COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number **S-100**
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SUBJECT: **TREATMENT PROTOCOL INTRODUCTION**

Date **07/01/2021**

The following protocols define basic life support (BLS) and advanced life support (ALS) treatment and disposition standards for San Diego County.

1. Treatments are listed in sequential order for each condition.
   See Skills List (S-104) for skills criteria.

2. All treatments may be performed by the EMT (Emergency Medical Technician), AEMT (Advanced Emergency Medical Technician), and/or Paramedic via standing orders (SO) **except** for those stating, "Base Hospital Order (BHO)" or "Base Hospital Physician Order (BHPO)" or a variation from standard County of San Diego ALS protocols as ordered by the Base Hospital Physician (P-408).

   All treatments requiring an order are at the discretion of the Base Hospital providing medical direction. EMTs, AEMTs, and Paramedics are authorized to implement standing orders without Base Hospital contact. Standing orders may be continued even after Base Hospital contact unless the Base Hospital directs otherwise.

3. EMT skills which took effect July 1, 2017 (including finger-stick blood glucose testing, intranasal naloxone administration, and epinephrine auto-injector assistance) may only be performed when a provider is on-duty operating as part of the organized EMS system, and in the prehospital setting including during interfacility transports.

4. Per Title 22, Chapter 1.5, § 100019, public safety personnel may administer intranasal naloxone when authorized by the County of San Diego EMS Medical Director.

5. BHPO: Mobile Intensive Care Nurses (MICNs) may relay BHPOs.
   See Physician on Scene (P-403) for situations with a physician on scene.

6. Abbreviations and definition of terms can be found in the Glossary of Terms (S-101) and List of Abbreviations (S-102).

7. All medications ordered are to be administered per protocols **unless** there is a contraindication, such as an allergy.

8. If there is a change in patient condition, a different protocol may be applied.

9. Personal protective equipment (PPE) must be used on all patient contacts per Guidelines for the Prevention of Transmission of Contagions and Contaminants (S-009).

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SUBJECT: TREATMENT PROTOCOL GLOSSARY OF TERMS

Date 07/01/2021

BE FAST - Prehospital Stroke Scale in assessment of possible TIA or stroke patients

B = **B**alance: Unsteadiness, ataxia
E = **E**yes: Blurred/double or loss of vision, asymmetric pupils
F = **F**ace: Unilateral face droop
A = **A**rms and/or legs: Unilateral weakness exhibited by a drift or drop, numbness/tingling
S = **S**peech: Slurred, inability to find words, absent
T = **T**ime: Accurate Last Known Well time

Brief, Resolved, Unexplained Event (BRUE): An episode involving an infant younger than 12 months where an observer reports a sudden, brief, yet resolved episode of one or more of the following:

1) Absent, decreased, or irregular breathing
2) Color change (cyanosis or pallor)
3) Marked change in muscle tone (hypertonia or hypotonia)
4) Altered level of responsiveness

Definitive Therapy: Immediate or anticipated immediate need for administration of a fluid bolus or medications.

End-Tidal CO_2 ($EtCO_2$) (quantitative capnography): Quantitative capnometer to continuously monitor end-tidal CO_2 is mandatory for use in the intubated patient. See Skills List (S-104) for exceptions.

LEADSD: Acronym for the steps to be performed in the assessment and documentation of endotracheal intubation attempts:

1. **L**ung Sounds
2. **E**nd-Tidal CO_2 Detection Device
3. **A**bsence of Abdominal Sounds
4. **D**epth
5. **S**ize
6. **D**ocumentation

Nebulizer: O_2-powered delivery system for administration of normal saline or medications.

Opioid: Any derivative, natural or synthetic, of opium, morphine or any substance that has effects on opioid receptors (e.g., analgesia, somnolence, respiratory depression).

Opioid-Dependent Pain Management Patient: An individual who is taking prescribed opioids for chronic pain management, particularly those with opioid infusion devices.

Opioid Overdose (Symptomatic): Decreased level of consciousness and/or respiratory depression (e.g., respiratory rate of <12 or $EtCO_2 \geq 40$).

Pediatric Patient: Children known or appearing to be 14 years or younger.
A pediatric trauma patient is determined by age, regardless of weight.

Neonate: From birth to 30 days.
Infant: One month to one year.

Perilaryngeal Airway Adjunct (PAA) Options

1. **Esophageal-Tracheal Airway Device (ETAD):** The "Combitube" is the only such airway approved for prehospital use in San Diego County.
2. **Laryngeal-Tracheal (LT) airway:** The "King Airway" is the only such airway approved for prehospital use in San Diego County.

Unstable
A patient who meets the following criteria:

1. ≥14 years
   Systolic BP <90 mmHg and exhibiting any of the following signs/symptoms of inadequate perfusion
   - Altered mental status (decreased LOC, confusion, agitation)
   - Pallor
   - Diaphoresis
   - Significant chest pain of suspected cardiac origin
   - Severe dyspnea

2. <14 years
   Exhibiting any of the following signs of inadequate perfusion, e.g.,
   - Altered mental status (decreased LOC, confusion, agitation)
   - Pallor, mottling, or cyanosis
   - Diaphoresis
   - Difference in peripheral vs. central pulses
   - Delayed capillary refill
   - Hypotension by age
     - <1 month: SBP <60 mmHg
     - 1 month – 1 year: SBP <70 mmHg
     - 1 year – 10 years: SBP <70mm Hg + (2x age in years)
     - ≥10 years: SBP <90 mmHg

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SUBJECT: TREATMENT PROTOCOL ABBREVIATION LIST

Date 07/01/2021

AAA	Abdominal Aortic Aneurysm
AHA	American Heart Association
AED	Automated External Defibrillator
AEMT	Advanced Emergency Medical Technician
AICD	Automatic Implanted Cardiac Defibrillator
ALS	Advanced Life Support
AV	Arteriovenous (Fistula)
BEF	Basic Emergency Facility
BH	Base Hospital
BHO	Base Hospital Order
BHPO	Base Hospital Physician Order
BLS	Basic Life Support
BP	Blood Pressure
BPM	Beats Per Minute
BRUE	Brief, Resolved, Unexplained Event
BS	Blood Sugar (Blood Glucose)
BSA	Body Surface Area
BVM	Bag-Valve-Mask
$CaCl_2$	Calcium Chloride
C/C	Chief Complaint
CHF	Congestive Heart Failure
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPAP	Continuous Positive Airway Pressure
CPR	Cardiopulmonary Resuscitation
CVA	Cerebrovascular Accident
d/c	Discontinue
DCI	Decompression Illness
dL	Deciliter
D_{10}	10% Dextrose
D_{50}	50% Dextrose
EJ	External Jugular
EKG	Electrocardiogram
ePCR	Electronic Patient Care Record
EpiPen ®	Brand name for Epinephrine Auto-Injector
ET	Endotracheal Tube
ETAD	Esophageal Tracheal Airway Device
$EtCO_2$	End-Tidal CO_2
gm	Gram
GI	Gastrointestinal
GU	Genitourinary
HR	Heart Rate
ICS	Intercostal Space
IM	Intramuscular
IN	Intranasal
in	Inches
IO	Intraosseous
IV	Intravenous

J	Joule
kg	Kilogram
L	Liter
LBBB	Left Bundle Branch Block
LBRT	Length-Based Resuscitation Tape
LT Airway	Laryngeal-Tracheal Airway
LOC	Level of Consciousness or Loss of Consciousness
mA	Milliampere
MAD	Mucosal Atomizer Device
max	Maximum
mcg	Microgram
MCI	Mass-Casualty Incident
MDI	Metered-Dose Inhaler
mEq	Milliequivalent
mg	Milligram
MICN	Mobile Intensive Care Nurse
min	Minute
mL	Milliliter
MOI	Mechanism of Injury
MPI	Multiple-Patient Incident
MR	May Repeat
MS	Morphine Sulfate
MTV	Major Trauma Victim
$NaHCO_3$	Sodium Bicarbonate
NC	Nasal Cannula
NG	Nasogastric
NPO	Nothing by Mouth *(Nil Per Os)*
NS	Normal Saline
NTG	Nitroglycerin
O_2	Oxygen
OD	Overdose
ODT	Oral Dissolving Tablet
OG	Orogastric
OPP	Organophosphate Poisoning
PAA	Perilaryngeal Airway Adjunct
PCR	Patient Care Record
PEA	Pulseless Electrical Activity
PO	By Mouth *(Per Os)*
POLST	Physician Orders for Life-Sustaining Treatment
PRN	As Needed *(Pro Re Nata)*
PVC	Premature Ventricular Complex
q	Every *(Quaque)*
RBBB	Right Bundle Branch Block
ROSC	Return of Spontaneous Circulation
SL	Sublingual
SMR	Spinal Motion Restriction
SO	Standing Order
SOB	Shortness of Breath

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SUBJECT: **TREATMENT PROTOCOL ABBREVIATION LIST**

Date **07/01/2021**

STEMI	ST-Elevation Myocardial Infarction
SVT	Supraventricular Tachycardia
TAH	Total Artificial Heart
TIA	Transient Ischemic Attack
TKO	To Keep Open
TOP	Topical
TOR	Termination of Resuscitation
VAD	Ventricular Assist Device
VF	Ventricular Fibrillation
VSM	Valsalva Maneuver
VT	Ventricular Tachycardia
?	Possible, Questionable, or Suspected
<	Less Than
≥	Greater Than or Equal To
✪	Per Title 22, Chapter 1.5, § 100019, public safety personnel may administer when authorized by the County of San Diego EMS Medical Director.

Chapter: COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
Key Words: Policy/Procedure/Protocol

SUBJECT: BLS / ALS Ambulance Inventory

NO: S-103
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DATE 07/01/2021

AUTHORITY: Health and Safety Code, Division 2.5, Section 1797.204.

I. PURPOSE

To identify a standardized inventory on all Basic Life Support (BLS) and Advanced Life Support (ALS) Transport Units.

II. POLICY

Essential equipment and supplies are required by California Code of Regulations, Title 13, Section 1103.2(a)1-2 (for vehicle requirements, refer to County of San Diego, Emergency Medical Services (CoSD EMS) Policy B-833 “Ground Ambulance Vehicle Requirements”). Any equipment or supplies carried for use in providing emergency medical care must be maintained in good working order. Each BLS or ALS Transporting Unit in San Diego County shall carry, at a minimum, the following:

BLS Requirements	Minimum Requirements
Automated External Defibrillator (Automated External Defibrillator not required for ALS)	1
Ambulance cot and collapsible stretcher – clean, mattress intact, and in good working order	1 each
Straps to secure the patient to the cot or stretcher	1 set
Ankle and wrist restraints	1 set
Linens (sheets, pillow, pillowcase, blanket, towels)	2 sets
Personal protective equipment (masks, gloves, gowns, shields)	2 sets
Oropharyngeal airways	-
• Adult	2
• Pediatric 0-5	1 each
• Neonate	1
• Premature	1
Pneumatic or rigid splints	4
Bag-valve-mask w/reservoir and clear resuscitation mask	-
• Adult	1

• Pediatric	1
• Neonate	1
• Premature	1
Oxygen cylinder w/wall outlet (H **or** M)	1
Oxygen tubing	1
Oxygen cylinder – portable (D **or** E)	2
Oxygen administration mask	-
• Adult	4
• *Pediatric*	2
• *Infant*	1
Nasal cannulas (Adult)	4
Nasal airways (assorted sizes)	1 set
Nebulizer for use w/sterile H_2O or saline	2
Blood glucose monitoring device & supplies	1
Glucose paste/tablets	1 15 gm tube **OR** 3 tabs
Naloxone intranasal	1
Epinephrine auto-injector adult 0.3 mg (Auto-injector not required for ALS)	1
Epinephrine auto-injector pediatric 0.15 mg (Auto-injector not required for ALS)	1
Bandaging supplies	-
• 4-inch sterile bandage compresses	12
• 3x3 gauze pads	4
• 2-, 3-, 4-, or 6-inch roller bandages	6
• 1-, 2-, or 3-inch adhesive tape rolls	2
• Bandage shears	1
• 10-inch x30-inch **or** larger universal dressing	2
Emesis basin (**or** disposable bags)	1
Covered waste container	1
Portable suction equipment (30 L/min, 300 mmHg)	1
Suction device – fixed (30 L/min, 300 mmHg)	1
Suction catheter – tonsil tip	3
Pediatric suction catheter (5, 6, 10)	1 each
Adult suction catheter (8, 12, 18)	1 each
Spinal immobilization devices w/straps	1
Head immobilization device	2
Cervical collars – rigid	-
• Adult	3
• *Pediatric (small, medium, large)*	2 each

• *Infant*	2
Thermometer	1
Traction splint*	-
• Adult **or** equivalent	1
• *Pediatric **or** equivalent*	1
Tourniquet (County-approved type)	2
Blood pressure manometer and cuff	-
• Adult	1
• *Pediatric*	1
• *Infant*	1
Stethoscope	1
Obstetrical supplies to include:	1 kit
• Sterile gloves, umbilical tape **or** clamps, dressings, head coverings,	-
ID bands, towels, bulb syringe, sterile scissors **or** scalpel, clean	-
plastic bags	-
Potable water (1 gallon) **or** saline (2 liters)	1
Bedpan	1
Urinal	1
Disposable gloves – non-sterile	1 box
Disposable gloves – sterile	4 pairs
Cold packs	2
Warming packs (not to exceed 110 degrees F) **or**	2
Warming device with blanket	-
Sharps container (OSHA approved)	1
Agency radio	1
EMS radio	1
Metronome (**or audible** equivalent device)	1
Optional items:	
• Cardiac compression device	
• Chest seals	
• Hemostatic gauze	
• Oxygen saturation monitoring device	
○ Adult probe	
○ *Pediatric/Infant*	
• Positive pressure breathing valve, maximum flow 40 L/min	
• Mark 1 kit(s) **or** equivalent	

Chapter: COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
Key Words: Policy/Procedure/Protocol

SUBJECT: BLS / ALS Ambulance Inventory

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ALS Requirements: All supplies and equipment in BLS Requirements in addition to the following:

A. Airway Adjuncts	**Minimum Requirements**
Quantitative end tidal CO_2 monitor	1
Pediatric end tidal CO_2 detection device (if capnography not equipped to read $EtCO_2$ in patients weighing <15kgs)	2
CPAP equipment	1
Endotracheal tubes	-
• *5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0 (cuffed)*	1 each
Esophageal tracheal double lumen airway (kit)	-
• Combitube: Small adult	1
OR	-
Laryngeal/tracheal airway (King Airway: sizes 3, 4, 5)	1 each
ET adapter (nebulizer)	1 setup
Laryngoscope – handle	2
Laryngoscope – blade	-
• *Straight sizes 0-4*	1 each
• Curved sizes 2-4	1 each
Magill tonsil forceps – small and large	1 each
Stylet – 6 and 14 french, Adult	1 each
Bougie	1 each
HEPA/viral filter (for BVM, CPAP, nebulizer)	6

B. Vascular Access/Monitoring Equipment	**Minimum Requirements**
IV administration sets	-
• Macrodrip (2 must be vented)	4
• Microdrip **or**	2
• Multi-drip chambers	6
IV tourniquets	4
Needles:	-
• IV cannula – 14 gauge	8
• IV cannula – 16 gauge	8
• IV cannula – 18 gauge	8
• IV cannula – 20 gauge	6
• *IV cannula – 22 gauge*	4
• *IV cannula – 24 gauge*	4

• IM – 21 gauge x 1 inch	6
• Filter needles	2
• Angiocath for needle decompression- 14 gauge, 3.25 inches	2
• IO – jamshidi-type (**or** approved device) needle -18 gauge	2
• IO – jamshidi-type (**or** approved device) needle – 15 gauge	2
OR	-
• IO power driver w/appropriate IO needles:	-
○ 15 mm (3-39 kg)	2
○ 25 mm (40 kg and greater)	2
Syringes: 1 mL, 3 mL, 10 mL, 20 mL	3 each

C. Monitoring	**Minimum Requirements**
Capnography cannula	2
Defibrillator pads	1 adult, *1 pediatric*
Electrodes	1 box
Electrode cables	1 set
Monitor/defibrillator w/12 lead EKG and pacing capability	1
Oxygen saturation monitoring device	1
• Adult probe	1
• *Pediatric/Infant probe*	1

D. Other Equipment	**Minimum Requirements**
Length Based Resuscitation Tape (LBRT)	1
Mucosal Atomizer Device (MAD)	2
Metronome (**or** equivalent device)	1
Nasogastric intubation setup (*8*, 10 **or** 12, 18 french)	1 each
60mL syringe for nasogastric tube confirmation and placement	1
Thermometer	1
Water soluble lubricant	1

E. Laminated Items	**Minimum Requirements**
Pediatric Drug Chart (Policy P-117 "ALS Pediatric Drug Chart")	1

F. Replaceable Medications	**Minimum Requirements**
Acetaminophen IV 1000 mg/100 mL (requires vented tubing)	2000 mg
Adenosine – 6 mg/2 mL **and** 12mg/4mL	30 mg total
Albuterol – 2.5 mg/3 mL **or** 0.083%	6 vials
Amiodarone 150 mg/3 mL - With normal saline 100 mL bag	2 vials
ASA, chewable – 81 mg each	6 units
Atropine sulfate – 1 mg/10 mL	2
Atropine sulfate – 8 mg/20 mL (0.4 mg/mL)	1
Calcium chloride – 1 gm/10 mL	1
Charcoal, activated (no sorbitol) – 50gm	1
Dextrose, 50% – 25 gm/50 mL	2
Dextrose, 10% – 25 gm/250 mL	2
Diphenhydramine hydrochloride – 50 mg/1 mL	2
Epinephrine 1:1,000 – 1 mg/1 mL ampule	6
Epinephrine 1:10,000 – 1 mg/10 mL	6
Glucagon – 1 unit (mg)/1 mL	1
Ipratropium bromide – 0.5mg/2.5 mL	2
Ketamine – 500 mg/10 mL (50 mg/mL)	1
Lidocaine hydrochloride (preservative-free) – 100 mg/5 mL (2%)	4
Midazolam – 5 mg/1 mL	20 mg total
Morphine sulfate (injectable) – 10 mg/1 mL	20 mg total
OR (units may carry morphine or fentanyl, but not both)	
Fentanyl citrate – 100mg/2mL	200 mcg total
Naloxone hydrochloride – 2 mg/2 mL	6 mg total
Nitroglycerin – 0.4 mg	1 container
Ondansetron (injectable) – 4 mg/2 mL	2
Ondansetron (PO/ODT) – 4 mg	4
Sodium bicarbonate – 50 mEq/50 mL	3
IV Solutions:	
• Normal Saline – 1000 mL bag	4
• Normal Saline – 250 mL bag	2
• Normal Saline – 50 mL bag **or** 100 mL bag	2

G. Optional Items
Albuterol MDI
Armboard – long
Armboard – short
Carboxyhemoglobin monitor
Chest seals
Colorimetric carbon dioxide detector (if capnography not equipped to read $EtCO_2$ in patients weighing <15kgs)
Curved laryngoscope blades – size 0, 1
Hemostatic gauze
IO power drive needle 45 mm (40kg and greater w/excessive tissue)
IV extension tubing
Lidocaine 2% jelly – 5 mL tube
Mesh hood (spit sock **or** similar) – light color only (beige/white)
Leave Behind Naloxone kit(s)
Saline lock
Three-way stopcock w/extension tubing
Video laryngoscope

Note: Pediatric required supplies denoted by italics

*One splint may be used for both adult and pediatric (e.g., Sager Splint)

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Bougie	Assist with intubations		Should be used for routine intubations. After attempting to view with laryngoscope, may use to assist ET placement if unable to fully visualize vocal cords.
Carboxyhemoglobin monitor	Suspected or known carbon monoxide exposure	None	Consider transport to facility with hyperbaric chamber for suspected carbon monoxide poisoning in the unconscious or pregnant patient.
Cardioversion: synchronized	Unstable VT Unstable SVT Unstable Atrial Fibrillation/Flutter with HR ≥180	Pediatric: If defibrillator unable to deliver <5 J or biphasic equivalent	Remove chest transdermal medication patches prior to cardioversion.
Chest seal	Occlusive dressing designed for treating open chest wound	None	
CPAP	Respiratory Distress: Suspected CHF/ cardiac origin Respiratory Distress: Suspected non-cardiac origin Drowning with respiratory distress	Unconscious Non-verbal patients with poor head/neck tone may be too obtunded for CPAP CPR SBP <90 mmHg Vomiting Age <15 Possible pneumothorax Facial trauma Unable to maintain airway	CPAP may be used only in patients alert enough to follow direction and cooperate with the assistance. BVM assisted ventilation is the appropriate alternative. CPAP should be used cautiously for patients with suspected COPD or pulmonary fibrosis, start low and titrate pressure. HEPA filters should be applied with aerosol-generated procedures.
Defibrillation	VT (pulseless) VF	None	Remove chest transdermal medication patches prior to defibrillation.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
EKG monitoring	Any situation where there is a potential for cardiac dysrhythmia	None	Apply monitor before moving patient with chest pain, syncope, or in arrest. Continuous monitoring for unstable/STEMI/CPR patients required. Document findings on PCR and leave strip with patient.
12-lead EKG	Chest pain and/or Signs and symptoms suggestive of myocardial infarction Suspected hyperkalemia ROSC after cardiac arrest To identify a rhythm	None	Transmit 12-lead EKGs to receiving hospital. If STEMI, notify BH immediately and transport to appropriate STEMI center. Report LBBB, RBBB or poor-quality EKG for consideration of a false positive reading STEMI. Repeat the 12 lead EKG if patient's condition worsens or following a successful arrythmia conversion. Do not delay transport to repeat. Attach EKG(s) or printout photo(s) to PCR. Document findings on the PCR and leave EKG printout with patient.
End tidal CO2 Detection Device (Qualitative)	All intubated patients <15 kgs - unless quantitative end tidal CO_2 available for patient <15 kgs	None	Continuous monitoring after ET/ETAD/PAA insertion required.
End tidal CO2 Detection Device – Capnography (Quantitative)	All intubated patients Respiratory distress or cardiovascular impairment Trauma	None	Continuous monitoring after ET/ETAD/PAA insertion required. Use early in cardiac arrest. For EtCO2 > 0 mmHg, may place ET/PAA without interrupting compressions. If EtCO2 rises rapidly during CPR, pause CPR and check for pulse. If quantitative is unavailable due to special circumstances, then use qualitative (optional equipment).
External cardiac pacemaker	Unstable bradycardia unresponsive to atropine	None	Document rate setting, milliamps and capture. External cardiac pacing: • Begin at rate 60/min • Dial up until capture occurs, usually between 50 and 100 mA • Increase by a small amount, usually about 10%, for ongoing pacing.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Glucose monitoring	Hypoglycemia (suspected) Hyperglycemia Altered neurologic function	None	Repeat BS not indicated en route if patient is improving. Repeat BS must be done if patient left on scene and initial was abnormal (AMA/Release).
Hemostatic gauze	Life-threatening hemorrhage in the trauma patient when tourniquet cannot be used, or to supplement tourniquet, or bleeding unable to be controlled with direct pressure	Bleeding controlled with direct pressure with standard gauze.	Should be applied with minimum 3 minutes of direct pressure.
Intranasal (IN)	When IN route indicated	None	Volumes over 1 mL per nostril are likely too large and may result in runoff out of the nostril.
Injection (IM)	When IM route indicated	None	Pediatric preferred site: Vastus lateralis patients less than 3 years of age. (Maximum of 2 mL volume) Adults preferred site: Deltoid in patients greater than or equal to 3 years of age. (Maximum of 2 mL volume). Secondary site is vastus lateralis (max of 5 mL volume).
Injection (IV)	When IV route indicated	None	

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Intubation: ET/Stomal	To facilitate ventilation and/or oxygenation in a patient who is unable to protect his/her own airway or maintain spontaneous respiration Ineffective ventilations for unconscious adult patient or decreasing LOC	Suspected opioid OD prior to naloxone Able to adequately ventilate with BVM Gag reflex present Infants and pediatric patients <15 years of age that fit on the LBRT	3 attempts per patient SO. Additional attempts **BHPO.** An ET attempt is defined as an attempt to pass ET (not including visualizations and suctioning). Document and report **LEADSD:** **L**ung Sounds **E**tCO2 **A**bsent Abdominal Sounds **D**epth **S**ize **D**ocument presence of EtCO2 waveform and EtCO2 numeric value at Transfer of Care **Establishment of EtCO2 prior to intubation:** The presence of EtCO2 greater than zero is required prior to ET tube/ETAD/PAA placement. **Exception to the mandatory use of EtCO2 prior to intubation with ET tube/ETAD/PAA:** -When the patient presents with intractable vomiting or airway bleeding, initial airway management should be focused on clearing of the airway with positioning of the patient (i.e., logrolling), and suctioning of the mouth and oropharynx. -If the airway paramedic assessment determines that it is still necessary to intubate the patient after clearing the airway, an ET tube/ETAD/PAA may be inserted prior to obtaining EtCO2 readings in order to secure airway. -Immediately following insertion of the advanced airway, persistent EtCO2 waveform and reading (other than zero) must be maintained or the ET tube/ETAD must be removed. If EtCO2 drops to zero and does not increase with immediate troubleshooting, extubate, and manually ventilate the patient via BVM. Continuous capnography monitoring after ET/ETAD/PAA insertion is required. Report and document at a minimum: • capnography value, presence of waveform, abdominal sounds, and lung sounds before and after advanced airway placement; • at each patient movement, and; • at the transfer of care. When moving an intubated patient, apply c-collar prior to moving to minimize head movement and potential ET dislodgement.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Intubation: Perilaryngeal airway adjuncts • ETAD/Combitube • Laryngeal-Tracheal/King Airway	Apnea or ineffective respirations for unconscious patient or decreasing LOC	Gag reflex present Patient <4 feet tall Ingestion of caustic substances Known esophageal disease Laryngectomy/stoma Suspected opioid OD prior to naloxone Able to adequately ventilate with BVM Infants and pediatric patients <15 years of age that fit on the LBRT	Extubate SO if placement issue, otherwise per **BHO.** <u>King Airway:</u> Use Size 3 (yellow) for patients 4 feet – 5 feet tall Use Size 4 (red) for patients 5 feet – 6 feet tall Use Size 5 (purple) for patients >6 feet tall <u>ETAD:</u> Use Small Adult size tube in all patients under 6 feet. Report and document ventilation port number if using an ETAD. **D**ocument and report **LEADSD:** **L**ung Sounds **E**tCO2 **A**bsent Abdominal Sounds **D**epth **S**ize **D**ocument presence of EtCO2 waveform and EtCO2 numeric value at Transfer of Care **Establishment of EtCO2 prior to intubation:** The presence of EtCO2 greater than zero is required prior to ET tube/ETAD/PAA placement. **Exception to the mandatory use of EtCO2 prior to intubation with ET tube/ETAD/PAA:** -When the patient presents with intractable vomiting or airway bleeding, initial airway management should be focused on clearing of the airway with positioning of the patient (i.e., logrolling), and suctioning of the mouth and oropharynx. -If the airway paramedic assessment determines that it is still necessary to intubate the patient after clearing the airway, an ET tube/ETAD/PAA may be inserted prior to obtaining EtCO2 readings in order to secure airway. -Immediately following insertion of the advanced airway, persistent EtCO2 waveform and reading (other than zero) must be maintained or the ET tube/ETAD must be removed. If EtCO2 drops to zero and does not increase with immediate troubleshooting, extubate, and manually ventilate the patient via BVM.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Intubation: Perilaryngeal airway adjuncts • ETAD/Combitube • Laryngeal-Tracheal/King Airway (continued)			Continuous capnography monitoring after ET/ETAD/PAA insertion is required. Report and document at a minimum: • capnography value, presence of waveform, abdominal sounds, and lung sounds before and after advanced airway placement; • at each patient movement, and; • at the transfer of care. When moving an intubated patient, apply c-collar prior to moving to minimize head movement and potential ET dislodgement.
Length Based Resuscitation Tape (LBRT)	Determination of length for calculation of pediatric drug dosages and equipment sizes.	None	Base dosage calculation on length of child. Refer to pediatric chart for dosages (P-117). Children ≥37 kg use adult medication dosages (using pediatric protocols) regardless of age or height.
Magill forceps	Airway obstruction from foreign body with decreasing LOC/unconscious	None	
Nasogastric / Orogastric tube	Gastric distention interfering w/ ventilations	Severe facial trauma Known esophageal disease	If NG tube needed in a patient with a King Airway, insertion should be via the suction port, if available.
Nebulizer, oxygen powered	Respiratory distress with: • Bronchospasm • Wheezing • Croup-like cough • Stridor	None	Flow rate 4- 6 L/min via mouthpiece; 6-10 L/min via mask/ET. If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available. Consider applying HEPA filters with aerosol-generating procedures for in-line nebulizer treatments.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Needle thoracostomy	Severe respiratory distress with unilateral diminished breath sounds and SBP <90 mmHg (Adult) Severe respiratory distress with unilateral diminished breath sounds with hypotension for age (Pediatric)	None	Use 14 g, 3.25-inch IV catheter. Insert into 2nd/3rd ICS in mid-clavicular line on the involved side. **OR** Insert catheter into anterior axillary line 4th/5th ICS on involved side. Tape catheter securely to chest wall and leave open to air.
Obstetrical maneuvers	Difficult deliveries	None	Nuchal cord (cord wrapped around neck): • Slip cord over the head and off neck • Clamp and cut cord, if wrapped too tightly Prolapsed cord: • Place mother with her hips elevated on pillows • Insert a gloved hand into vagina and gently push presenting part off cord • Transport immediately while retaining this position. Do not remove hand until relieved by hospital personnel. • Cover exposed cord with saline-soaked gauze Shoulder dystocia: • Hyperflex mother's knees to her chest
Prehospital pain scale	All patients with a traumatic or pain-associated chief complaint	None	Assess for presence of pain and intensity.
Prehospital stroke scale	All patients with suspected Stroke/TIA	None	Bring witness to ED to verify time of symptom onset and provide consent for interventions. If witness unable to ride in ambulance, obtain accurate contact phone number. Use BE FAST Prehospital Stroke Scale in assessment of possible TIA or stroke patients: **B** = Balance: Unsteadiness, ataxia **E** = Eyes: Blurred/double or loss of vision, asymmetric pupils **F** = Face: Unilateral face droop **A** = Arms and/or legs: Unilateral weakness exhibited by a drift or drop, numbness/tingling **S** = Speech: Slurred, inability to find words, absent **T** = Time: Accurate Last Known Well time Get specific Last Known Well time in military time (hours: minutes).

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Pulse oximetry	Assess oxygenation	None	Obtain room air saturation prior to O_2 administration, if possible.
Re-alignment of fracture	Grossly angulated long bone fracture	None	Use unidirectional traction. Check for distal pulses prior to realignment and every 15 min thereafter.
Removal of impaled object	Impaled object in face, cheek or neck causing total airway obstruction	None	Impaled objects not causing total airway obstruction should be immobilized and left in place.

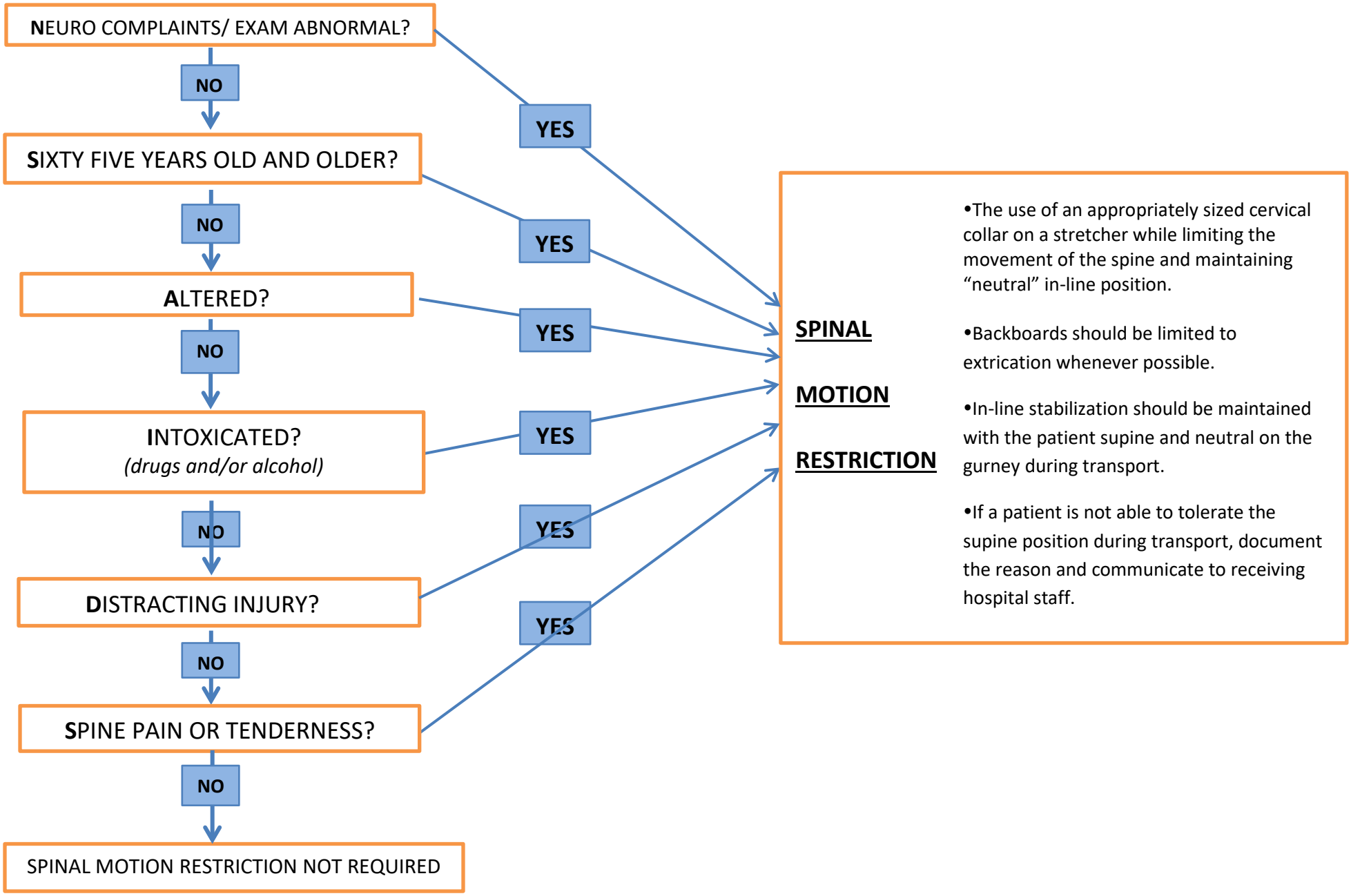
SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Spinal motion restriction	Spinal pain of possible traumatic cause MOI suggests potential spinal injury consider: ≥65 years and older Acute neurological deficit following injury Penetrating trauma with neurological deficit. Victims of penetrating trauma (stabbing, gunshot wound) to the head, neck, and/or torso should not receive spinal stabilization unless there is one or more of the following: • Neurologic deficit • Priapism • Anatomic deformity to the spine secondary to injury	None	Pregnant patients (>6 mo) tilt 30 degree left lateral decubitus. See S-104 Attachment for "**Spinal Motion Restriction Algorithm**". **The mnemonic "NSAIDS" should be used to remember the steps in the algorithm**: **N**- Neurologic exam **S**- Sixty-five **A**- Altered (including language barrier) **I**- Intoxication **D**- Distracting injury **S**- Spine exam Spinal Motion Restriction is not required if **ALL of the following are present and documented**: 1. No neuro complaints/ no abnormal exam 2. Not altered / no language barrier 3. Not intoxicated by drugs and/or alcohol 4. No significant competing, distracting pain 5. No spine pain or tenderness **Spinal Motion Restriction:** -The use of an appropriately sized cervical collar on a stretcher while limiting the movement of the spine and maintaining "neutral" in-line position. -Backboards should be limited to extrication whenever possible. In-line stabilization should be maintained with the patient supine and neutral on the gurney during transport. -If a patient is not able to tolerate the supine position during transport, document the reason and communicate to receiving hospital staff. **Sports Injury Patient:** If a patient is helmeted and/or shoulder padded, patient helmet and pads should be removed while on scene **Document a neurological examination including**: • Test of sensation and abnormal sensation (paresthesia) in all 4 extremities • Test of motor skills in all 4 extremities with active movements by the patient (avoid just reflexive movements like hand grasp to include: - Wrist/finger extension and flexion - Foot plantar and dorsiflexion

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Spinal Motion Restriction (continued)			Pediatric Patient N=no altered LOC E=evidence of obvious injury absent C=complete spontaneous ROM without pain K=kinematic (mechanism) negative Pediatrics Patients and Car Seats: **Infants restrained in a rear-facing car seat** may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock) **Children restrained in a car seat** (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should be placed in spinal immobilization. **Children restrained in a booster seat** (without a back) need to be extricated and immobilized following standard spinal immobilization procedures
Saline lock	Used to provide IV access in patients who do not require continuous infusion of intravenous solutions	None	Patient presentations which may require IV fluid replacement.
Tourniquet	Severely injured extremity when direct pressure or pressure dressing fails to control life-threatening hemorrhage	None	In MCI, direct pressure not required prior to tourniquet application. Tourniquet must be tight enough to occlude arterial flow/distal pulses. Assess and document distal pulses, time placed, and any subsequent adjustments.
Valsalva Maneuver	Stable SVT	None	Most effective with adequate BP. D/C after 5-10 sec if no conversion.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Video laryngoscope	To assist with endotracheal intubation using video laryngoscopy	None	Optional inventory item. See Intubation ET for comments.
VASCULAR ACCESS External jugular	When unable to establish other peripheral IV and IV is needed for definitive therapy ONLY	None	
Extremity	Whenever IV line is needed or anticipated for definitive therapy. **BHPO** if other than upper extremities or external jugular.	None	Lower extremities remain SO in the pediatric patient.
Indwelling Devices	Primary access site for patients with indwelling catheters if needed for definitive therapy	Devices without external port	Clean site for minimum of 15 seconds prior to accessing. Infuse at a rate to support continuous flow and prevent backflow into IV line. Needleless systems may require adaptor. Examples include Groshong, Hickman, PICC lines.

SKILL	INDICATION	CONTRAINDICATION	COMMENTS
Intraosseous	Fluid/medication administration in patient when needed for definitive therapy and unable to establish venous access. Pediatric patient: unconscious.	Tibial fracture Vascular Disruption Prior attempt to place in target bone Humeral fracture (for humeral placement) Local infection at insertion site	Splint extremity after placement. Observe carefully for signs of extravasation. Do not infuse into fracture site. Attempts to initiate tibial IO should be the priority when peripheral access is unavailable; however humeral IO insertion may be utilized when unable to access other sites. Avoid placement if potential fracture is on target bone. In conscious adult patients, slowly infuse lidocaine 40 mg IO prior to fluid/medication administration.
Percutaneous Dialysis Catheter Access (e.g., Vascath)	If unable to gain other IV access and no other medication delivery route available for immediate definitive therapy only **BHPO**	None	Vas Cath contains concentrated dose of heparin which must be aspirated PRIOR to infusion. Infuse at a rate to support continuous flow and prevent backflow into IV line. Needleless systems may require adaptor. Annual training required.
Shunt/graft - AV (Dialysis)	If unable to gain other IV access and no other medication delivery route available for immediate definitive therapy only **BHPO**	None	Prior to access, check site for bruits and thrills. Access fistula on venous side (weaker thrill). Inflate BP cuff around IV bag to just above patient's systolic BP to maintain flow of IV. If unsuccessful, hold direct pressure over site for 10 min to stop bleeding. Do not apply pressure dressing.

Spinal Motion Restriction Algorithm: NSAIDS



The Acronym "NSAIDS" Should Be Used to Remember the Steps in Algorithm

N- **Neurologic exam-** Are there any abnormal sensory or motor findings? Weakness/numbness or complaints of paresthesia? Look for focal deficit, such as tingling, reduced strength, numbness in an extremity.

S-**Sixty five-** Greater than or equal to 65 years of age?

A- **Altered-** Is the patient oriented to person, place, time and situation? Is the patient altered in any way? Is there a language barrier? Is the patient cooperative?

I-**Intoxication-** Is there any indication that the person is impaired by drugs or alcohol?

D-**Distracting injury-** Is there any other injury which is capable of producing significant pain in this patient?

S-**Spine exam-** Does the patient complain of neck or back pain? Assess entire spine for point tenderness or spinal process tenderness.

SPECIAL CONSIDERATIONS

•Prehospital provider assessment will determine what method is needed. Every patient with trauma must receive an assessment. If any assessment component is positive, the patient requires spinal motion restriction.

•Patients with severe kyphosis or other anatomical or medical conditions (e.g., ankylosing spondylitis or rheumatoid arthritis) may be stabilized using a combination of pillow, blanket, or other devices.

•Spinal motion restriction should be accomplished using the most appropriate tool for the specific circumstance. May include, but are not limited to, vacuum splints, pneumatic splints, cervical collars, soft collars, straps, tape, as well as soft materials, such as pillows and blanket to minimize movement, compression, or distraction of the spine.

•Patients with acute or chronic difficulty breathing: Use spinal motion restriction with caution in patients presenting with dyspnea and place patient in position best suited to protect the airway.

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
ACETAMINOPHEN	MILD pain (score 1 - 3) or MODERATE pain (score 4 - 6) or SEVERE pain (score 7 - 10) or Refusal / contraindication to ketamine	S-141, S-173	Maximum total daily dose: 4000 mg in 24 hours. Give over 15 minutes. May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine).	Severe hepatic impairment or active liver disease. Known hypersensitivity or allergic reaction history. If known or suspected total dose exceeding 4000 mg in a 24-hour period. Acetaminophen IV < 2 years of age. Pediatric administration requires signs of adequate perfusion.
ADENOSINE	Stable (symptomatic) SVT	S-127, S-163	Patients with history of bronchospasm or COPD may suffer bronchospasm following administration.	Second or third-degree AV block. Sick Sinus Syndrome (without pacemaker).
ALBUTEROL	Anaphylaxis with respiratory involvement Burns with respiratory distress with bronchospasm Respiratory distress of suspected non-cardiac origin (Adult) Respiratory distress with bronchospasm (Pediatric) Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves	S-122, S-124 S-131, S-136 S-162, S-167 S-170	Continuous administration via O_2 powered nebulizer or MDI. If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available.	Avoid in croup.
AMIODARONE	Persistent pulseless VF/VT after 3 defibrillation attempts Pulse ≥60 status post-defibrillation (defibrillation/AED) Reported/witnessed ≥2 AICD firing and pulse ≥60 Stable VT	S-127 S-163	Cardioversion first if unstable with severe symptoms.	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
ASPIRIN	Pain/discomfort of cardiac origin	S-126	Aspirin 324 mg chewable PO should be given regardless of prior daily dose(s).	
ATROPINE SULFATE	Unstable bradycardia Symptomatic organophosphate poisoning	S-127, S-163 S-134, S-165	In organophosphate poisoning, titrate atropine to SLUDGEM symptoms, not to tachycardia.	
CALCIUM CHLORIDE ($CaCl_2$)	Crush injury with compression of extremity or torso ≥2 hours (Adult) Suspected calcium channel blocker OD with SBP <90 mmHg (Adult) Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves (Adult) Suspected hyperkalemia in PEA/asystole	S-127, S-163 S-131 S-134 S-139	Hemodialysis patients with suspected hyperkalemia and widened QRS complex should immediately receive $CaCl_2$. Give IV over 30 seconds. Avoid use in small veins (feet/hands) as extravasation of $CaCl_2$ can cause necrosis.	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
CHARCOAL (no Sorbitol)	Ingestion	S-134, S-165	Assure patient has gag reflex and is cooperative. If not vomiting and ingestion within 60 min, activated charcoal SO with any of the following: 1. Acetaminophen 2. Colchicine 3. Beta blockers 4. Calcium channel blockers 5. Salicylates 6. Sodium valproate 7. Oral anticoagulants (including rodenticides) 8. Paraquat 9. Amanita mushrooms For pediatric ingestions, if ingestion within 60 minutes and recommended by Poison Center SO.	Isolated alcohol, heavy metal, caustic agents, hydrocarbons, or iron ingestion.
DEXTROSE 50% (D_{50}) (Adult) **OR** DEXTROSE 10% (D_{10}) (Pediatric)	Symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents with BS <60 mg/dL (Neonate <45 mg/dL)	S-123, S-161	Repeat BS not indicated en route if patient improving. Repeat BS must be done if patient left on scene and initial was abnormal (AMA/Release).	
DIPHENHYDRAMINE	Allergic reaction Anaphylaxis Extrapyramidal reactions	S-122, S-162 S-134, S-165	Administer slow IV.	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
EPINEPHRINE (PUSH-DOSE)	Anaphylaxis with hypotension for age (Pediatric) Anaphylaxis with SBP <90 mmHg (Adult) Discomfort/Pain of cardiac origin with associated shock Neurogenic shock (Adult) Neurogenic/cardiogenic/ anaphylactic shock (Pediatric) Newborn deliveries with sustained HR<60 Non-traumatic, hypovolemic shock (Adult) ROSC with hypotension for age (Pediatric) ROSC with SBP <90mmHg (Adult) Sepsis Unstable bradycardia (after atropine or TCP)	S-122, S-162 S-126 S-127, S-163 S-133, S-166 S-138, S-168 S-143, S-177	Titrate to maintain systolic SBP ≥90 (Adult) or adequate perfusion (Pediatric). Administer slowly and stop administration when clinical effect is achieved. Check BP and monitor perfusion status after each 1 mL dose (or per drug chart for pediatric). Continue close monitoring to identify need for repeat dosing.	Mixing instructions: 1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe 2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
EPINEPHRINE	Anaphylaxis Cardiac arrest (VF/VT/PEA/Asystole) Cardiac arrest with hypothermia No improvement after epinephrine via nebulizer x2 or impending respiratory/airway compromise Respiratory distress with stridor Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide Unstable bradycardia (Pediatric)	S-122, S-162 S-127, S-163 S-136, S-167 S-168 S-170 S-176	Cardiac arrest with hypothermia: Limit epinephrine to 1 dose and withhold antiarrhythmic medications until temperature ≥86 °F / ≥30 °C. Epinephrine IM: Use caution if known cardiac history, history of hypertension, SBP >150 mmHg, or age >40.	
FENTANYL CITRATE	MODERATE pain (score 4 - 6) or SEVERE pain (score 7 - 10) or Refusal/contraindication to acetaminophen or ketamine	S-141, S-173	Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN). May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine). Changing analgesic requires **BHO** (e.g., fentanyl to ketamine). Treatment with opioids if SBP <100 mmHg requires **BHO.** **BHPO** required for: • Isolated head injury • Acute onset severe headache • Drug/ETOH intoxication • Major trauma with GCS <15 • Suspected active labor	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
GLUCAGON	Suspected beta blocker OD with cardiac effects (e.g., bradycardia with hypotension) Unable to start IV in patient with symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents if BS <60 mg/dL (Neonate <45 mg/dL)	S-123, S-161 S-134 S-144	High doses of glucagon may cause nausea/vomiting.	
IPRATROPIUM BROMIDE	Anaphylaxis with respiratory involvement Respiratory distress with bronchospasm (Pediatric) Respiratory distress of non-cardiac origin (Adult)	S-122, S-162 S-136, S-167	Added to first dose of albuterol via continuous O_2 powered nebulizer. If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide.	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
KETAMINE	For moderate to severe pain (score ≥5) with trauma, burns, or envenomation injuries	S-141	Must meet all requirements: • ≥15 years old • GCS of 15 • Not pregnant • No known or suspected alcohol or drug intoxication May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine). Administer very slowly IV (over 1-2 min). Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN). Changing analgesic requires **BHO** (e.g., fentanyl to ketamine). **BHPO** required for: • Isolated head injury • Acute onset severe headache • Drug/ETOH intoxication • Major trauma with GCS <15 • Suspected active labor	Pediatric patients (14 years of age or younger).
LIDOCAINE	Persistent pulseless VF/VT after 3 defibrillation attempts Prior to IO fluid infusion in the conscious patient Pulse ≥60 status post-defibrillation (defibrillation/AED) Reported/witnessed ≥2 AICD firing and pulse ≥60 Stable VT	S-104 S-127, S-163	Adult doses should be given in increments rounded to the nearest 20mg amount. In the presence of shock, CHF, or liver disease, the repeat bolus is recommended at 10 min intervals.	Second and third-degree heart block and idioventricular rhythms.

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
LIDOCAINE JELLY (2%)	Intubation or nasopharyngeal airway placement	S-104	Apply to ET tube or nasal airway PRN	
MIDAZOLAM	Consider prior to cardioversion Consider prior to external pacemaker Eclampsia (seizures) Partial seizure lasting >5 min (includes seizure time prior to arrival of prehospital provider) Severely agitated and/or combative patient requiring restraint for patient or provider safety Status epilepticus seizure	S-123, S-161 S-127, S-163 S-133, S-166 S-142, S-175	Pre-cardioversion sedation is recommended whenever possible. Consider lower dose of midazolam for pre-cardioversion with attention to age and hydration status. For severely agitated or combative patients, IN or IM midazolam is the preferred route to decrease risk of injury to the patient and personnel. **Alert:** Co-administration of midazolam in patients with alcohol intoxication can cause respiratory depression. Consider avoiding or reducing midazolam dose. Severely agitated and/or combative patient requiring restraint for patient or provider safety midazolam SO ≥8 years, **BHO** < 8 years.	

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
MORPHINE SULPHATE	MODERATE pain (score 4 - 6) or SEVERE pain (score 7 - 10) or Refusal /contraindication to acetaminophen or ketamine	S-141, S-173	Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN). Changing analgesic requires **BHO** (e.g., fentanyl to ketamine). May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine). Treatment with opioids if SBP <100 mmHg requires **BHO.** **BHPO** required for: • Isolated head injury • Acute onset severe headache • Drug/ETOH intoxication • Major trauma with GCS <15 • Suspected active labor	
NALOXONE	Symptomatic suspected opioid OD with respiratory depression (RR<12], SpO2<96%, or EtCO2 ≥40 mmHg). Titrate slowly in opioid-dependent patients. (Adult) Symptomatic suspected opioid OD with respiratory depression (RR low for age, SpO2<96%, or EtCO2 ≥40 mmHg). Titrate slowly in opioid-dependent patients. (Pediatric)	S-123, S-161 S-134, S-165	If patient refuses transport, give additional naloxone IM SO. If patient refuses transport, consider dispensing Leave Behind Naloxone 4 mg nasal spray preloaded device with education for patient and household members SO.	
NITROGLYCERIN (NTG)	Discomfort/pain of suspected cardiac origin with SBP ≥100mmHg Fluid overload with rales in hemodialysis patient Respiratory distress with suspected CHF/cardiac origin	S-126 S-131 S-136		Suspected intracranial bleed. NTG is contraindicated in patients who have taken: • erectile dysfunction medications such as sildenafil (Viagra®), tadalafil (Cialis®), and vardenafil (Levitra®) within 48 hours; and • pulmonary hypertension medications such as sildenafil (Revatio®) and epoprostenol sodium (Flolan® and Veletri®).

MEDICATION	INDICATIONS	PROTOCOL	COMMENTS	CONTRAINDICATIONS
NORMAL SALINE	Definitive therapy	All	Definitive therapy defined as immediate or anticipated immediate need for administration of a fluid bolus or medications.	Rales is a relative contraindication for fluid bolus. Fluid bolus may be administered regardless of lung sounds in adult sepsis (S-143), and one time only in pediatric sepsis (S-177).
ONDANSETRON	Nausea and/or vomiting	S-120 S-174	**BHPO** in the pediatric patient with suspected head injury.	
SODIUM BICARBONATE ($NaHCO_3$)	Crush injury with compression of extremity or torso ≥2 hours Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves Suspected hyperkalemia in PEA/asystole Suspected tricyclic antidepressant OD with cardiac effects (e.g., hypotension, heart block, or widened QRS)	S-127, S-163 S-134, S-165 S-131 S-139, S-169	Flush IV tubing between medication administration.	

SUBJECT: TREATMENT PROTOCOL - **Date: 07/01/2021**
PEDIATRIC WEIGHT BASED DOSAGE STANDARDS

MEDICATION	DOSE	MAXIMUM SINGLE DOSE
Acetaminophen IV < 2 years of age	contraindicated	-
Acetaminophen IV ≥ 2 years of age	15 mg/kg	1 gm
Adenosine IV 1st	0.1 mg/kg	6 mg
Adenosine IV 2nd/3rd	0.2 mg/kg	12 mg
Albuterol Nebulized	5 mg (6 mL)	5 mg
Amiodarone IV/IO	5 mg/kg	300 mg
Atropine (Bradycardia) IV/IO	0.02 mg/kg	0.5 mg
Atropine (OPP) IV/IM	0.02 mg/kg	2 mg
Calcium Chloride IV/IO	20 mg/kg	500 mg
Charcoal PO	1 gm/kg	50 gm
Dextrose 10% IV	1 gm/kg	25 gm
Diphenhydramine IV/IM	1 mg/kg	50 mg
Epinephrine IV/IO Cardiac Arrest **(1:10,000)**	0.01 mg/kg	1 mg
Epinephrine IV/IO Push-Dose **(1:100,000)**	0.001 mg/kg	0.01 mg (10 mcg)
Epinephrine Nebulized **(1:1,000)**	2.5 mg - 5 mg	5 mg
Fentanyl Citrate IN <10 kg	1 mcg/kg	10 mcg
Fentanyl Citrate IV <10 kg	1 mcg/kg	10 mcg
Fentanyl Citrate IN ≥10 kg	1.5 mcg/kg	50 mcg
Fentanyl Citrate IV ≥10 kg	1 mcg/kg	50 mcg
Glucagon IM	0.05 mg/kg	1 mg
Ipratropium Bromide Nebulized	0.5 mg (2.5 mL)	0.5 mg (2.5 mL)
Lidocaine 2% IV/IO	1 mg/kg	35 mg
Midazolam IN/IM	0.2 mg/kg	5 mg
Midazolam IV slow	0.1 mg/kg	3.5 mg
Morphine Sulfate IV/IM	0.1 mg/kg	3.5 mg
Naloxone IN/IM/IV	0.1 mg/kg	2 mg
Normal Saline Fluid Bolus	20 mL/kg	500 mL
Ondansetron IM/IV/ODT 6 months - 3 years	2 mg	2 mg
Ondansetron IM/IV/ODT >3 years of age	4 mg	4 mg
Sodium Bicarb IV	1 mEq/kg	35 mEq

SUBJECT: PEDIATRIC TREATMENT PROTOCOL
ALS PEDIATRIC (<15) DRUG CHART

Date 07/01/2021

LBRT Color:	GREY	PINK

			1st	2nd	3rd
Age Range:	Newborn to 6 months				
Weight Range:	<8 kg				
Approximate kg:	5 kg	Defib:	20 J	40 J	40 J
Approximate lbs:	10 lbs	Cardiovert:	10 J	20 J	20 J
NG tube size:	5 Fr	(or clinically equivalent biphasic energy dose)			

Normal vital signs	HR: 100-160	RR: 25-60	SBP: >60 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
-	Acetaminophen **DO NOT ADMINISTER**	-	-
0.2 mL	Adenosine **IV 1st**	0.5 mg	6 mg/2 mL
0.4 mL	Adenosine **IV 2nd/3rd**	1 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
0.5 mL◊	Amiodarone **(VF/Pulseless VT) IV/IO**	25 mg	150 mg/3 mL
1 mL	Atropine (**Bradycardia) IV/IO**	0.1 mg	1 mg/10 mL
0.3 mL*	Atropine **(OPP) IV/IM**	0.1 mg	8 mg/10 mL
1 mL	Calcium Chloride **IV/IO**	100 mg	1 gm/10 mL
24 mL	Charcoal **PO**	5 gm	50 gm/240 mL
25 mL	Dextrose **10% IV**	2.5 gm	25 gm/250 mL
0.1 mL	Diphenhydramine **IV/IM**	5 mg	50 mg/1mL
0.1 mL*	Epinephrine **IM**	0.05 mg	**1:1,000** 1 mg/1 mL
0.5 mL	Epinephrine **IV/IO**	0.05 mg	**1:10,000** 1 mg/10 mL
0.5 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.005 mg	**1:100,000** 0.1 mg/10 mL
2.5 mL	Epinephrine **Nebulized**	2.5 mg	**1:1,000** 1 mg/1 mL
0.1 mL	Fentanyl **IV BHO**	5 mcg	100 mcg/2 mL
0.1 mL	Fentanyl I**N BHO**	5 mcg	100 mcg/2 mL
0.3 mL*	Glucagon **IM**	0.25 mg	1 unit (mg)/1 mL
1.25 mL	Ipratropium Bromide **Nebulized**	0.25 mg	0.5 mg/2.5 mL
0.3 mL*,◊	Lidocaine **2% IV/IO**	5 mg	100 mg/5 mL
0.1 mL	Midazolam **IV slow**	0.5 mg	5 mg/1 mL
0.2 mL	Midazolam **IN/IM**	1 mg	5 mg/1 mL
NONE	Morphine Sulfate **IV/IM**	NONE	10 mg/1 mL
0.5 mL	Naloxone **IN/IM/IV**	0.5 mg	2 mg/2 mL
5 mL	Naloxone **IV titrated increments**	0.5 mg	Diluted to 1 mg/10 mL
100 mL	Normal Saline Fluid Bolus		Standard
1 mL	Ondansetron **IM/IV** 6 months - 3 years	2 mg	4 mg/2 mL
½ tablet	Ondansetron **ODT** 6 months - 3 years	2 mg	4 mg tablet
5 mL	Sodium Bicarbonate **IV BHO**	5 mEq	50 mEq/50 mL

- Neonates involve base physician.
- To assure accuracy, be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration

◊ Antiarrhythmic dosing for stable VT per BHPO

LBRT Color: RED | PURPLE | YELLOW

Age Range: 6 months to 3 years
Weight Range: 8-14 kg
Approximate kg: 10 kg
Approximate lbs: 20 lbs
NG tube size: 5-8 Fr | 8-10 Fr | 10 Fr

	1st	2nd	3rd
Defib:	20 J	40 J	40 J
Cardiovert:	10 J	20 J	20 J

(or clinically equivalent biphasic energy dose)

Normal vital signs:	HR: 90-160	RR: 20-40	SBP: >70 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
-	Acetaminophen **DO NOT ADMINISTER**	-	-
0.3 mL*	Adenosine **IV fast 1st**	1 mg	6 mg/2 mL
0.7 mL*	Adenosine **IV fast 2nd/3rd**	2 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
1 mL◊	Amiodarone **(VF/Pulseless VT) IV/IO**	50 mg	150 mg/3 mL
1.25 mL	Ipratropium Bromide **Nebulized**	0.25 mg	0.5 mg/2.5 mL
2 mL	Atropine **(Bradycardia) IV/IO**	0.2 mg	1 mg/10 mL
0.5 mL	Atropine **(OPP) IV/IM**	0.2 mg	8 mg/20 mL
2 mL	Calcium Chloride **IV/IO**	200 mg	1 gm/10 mL
50 mL*	Charcoal **PO**	10 gm	50 gm/240 mL
50 mL	Dextrose **10% IV**	5 gm	25 gm/250 mL
0.2 mL	Diphenhydramine **IV/IM**	10 mg	50 mg/1 mL
0.1 mL	Epinephrine **IM**	0.1 mg	**1:1,000** 1 mg/1 mL
1 mL	Epinephrine **IV/IO**	0.1 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1mg/10 mL
2.5 mL	Epinephrine **Nebulized**	2.5 mg	**1:1,000** 1 mg/1 mL
0.3 mL	Fentanyl **IN**	15 mcg	100 mcg/2 mL
0.2 mL	Fentanyl **IV**	10 mcg	100 mcg/2 mL
0.5 mL	Glucagon **IM**	0.5 mg	1 unit (mg)/1 mL
1.25 mL	Ipratropium Bromide **Nebulized**	0.25 mg	0.5 mg/2.5 mL
0.5 mL◊	Lidocaine **2% IV/IO**	10 mg	100 mg/5 mL
0.2 mL	Midazolam **IV slow**	1 mg	5 mg/1 mL
0.4 mL	Midazolam **IN/IM**	2 mg	5 mg/1 mL
0.1 mL	Morphine Sulfate **IV/IM**	1 mg	10 mg/1 mL
1 mL	Naloxone **IN/IM/IV**	1 mg	2 mg/2 mL
10 mL	Naloxone **IV titrated increments**	1 mg	Diluted to 1 mg/10 mL
200 mL	Normal Saline Fluid Bolus		Standard
1 mL	Ondansetron **IM/IV** 6 months - 3 years	2 mg	4 mg/2 mL
½ tablet	Ondansetron **ODT** 6 months - 3 years	2 mg	4 mg tablet
2 mL	Ondansetron **IM/IV** >3 years of age	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT** >3 years of age	4 mg	4 mg tablet
10 mL	Sodium Bicarbonate **IV** **BHO**	10 mEq	50 mEq/50 mL

- Neonates involve base physician.
- To assure accuracy, be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration
◊ Antiarrhythmic dosing for stable VT per BHPO

LBRT Color:	WHITE

Age Range: 4-5 years
Weight Range: 15-18 kg
Approximate kg: 15 kg
Approximate lbs: 30 lbs
NG tube size: 10 Fr

	1st	2nd	3rd
Defib:	30 J	60 J	60 J
Cardiovert:	15 J	30 J	30 J

(or clinically equivalent biphasic energy dose)

Normal vital signs	HR: 80-130	RR: 20-30	SBP: >75 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
22 mL	Acetaminophen **IV** (≥2 years of age)	220 mg	1 gm/100 mL
0.5 mL	Adenosine **IV fast 1st**	1.5 mg	6 mg/2 mL
1 mL	Adenosine **IV fast 2nd/3rd**	3 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
1.5 mL◊	Amiodarone **(VF/pulseless VT) IV/IO**	75 mg	150 mg/3mL
3 mL	Atropine **(Bradycardia) IV/IO**	0.3 mg	1 mg/10 mL
0.8 mL	Atropine **(OPP) IV/IM**	0.3 mg	8 mg/20 mL
3 mL	Calcium Chloride **IV/IO**	300 mg	1 gm/20 mL
70 mL*	Charcoal **PO**	15 gm	50 gm/240 mL
75 mL	Dextrose **10% IV**	7.5 gm	25 gm/250 mL
0.3 mL	Diphenhydramine **IV/IM**	15 mg	50 mg/1 mL
0.2 mL*	Epinephrine **IM**	0.15 mg	**1:1,000** 1 mg/1 mL
1.5 mL	Epinephrine **(Cardiac Arrest) IV/IO**	0.15 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1 mg/10 mL
5 mL	Epinephrine **Nebulized**	5 mg	**1:1,000** 1 mg/1 mL
0.5 mL	Fentanyl **IN**	25 mcg	100 mcg/2 mL
0.3 mL	Fentanyl **IV**	15 mcg	100 mcg/2 mL
0.8 mL*	Glucagon **IM**	0.75 mg	1 unit (mg)/1 mL
2.5 mL	Ipratropium Bromide **Nebulized**	0.5 mg	0.5 mg/2.5 mL
0.8 mL◊	Lidocaine **2% IV slow/IO**	15 mg	100 mg/5 mL
0.6 mL	Midazolam **IN/IM**	3 mg	5 mg/1 mL
0.3 mL	Midazolam **IV slow**	1.5 mg	5 mg/1 mL
0.2 mL*	Morphine Sulfate **IV/IM**	1.5 mg	10 mg/1 mL
1.5 mL	Naloxone **IN/IM/IV**	1.5 mg	2 mg/2 mL
15 mL	Naloxone **IV titrated increments**	1.5 mg	Diluted to 1 mg/10 mL
300 mL	Normal Saline Fluid Bolus		Standard
1 mL	Ondansetron **IM/IV** 6 months - 3 years	2 mg	4 mg/2 mL
½ tablet	Ondansetron **ODT** 6 months - 3 years	2 mg	4 mg tablet
2 mL	Ondansetron **IM/IV** >3 years of age	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT** >3 years of age	4 mg	4 mg tablet
15 mL	Sodium Bicarbonate **IV** **BHO**	15 mEq	50 mEq/50 mL

- To assure accuracy be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration

◊ Antiarrhythmic dosing for stable VT per BHPO

LBRT Color: **BLUE**

Age Range: **6-8 years**
Weight Range: **19-23 kg**
Approximate kg: **20 kg**
Approximate lbs: **40 lbs**
NG tube size: **12-14 Fr**

	1st	2nd	3rd
Defib:	**40 J**	**80 J**	**80 J**
Cardiovert:	**20 J**	**40 J**	**40 J**

(or clinically equivalent biphasic energy dose)

Normal vital signs	HR: 70-120	RR: 15-30	SBP: >80 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
30 mL	Acetaminophen **IV**	300 mg	1 gm/100 mL
0.7 mL*	Adenosine **IV fast 1st**	2 mg	6 mg/2 mL
1.3 mL*	Adenosine **IV fast 2nd/3rd**	4 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
2 mL◊	Amiodarone **(VF/pulseless VT) IV/IO**	100 mg	150 mg/3 mL
4 mL	Atropine **(Bradycardia) IV**	0.4 mg	1 mg/10 mL
1 mL	Atropine **(OPP) IV/IM**	0.4 mg	8 mg/20 mL
4 mL	Calcium Chloride **IV/IO**	400 mg	1 gm/10 mL
100 mL*	Charcoal **PO**	20 gm	50 gm/240 mL
100 mL	Dextrose **10% IV**	10 gm	25 gm/250 mL
0.4 mL	Diphenhydramine **IV/IM**	20 mg	50 mg/1 mL
0.2 mL	Epinephrine **IM**	0.2 mg	**1:1,000** 1 mg/1 mL
2 mL	Epinephrine **(Cardiac Arrest) IV/IO**	0.2 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1 mg/10 mL
5 mL	Epinephrine **Nebulized**	5 mg	**1:1,000** 1 mg/1 mL
0.6 mL	Fentanyl **IN**	30 mcg	100 mcg/2 mL
0.4 mL	Fentanyl **IV**	20 mcg	100 mcg/2 mL
1 mL	Glucagon **IM**	1 mg	1 unit (mg)/1 mL
2.5 mL	Ipratropium Bromide **Nebulized**	0.5 mg	0.5 mg/2.5 mL
1 mL◊	Lidocaine **2% IV slow/IO**	20 mg	100 mg/5 mL
0.8 mL	Midazolam **IN/IM**	4 mg	5 mg/1 mL
0.4 mL	Midazolam **IV slow**	2 mg	5 mg/1 mL
0.2 mL	Morphine Sulfate **IV/IM**	2 mg	10 mg/1 mL
2 mL	Naloxone **IN/IM/IV**	2 mg	2 mg/2 mL
20 mL	Naloxone **IV titrated increments**	2 mg	Diluted to 1 mg/10 mL
400 mL	Normal Saline Fluid Bolus		Standard
2 mL	Ondansetron **IM/IV** >3 years of age	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT** >3 years of age	4 mg	4 mg tablet
20 mL	Sodium Bicarbonate **IV** **BHO**	20 mEq	50 mEq/50 mL

- To assure accuracy be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration

◊ Antiarrhythmic dosing for stable VT per BHPO

LBRT Color: **ORANGE**

Age Range: **8-10 years**
Weight Range: **24-29 kg**
Approximate kg: **25 kg**
Approximate lbs: **50 lbs**
NG tube size: **14-18 Fr**

	1st	2nd	3rd
Defib:	**50 J**	**100 J**	**100 J**
Cardiovert:	**25 J**	**50 J**	**50 J**

(or clinically equivalent biphasic energy dose)

Normal vital signs	HR: 70-110	RR: 15-30	SBP: >85 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
37 mL	Acetaminophen **IV**	370 mg	1 gm/100 mL
0.8 mL*	Adenosine **IV fast 1st**	2.5 mg	6 mg/2 mL
1.7 mL*	Adenosine **IV fast 2nd/3rd**	5 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
2.5 mL◊	Amiodarone **(VF/pulseless VT) IV/IO**	125 mg	150 mg/3 mL
5 mL	Atropine **(Bradycardia) IV/IO**	0.5 mg	1 mg/10 mL
1.3 mL*	Atropine **(OPP) IV/IM**	0.5 mg	8 mg/20 mL
5 mL	Calcium Chloride **IV/IO**	500 mg	1 gm/10 mL
120 mL	Charcoal **PO**	25 gm	50 gm/240 mL
125 mL	Dextrose **10% IV**	12.5 gm	25 gm/250 mL
0.5 mL	Diphenhydramine **IV/IM**	25 mg	50 mg/1 mL
0.25 mL	Epinephrine **IM**	0.25 mg	**1:1,000** 1 mg/1 mL
2.5 mL	Epinephrine **(Cardiac Arrest) IV/IO**	0.25 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1 mg/10 mL
5 mL	Epinephrine **Nebulized**	5 mg	**1:1,000** 1 mg/1 mL
0.7 mL	Fentanyl **IN**	35 mcg	100 mcg/2 mL
0.5 mL	Fentanyl **IV**	25 mcg	100 mcg/2 mL
1 mL	Glucagon **IM**	1 mg	1 unit (mg)/1 mL
2.5 mL	Ipratropium Bromide **Nebulized**	0.5 mg	0.5 mg/2.5 mL
1.3 mL*,◊	Lidocaine **2% IV slow/IO**	25 mg	100 mg/5 mL
1 mL	Midazolam **IN/IM**	5 mg	5 mg/1 mL
0.5 mL	Midazolam **IV slow**	2.5 mg	5 mg/1 mL
0.3 mL*	Morphine Sulfate **IV/IM**	2.5 mg	10 mg/1 mL
2 mL	Naloxone **IN/IM/IV**	2 mg	2 mg/2 mL
20 mL	Naloxone **IV titrated increments**	2 mg	Diluted to 1 mg/10 mL
500 mL	Normal Saline Fluid Bolus		Standard
2 mL	Ondansetron **IM/IV** >3 years of age	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT** >3 years of age	4 mg	4 mg tablet
25 mL	Sodium Bicarbonate **IV** **BHO**	25 mEq	50 mEq/50 mL

- To assure accuracy be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration

◊ Antiarrhythmic dosing for stable VT per BHPO

LBRT Color: **GREEN**

Age Range: **10-12 years**
Weight Range: **30-36 kg**
Approximate kg: **35 kg**
Approximate lbs: **70 lbs**
NG tube size: **18 Fr**

	1st	2nd	3rd
Defib:	**70 J**	**140 J**	**140 J**
Cardiovert:	**35 J**	**70 J**	**70 J**

(or clinically equivalent biphasic energy dose)

Normal vital signs	HR: 60-100	RR: 15-20	SBP: >90 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
52 mL	Acetaminophen **IV**	520 mg	1 gm/100 mL
1.2 mL*	Adenosine **IV fast 1st**	3.5 mg	6 mg/2 mL
2.3 mL*	Adenosine **IV fast 2nd/3rd**	7 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
3 mL◊	Amiodarone **(VF/pulseless VT) IV/IO**	150 mg	150 mg/3 mL
5 mL	Atropine **(Bradycardia) IV/IO**	0.5 mg	1 mg/10 mL
1.8 mL*	Atropine **(OPP) IV/IM**	0.7 mg	8 mg/20 mL
5 mL‡	Calcium Chloride **IV/IO**	500 mg	1 gm/10 mL
170 mL*	Charcoal **PO**	35 gm	50 gm/240 mL
175 mL	Dextrose **10% IV**	17.5 gm	25 gm/250 mL
0.7 mL	Diphenhydramine **IV/IM**	35 mg	50 mg/1 mL
0.3 mL	Epinephrine **IM**	0.3 mg	**1:1,000** 1 mg/1 mL
3.5 mL	Epinephrine **(Cardiac Arrest) IV/IO**	0.35 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1 mg/10 mL
5 mL	Epinephrine **Nebulized**	5 mg	**1:1,000** 1 mg/1 mL
1.0 mL	Fentanyl **IN**	50 mcg	100 mcg/2 mL
0.7 mL	Fentanyl **IV**	35 mcg	100 mcg/2 mL
1 mL	Glucagon **IM**	1 mg	1 unit (mg)/1 mL
2.5 mL	Ipratropium Bromide **Nebulized**	0.5 mg	0.5 mg/2.5 mL
1.8 mL*,◊	Lidocaine **2% IV slow/IO**	35 mg	100 mg/5 mL
1 mL	Midazolam **IN/IM**	5 mg	5 mg/1 mL
0.7 mL	Midazolam **IV slow**	3.5 mg	5 mg/1 mL
0.4 mL	Morphine Sulfate **IV/IM**	3.5 mg	10 mg/1 mL
2 mL	Naloxone **IN/IM/IV**	2 mg	2 mg/2 mL
20 mL	Naloxone **IV titrated increments**	2 mg	Diluted to 1 mg/10 mL
500 mL	Normal Saline Fluid Bolus		Standard
2 mL	Ondansetron **IM/IV** >3 years of age	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT** >3 years of age	4 mg	4 mg tablet
35 mL	Sodium Bicarbonate **IV** **BHO**	35 mEq	50 mEq/50 mL

- To assure accuracy be sure the designated **concentration** of medication is used.

* Volume rounded for ease of administration

◊ Antiarrhythmic dosing for stable VT per BHPO

Length Exceeds LBRT | **TURQUOISE**

Pediatric patients up to age 15 who are longer than the LBRT are treated with adult doses.

Approximate kg: **>36 kg** **Defib and cardioversion:**
Approximate lbs: **>70 lbs** **Energy dose per manufacturer's guidelines**
NG tube size: **18 Fr**

Normal vital signs	HR: 60-100	RR: 15-20	SBP: >90 mmHg

VOL	MEDICATION	DOSE	CONCENTRATION
100 mL	Acetaminophen **IV**	1,000 mg	1 gm/100 mL
2 mL	Adenosine **IV fast 1st**	6 mg	6 mg/2 mL
4 mL	Adenosine **IV fast 2nd/3rd**	12 mg	6 mg/2 mL
6 mL	Albuterol **Nebulized**	5 mg	2.5 mg/3 mL
6 mL◊	Amiodarone **(VF/Pulseless VT) IV/IO**	300 mg	150 mg/3 mL
5 mL	Atropine **(Bradycardia) IV/IO**	0.5 mg	1 mg/10 mL
5 mL	Atropine **(OPP) IV/IM**	2 mg	8 mg/20 mL
5 mL	Calcium Chloride **IV/IO**	500 mg	1 gm/10 mL
240 mL	Charcoal **PO**	50 gm	50 gm/240 mL
250 mL	Dextrose **10% IV**	25 gm	25 gm/250 mL
1mL	Diphenhydramine **IV/IM**	50 mg	50 mg/1 mL
0.3 mL	Epinephrine **IM**	0.3 mg	**1:1,000** 1 mg/1 mL
10 mL	Epinephrine **(Cardiac Arrest) IV/IO**	1 mg	**1:10,000** 1 mg/10 mL
1 mL	Epinephrine **(Push-Dose) IV slow/IO**	0.01 mg	**1:100,000** 0.1 mg/10 mL
5 mL	Epinephrine **Nebulized**	5 mg	**1:1,000** 1 mg/1 mL
1 mL	Fentanyl **IN**	50 mcg*	100 mcg/2 mL
2 mL	Fentanyl **IV**	100 mcg*	100 mcg/2 mL
1 mL	Glucagon **IM**	1 mg	1 unit (mg)/1 mL
2.5 mL	Ipratropium Bromide **Nebulized**	0.5 mg	0.5 mg/2.5 mL
‡,◊	Lidocaine **2% IV slow/IO**	‡	100 mg/5 mL
1 mL	Midazolam **IN/IM/IV**	5 mg	5 mg/1 mL
‡	Morphine Sulfate **IV/IM**	‡	10 mg/1 mL
2 mL	Naloxone **IN/IM/IV**	2 mg	2 mg/2 mL
20 mL	Naloxone **IV titrated increments**	2 mg	Diluted to 1 mg/10 mL
500 mL	Normal Saline Fluid Bolus		Standard
2 mL	Ondansetron **IM/IV**	4 mg	4 mg/2 mL
1 tablet	Ondansetron **ODT**	4 mg	4 mg tablet
‡	Sodium Bicarbonate **IV** **BHO**	‡	50 mEq/50 mL

- To assure accuracy be sure the designated **concentration** of medication is used.
- Ketamine only for 15 years of age or older

* First dose of fentanyl up to 100mcg IV or 50 mcg IN
‡ Administer appropriate adult weight-based medication dosages
◊ Antiarrhythmic dosing for stable VT per BHPO

COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number S-120
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SUBJECT: TREATMENT PROTOCOL
ABDOMINAL DISCOMFORT / GI / GU (NON-TRAUMATIC)

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • NPO • Transport suspected symptomatic AAA to facility with surgical resources immediately available	• Monitor/EKG • IV/IO SO • Treat per Pain Management Protocol (S-141) **Suspected volume depletion** • 500 mL fluid bolus IV/IO SO, MR x 1 SO **Suspected AAA** • 500 mL fluid bolus IV/IO SO to maintain a SBP of 80, MR x1 SO **For nausea or vomiting** • Ondansetron 4 mg IV/IM/ODT SO, MR x 1 q10 min SO

COUNTY OF SAN DIEGO
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COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number S-121
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SUBJECT: TREATMENT PROTOCOL
AIRWAY OBSTRUCTION

Date 07/01/2021

BLS	ALS
For conscious patient • Reassure, encourage coughing • O_2 PRN **For inadequate air exchange** Airway maneuvers (AHA) • Abdominal thrusts • Use chest thrusts in obese or pregnant patients **If patient becomes unconscious or is found unconscious** • Begin CPR **Once obstruction is removed** • Ventilate with high-flow O_2 PRN • O_2 saturation **Treat per Respiratory Distress Protocol (S-136)**	**If patient becomes unconscious or has decreasing LOC** • Direct laryngoscopy and Magill forceps SO, MR PRN • Capnography SO PRN **Once obstruction is removed** • Monitor/EKG • IV/IO SO

Note: If unable to ventilate effectively, transport immediately while continuing CPR (unconscious patient)

COUNTY OF SAN DIEGO
HEALTH & HUMAN SERVICES AGENCY
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COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number S-122
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SUBJECT: TREATMENT PROTOCOL
ALLERGIC REACTION / ANAPHYLAXIS

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation PRN
- O_2 and/or ventilate PRN
- Attempt to identify allergen & route (injected, ingested, absorbed, or inhaled)
- Safely remove allergen (e.g., stinger, injection mechanism), if possible
- Epinephrine auto-injector 0.3 mg IM x1
- May assist patient to self-medicate own prescribed epinephrine auto-injector or albuterol MDI **once only**. BH contact required for additional dose(s).

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO PRN

Allergic reactions (skin signs only)

- Urticaria (hives, rash)
- Erythema (flushing)
- Pruritus (itching)

- Diphenhydramine 50 mg IV/IM SO

Suspected anaphylactic reactions

- Respiratory: throat tightness, hoarse voice, wheezing/stridor, cough, SOB
- Cardiovascular: fainting, dizziness, tachycardia, low BP
- GI: nausea, vomiting, abdominal cramping
- Tissues: angioedema of eyelids, lips, tongue, face

Anaphylaxis treatment

- Epinephrine 1:1,000 (1 mg/mL) 0.3 mg IM SO, MR x2 q5 min SO **then**
- Diphenhydramine 50 mg IV/IM SO

Anaphylaxis with respiratory involvement

- Albuterol 6 mL 0.083% via nebulizer* SO, MR SO
- Ipratropium bromide 2.5 mL 0.02% via nebulizer† added to first dose of albuterol SO

Anaphylaxis with SBP <90 mmHg

- 500 mL fluid bolus IV/IO MR to maintain SBP ≥90 mmHg SO
- Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO, MR q3 min, titrate to SBP ≥90 mmHg BHO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

***Infection control:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

†**Infection control:** If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide

COUNTY OF SAN DIEGO
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COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number S-123
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SUBJECT: TREATMENT PROTOCOL
ALTERED NEUROLOGIC FUNCTION (NON-TRAUMATIC)

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation, O_2 and/or ventilate PRN
- Spinal motion restriction PRN
- Position on affected side, if difficulty managing secretions
- Do not allow patient to walk
- Restrain PRN
- Monitor blood glucose SO

Symptomatic suspected opioid OD with RR <12. Use with caution in opioid-dependent, pain-management patients.✪

- Naloxone 4 mg via nasal spray preloaded single-dose device. Administer full dose in one nostril **OR**
- Naloxone 2 mg via atomizer and syringe. Administer 1 mg into each nostril.

EMTs may assist family or friend to medicate with patient's prescribed naloxone in **symptomatic suspected opioid OD**

Suspected hypoglycemia or patient's blood sugar is <60 mg/dL

- If patient is awake and able to manage oral secretions, give 3 oral glucose tabs or paste (15 gm total)
- Patient may eat or drink, if able
- If patient is unconscious, NPO

Stroke/TIA

- Treat per Stroke and Transient Ischemic Attack (S-144)
- Pediatric patients presenting with stroke symptoms should be transported to Rady Children's Hospital

Seizures

- Protect airway and protect from injury
- Treat associated injuries

ALS

- Monitor/EKG
- Capnography SO PRN
- IV/IO SO

Symptomatic suspected opioid OD with respiratory depression (RR<12, SpO_2<96%, or $EtCO_2$ ≥40 mmHg). Titrate slowly in opioid-dependent patients.

- Naloxone 2 mg IN/IM/IV SO, MR SO. Titrate IV dose to effect, **to drive the respiratory effort**
- If patient refuses transport, give additional naloxone 2 mg IM SO
- If patient refuses transport, consider dispensing Leave Behind Naloxone 4 mg nasal spray preloaded device with education for patient and household members SO

Symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents

- D_{50} 25 gm IV SO if BS <60 mg/dL
- If patient remains symptomatic and BS remains <60 mg/dL, MR SO
- If no IV, glucagon 1 mL IM SO if BS <60 mg/dL

Symptomatic hyperglycemia with diabetic history

- 500 mL fluid bolus IV/IO if BS ≥350 mg/dL or reads "high" SO x1, MR BHO

Status epilepticus (generalized, ongoing, and recurrent seizures without lucid interval)

- Patients ≥40 kg: midazolam 10 mg IM SO
- Patients <40 kg: midazolam 0.2 mg/kg IM SO

Partial seizure lasting ≥5 min (includes seizure time prior to arrival of prehospital provider)

- Midazolam 0.2 mg/kg IN/IM/IV/IO SO to max dose of 5 mg SO, MR x1 in 10 min SO. Max 10 mg total, d/c if seizure stops.

Eclamptic seizure of any duration

- Treat per Obstetrical Emergencies / Newborn Deliveries (S-133)

✪ Per Title 22, Chapter 1.5, § 100019 public safety personnel may administer nasal naloxone when authorized by the County of San Diego EMS Medical Director

COUNTY OF SAN DIEGO
HEALTH & HUMAN SERVICES AGENCY
EMERGENCY MEDICAL SERVICES

COUNTY OF SAN DIEGO EMERGENCY MEDICAL SERVICES
POLICY / PROCEDURE / PROTOCOL

Number S-124
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SUBJECT: TREATMENT PROTOCOL
BURNS

Date 07/01/2021

BLS	ALS
• Move patient to safe environment • Break contact with causative agent • Ensure patent airway, O_2, and/or ventilate PRN • O_2 saturation PRN • Treat other life-threatening injuries • Carboxyhemoglobin monitor PRN, if available **Thermal burns** • For burns <10% BSA, stop burning with non-chilled water or saline • For burns ≥10% BSA, cover with dry dressing and keep patient warm • Do not allow patient to become hypothermic **Toxic inhalation (e.g., CO exposure, smoke, gas)** • Move patient to safe environment • 100% O_2 via mask • Consider transport to facility with hyperbaric chamber for suspected CO poisoning, particularly in unconscious or pregnant patients **Chemical burns** • Brush off dry chemicals • Flush with copious amounts of water **Tar burns** • Do not remove tar • Cool with water, then transport	• Monitor/EKG • IV/IO SO • Capnography SO PRN • Treat pain per Pain Management Protocol (S-141) **For patients with >20% partial-thickness or >5% full-thickness burns and ≥15 years** • 500 mL fluid bolus IV/IO SO, then TKO SO **Respiratory distress with bronchospasm** • Albuterol 6 mL 0.083% via nebulizer* SO, MR SO

***Infection control:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

Contact UCSD Base Hospital for patients meeting burn center criteria†
See Base Hospital Contact/Patient Transportation and Report (S-415)

†Burn center criteria
Patients with burns involving
- >20% partial-thickness or >5% full-thickness burns over BSA
- Suspected respiratory involvement or significant smoke inhalation
- Circumferential burn or injury to face, hands, feet, or perineum
- Electrical injury due to high voltage (>120 volts)

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POLICY / PROCEDURE / PROTOCOL

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SUBJECT: TREATMENT PROTOCOL
DISCOMFORT / PAIN OF SUSPECTED CARDIAC ORIGIN

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation PRN
- Use supplemental O_2 to maintain saturation at 94-98%
- O_2 and/or ventilate PRN
- Do not allow patient to walk
- If SBP ≥100 mmHg, may assist patient to self-medicate own prescribed NTG* SL **(maximum 3 doses, including those the patient has taken)**
- May assist with placement of 12-lead EKG leads
- May assist patient to self-medicate own prescribed aspirin up to a max dose of 325 mg

ALS

- Monitor/EKG
- IV SO
- Obtain 12-lead EKG and transmit to receiving hospital
- If STEMI, notify BH immediately and transport to appropriate STEMI center
- Report LBBB, RBBB or poor-quality EKG
- Aspirin 324 mg chewable PO SO should be given regardless of prior daily dose(s)

If SBP ≥100 mmHg

- NTG* 0.4 mg SL SO, MR q3-5 min SO
- Treat pain per Pain Management Protocol (S-141)

Discomfort/pain of suspected cardiac origin with associated shock

- 250 mL fluid bolus IV/IO with no rales SO, MR to maintain SBP ≥90 mmHg SO

If BP refractory to second fluid bolus

- Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO, MR q3 min, titrate to SBP ≥90 mmHg BHO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

*NTG is contraindicated in patients who have taken

- erectile dysfunction medications such as sildenafil (Viagra®), tadalafil (Cialis®), and vardenafil (Levitra®) within 48 hours; and
- pulmonary hypertension medications such as sildenafil (Revatio®) and epoprostenol sodium (Flolan® and Veletri®)

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SUBJECT: TREATMENT PROTOCOL
CPR / ARRHYTHMIAS

Date 07/01/2021

BLS

- Continuous compressions of 100-120/min with ventilation rate of 10-12/min
- Use metronome or other real-time audiovisual feedback device
- Rotate compressor at least every 2 min
- Use mechanical compression device (unless contraindicated)
- O_2 and/or ventilate with BVM
- Monitor O_2 saturation
- Apply AED during CPR and analyze as soon as ready

VAD
- Perform CPR
- Contact BH for additional instructions

TAH
- Contact BH for instructions

ALS

- Apply defibrillator pads during CPR. Defibrillate immediately for VF/pulseless VT.
- IV/IO SO
- Capnography SO with waveform and value
- ET/PAA SO without interrupting compressions
- NG/OG tube PRN SO
- Provide cardiac monitor data to agency QA/QI department

Team leader priorities
- Monitor CPR quality, rate, depth, full chest recoil, and capnography value and waveform
- Minimize interruption of compressions (<5 sec) during EKG rhythm checks
- Charge monitor prior to rhythm checks. Do not interrupt CPR while charging.

VAD/TAH
- See Adjunct Cardiac Devices section

Capnography
- For $EtCO_2$ > 0 mmHg, may place ET/PAA without interrupting compressions
- If $EtCO_2$ rises rapidly during CPR, pause CPR and check for pulse

Specific protocols (see below)
- Arrhythmias
  - Unstable bradycardia
  - Supraventricular tachycardia
  - Atrial fibrillation / flutter
  - Ventricular tachycardia
  - Ventricular fibrillation / pulseless VT
  - Pulseless electrical activity / asystole
- Return of Spontaneous Circulation
- Adjunct Cardiac Devices
- Termination of Resuscitation

UNSTABLE‡ BRADYCARDIA

- Obtain 12-lead EKG
- Atropine 1 mg IV/IO SO, MR q3-5 min to max 3 mg SO
- If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO

Rhythm unresponsive to atropine

- Midazolam 1-5 mg IV/IO PRN pre-pacing SO
- External cardiac pacing* SO
- If capture occurs and SBP ≥100 mmHg, treat per Pain Management Protocol (S-141)

If SBP <90 mmHg after atropine or initiation of pacing

- 250 mL fluid bolus IV/IO SO, MR x1 SO
- Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO. MR q3 min, titrate to SBP ≥90 mmHg BHO.

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

‡SBP <90 mmHg and exhibiting signs or symptoms of inadequate perfusion, e.g.,

- Altered mental status (decreased LOC, confusion, agitation)
- Pallor
- Diaphoresis
- Significant chest pain of suspected cardiac origin
- Severe dyspnea

*External cardiac pacing

- Begin at rate 60/min
- Dial up until capture occurs, usually between 50 and 100 mA
- Increase by a small amount, usually about 10%, for ongoing pacing

SUPRAVENTRICULAR TACHYCARDIA

- Obtain 12-lead EKG

Stable (symptomatic)
- If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO
- VSM SO
- Adenosine 6 mg rapid IV/IO followed by 20 mL NS rapid IV/IO SO
- Adenosine 12 mg rapid IV/IO followed by 20 mL NS rapid IV/IO SO, MR x1 SO

Unstable‡ (or refractory to treatment)
- Consider midazolam 1-5 mg IV/IO pre-cardioversion SO
- Synchronized cardioversion at manufacturer's recommended energy dose SO, MR x2 SO, MR BHO
- After successful cardioversion
  - Check BP. If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO.
  - Obtain 12-lead EKG

‡SBP <90 mmHg and exhibiting signs or symptoms of inadequate perfusion, e.g.,
- Altered mental status (decreased LOC, confusion, agitation)
- Pallor
- Diaphoresis
- Significant chest pain of suspected cardiac origin
- Severe dyspnea

ATRIAL FIBRILLATION / FLUTTER

- Obtain 12-lead EKG
- If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO

Rate ≥180 and unstable‡

- Consider midazolam 1-5 mg IV/IO pre-cardioversion SO
- Synchronized cardioversion at manufacturer's recommended energy dose SO, MR x2 SO, MR BHO
- After successful cardioversion
  - Check BP. If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO.
  - Obtain 12-lead EKG

‡SBP <90 mmHg and exhibiting signs or symptoms of inadequate perfusion, e.g.,

- Altered mental status (decreased LOC, confusion, agitation)
- Pallor
- Diaphoresis
- Significant chest pain of suspected cardiac origin
- Severe dyspnea

VENTRICULAR TACHYCARDIA

- Obtain 12-lead EKG

Stable

- If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO
- Amiodarone 150 mg in 100 mL of NS over 10 min IV/IO SO, MR x1 in 10 min SO
  OR
- Lidocaine 1.5 mg/kg IV/IO SO, MR at 0.5 mg/kg IV/IO q8-10 min to max 3 mg/kg SO

Unstable‡

- Consider midazolam 1-5 mg IV/IO pre-cardioversion SO
- Synchronized cardioversion at manufacturer's recommended energy dose SO, MR x2 SO, MR BHO
- After successful cardioversion
  - Check BP. If SBP <90 mmHg and rales not present, 250 mL fluid bolus IV/IO SO, MR SO.
  - Obtain 12-lead EKG

‡SBP <90 mmHg and exhibiting signs or symptoms of inadequate perfusion, e.g.,

- Altered mental status (decreased LOC, confusion, agitation)
- Pallor
- Diaphoresis
- Significant chest pain of suspected cardiac origin
- Severe dyspnea

VENTRICULAR FIBRILLATION / PULSELESS VT

- CPR
- Defibrillate as soon as monitor available/charged
- Defibrillate q2 min while VF/VT persists
- Epinephrine 1:10,000 1 mg IV/IO q3-5 min SO

Persistent VF/VT after 3 defibrillation attempts

- Amiodarone 300 mg IV/IO, MR 150 mg (max 450 mg) SO
  OR
- Lidocaine 1.5 mg/kg IV/IO SO, MR at 0.5 mg/kg IV/IO q5 min to max 3 mg/kg SO
- If VF/VT persists after 2 antiarrhythmic doses, contact BH for direction

PULSELESS ELECTRICAL ACTIVITY / ASYSTOLE

- CPR
- Epinephrine 1:10,000 1 mg IV/IO q3-5 min SO

Suspected hyperkalemia
- $CaCl_2$ 500 mg IV/IO SO
- $NaHCO_3$ 1 mEq/kg IV/IO BHO

Suspected hypovolemia
- 1 L fluid bolus IV/IO, MR x2 SO

Suspected poisoning/OD
- Contact BH
- May consider treatment per Poisoning/Overdose Protocol (S-134)

Asystole
- After ≥20 min, treat per TOR protocol

RETURN OF SPONTANEOUS CIRCULATION

- Ventilate PRN (goal of $EtCO_2$ = 40 mmHg)
- Obtain BP
- Obtain 12-lead EKG
- Transport to closest STEMI Center regardless of 12-lead EKG reading SO
- Provide cardiac monitor data to agency QA/QI department

SBP <90 mmHg

- If rales not present, 250 mL fluid bolus IV/IO SO, MR SO
- Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO. MR q3 min, titrate to SBP ≥90 mmHg BHO

Pulse ≥60 status post-defibrillation

- Amiodarone 150 mg in 100 mL of NS over 10 min IV/IO SO, MR x1 in 10 min SO
  OR
- Lidocaine 1.5 mg/kg IV/IO SO, MR at 0.5 mg/kg IV/IO q8-10 min to max 3 mg/kg SO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

ADJUNCT CARDIAC DEVICES

- Transport equipment and any knowledgeable family/support persons to ED with patient

VAD
- Contact BH and VAD coordinator
- Follow protocols for CPR and treatment of arrhythmias, including use of cardioversion, pacing, and defibrillation PRN

TAH
- Contact BH and TAH coordinator
- Treatment per BHO

Wearable defibrillators (vest)
- If vest device is broadcasting specific verbal directions, follow device's prompts
- If device not broadcasting directions and patient requires CPR or cardiac treatment, remove vest and treat

Malfunctioning pacemakers
- Treat per applicable arrythmia protocol
- Treat pain per Pain Management Protocol (S-141) PRN

Reported/witnessed AICD firing ≥2
Pulse ≥60
- Lidocaine 1.5 mg/kg IV/IO SO, MR at 0.5 mg/kg IV/IO q8-10 min to max 3 mg/kg SO
  OR
- Amiodarone 150 mg in 100 mL of NS over 10 min IV/IO SO, MR x1 in 10 min SO

TERMINATION OF RESUSCITATION (TOR)§

Must meet all of the following criteria
- Persistent asystole (no other rhythms detected)
- Unwitnessed arrest (by bystanders or EMS)
- No bystander CPR
- No AED defibrillation
- No return of pulses

<20 min on-scene resuscitation time
- Consider TOR BHPO
- If TOR, document time and full name of physician pronouncing death

≥20 min on-scene resuscitation time
- Consider TOR SO (BH contact not required even if ALS interventions performed)
- If TOR, document time of death recognition and name of paramedic

§Applies to cardiac arrests of presumed cardiac origin. Excludes drowning, hypothermia, trauma, and electrocution.

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SUBJECT: **TREATMENT PROTOCOL**
ENVENOMATION INJURIES

Date **07/01/2021**

BLS	ALS
• O_2 and/or ventilate PRN • If antivenin available on site, transport with patient to hospital **Jellyfish sting** • Liberally rinse with seawater • Scrape to remove stinger(s) • Heat as tolerated (not to exceed 110 °F / 43 °C) **Stingray or sculpin injury** • Immersion in hot water (as hot as tolerated, not to exceed 110 °F / 43 °C) **Snakebite** • Mark proximal extent of swelling and/or tenderness • Keep involved extremity at heart level and immobile • Remove constrictive device(s) • Remove jewelry distal to bite	• IV SO • Treat per Pain Management Protocol (S-141)

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SUBJECT: TREATMENT PROTOCOL
ENVIRONMENTAL EXPOSURE

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • Remove excess/wet clothing • Obtain baseline temperature **Heat exhaustion** • Cool gradually • Fan and sponge with tepid water • Avoid shivering • If conscious, give small amounts of fluids **Heat stroke** • Rapid cooling • Spray with cool water and fan • Avoid shivering • Apply ice packs to carotid, inguinal, and axillary regions **Cold exposure** • Gentle warming • Apply blankets, warm packs, and dry dressings • Avoid unnecessary movement or rubbing • If alert, give warm liquids. If altered LOC, NPO. • Prolonged CPR may be indicated **Drowning** • CPR, if cardiac arrest. Emphasize ventilations. • High-flow O_2 if spontaneous respirations • Remove wet clothing • Spinal motion restriction PRN	• Monitor/EKG • IV/IO SO • Capnography SO PRN **Cardiac arrest with hypothermia** • CPR • Persistent VF/VT, defibrillate per CPR / Arrythmias Protocol (S-127)* • Epinephrine 1:10,000 1 mg IV/IO x1 SO† • Rewarm **Heat exhaustion/heat stroke** • 500 mL fluid bolus IV/IO SO, if no rales MR x1 SO **Drowning with respiratory distress** • CPAP at 5-10 cmH_2O SO for respiratory distress

*Defibrillation attempts may be unsuccessful during rewarming until temperature ≥86 °F / ≥30 °C
†Limit epinephrine to 1 dose and withhold antiarrhythmic medications until temperature ≥86 °F / ≥30 °C

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SUBJECT: TREATMENT PROTOCOL
HEMODIALYSIS PATIENT

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation • Give O_2 to maintain SpO_2 ≥92% • Ventilate PRN	• Monitor/EKG • Determine time of last dialysis • IV in upper extremity without working graft/AV fistula SO **For immediate definitive therapy only** • EJ/IO access prior to accessing graft • Monitor and administer via existing external vascular access SO (aspirate 5 mL **prior** to infusion*) **or** • Access graft/AV fistula BHPO **Fluid overload with rales** • Treat CHF per Respiratory Distress Protocol (S-136) **Suspected hyperkalemia (widened QRS complex or peaked T-waves)** • Obtain 12-lead EKG • If widened QRS complex, immediately administer $CaCl_2$ 500 mg IV/IO SO • $NaHCO_3$ 1 mEq/kg IV/IO x1 SO • Continuous albuterol 6 mL 0.083% via nebulizer SO

*Hemodialysis catheter contains concentrated dose of heparin which must be aspirated **prior** to infusion

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SUBJECT: TREATMENT PROTOCOL
DECOMPRESSION ILLNESS / DIVING / ALTITUDE-RELATED INCIDENTS

Date 07/01/2021

BLS	ALS
• 100% O_2 and/or ventilate PRN • O_2 saturation PRN • Spinal stabilization PRN	• Monitor/EKG • IV/IO SO

Diving victim: A person (including a free-diver) with any symptoms after breathing sources of compressed air below the water's surface

Minor presentation (non-progressive): Minimal localized joint pain, mottling of skin surface, or localized swelling with pain

Major presentation: Symptoms listed above that are severe and/or rapidly progressing, vertigo, altered LOC, progressive paresthesia, paralysis, severe SOB, blurred vision, crepitus, hematemesis, hemoptysis, pneumothorax, trunk pain, or girdle or band-like burning discomfort

Diving victim disposition

Minor presentation

- Major trauma patient: Catchment trauma center
- Non-military patient: Routine
- Active-duty military personnel: Transport to Military Recompression Chamber, if possible. Base Hospital will contact military at (619) 556-7130 to determine chamber location.

Major presentation

- Transport all major presentations to UCSD Hillcrest
- Trauma injuries are secondary in presence of major presentation
- Divert to closest BEF, if airway is unmanageable

Military Recompression Chamber location: Naval Station 32nd Street and Harbor Drive, San Diego, CA 92136

Note: Obtain dive computer or records, if possible. Hyperbaric chamber must be capable of recompression to 165 feet.

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SUBJECT: TREATMENT PROTOCOL
OBSTETRICAL EMERGENCIES / NEWBORN DELIVERIES

Date 07/01/2021

PREDELIVERY	
BLS	**ALS**
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • If no time for transport and delivery is imminent (crowning and pushing), proceed with delivery • If no delivery, transport on left side • Keep mother warm **Third-trimester bleeding** • Transport immediately to facility with obstetrical services per BH direction **Eclampsia (seizures)** • Protect airway • Protect from injury	• Monitor/EKG • IV SO • Capnography SO PRN **Direct to labor/delivery area BHO if ≥20 weeks gestation** **Eclampsia (seizures)** • Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

DELIVERY
BLS and ALS
Routine delivery • If placenta delivered, massage fundus. Do not wait on scene. • Wait 60 sec after delivery, then clamp and cut cord between clamps • Document name of person cutting cord, time cut, and delivery location (address) • Place identification bands on mother and newborn(s) • Complete Out of Hospital Birth Report Form (S-166A) and provide to parent **Difficult deliveries** • High-flow O_2 • Keep mother warm **Nuchal cord (cord wrapped around neck)** • Slip cord over the head and off neck • Clamp and cut cord, if wrapped too tightly **Prolapsed cord** • Place mother with her hips elevated on pillows • Insert a gloved hand into vagina and gently push presenting part off cord • Transport immediately while retaining this position. Do not remove hand until relieved by hospital personnel. • Cover exposed cord with saline-soaked gauze

Shoulder dystocia
- Hyperflex mother's knees to her chest

Breech birth (arm or single foot visible)
- Rapid transport

Frank breech or double footling and imminent delivery with long transport
- Allow newborn to deliver to the waist without active assistance (support only)
- When legs and buttocks are delivered, assist head out keeping body parallel to the ground. If head does not deliver within 1-2 min, insert gloved hand into the vagina to create airway for newborn.
- Transport immediately if head undelivered

Eclampsia (seizures)
- Protect airway, and protect from injury
- **ALS:** Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

MOTHER POST-DELIVERY

BLS	ALS
Post-partum hemorrhage • Massage fundus vigorously • Baby to breast • High-flow O_2 • Keep mother warm **Eclampsia (seizures)** • Protect airway • Protect from injury	**Post-partum hemorrhage** • Monitor/EKG • Capnography **Post-partum hemorrhage with SBP <90 mmHg** • 500 mL fluid bolus IV/IO PRN SO, MR x2 q10 min SO **Eclampsia (seizures)** • Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

NEONATAL POST-DELIVERY

BLS and ALS

Warm, dry, and stimulate newborn
- Wrap newborn in warm, dry blanket. Keep head warm.
- Assess breathing, tone, and HR. Palpate HR via umbilical cord.
- If placing pulse oximeter, use newborn's right hand
- APGAR at 1 and 5 min (do not delay resuscitation to obtain score)
- Confirm identification bands placed on mother and newborns(s)
- Bring mother and newborn(s) to same hospital
- Complete Out of Hospital Birth Report Form (S-166A) and provide to parent

Full-term newborn with good tone and breathing
- Keep newborn warm

- Ensure patent airway
- If excessive secretions, suction mouth then nose with bulb syringe
- O_2 saturation on newborn's right hand PRN
- Baby to breast
- Ongoing assessment q30 sec

Newborn HR ≥100 without respiratory distress or central cyanosis

- Blow-by O_2

Newborn HR <100, poor respiratory effort or persistent central cyanosis

- Ventilate with BVM on room air
- Monitor/EKG
- Recheck pulse q30 sec
- For persistently poor respiratory rate/effort, or cyanosis despite correct BVM technique, add high-flow O_2 15 L/min to BVM
- **Stop BVM when patient breathing well and HR ≥100**
- **ALS**: IV/IO SO (do not delay transport)
- **ALS**: NG tube PRN SO

Newborn HR <60 after BVM on high-flow O_2 for 30 sec

- Continue BVM with O_2
- Chest compressions at rate of 120/min
- 3:1 compression to ventilation ratio
- Check pulse q2 min
- Stop compressions when HR ≥60
- If HR remains <60 after 90 sec of ventilation, increase to BVM 100% O_2 and continue compressions
- **ALS**: Push-dose epinephrine 1:100,000 (0.01 mg/mL) per drug chart IV/IO BHO, MR q3 min, titrate to maintain adequate perfusion BHO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

- **ALS:** Fluid bolus per drug chart IV/IO SO, MR x 1 in 10 min SO

Premature and/or low birth weight newborn

- If amniotic sac intact, remove neonate from sac after delivery
- Place neonate in plastic bag up to axilla to minimize heat loss
- Transport immediately
- CPR need **not** be initiated if there are no signs of life **and** gestational age <24 weeks

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SUBJECT: TREATMENT PROTOCOL
POISONING / OVERDOSE

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation PRN
- O_2 and/or ventilate PRN
- Carboxyhemoglobin monitor PRN, if available

Ingestions
- Identify substance
- Transport pill bottles and containers with patient, PRN

Skin contamination*
- Remove clothes
- Brush off dry chemicals
- Flush with copious water

Toxic inhalation (e.g., CO exposure, smoke, gas)
- Move patient to safe environment
- 100% O_2 via mask
- Consider transport to facility with hyperbaric chamber for suspected CO poisoning, particularly in unconscious or pregnant patients

Symptomatic suspected opioid OD with RR <12. Use with caution in opioid-dependent, pain-management patients.✪
- Naloxone 4 mg via nasal spray preloaded single-dose device. Administer full dose in one nostril

OR
- Naloxone 2 mg via atomizer and syringe. Administer 1 mg into each nostril.

EMTs may assist family or friend to medicate with patient's prescribed naloxone in **symptomatic suspected opioid OD**

Hyperthermia from suspected stimulant intoxication
- Initiate cooling measures
- Obtain baseline temperature, if possible

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO PRN

Ingestions
- Assure patient has gag reflex and is cooperative
- If not vomiting and within 60 min, activated charcoal 50 gm PO ingestion with any of the following SO:
  1. Acetaminophen
  2. Colchicine
  3. Beta blockers
  4. Calcium channel blockers
  5. Salicylates
  6. Sodium valproate
  7. Oral anticoagulants (including rodenticides)
  8. Paraquat
  9. Amanita mushrooms

Symptomatic suspected opioid OD with respiratory depression (RR<12, SpO_2<96%, or $EtCO_2$ ≥40 mmHg). Titrate slowly in opioid-dependent patients.
- Naloxone 2 mg IN/IM/IV SO, MR SO. Titrate IV dose to effect, **to drive the respiratory effort**
- If patient refuses transport, give additional naloxone 2 mg IM SO
- If patient refuses transport, consider dispensing Leave Behind Naloxone 4 mg nasal spray preloaded device with education for patient and household members SO

Symptomatic organophosphate poisoning
- Atropine 2 mg IV/IM/IO SO, MR x2 q3-5 min SO. MR q3-5 min BHO

Extrapyramidal reactions
- Diphenhydramine 50 mg slow IV/IM SO

Suspected tricyclic antidepressant OD with cardiac effects (e.g., hypotension, heart block, or widened QRS)
- $NaHCO_3$ 1 mEq/kg IV/IO SO

	Suspected beta blocker OD with cardiac effects (e.g., bradycardia with hypotension) • Glucagon 1-3 mg IV BHO, MR 5-10 min BHO, for a total of 10 mg **Suspected calcium channel blocker OD (SBP <90 mmHg)** • $CaCl_2$ IV/IO 20 mg/kg BHO, MR x1 in 10 min BHO **Suspected cyanide poisoning** If cyanide kit available on site (e.g., industrial site), may administer if patient is exhibiting significant symptoms • Amyl nitrite inhalation (over 30 seconds) SO • Sodium thiosulfate 25%, 12.5 gm IV SO **or** • Hydroxocobalamin (CYANOKIT®) 5 gm IV SO

✪ Per Title 22, Chapter 1.5, § 100019 public safety personnel may administer nasal naloxone when authorized by the County of San Diego EMS Medical Director.

* For radioactive material, treatment of traumatic injuries takes precedence over decontamination

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SUBJECT: **TREATMENT PROTOCOL**
PRE-EXISTING MEDICAL INTERVENTIONS

Date 07/01/2021

BLS	ALS
• If patient or accompanying person able to manage existing device, proceed with transport • Bring back-up equipment/batteries as appropriate **Established electrolyte and/or glucose-containing peripheral IV lines** • Maintain at preset rates **Established IV pumps or other existing devices** Contact BH for direction, if person responsible for operating IV pump or device is unable to accompany patient and manage IV during transport **BH may only direct BLS personnel to leave device as found or turn the device off, then transport patient or wait for ALS arrival** **Transdermal medication** • Remove patches PRN SO (e.g., unstable, CPR status) **Transports to another facility or home** • No waiting period is required after medication administration • IV solutions with added medications **or** other ALS treatment/monitoring modalities require ALS personnel (or RN/MD) in attendance during transport • Cap end of catheter with device that occludes end if there is a central line	**Labeled IV medication delivery systems** • Maintain at preset rates SO • Adjust rate **or** d/c BHO **IV delivery systems containing unknown medications** • Contact BH prior to adjusting infusion rate **Existing external vascular access with external port** • To be used for definitive therapy **only**

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SUBJECT: TREATMENT PROTOCOL
RESPIRATORY DISTRESS

Date 07/01/2021

BLS	ALS

• Ensure patent airway
• Reassurance
• Dislodge any airway obstruction. Treat per Airway Obstruction Protocol (S-121).
• O_2 saturation
• O_2 and/or ventilate PRN
• Transport in position of comfort
• Carboxyhemoglobin monitor PRN, if available
• May assist patient to self-medicate own prescribed MDI **once only**. BH contact required for additional dose(s).
 	
Toxic inhalation (e.g., CO exposure, smoke, gas)
• Move patient to safe environment
• 100% O_2 via mask
• Consider transport to facility with hyperbaric chamber for suspected CO poisoning for unconscious or pregnant patients
 	
Croup-like cough
• Aerosolized saline or water 5 mL via O_2-powered nebulizer/mask, MR PRN
	• Monitor/EKG
	• Capnography SO PRN
	• IV/IO SO
	• Intubate SO PRN
	• NG/OG PRN SO
	
	Suspected CHF/cardiac origin
	• NTG SL
	  • **If systolic BP ≥100 but <150:** NTG 0.4 mg SL SO, MR q3-5 min SO
	  • **If systolic BP ≥150:** NTG 0.8 mg SL SO, MR q3-5 min SO
	• CPAP 5-10 cmH_2O SO
	
	Suspected non-cardiac origin
	• Albuterol 6 mL 0.083% via nebulizer* SO, MR SO
	• Ipratropium bromide 2.5 mL 0.02% via nebulizer† added to first dose of albuterol SO
	• CPAP 5-10 cmH_2O SO
	
	Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide consider
	History of asthma or suspected allergic reaction
	• Epinephrine 0.3 mg 1:1,000 IM SO, MR x2 q5 min SO
	No definitive history of asthma
	• Epinephrine 0.3 mg 1:1,000 IM BHPO, MR x2 q5 min BHPO

Notes

- For respiratory arrest, administer 5 quick breaths
- NTG is contraindicated in patients who have taken erectile dysfunction medications such as sildenafil (Viagra®), tadalafil (Cialis®), and vardenafil (Levitra®) within 48 hours
- NTG is contraindicated in patients who are taking similar medications for pulmonary hypertension, such as sildenafil (Revatio®) and epoprostenol sodium (Flolan® and Veletri®)
- Use caution with CPAP in patients with COPD. Start low and titrate pressure.
- Epinephrine IM: Use caution if known cardiac history, history of hypertension, SBP >150 mmHg, or age >40
- Fireline paramedics without access to O_2 may use albuterol MDI

***Infection control:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

†**Infection control:** If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide

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SUBJECT: TREATMENT PROTOCOL
SHOCK

Date 07/01/2021

BLS	ALS
• O_2 saturation • O_2 and/or ventilate PRN • Control obvious external bleeding • Treat associated injuries • NPO, anticipate vomiting • Remove transdermal patch • Keep patient warm	• Monitor/EKG • IV/IO SO • Capnography SO PRN **Non-traumatic, hypovolemic shock*** • 500 mL fluid bolus IV/IO SO, MR to maintain SBP ≥90 mmHg SO SBP <90 mmHg after second fluid bolus • Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO, MR q3 min, titrate to SBP ≥90 mmHg BHO **Neurogenic shock** • 500 mL fluid bolus IV/IO SO, MR to maintain SBP ≥90 mmHg SO SBP <90 mmHg after second fluid bolus • Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO, MR q3 min, titrate to SBP ≥90 mmHg BHO **Push-dose epinephrine mixing instructions** 1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe 2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

*If suspected AAA, fluid boluses to maintain SBP of 80 mmHg. Treat per Abdominal Discomfort / GI / GU (Non-Traumatic) Protocol (S-120).

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SUBJECT: TREATMENT PROTOCOL
TRAUMA

Date 07/01/2021

BLS	ALS
• Ensure patent airway • Protect C-spine • Control obvious bleeding • Spinal motion restriction per Skills List (S-104) except in penetrating trauma without neurological deficits • O_2 saturation. Maintain SpO_2 ≥90%. • O_2 and/or ventilate at a rate of 10/min PRN • Keep warm • Hemostatic gauze **Abdominal trauma** • Cover eviscerated bowel with saline pads **Chest trauma** • Cover open chest wound with three-sided occlusive dressing. Release dressing if tension pneumothorax develops. • Chest seal PRN **Extremity trauma** • Splint neurologically stable fractures in position as presented. Traction splint PRN. • Reduce grossly angulated long bone fractures with no pulse or sensation PRN BHO • Direct pressure to control external hemorrhage • Apply gauze or hemostatic dressing PRN • Tourniquet PRN • In MCI, direct pressure not required prior to tourniquet application **Impaled objects** • Immobilize and leave impaled objects in place • Remove object impaled in face, cheek, or neck if there is total airway obstruction SO **Any suspicion of neurological injury (mechanism, GCS, examination)** • High-flow O_2 PRN • Monitor SpO_2, BP, and HR q3-5 min • If SpO_2 <90% **or** hypoventilation (despite high-flow O_2), assist ventilations with BVM	• Monitor/EKG • IV/IO SO • Capnography SO. Maintain $EtCO_2$ 35-45 mmH_2O SO PRN. • Treat pain per Pain Management Protocol (S-141) **SBP <80 mmHg or signs of shock** • 500 mL fluid bolus IV/IO SO, MR x3 q15 min to maintain SBP ≥80 mmHg **Crush injury with compression of extremity or torso ≥2 hours** Just prior to extremity being released • 500 mL fluid bolus IV/IO, then TKO SO • $NaHCO_3$ 1 mEq/kg IV/IO SO • $CaCl_2$ 500 mg IV/IO over 30 sec BHO **Grossly angulated long bone fractures** • Reduce with gentle unidirectional traction for splinting SO **Severe respiratory distress with unilateral diminished breath sounds and SBP <90 mmHg** • Needle thoracostomy SO

Pregnancy ≥6 months • Where spinal motion restriction indicated, tilt patient to the left 30° **Blunt traumatic arrest** • Consider request for pronouncement at scene BHPO per Prehospital Determination of Death Protocol (S-402) **Penetrating traumatic arrest** • Rapid transport • Consider pronouncement at scene BHPO	

Transportation and Destination Guidelines

Pediatric patients who meet criteria outlined in T-460 (Identification of the Pediatric Trauma Center Patient) should be transported to the Designated Pediatric Trauma Center, **except** in the following situations.

1. **Adult with child**
   a. If there is a single ambulance (air/ground) with both a pediatric trauma center patient **and** an adult trauma center patient, the ambulance should first transport the more critical patient to the appropriate facility. If both patients are critical, or if there are other questions, both may be transported to the designated adult trauma center.
   b. Field personnel should consider splitting the team using additional ALS transport vehicles, or aeromedical resources to transport the pediatric patient to the pediatric trauma facility and the adult patient to the catchment area trauma facility.
2. **Trauma center diversion**
   The pediatric patient who is identified as a trauma patient shall be transported to the designated pediatric trauma center. When the pediatric trauma center is on diversion, including age-specific diversion, the pediatric patient shall be transported to the county-designated backup pediatric trauma center, the University of California, San Diego (UCSD).
3. **Pregnant pediatric patient**
   A pediatric pregnant trauma patient shall be transported to UCSD.

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SUBJECT: TREATMENT PROTOCOL
PAIN MANAGEMENT

Date 07/01/2021

BLS	ALS
• Assess level of pain • Ice, immobilize, and splint PRN • Elevation of extremity PRN	• Continue to monitor and reassess pain using standardized pain scores • Document vital signs before and after each medication administration **Special considerations for all pain medications except acetaminophen** 1. Changing route of administration requires BHO (e.g., IV to IM or IM to IN) 2. Changing analgesic requires BHO (e.g., fentanyl to ketamine) 3. Treatment with opioids if SBP <100 mmHg requires BHO 4. BHPO required prior to administration if • Isolated head injury • Acute onset severe headache • Drug/EtOH intoxication • Major trauma with GCS <15 • Suspected active labor **For mild pain (score 1-3), moderate pain (score 4-6), or severe pain (score 7-10)** No severe hepatic impairment, active liver disease or, refusal of opioids • Acetaminophen 1000 mg IV over 15 min SO **For moderate pain (score 4-6), severe pain (score 7-10)*** Fentanyl (IV dosing) • Up to 100 mcg IV SO • MR up to 50 mcg IV q5 min x2 SO • Maximum total SO dose 200 mcg IV Fentanyl (IN dosing) • Up to 50 mcg IN q15 min x2 SO • 3rd dose fentanyl 50 mcg IN BHO **If fentanyl unavailable** Morphine (IV dosing) • Up to 0.1 mg/kg IV SO • MR in 5 min at half initial IV dose SO • MR in additional 5 min at half initial IV dose BHO Morphine (IM dosing) • Up to 0.1 mg/kg IM SO • MR in 15 min at half initial IM dose SO • MR in additional 15 min at half initial IM dose BHO

	For moderate to severe pain (score ≥5) with trauma, burns, or envenomation injuries Ketamine requirements (must meet all) • ≥15 years old • GCS of 15 • Not pregnant • No known or suspected alcohol or drug intoxication <u>Ketamine (IV dosing)</u> • 0.2 mg/kg in 100 mL of NS slow IV drip over 15 min SO. Maximum for any IV dose is 20 mg. • MR x 1 in 15 min if pain remains **moderate** or **severe** SO <u>Ketamine (IN dosing)</u> • 0.5 mg/kg IN (50 mg/mL concentration) SO. Maximum for any IN dose is 50 mg. • MR x 1 in 15 min if pain remains **moderate** or **severe** SO

*****Also applies to patients with mild pain (score 1-3) who refuse or have contraindications to acetaminophen and ketamine

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SUBJECT: **TREATMENT PROTOCOL**
PSYCHIATRIC / BEHAVIORAL EMERGENCIES

Date 07/01/2021

BLS	ALS
• Ensure patent airway, O_2 and/or ventilate PRN • O_2 saturation PRN • Treat life-threatening injuries • Ask patient: "Do you have any weapons?" • Attempt to determine if behavior is related to injury, illness, or drug use • Restrain only if necessary to prevent injury • Document distal neurovascular status q15 min, if restrained • Avoid unnecessary sirens • Consider law enforcement support and/or evaluation of patient • Law enforcement or EMS may remove Taser* barbs	• Monitor/EKG • IV SO adjust PRN • Capnography SO PRN **Severely agitated and/or combative patient requiring restraint for patient or provider safety** • Midazolam† 5 mg IM/IN/IV SO, MR x1 in 10 min SO If midazolam administered, as soon as able • Monitor/EKG/capnography • O_2 SO • Ventilate PRN SO • 500 mL fluid bolus IV/IO SO PRN, MR x1 SO, MR BHO

***Taser barb considerations**

- Taser discharge for simple behavioral control is usually benign and does not require transport to BEF for evaluation
- Patients who are injured; appear to be under the influence of drugs; or present with altered mental status or symptoms of illness should have medical evaluation performed by EMS personnel before being transported to BEF
- If barbs are impaled in anatomically sensitive location such as eye, face, neck, finger/hand, or genitalia, do not remove the barb. Transport patient to BEF.

†For severely agitated or combative patients, IN or IM midazolam is the preferred route to decrease risk of injury to the patient and personnel.
Alert: Co-administration of midazolam in patients with alcohol intoxication can cause respiratory depression. Consider avoiding or reducing midazolam dose.

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SUBJECT: TREATMENT PROTOCOL
SEPSIS

Date 07/01/2021

BLS

- O_2 saturation PRN
- O_2 and/or ventilate PRN
- NPO, anticipate vomiting
- Remove transdermal patch SO, if present
- Obtain baseline temperature

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO

Suspected sepsis
If history **suggestive of infection** and two or more of the following are present, suspect sepsis and report to BH and upon transfer of care at receiving hospital

1. Temperature ≥100.4 °F (38.0 °C) or <96.8 °F (36.0 °C)
2. HR ≥90
3. RR ≥20
4. $EtCO_2$ <25 mmHg

- 500 mL fluid bolus regardless of initial BP or lung sounds IV/IO SO
- If BP <90 after initial fluid bolus, give second 500 mL fluid bolus regardless of lung sounds SO

If BP refractory to fluid boluses

- Push-dose epinephrine 1:100,000 (0.01 mg/mL) 1 mL IV/IO BHO, MR q3 min, titrate to SBP ≥90 mmHg BHO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

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SUBJECT: TREATMENT PROTOCOL
STROKE AND TRANSIENT ISCHEMIC ATTACK

Date 07/01/2021

BLS	ALS
For patients with symptoms suggestive of TIA or stroke with onset of symptoms known to be <24 hours in duration • Maintain O_2 saturation ≥94% • Keep head of bed (HOB) at 15° elevation. If SBP <120 mmHg and patient tolerates, place HOB flat. • Expedite transport • Make BH initial notification early to confirm destination • Notify accepting Stroke Receiving Center of potential stroke code patient en route • Provide list of all current medications, especially anticoagulants, upon arrival to Emergency Department **Important signs/symptoms to recognize, report, and document** Use *BE FAST* Prehospital Stroke Scale in assessment of possible TIA or stroke patients **B** = **B**alance: Unsteadiness, ataxia **E** = **E**yes: Blurred/double or loss of vision, asymmetric pupils **F** = **F**ace: Unilateral face droop **A** = **A**rms and/or legs: Unilateral weakness exhibited by a drift or drop, numbness/tingling **S** = **S**peech: Slurred, inability to find words, absent **T** = **T**ime: Accurate Last Known Well time • Sudden severe headache with no known cause • Get specific **Last Known Well** time in military time (hours: minutes) **Bring witness to ED to verify time of symptom onset and provide consent for interventions. If witness unable to ride in ambulance, obtain accurate contact phone number.** **Obtain blood glucose. If blood glucose <60 mg/dL, treat for hypoglycemia.** • If patient is awake and able to swallow, give 3 oral glucose tabs or paste (15 gm total) • Patient may eat or drink, if able • If patient is unconscious, NPO	• IV SO (large-bore antecubital site preferred) • 250 mL fluid bolus IV/IO to maintain BP ≥120 mmHg if no rales SO, MR SO

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
AIRWAY OBSTRUCTION

Date 07/01/2021

BLS	ALS
For conscious patient • Reassure, encourage coughing • O_2 PRN **For inadequate air exchange** Airway maneuvers (AHA) • Abdominal thrusts • For obese or pregnant patients, perform chest thrusts • For infants <1 year, perform 5 back blows and 5 chest thrusts, MR PRN **If patient found or becomes unconscious** • Begin CPR **Once obstruction is removed** • Ventilate with high-flow O_2 PRN • O_2 saturation **If suspected epiglottitis** • Place patient in sitting position • Do not visualize the oropharynx **Treat per Respiratory Distress Protocol (S-167)**	**If patient becomes unconscious or has a decreasing LOC** • Direct laryngoscopy and Magill forceps SO, MR PRN • Capnography SO PRN **Once obstruction is removed** • Monitor/EKG • IV/IO SO

Note: If unable to ventilate effectively, transport immediately while continuing CPR (unconscious patient)

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
ALTERED NEUROLOGIC FUNCTION (NON-TRAUMATIC)

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation, O_2 and/or ventilate PRN
- Spinal motion restriction PRN
- Position on affected side, if difficulty managing secretions
- Do not allow patient to walk
- Restrain PRN
- Monitor blood glucose SO

Symptomatic suspected opioid OD with RR low for age. Use with caution in opioid-dependent, pain-management patients.✪
Patients <35 kg (77 lbs)
- Ventilate PRN
- Call for ALS

Patients ≥35 kg
- Naloxone 4 mg via nasal spray preloaded single-dose device. Administer full dose in one nostril.
  OR
- Naloxone 2 mg via atomizer and syringe. Administer 1 mg into each nostril.

EMTs may assist family or friend to medicate with patient's prescribed naloxone in **symptomatic suspected opioid OD**

Suspected hypoglycemia or patient's blood sugar is <60 mg/dL (<45 mg/dL for neonates)
- If patient is awake and able to manage oral secretions, give oral glucose paste or 3 tablets (15 gm total)
- Patient may eat or drink, if able
- If patient is unconscious, NPO

Stroke/TIA
- Treat per Adult Stroke and Transient Ischemic Attack (S-144)
- Pediatric patients presenting with stroke symptoms should be transported to Rady Children's Hospital

Seizures
- Protect airway and protect from injury
- Treat associated injuries
- If febrile, remove excess clothing/covering

ALS

- Monitor/EKG
- Capnography SO PRN
- IV SO

Symptomatic suspected opioid OD with respiratory depression (RR low for age, SpO_2<96%, or $EtCO_2$ ≥40 mmHg).
- Naloxone per drug chart IN/IV/IM SO, MR SO
- For opioid-dependent patients, dilute and titrate slowly per drug chart

Symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents
- D_{10} per drug chart IV SO if BS <60 mg/dL (<45 mg/dL for neonate)
- If patient remains symptomatic and BS remains <60 mg/dL (<45 mg/dL for neonate), MR SO
- If no IV, glucagon per drug chart IM SO if BS <60 mg/dL (<45 mg/dL for neonate)

Status epilepticus (generalized, ongoing, and recurrent seizures without lucid interval)
- Midazolam IM per drug chart SO

Partial seizure lasting ≥5 min (includes seizure time prior to arrival of prehospital provider)
- Midazolam IN/IM/IV/IO per drug chart SO, MR x1 in 10 min SO

Eclamptic seizure of any duration
- Treat per Adult Obstetrical Emergencies / Newborn Deliveries (S-133)

✪Authorized by County of San Diego EMS Medical Director for public safety personnel per Title 22, Chapter 1.5, § 100019

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
ALLERGIC REACTION / ANAPHYLAXIS

Date 07/01/2021

BLS

- Ensure patent airway
- O_2 saturation PRN
- O_2 and/or ventilate PRN
- Attempt to identify allergen and route (injected, ingested, absorbed, or inhaled)
- Safely remove allergen (e.g., stinger, injection mechanism), if possible
- Epinephrine auto-injector
  - Patient 15 to 33 kg (33 to 73 lbs), 0.15 mg IM x1
  - Patient ≥33 kg (≥73 lbs), 0.3 mg IM x1
- May assist patient to self-medicate own prescribed epinephrine auto-injector or albuterol MDI **once only**. BH contact required for additional dose(s).

Assess for hypotension

- <1 month: SBP <60 mmHg
- 1 month – 1 year: SBP <70 mmHg
- 1 year – 10 years:
  SBP <70 mmHg + (2x age in years)
- >10 years: SBP <90 mmHg

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO PRN

Allergic reactions (skin signs only)

- Urticaria (hives, rash)
- Erythema (flushing)
- Pruritus (itching)

- Diphenhydramine per drug chart IV/IM SO

Suspected anaphylactic reactions

- Respiratory: throat tightness, hoarse voice, wheezing/stridor, cough, SOB
- Cardiovascular: fainting, dizziness, tachycardia, low BP
- GI: nausea, vomiting, abdominal cramping
- Tissues: angioedema of eyelids, lips, tongue, face

Anaphylaxis treatment

- Epinephrine 1:1,000 (1 mg/mL) per drug chart IM (lateral thigh) SO, MR x2 q5 min SO **then**
- Diphenhydramine per drug chart IV/IM SO

Anaphylaxis with respiratory involvement

- Albuterol per drug chart via nebulizer* SO, MR SO
- Ipratropium bromide per drug chart via nebulizer† added to first dose of albuterol SO

Anaphylaxis with hypotension for age

- Fluid bolus IV/IO per drug chart SO to maintain adequate perfusion. MR SO.
- Push-dose epinephrine 1:100,000 (0.01 mg/mL) per drug chart IV/IO BHO, MR q3 min, titrate to maintain adequate perfusion BHO.

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

*__Infection control:__ If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

†__Infection control:__ If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
CPR / ARRHYTHMIAS

Date 07/01/2021

BLS

- Compression rate 100-120/min
- Ventilation rate (compression-to-ventilation ratio)
  - Neonate: 20-30/min (3:1)
  - Pediatric: 10-12/min (15:2)*
- Use metronome or other real-time audiovisual feedback device
- Rotate compressor at least every 2 min
- Use mechanical compression device, if size-appropriate available
- O_2 and/or ventilate with BVM
- Monitor O_2 saturation
- Apply AED during CPR and analyze as soon as ready

VAD
- Perform CPR
- Contact BH for additional instructions

TAH
- Contact BH for instructions

ALS

- Apply defibrillator pads during CPR. Defibrillate immediately for VF/pulseless VT.
- IV/IO SO
- Capnography SO PRN with waveform and value
- NG/OG tube PRN SO

Team leader priorities
- Monitor CPR quality, rate, depth, full chest recoil, and capnography value and waveform
- Minimize interruption of compressions (<5 sec) during EKG rhythm checks
- Charge monitor prior to rhythm checks. Do not interrupt CPR while charging.

VAD/TAH
- See Adjunct Cardiac Devices section

Capnography
- If $EtCO_2$ rises rapidly during CPR, pause CPR and check for pulse

Specific protocols (see below)
- Arrhythmias
  - Unstable bradycardia
  - Supraventricular tachycardia
  - Ventricular tachycardia
  - Ventricular fibrillation / pulseless VT
  - Pulseless electrical activity / asystole
- Return of Spontaneous Circulation
- Adjunct Cardiac Devices

*Continuous compressions are an acceptable alternative for pediatric CPR

UNSTABLE‡ BRADYCARDIA

- Obtain 12-lead EKG, when able

Infant/child (<9 years) with HR <60 BPM
OR
Child (9-14 years) with HR <40 BPM

- Ventilate with BVM

If no increase in HR after 30 sec of BVM ventilations

- Begin CPR
- Epinephrine 1:10,000 per drug chart IV/IO SO, MR x2 q3-5 minutes SO. MR q3-5 minutes BHO.
- After 3 doses of epinephrine
  - Atropine per drug chart IV/IO SO, MR x1 in 5 min SO
- Consider midazolam per drug chart IV/IO PRN pre-pacing BHO
- Consider cardiac pacing BHO

‡Exhibiting any of the following signs of inadequate perfusion, e.g.,

- Altered mental status (decreased LOC, confusion, agitation)
- Pallor, mottling, or cyanosis
- Diaphoresis
- Difference in peripheral vs. central pulses
- Delayed capillary refill
- Hypotension by age
  - <1 month: SBP <60 mmHg
  - 1 month – 1 year: SBP <70 mmHg
  - 1 year – 10 years: SBP <70 mmHg + (2x age in years)
  - >10 years: SBP <90 mmHg

SUPRAVENTRICULAR TACHYCARDIA

- Obtain 12-lead EKG

Infant/child (<4 years) with HR ≥220 BPM
OR
Child (≥4 years) with HR ≥180 BPM

Stable (symptomatic)
- Consider VSM SO
- Fluid bolus per drug chart IV/IO SO
- Adenosine per drug chart rapid IV/IO, followed with 20 mL NS rapid IV/IO SO, MR x2 SO

Unstable‡ (or refractory to treatment)
- Consider midazolam per drug chart IV/IO pre-cardioversion BHPO
- Synchronized cardioversion at manufacturer's recommended energy dose BHPO, MR x2 BHPO
  - If no manufacturer recommendation, synchronized cardioversion per drug chart BHPO, MR x2 BHPO

‡Exhibiting any of the following signs of inadequate perfusion, e.g.,
- Altered mental status (decreased LOC, confusion, agitation)
- Pallor, mottling, or cyanosis
- Diaphoresis
- Difference in peripheral vs. central pulses
- Delayed capillary refill
- Hypotension by age
  - <1 month: SBP <60 mmHg
  - 1 month – 1 year: SBP <70 mmHg
  - 1 year – 10 years: SBP <70 mmHg + (2x age in years)
  - >10 years: SBP <90 mmHg

VENTRICULAR TACHYCARDIA

- Obtain 12-lead EKG

Stable

- Fluid boluses per drug chart IV/IO to maintain SBP appropriate for age SO
- Amiodarone per drug chart BHPO
  OR
- Lidocaine per drug chart BHPO

Unstable‡

- Consider midazolam per drug chart IV/IO pre-cardioversion BHO
- Synchronized cardioversion at manufacturer's recommended energy dose BHPO, MR x2 BHPO
  - If no manufacturer recommendation, synchronized cardioversion per drug chart BHPO, MR x2 BHPO
- After successful cardioversion
  - Check BP. If hypotensive for age§ and rales not present, fluid bolus per drug chart IV/IO SO, MR SO.
  - Obtain 12-lead EKG

‡Exhibiting any of the following signs of inadequate perfusion, e.g.,

- Altered mental status (decreased LOC, confusion, agitation)
- Pallor, mottling, or cyanosis
- Diaphoresis
- Difference in peripheral vs. central pulses
- Delayed capillary refill
- §Hypotension by age
  - <1 month: SBP <60 mmHg
  - 1 month – 1 year: SBP <70 mmHg
  - 1 year – 10 years: SBP <70 mmHg + (2x age in years)
  - >10 years: SBP <90 mmHg

VENTRICULAR FIBRILLATION / PULSELESS VT

- CPR
- Defibrillate as soon as monitor available/charged
- Defibrillate q2 min while VF/VT persists
- Epinephrine 1:10,000 per drug chart IV/IO q3-5 min SO

Persistent VF/VT after 3 defibrillation attempts

- Amiodarone per drug chart IV/IO, MR per drug chart x2 SO
  OR
- Lidocaine per drug chart IV/IO SO, MR per drug chart IV/IO q5 min SO
- If VF/VT persists after 2 antiarrhythmic doses, contact BH for direction

PULSELESS ELECTRICAL ACTIVITY / ASYSTOLE

- CPR
- Epinephrine 1:10,000 per drug chart IV/IO q3-5 min SO

Suspected hyperkalemia
- $CaCl_2$ per drug chart IV/IO SO
- $NaHCO_3$ per drug chart IV/IO BHO

Suspected hypovolemia
- Fluid bolus per drug chart IV/IO, MR x2 SO

Suspected poisoning / OD
- Consider treatment per Poisoning / Overdose Protocol (S-165) BHO

Prolonged asystole / PEA
- After $\geq$20 min, contact BH physician for direction

RETURN OF SPONTANEOUS CIRCULATION

- Ventilate PRN (goal of $EtCO_2$ = 40 mmHg)
- Obtain BP
  - If hypotensive[§] and rales not present, fluid bolus per drug chart IV/IO SO, MR SO
    - If unresponsive to fluid boluses, push-dose epinephrine 1:100,000 (0.01 mg/mL) per drug chart IV/IO BHPO, MR q3 min BHPO
- Obtain 12-lead EKG
- Provide cardiac monitor data to agency QA/QI department

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

[§]Hypotension by age

- <1 month: SBP <60 mmHg
- 1 month – 1 year: SBP <70 mmHg
- 1 year – 10 years: SBP <70 mmHg + (2x age in years)
- >10 years: SBP <90 mmHg

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Number **S-164**
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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
ENVENOMATION INJURIES

Date **07/01/2021**

BLS	ALS
• O_2 and/or ventilate PRN • If antivenin available on site, transport with patient to hospital **Jellyfish sting** • Liberally rinse with seawater • Scrape to remove stinger(s) • Heat as tolerated (not to exceed 110 °F / 43 °C) **Stingray or sculpin injury** • Immersion in hot water (as hot as tolerated, not to exceed 110 °F / 43 °C) **Snakebite** • Mark proximal extent of swelling and/or tenderness • Keep involved extremity at heart level and immobile • Remove constrictive device(s) • Remove jewelry distal to bite	• IV SO • Treat per Pain Management Protocol (S-173)

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SUBJECT: PEDIATRIC REATMENT PROTOCOL
POISONING / OVERDOSE

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • Carboxyhemoglobin monitor PRN, if available **Ingestions** • Identify substance • Transport pill bottles and containers with patient PRN **Skin contamination*** • Remove clothes • Brush off dry chemicals • Flush with copious water **Toxic inhalation (e.g., CO exposure, smoke, gas)** • Move patient to safe environment • 100% O_2 via mask • Consider transport to facility with hyperbaric chamber for suspected CO poisoning, particularly in unconscious or pregnant patients **Symptomatic suspected opioid OD with RR low for age. Use with caution in opioid-dependent, pain-management patients.✪** Patients <35 kg (77 lbs) • Ventilate PRN • Call for ALS Patients ≥35 kg • Naloxone 4 mg via nasal spray preloaded single-dose device. Administer full dose in one nostril **OR** • Naloxone 2 mg via atomizer and syringe. Administer 1 mg into each nostril. EMTs may assist family or friend to medicate with patient's prescribed naloxone in **symptomatic suspected opioid OD**	• Monitor/EKG • IV/IO SO • Capnography SO prn **Ingestions** • Assure patient has gag reflex and is cooperative • Charcoal per drug chart PO if ingestion within 60 minutes and recommended by Poison Center SO • In oral hypoglycemic agent ingestion, any change in mentation requires blood glucose check or recheck SO **Symptomatic suspected opioid OD with respiratory depression (RR low for age, SpO_2<96%, or $EtCO_2$ ≥40 mmHg)** • Naloxone per drug chart IN/IV/IM SO, MR SO • In opioid-dependent patients, dilute and titrate slowly per drug chart **Symptomatic organophosphate poisoning** • Atropine per drug chart IV/IM/IO SO, MR x2 q3-5 min SO. MR q3-5 min PRN BHO. **Extrapyramidal reactions** • Diphenhydramine per drug chart slow IV/IM SO **Suspected tricyclic antidepressant OD with cardiac effects (e.g., hypotension, heart block, or widened QRS)** • $NaHCO_3$ per drug chart IV x1 BHO

*For radioactive material, treatment of traumatic injuries takes precedence over decontamination

✪Authorized by County of San Diego EMS Medical Director for public safety personnel per Title 22, Chapter 1.5, § 100019

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
NEWBORN DELIVERIES

Date 07/01/2021

PREDELIVERY	
BLS	**ALS**
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • If no time for transport and delivery is imminent (crowning and pushing), proceed with delivery • If no delivery, transport on left side • Keep mother warm **Third-trimester bleeding** • Transport immediately to facility with obstetrical services per BH direction **Eclampsia (seizures)** • Protect airway • Protect from injury	• Monitor/EKG • IV SO • Capnography SO PRN **Direct to labor/delivery area BHO if ≥20 weeks gestation** **Eclampsia (seizures)** • Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

DELIVERY
BLS and ALS
Routine delivery • If placenta delivered, massage fundus. Do not wait on scene. • Wait 60 sec after delivery, then clamp and cut cord between clamps • Document name of person cutting cord, time cut, and delivery location (address) • Place identification bands on mother and newborn(s) • Complete Out of Hospital Birth Report Form (S-166A) and provide to parent **Difficult deliveries** • High-flow O_2 • Keep mother warm **Nuchal cord (cord wrapped around neck)** • Slip cord over the head and off neck • Clamp and cut cord, if wrapped too tightly **Prolapsed cord** • Place mother with her hips elevated on pillows • Insert a gloved hand into vagina and gently push presenting part off cord • Transport immediately while retaining this position. Do not remove hand until relieved by hospital personnel. • Cover exposed cord with saline-soaked gauze

Shoulder dystocia
- Hyperflex mother's knees to her chest

Breech birth (arm or single foot visible)
- Rapid transport

Frank breech or double footling and imminent delivery with long transport
- Allow newborn to deliver to the waist without active assistance (support only)
- When legs and buttocks are delivered, assist head out keeping body parallel to the ground. If head does not deliver within 1-2 min, insert gloved hand into the vagina to create airway for newborn.
- Transport immediately if head undelivered

Eclampsia (seizures)
- Protect airway, and protect from injury
- **ALS:** Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

MOTHER POST-DELIVERY

BLS	ALS
Post-partum hemorrhage • Massage fundus vigorously • Baby to breast • High-flow O_2 • Keep mother warm **Eclampsia (seizures)** • Protect airway • Protect from injury	**Post-partum hemorrhage** • Monitor/EKG • Capnography **Post-partum hemorrhage with SBP <90 mmHg** • 500 mL fluid bolus IV/IO PRN SO, MR x2 q10 min SO **Eclampsia (seizures)** • Midazolam IN/IM/IV/IO SO to a max dose of 5 mg (d/c if seizure stops) SO, MR x1 in 10 min SO. Max 10 mg total.

NEONATAL POST-DELIVERY

BLS and ALS

Warm, dry, and stimulate newborn
- Wrap newborn in warm, dry blanket. Keep head warm.
- Assess breathing, tone, and HR. Palpate HR via umbilical cord.
- If placing pulse oximeter, use newborn's right hand
- APGAR at 1 and 5 min (do not delay resuscitation to obtain score)
- Confirm identification bands placed on mother and newborns(s)
- Bring mother and newborn(s) to same hospital
- Complete Out of Hospital Birth Report Form (S-166A) and provide to parent

Full-term newborn with good tone and breathing
- Keep newborn warm
- Ensure patent airway

- If excessive secretions, suction mouth then nose with bulb syringe
- O_2 saturation on newborn's right hand PRN
- Baby to breast
- Ongoing assessment q30 sec

Newborn HR ≥100 without respiratory distress or central cyanosis

- Blow-by O_2

Newborn HR <100, poor respiratory effort or persistent central cyanosis

- Ventilate with BVM on room air
- Monitor/EKG
- Recheck pulse q30 sec
- For persistently poor respiratory rate/effort, or cyanosis despite correct BVM technique, add high-flow O_2 15 L/min to BVM
- **Stop BVM when patient breathing well and HR ≥100**
- **ALS**: IV/IO SO (do not delay transport)
- **ALS**: NG tube PRN SO

Newborn HR <60 after BVM on high-flow O_2 for 30 sec

- Continue BVM with O_2
- Chest compressions at rate of 120/min
- 3:1 compression to ventilation ratio
- Check pulse q2 min
- Stop compressions when HR ≥60
- If HR remains <60 after 90 sec of ventilation, increase to BVM 100% O_2 and continue compressions
- **ALS**: Push-dose epinephrine 1:100,000 (0.01 mg/mL) per drug chart IV/IO BHO, MR q3 min, titrate to maintain adequate perfusion BHO

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

- **ALS:** Fluid bolus per drug chart IV/IO SO, MR x 1 in 10 min SO

Premature and/or low birth weight newborn

- If amniotic sac intact, remove neonate from sac after delivery
- Place neonate in plastic bag up to axilla to minimize heat loss
- Transport immediately
- CPR need **not** be initiated if there are no signs of life **and** gestational age <24 weeks

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
NEWBORN DELIVERIES

Date: 07/01/2019

Out of Hospital Birth Report

Name of Mother		
Date and Time of Delivery	**Address of Delivery**	
Date: Time:	Street: City:	
Name		***If person who cut the umbilical cord/delivered placenta is an EMT or Paramedic fill out below info:**
Person who cut umbilical cord*: First Name: Last Name:		Certification/ License #: Agency: Agency Phone #: Signature:
Person who delivered placenta (if delivered)*: First Name: Last Name:		Certification/ License #: Agency: Agency Phone #: Signature:
Weight and Apgar Scores (if taken)		**CAD Incident #:**
Weight:	APGAR Score:	

KEEP THIS FORM – It will be required when you visit the Office of

Vital Records.

Failure to register a child's birth in a timely manner could prohibit parents from obtaining a social security card, passport, medical insurance, and cash aid.

For more information on required documents and fees, search "out of hospital births" on the County web site: www.sandiegocounty.gov

Por Favor de mantener esta forma - Esta requerida cuando llegue a su visita con la Oficina de Vital Records.

Fracaso de no registrar el nacimiento de su niño a tiempo, se podrá prohibir de obtener el número del seguro social, pasaporté, seguro medica, y ayuda financiera.

Para información sobre documentos requeridos y el costo, por favor buscar, solo en inglés, "out of hospital births" en el sitio del Condado: www.sandiegocounty.gov

COUNTY OF SAN DIEGO
HHSA
HEALTH AND HUMAN SERVICES AGENCY

County of San Diego
Health and Human Services Agency
Office of Vital Records
3851 Rosecrans Street, Suite 802
San Diego, CA 92110
619-692-5733

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
RESPIRATORY DISTRESS

Date 07/01/2021

BLS	ALS
• Ensure patent airway • Reassurance • Dislodge any airway obstruction. Treat per Airway Obstruction Protocol (S-160). • O_2 saturation • O_2 and/or ventilate PRN • Transport in position of comfort • Carboxyhemoglobin monitor PRN, if available • May assist patient to self-medicate own prescribed albuterol MDI **once only**. BH contact required for additional dose(s). **Toxic inhalation (e.g., CO exposure, smoke, gas)** • Move patient to safe environment • 100% O_2 via mask • Consider transport to facility with hyperbaric chamber for suspected CO poisoning for unconscious or pregnant patients **Croup-like cough** • Aerosolized saline or water 5 mL via O_2-powered nebulizer/mask, MR PRN **Suspected bronchiolitis (<2 years old with no prior albuterol use)** • Place in position of comfort • Suction nose with bulb syringe PRN	• Monitor/EKG • Capnography SO PRN • IV SO • BVM PRN **Respiratory distress with bronchospasm** • Albuterol per drug chart via nebulizer* SO, MR SO • Ipratropium bromide per drug chart via nebulizer† added to first dose of albuterol SO **Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide consider** • Epinephrine 1:1,000 per drug chart IM SO, MR x2 q5 min SO **Respiratory distress with stridor at rest** • Epinephrine 1:1,000 per drug chart (combined with 3 mL normal saline) via nebulizer, MR x1 SO **No improvement after epinephrine via nebulizer x2 or impending respiratory/airway compromise** • Epinephrine 1:1,000 per drug chart IM SO, MR x2 q5 min SO **If history suggests epiglottitis, do not visualize airway. Use calming measures.**

***Infection control:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

†**Infection control:** If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
SHOCK

Date 07/01/2021

BLS

- O_2 saturation
- O_2 and/or ventilate PRN
- Control obvious external bleeding
- Treat associated injuries
- NPO, anticipate vomiting
- Remove transdermal patch
- Keep patient warm

Assess for hypotension

- <1 month: SBP <60 mmHg
- 1 month – 1 year: SBP <70 mmHg
- 1 year – 10 years:
  SBP <70 mmHg + (2x age in years)
- >10 years: SBP <90 mmHg

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO PRN

Hypovolemic shock

- IV/IO fluid bolus per drug chart SO, MR SO if no rales

Neurogenic/cardiogenic/anaphylactic shock

- IV/IO fluid bolus per drug chart SO, MR SO if no rales

Hypotensive for age after second fluid bolus

- Push-dose epinephrine 1:100,000 (0.01 mg/mL) IV/IO per drug chart BHO, MR q3 min BHO, titrate until adequate perfusion

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
TRAUMA

Date 07/01/2021

BLS	ALS
• Ensure patent airway • Protect C-spine • Control obvious bleeding • Spinal motion restriction per Skills List (S-104) except in penetrating trauma without neurological deficits • O_2 saturation. Maintain SpO_2 ≥90%. • O_2 and/or ventilate PRN • Keep warm • Hemostatic gauze **Abdominal trauma** • Cover eviscerated bowel with saline pads **Chest trauma** • Cover open chest wound with three-sided occlusive dressing. Release dressing if tension pneumothorax develops. • Chest seal PRN **Extremity trauma** • Splint neurologically stable fractures in position as presented. Traction splint PRN. • Reduce grossly angulated long bone fractures with no pulse or sensation PRN BHO • Direct pressure to control external hemorrhage • Apply gauze or hemostatic dressing PRN • Tourniquet PRN • In MCI, direct pressure not required prior to tourniquet application **Impaled objects** • Immobilize and leave impaled objects in place • Remove object impaled in face, cheek, or neck if there is total airway obstruction SO **Any suspicion of neurological injury (mechanism, GCS, examination)** • High-flow O_2 PRN • Monitor SpO_2, BP, and HR q3-5 min • If SpO_2 <90% **or** inadequate respirations (despite high-flow O_2), assist ventilations with BVM	• Monitor/EKG • IV/IO SO • Capnography SO. Maintain $EtCO_2$ 35-45 mmHg SO PRN. • Treat pain per Pain Management Protocol (S-173) **Signs of shock or hypotensive for age** • Fluid bolus IV/IO SO per drug chart, MR x3 q15 min to maintain adequate perfusion **Crush injury with compression of extremity or torso ≥2 hours** Just prior to extremity being released • IV/IO fluid bolus per drug chart • $NaHCO_3$ IV/IO per drug chart SO **Grossly angulated long bone fractures** • Reduce with gentle unidirectional traction for splinting SO **Severe respiratory distress with unilateral diminished breath sounds and hypotensive for age** • Needle thoracostomy SO

Pregnancy ≥6 months • If spinal motion restriction indicated, tilt patient to the left 30° **Traumatic cardiac arrest** • Rapid transport • For blunt trauma, may consider pronouncement at scene BHPO	

Hypotension by age

- <1 month: SBP <60 mmHg
- 1 month – 1 year: SBP <70 mmHg
- 1 year – 10 years: SBP <70 mmHg + (2x age in years)
- >10 years: SBP <90 mmHg

Transportation and Destination Guidelines

Pediatric patients who meet criteria outlined in T-460 (Identification of the Pediatric Trauma Center Patient) should be transported to the Designated Pediatric Trauma Center, **except** in the following situations.

1. **Adult with child**
   a. If there is a single ambulance (air/ground) with both a pediatric trauma center patient **and** an adult trauma center patient, the ambulance should first transport the more critical patient to the appropriate facility. If both patients are critical, or if there are other questions, both may be transported to the designated adult trauma center.
   b. Field personnel should consider splitting the team using additional ALS transport vehicles, or aeromedical resources to transport the pediatric patient to the pediatric trauma facility and the adult patient to the catchment area trauma facility.
2. **Trauma center diversion**
   The pediatric patient who is identified as a trauma patient shall be transported to the designated pediatric trauma center. When the pediatric trauma center is on diversion, including age-specific diversion, the pediatric patient shall be transported to the county-designated backup pediatric trauma center, the University of California, San Diego (UCSD).
3. **Pregnant pediatric patient**
   A pediatric pregnant trauma patient shall be transported to UCSD.

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
BURNS

Date 07/01/2021

BLS	ALS
• Move to a safe environment • Break contact with causative agent • Ensure patent airway, O_2, and/or ventilate PRN • O_2 saturation PRN • Treat other life-threatening injuries • Carboxyhemoglobin monitor PRN, if available **Thermal burns** • For burns of <10% BSA, stop burning with non-chilled water or saline • For burns of ≥10% BSA, cover with dry dressing and keep patient warm • Do not allow patient to become hypothermic **Toxic inhalation (e.g., CO exposure, smoke, gas)** • Move patient to safe environment • 100% O_2 via mask • Consider transport to facility with hyperbaric chamber for suspected CO poisoning, particularly in unconscious or pregnant patients **Chemical burns** • Brush off dry chemicals • Flush with copious amounts of water **Tar burns** • Do not remove tar • Cool with water, then transport	• Monitor/EKG • IV/IO SO • Capnography SO PRN • Treat pain per Pain Management Protocol (S-173) **Patients with >10% partial-thickness or >5% full-thickness burns** • Fluid bolus IV/IO per drug chart SO then TKO SO **Respiratory distress with bronchospasm** • Albuterol per drug chart via nebulizer* SO, MR SO **Respiratory distress with stridor** • Epinephrine 1:1,000 per drug chart (combined with 3 mL normal saline) via nebulizer SO, MR x1 SO If not improved after epinephrine via nebulizer x2 **or** impending airway compromise • Epinephrine 1:1,000 per drug chart IM SO, MR x2 q5 minutes SO

***Infection control:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available

Contact UCSD Base Hospital for patients meeting burn center criteria†
See Base Hospital Contact/Patient Transportation and Report (S-415)

†Burn center criteria
Patients with burns involving
- >10% BSA partial thickness or >5% BSA full thickness
- Suspected respiratory involvement or significant smoke inhalation
- Circumferential burn injury or injury to face, hands, feet, or perineum
- Electrical injury due to high voltage (>120 volts)

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
BRUE (BRIEF, RESOLVED, UNEXPLAINED EVENT)

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation • O_2 and/or ventilate PRN • Monitor blood glucose SO **Suspected hypoglycemia or patient's blood sugar is <60 mg/dL (<45 mg/dL for neonates)** • If patient is awake and able to manage oral secretions, give oral glucose paste or 3 tablets (15 gm total) • Patient may eat or drink, if able • If patient is unconscious, NPO **BLS transport for currently asymptomatic patient with history of 1 or more of the following** • Absent, decreased, or irregular breathing • Color change (cyanosis, pallor) • Marked change in muscle tone (hypertonia or hypotonia) • Altered level of responsiveness	• Monitor/EKG • IV SO PRN **ALS transport for symptomatic patient**

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
PAIN MANAGEMENT

Date 07/01/2021

BLS	ALS
• Assess level of pain • Ice, immobilize, and splint PRN • Elevate extremity trauma PRN	• Continue to monitor and reassess pain as appropriate **Treatment PRN if signs of adequate perfusion** • <10 kg, fentanyl IV/IN per drug chart BHO, MR BHO • ≥10 kg, fentanyl IV/IN per drug chart SO, MR BHO • If fentanyl unavailable, morphine IV/IM per drug chart SO, MR BHO • Acetaminophen* IV per drug chart SO x1, infuse over 15 min **Special considerations** 1. Changing route of administration requires BHO (e.g., IV to IM or IN to IV) 2. Changing type of opioid analgesic while treating patient requires BHO (e.g., changing from morphine to fentanyl) 3. BHPO required for treatment if patient presents with • Isolated head injury • Acute onset severe headache • Drug/EtOH intoxication • Multiple trauma with GCS <15 • Suspected active labor

*IV acetaminophen contraindicated if patient <2 years of age

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
ABDOMINAL DISCOMFORT / GI / GU (NON-TRAUMATIC)

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation PRN • NPO	• Monitor/EKG • IV/IO SO • Fluid bolus IV/IO for suspected volume depletion per drug chart SO • Treat pain per Pain Management Protocol (S-173) • Refer to Shock Protocol (S-168) PRN **For nausea or vomiting** ≥6 months and <3 years • Ondansetron ODT/IV/IM per drug chart SO ≥3 years • Ondansetron ODT/IV/IM per drug chart SO **Suspected head injury** • Ondansetron BHPO

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
PSYCHIATRIC / BEHAVIORAL EMERGENCIES

Date 07/01/2021

BLS	ALS
• Ensure patent airway, O_2 and/or ventilate PRN • O_2 saturation PRN • Treat life-threatening injuries • Ask patient: "Do you have any weapons?" • Attempt to determine if behavior is related to injury, illness, or drug use • Restrain only if necessary to prevent injury • Document distal neurovascular status q15 min, if restrained • Avoid unnecessary sirens • Consider law enforcement support • Law enforcement or EMS may remove Taser* barbs	• Monitor/EKG • IV SO adjust PRN • Capnography SO PRN **Severely agitated and/or combative patient requiring restraint for patient or provider safety** Patient ≥8 years • Midazolam† per drug chart IM/IN/IV SO, MR x1 in 10 min SO Patient <8 years • Midazolam† per drug chart IM/IN/IV BHO, MR x1 in 10 min BHO If midazolam administered, as soon as able • Monitor/EKG/capnography • O_2 SO • Ventilate PRN SO • Fluid bolus IV/IO per drug chart SO PRN, MR x1 SO, MR BHO

***Taser barb considerations**

- Taser discharge for simple behavioral control is usually benign and does not require transport to BEF for evaluation
- Patients who are injured; appear to be under the influence of drugs; or present with altered mental status or symptoms of illness should have medical evaluation performed by EMS personnel before being transported to BEF
- If barbs are impaled in anatomically sensitive location such as eye, face, neck, finger/hand, or genitalia, do not remove the barb. Transport patient to BEF.

†For severely agitated or combative patients, IN or IM midazolam is the preferred route to decrease risk of injury to the patient and personnel.
Alert: Co-administration of midazolam in patients with alcohol intoxication can cause respiratory depression. Consider avoiding or reducing midazolam dose.

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SUBJECT: PEDIATRIC TREATMENT PROTOCOL
ENVIRONMENTAL EXPOSURE

Date 07/01/2021

BLS	ALS
• Ensure patent airway • O_2 saturation PRN • O_2 and/or ventilate PRN • Remove excess/wet clothing • Obtain baseline temperature **Heat exhaustion** • Cool gradually • Fan and sponge with tepid water • Avoid shivering • If conscious, give small amounts of fluids **Heat stroke** • Rapid cooling • Spray with cool water and fan • Avoid shivering • Apply ice packs to carotid, inguinal, and axillary regions **Cold exposure** • Gentle warming • Apply blankets, warm packs, and dry dressings • Avoid unnecessary movement or rubbing • If alert, give warm liquids. If altered LOC, NPO. • Prolonged CPR may be indicated **Drowning** • CPR, if cardiac arrest. Emphasize ventilations. • High-flow O_2 if spontaneous respirations • Remove wet clothing • Spinal motion restriction PRN	• Monitor/EKG • IV/IO SO • Capnography SO PRN **Cardiac arrest with hypothermia** • CPR • Persistent VF/VT, defibrillate per S-163* • Epinephrine per drug chart IV/IO x1 SO† • Rewarm **Heat exhaustion/heat stroke** • Fluid bolus IV/IO SO per drug chart, if no rales MR x1 SO

*Defibrillation attempts may be unsuccessful during rewarming until temperature ≥86 °F / ≥30 °C

†Limit epinephrine to 1 dose and withhold antiarrhythmic medications until temperature ≥86 °F / ≥30 °C

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SUBJECT: **PEDIATRIC TREATMENT PROTOCOL**
SEPSIS

Date 07/01/2021

BLS

- O_2 saturation
- O_2 and/or ventilate PRN
- NPO, anticipate vomiting
- If febrile, remove excess clothing
- Obtain temperature

Assess for hypotension

- <1 month: SBP <60 mmHg
- 1 month – 1 year: SBP <70 mmHg
- 1 year – 10 years:
  SBP <70mm Hg + (2x age in years)
- >10 years: SBP <90 mmHg

ALS

- Monitor/EKG
- IV/IO SO
- Capnography SO PRN

Sepsis

Suspect and report if history **suggestive of infection** and two or more of the following are present, suspect sepsis and report to BH and upon transfer of care at receiving hospital

1. Temperature ≥100.4 °F (38.0 °C) or <96.8 °F (36.0 °C)
2. Altered mental status
3. Tachypnea
4. Weak peripheral pulses
5. Delayed capillary refill
6. Hypotension
7. $EtCO_2$ <25 mmHg

- IV/IO fluid bolus per drug chart SO, MR x2 SO if no rales

Hypotensive for age after second fluid bolus

- Push-dose epinephrine 1:100,000 (0.01 mg/mL)
  IV/IO per drug chart BHO, MR q3 min BHO, titrate until adequate perfusion

Push-dose epinephrine mixing instructions

1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe
2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe

The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration.