11020	Procedure - Standard Orders

ACUTE PULMONARY EDEMA/CHF

I. FIELD ASSESSMENT/TREATMENT INDICATORS

History of cardiac disease, including CHF, and may present with rales, occasional wheezes, jugular venous distention and/or peripheral edema.

II. BLS INTERVENTIONS

- Reduce anxiety, allow patient to assume position of comfort.
- Administer oxygen as clinically indicated. For pulmonary edema with high altitude as a suspected etiology, descend to a lower altitude and administer high flow oxygen with a non re-breather mask.
- Be prepared to support ventilations as clinically indicated.

III. LIMITED ALS (LALS) INTERVENTIONS

- Perform activities identified in the BLS Interventions.
- Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible.
- Administer Nitroglycerine (NTG) per ICEMA Reference #11010 - Medication - Standard Orders. In the presence of hypotension (SBP less than 100), the use of NTG is contraindicated.
- If symptoms do not improve after NTG administration, consider Albuterol per ICEMA Reference #11010 - Medication - Standard Orders.

IV. ALS INTERVENTIONS

- Perform activities identified in the BLS and LALS Interventions.
- Place patient on Continuous Positive Airway Pressure (CPAP), refer to ICEMA Reference #11020 - Procedure - Standard Orders.
- Consider advanced airway, refer to ICEMA Reference #11020 - Procedure - Standard Orders.

V. REFERENCES

Number	Name
11010	Medication - Standard Orders
11020	Procedure - Standard Orders

CARDIAC ARREST - ADULT

High performance (HP) CPR is an organized approach to significantly improve the chance of survival for patients who suffer an out-of-hospital cardiac arrest (OHCA). Return of spontaneous circulation (ROSC) is resumption of sustained perfusing cardiac activity associated with significant respiratory effort after cardiac arrest. Signs of ROSC include breathing, coughing, patient movement and a palpable pulse, or a measurable blood pressure without the use of an automatic compression device.

The principles for HP CPR include:

- Minimize interruptions of chest compressions.
- Ensure proper depth of chest compressions of 2" - 2.5" allowing full chest recoil (no leaning on chest).
- Proper chest compression rate at 100 - 120 per minute.
- Avoid compressor fatigue by rotating compressors every two (2) minutes. Ventilations shall be sufficient to cause minimal chest rise, avoiding hyperventilation as it can decrease survival.

Advanced airways can be safely delayed in OHCA patients until ROSC is achieved if the airway is effectively managed by BLS Interventions. BVM offers excellent oxygenation and ventilation without disrupting high quality compressions.

Base hospital contact is not required to terminate resuscitative measures, if the patient meets criteria set forth below in the Termination of Efforts in the Prehospital Setting.

I. FIELD ASSESSMENT/TREATMENT INDICATORS

Cardiac arrest in a non-traumatic setting.

II. BLS INTERVENTIONS

- Assess patient, begin HP CPR and maintain appropriate BLS airway measures.
- Place patient on AED, if available. To minimize the "hands off" interval before a rhythm analysis/shock, complete chest compression cycle without an added pause for ventilations or pulse check just before rhythm analysis.
- If shock is advised, perform HP CPR compressions while AED is charging. Remove hands from patient and deliver shock then immediately resume uninterrupted HP CPR for two (2) minutes.
- Do not delay HP CPR for post-shock pulse check or a rhythm analysis.
- After two (2) minutes of HP CPR, analyze rhythm using AED while checking for pulse.

III. LIMITED ALS (LALS) INTERVENTIONS

- Perform activities identified in the BLS interventions.
- Establish peripheral intravenous access and administer a 500 ml bolus of normal saline (NS).

- BLS airway with BVM is the airway of choice during active HP CPR.

IV. ALS INTERVENTIONS

- Initiate HP CPR and continue appropriate BLS Interventions while applying the cardiac monitor without interruption to chest compressions.

- Determine cardiac rhythm and defibrillate if indicated. After defibrillation, immediately began HP CPR. Begin a two (2) minute cycle of HP CPR.

- Obtain IV/IO access.

- BLS airways should be maintained during active CPR. Endotracheal intubation is the advanced airway of choice if BLS airway does not provide adequate ventilation. Establish advanced airway per ICEMA Reference #11020 - Procedure - Standard Orders without interruption to chest compressions.

- Utilize continuous quantitative waveform capnography, for the monitoring of patients airway, the effectiveness of chest compressions and for possible early identification of ROSC. Document the waveform and the capnography number in mm HG in the ePCR.

  NOTE: Capnography **shall** be used for all cardiac arrest patients.

- Insert NG/OG tube to relieve gastric distension per ICEMA Reference #11020 - Procedure - Standard Orders.

Ventricular Fibrillation/Pulseless Ventricular Tachycardia

- Defibrillate at 360 joules for monophasic or biphasic equivalent per manufacture. If biphasic equivalent is unknown use maximum available.

- Perform HP CPR immediately after each defibrillation for two (2) minutes, without assessing the post-defibrillation rhythm.

- Administer Epinephrine per ICEMA Reference #11010 - Medication - Standard Orders every five (5) minutes, without interruption of HP CPR unless capnography indicates possible ROSC.

- Reassess rhythm for no more than ten (10) seconds after each two (2) minute cycle of HP CPR. If VF/VT persists, defibrillate as above.

- After two (2) cycles of HP CPR, consider administering:
  Lidocaine per ICEMA Reference #11010 - Medication - Standard Orders, may repeat.

- If patient remains in pulseless VF/VT after 20 minutes of CPR, consult base hospital.

Pulseless Electrical Activity (PEA) or Asystole

- Assess for reversible causes and initiate treatment.

- Continue HP CPR with evaluation of rhythm (no more than 10 seconds) every two (2) minutes.

- Administer fluid bolus of 300 ml NS IV, may repeat.

- Administer Epinephrine per ICEMA Reference #11010 - Medication - Standard Orders every 5 (five) minutes without interruption of HP CPR.
- Base hospital may order the following:
  - Sodium Bicarbonate per ICEMA Reference #11010 - Medication Standard Orders.
  - Calcium Chloride per ICEMA Reference #11010 - Medication Standard Orders.

Stable ROSC

- Obtain a 12-lead ECG, regardless of 12-lead ECG reading, transport to the closest STEMI Receiving Center, per ICEMA Reference #9030 - Destination.
- Monitor ventilation to a capnography value between 35 mm Hg and 45 mm Hg.
- Utilize continuous waveform capnography to identify loss of circulation.
- For persistent profound shock and hypotension, administer Push Dose Epinephrine per ICEMA Reference #11010 - Medication - Standard Orders.

Termination of Efforts in the Prehospital Setting

- The decision to terminate efforts in the field should take into consideration, first, the safety of personnel on scene, and then family and cultural considerations.
- Consider terminating resuscitative efforts in the field if no ROSC is achieved and capnography waveform reading remains less than 15 mm Hg ~~any of the following criteria are met~~ after 20 minutes of HP CPR with ALS Interventions, and any of the following criteria are met:
  - No shocks were delivered.
  - Arrest not witnessed by EMS field personnel.
  - ~~No ROSC .~~
  - ~~Capnography waveform reading less than 15 mm Hg~~.
  - Persistent asystole, agonal rhythm or pulseless electrical activity (PEA) at a rate of less than 40 bpm.
- If patient has any signs of pending ROSC (i.e., capnography waveform trending upwards, PEA greater than 40 bpm), then consider transportation to a STEMI Receiving Center.
- Contact local law enforcement to advise of prehospital determination of death.
- Provide comfort and care for survivors.

V. REFERENCES

Number	Name
9030	Destination
11010	Medication - Standard Orders

11020 Procedure - Standard Orders