PROTOCOL CHANGELOG

2024 – 2025 Protocol Updates

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Global Changes

Standing Order (SO) Abbreviation Removed

The "SO" abbreviation was removed throughout the protocols since the majority of treatments are now standing order.

Advanced Emergency Medical Technician (AEMT) Symbol Added

The Ⓐ symbol was added to the ALS section of protocols to indicate what treatments AEMTs can perform.

Section I – Standards / Glossary / Abbreviations

S-100 Protocol Standards

- This protocol was revised to accommodate the sunset of Policy S-408 Variation from San Diego County Protocols for Advanced Life Support on July 1, 2024. The protocol establishes the new standards for prehospital treatment and online medical direction.

S-102 Abbreviation List

- **Previous:** ✪ – Per Title 22, Chapter 1.5, § 100019, public safety personnel may administer when authorized by the County of San Diego EMS Medical Director.
- **Revision:** ✪ – Regulatory Reference
- **Removed:** ETAD – Esophageal Tracheal Airway Device
- **Added:** ECPR – Extracorporeal Cardiopulmonary Resuscitation
- **Added:** EMSA – California Emergency Medical Services Authority
- **Added:** LEMSA – Local Emergency Medical Services Agency
- **Added:** LOSOP – Local Optional Scope of Practice
- **Added:** SGA – Supraglottic Airway
- **Added:** SLUDGE/BBB - Salivation, Lacrimation, Urination, Defecation, Gastric Emesis, Bronchorrhea, Bronchospasm, Bradycardia
- **Added**: Ⓐ – Advanced Emergency Medical Technician (AEMT) Scope of Practice

Section II – Inventory / Medication Lists / PDC / Skills List

S-103 BLS/ALS Ambulance Inventory

- **BLS Requirements – Tourniquet (County-approved type)**
  - **Added:** San Diego County EMS Office approves the Committee for Tactical Combat Casualty Care (CoTCCC) list of recommended tourniquets (limb non-pneumatic/limb pneumatic) *(footnote)*
- **BLS Requirements – Optional Items**
  - **Previous:** Cardiac compression device
  - **Revision:** Automated cardiac compression device (will become a mandatory item for ALS on July 1, 2025)
  - **Removed:** Positive end-expiratory pressure (PEEP) valve (will become a mandatory item on July 1, 2024)
- **BLS Requirements – Optional Items – Hemostatic gauze**
  - **Added:** The active hemostatic agent must be incorporated into the gauze (loose granules or granules delivered in an applicator, or particles sprinkled into the wound, are not authorized). The active hemostatic and must not be exothermic (heat producing) upon contact with the wound. *(footnote)*
- **ALS Requirements – Airway Adjuncts**
  - **Added:** Positive end-expiratory pressure (PEEP) valve
- **ALS Requirements – Replaceable Medications**
  - **Removed:** Amiodarone – 150 mg/3 mL with 100 mL normal saline bag
  - **Rationale:** This medication was removed from replaceable medications and placed into optional items. See Controversies in Prehospital Treatment: What is the Evidence? presentation by Veer Vithalani, MD, FACEP, FACEMS, BHMD, Palomar Medical Center
- **ALS Requirements – Optional Items**
  - **Added:** Amiodarone – 150 mg/3 mL with 100 mL normal saline bag
  - **Added:** Levalbuterol – 1.25 mg/3 mL (adults and pediatrics ≥12 years) and 0.31 mg/3 mL (pediatrics ≥6 and <12 years)
  - **Rationale:** Levalbuterol was added as an optional medication as an alternative to albuterol in the event of a medication shortage
  - **Previous:** Video laryngoscope
  - **Revision:** Video laryngoscope (recording capabilities preferred)
  - **Rationale:** Recording capabilities are preferred and are useful in clinical documentation, quality improvement, and teaching.

S-104 Skills List

- **Added:** table in the header with color codes to indicate the EMS clinician level authorized to perform each skill

Red	Not authorized
Yellow	Authorized by LEMSA Medical Director per 22 CCR § 100063 (b)[L] or by California EMSA-approved LOSOP[S]
Green	Authorized by state regulation and local protocol

- **Added:** EMS Clinician *(column)*
- **Skill *(column)***
  - **Previous:** Cardioversion: synchronized
  - **Revision:** Synchronized cardioversion
  - **Previous:** Defibrillation
  - **Revision:** Manual defibrillation
  - **Previous:** External cardiac pacemaker
  - **Revision:** External cardiac pacing
  - **Previous:** Removal of impaled object
  - **Revision:** Removal of impaled object obstructing airway
- **12-lead EKG – Comments**
  - **Added:** EMT/AEMT: May assist with placement of 12-leads
- **Intubation: ET/Stomal – Comments**
  - **Previous:** 3 attempts per patient SO. Additional attempts BHPO
  - **Revision:** If able to maintain adequate ventilation, may attempt to insert ET tube up to 3 times. After 3 unsuccessful attempts, ventilate with BVM or SGA
  - **Previous:** An ET attempt is defined as an attempt to pass ET (not including visualizations and suctioning)
  - **Revision:** An ET attempt is defined as insertion of a laryngoscope into the oropharynx with intent to intubate
- **Intubation: Perilaryngeal airway adjuncts**
  - **Previous:** Extubate SO if placement issue, otherwise per BHO
  - **Revision:** Extubate if placement issue
- **Nebulizer, oxygen powered – Comments**
  - **Previous:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available.
  - **Revision:** If concerned about aerosolized infectious exposure, substitute with MDI, if available.
- **Positive end-expiratory pressure (PEEP) valve – Contraindication**
  - **Added:** CPR *(adult)*
  - **Added:** CPR *(pediatric)*

- **Added:** Hypotensive for age *(pediatric)*
- **Positive end-expiratory pressure (PEEP) valve – Comments**
  - **Added:** EMT/AEMT: May perform BVM ventilations with PEEP valve in place, but may not adjust settings
- **Video laryngoscope – Comments**
  - **Previous:** Optional inventory item
  - **Revision:** Optional inventory item (recording capabilities preferred)
- **VASCULAR ACCESS – Extremity**
  - **Removed:** BHPO if other than upper extremities or external jugular
- **VASCULAR ACCESS – Indwelling Devices – Contraindication**
  - **Previous:** Devices without external port
  - **Revision:** Devices without external port (i.e., Port-a-Cath)
- **VASCULAR ACCESS – Percutaneous Dialysis Catheter Access – Indication**
  - **Previous:** if unable to gain other IV access and no other medication delivery route available for immediate definitive therapy only BHPO
  - **Revision:** If unable to gain other IV access and for immediate life threat only
- **VASCULAR ACCESS – Shunt/graft – AV (Dialysis) – Indication**
  - **Previous:** if unable to gain other IV access and no other medication delivery route available for immediate definitive therapy only BHPO
  - **Revision:** If unable to gain other IV access and for immediate life threat only
- **Added:** EMT/AEMT/Paramedics or supervised EMT/AEMT/Paramedic students are authorized to administer these skills when on-duty as part of the organized EMS system, while at the scene of a medical emergency or during transport, or during interfacility transfer. *(endnote)*

P-115 Medication list

- **Added:** table in the header with color codes to indicate the EMS clinician level authorized to perform each skill

Red	Not authorized
Yellow	Authorized by LEMSA Medical Director per 22 CCR § 100063 (b)[L] or by California EMSA-approved LOSOP[S]
Green	Authorized by state regulation and local protocol

- **Added:** EMS Clinician *(column)*
- **Removed:** Indications *(column)*

- **Acetaminophen – Comments**
    - **Removed:**
        - Give over 15 minutes
        - Adult BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Suspected active labor
        - Pediatric BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Major trauma with GCS < 15
            - Suspected active labor
- **Albuterol – Comments**
    - **Removed:** If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available
- **Aspirin – Comments**
    - **Added:** Administer aspirin even if discomfort/pain has resolved.
    - **Removed:** Aspirin 324 mg chewable PO
- **Atropine – Comments**
    - **Added:** May omit atropine in bradycardic patients unlikely to have clinical benefit (e.g., heart transplant patients, 2nd degree type II, or 3rd degree heart block
    - **Previous:** In organophosphate poisoning, titrate atropine to SLUDGEM symptoms, not to tachycardia
    - **Revision:** In organophosphate poisoning, titrate atropine to SLUDGE/BBB signs/symptoms, not to tachycardia
- **Calcium Chloride ($CaCl_2$) – Comments**
    - **Removed:** Give IV over 30 seconds
- **Charcoal (no sorbitol) – Comments**
    - **Removed:** Assure patient has gag reflex and is cooperative
    - **Removed:** if not vomiting and ingestion within 60 mins, 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, and 9) Amanita mushrooms
    - **Removed:** For pediatric ingestions, if ingestion within 60 minutes and recommended by Poison Center SO

- **Charcoal (no sorbitol) – Contraindications**
    - **Previous:** Isolated alcohol, heavy metal, caustic agents, hydrocarbons, or iron ingestion
    - **Revision:** Liquid ingestions (e.g., alcohols), heavy metals (e.g., iron), inorganic ions (e.g., lithium) caustic agents, or hydrocarbons
- **Dextrose 50% or Dextrose 10% – Comments**
    - **Added:** AEMT: Administration of D_{50} only
- **Epinephrine (Push-Dose) – Comments**
    - **Removed:** Titrate to maintain systolic SBP ≥90 mmHg (Adult) or adequate perfusion (Pediatric)
- **Epinephrine – Comments**
    - **Removed:** Cardiac arrest with hypothermia: Limit epinephrine to 1 dose and withhold antiarrhythmic medications until temperature ≥86 °F / ≥30 °C
    - **Removed:** Epinephrine IM: Use caution if known cardiac history, history of hypertension, SBP >150 mmHg, or age >40
    - **Added:** EMT: Administration via auto-injector
    - **Added:** AEMT: Administration via IM
- **Fentanyl – Comments**
    - **Removed:** Changing route of administration requires BHO
    - **Removed:** Changing analgesic requires BHO
    - **Removed:** Treatment with opioids if SBP <100 mmHg requires BHO
    - **Removed:**
        - Adult BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Suspected active labor
    - **Removed:**
        - Pediatric BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Major trauma with GCS <15
            - Suspected active labor
- **Ipratropium Bromide – Comments**
    - **Removed:** Added to first dose of albuterol via continuous O_2 powered nebulizer

        - **Removed:** If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide
- **Ketamine – Comments**
    - **Added:** Not authorized for sedation or use of dissociative doses
    - **Added:**
        - IV Administration:
            - Maximum initial IV dose is 0.3 mg/kg
            - Total IV dose not to exceed 60 mg
            - Administer via slow IV drop and do not exceed maximum dose to reduce risk for dissociative states
    - **Added:**
        - IN Administration
            - Maximum initial IN dose is 0.5 mg/kg
            - Total IN dose not to exceed 100 mg
    - **Removed:**
        - Must meet all requirements:
            - ≥15 years old
            - GCS of 15
            - Not pregnant
            - No known or suspected alcohol or drug intoxication
    - **Removed:** Changing route of administration requires BHO
    - **Removed:** Changing analgesic requires BHO
    - **Removed:**
        - BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Suspected active labor
- **Ketamine – Contraindications**
    - **Added:** Sedation
    - **Added:** Use of dissociative doses
- **Added:** Levalbuterol
- **Lidocaine – Comments**
    - **Added:** Prior to IO fluid infusion in the conscious patient
- **Lidocaine Jelly (2%) optional – Comments**
    - **Added:** Intubation or nasopharyngeal airway

- **Midazolam – Comments**
    - **Removed:** Severely agitated and/or combative patient requiring restraint for patient or provider safety midazolam SO ≥8 years, BHO <8 years
- **Morphine – Comments**
    - **Removed:** Changing route of administration requires BHO
    - **Removed:** Changing analgesic requires BHO
    - **Removed:** Treatment with opioids if SBP <100 mmHg requires BHO
    - **Removed:**
        - Adult BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Suspected active labor
    - **Removed:**
        - Pediatric BHPO required for:
            - Isolated head injury
            - Acute onset severe headache
            - Drug/ETOH intoxication
            - Major trauma with GCS <15
            - Suspected active labor
- **Naloxone – Comments**
    - **Added:** Not authorized in cardiac arrest
    - **Added:** EMT: Administration IN
    - **Added:** AEMT: Administration via IN/IM
    - **Removed:** If patient refuses transport, give additional naloxone IM SO or IN via nasal spray preloaded single dose device SO
    - **Removed:** For patients and/or other individuals suspected of opioid use disorder, provide Leave Behind Naloxone Kit with education per the Leave Behind Naloxone Program
- **Naloxone – Contraindications**
    - **Added:** Ineffective for patients in cardiac arrest
- **Nitroglycerin (NTG) – Comments**
    - **Added:** EMT: Assist patient to self-medicate own prescribed NTG
- **Normal Saline – Comments**
    - **Added:** EMT: Can administer aerosolized normal saline or water via nebulizer
- **Ondansetron – Contraindications**
    - **Added:** <6 months of age

- **Added:** EMT/AEMT/Paramedics or supervised EMT/AEMT/Paramedic students are authorized to administer these medications when on-duty as part of the organized EMS system, while at the scene of a medical emergency or during transport, or during interfacility transfer. *(endnote)*

P-115A Pediatric Weight-Based Dosage Standards

- **Previous:** Atropine (OPP) IV/IM
- **Revision:** Atropine (Organophosphate) IV/IO
- **Previous:** Fentanyl Citrate IV ≥10 kg Maximum Single Dose 50 mcg
- **Revision:** Fentanyl Citrate IV ≥10 kg Maximum Single Dose 100 mcg
- **Previous:** Lidocaine 2% IV/IO Maximum Single Dose 35 mg
- **Revision:** Lidocaine 2% IV/IO Maximum Single Dose not applicable
- **Previous:** Midazolam IV slow Maximum Single Dose 3.5 mg
- **Revision:** Midazolam IV slow Maximum Single Dose 5 mg
- **Previous:** Morphine Sulfate IV/IM Maximum Single Dose 3.5 mg
- **Revision:** Morphine Sulfate IV/IM Maximum Single Dose 4 mg
- **Previous:** Sodium Bicarbonate IV Maximum Single Dose 35 mEq
- **Revision:** Sodium Bicarbonate IV Maximum Single Dose 50 mEq
- **Removed:** “of age” language at the end of an age range for consistency
- **Added:** Epinephrine IM (1:1,000)
- **Added:** Levalbuterol Nebulized (<6 years)
- **Added:** Levalbuterol Nebulized (≥6 years - <12 years)
- **Added:** Levalbuterol Nebulized (≥12 years)
- **Added:** Ondansetron (<6 months)

P-117 ALS Pediatric Drug Chart

- **Global**
  - **Previous:** Atropine (Organophosphate) IV/IM
  - **Revision:** Atropine (Organophosphate) IV/IO
- **Blue/Orange**
  - **Added:** Levalbuterol Nebulized (≥6 – <12 years)
- **Green**
  - **Added:** Levalbuterol Nebulized (≥6 – <12 years)
  - **Added:** Levalbuterol Nebulized (≥12 years)
- **Turquoise**
  - **Added:** Levalbuterol Nebulized

- **Previous:** Patients up to age 15 who are longer than the LBRT are treated with adult doses, except for amiodarone.
- **Revision:** Patients up to age 15 who are longer than the LBRT are treated with the following doses. Use estimated weight in kilograms to calculate doses.
- **Previous:** Lidocaine footnote “Administer appropriate adult weight-based medication dosages”
- **Revision:** Lidocaine footnote "Administer 1 mg/kg (note this differs from 1.5 mg/kg in adults)
- **Previous:** Morphine sulfate IV/IM dosing was based on adult weight-based standards.
- **Revision:** Morphine sulfate IV/IM dose is 4 mg (0.4 mL)
- **Previous:** Sodium bicarbonate IV dosing was based on adult weight-based standards.
- **Revision:** Sodium bicarbonate IV dose is 1 mEq/kg

Section III – Adult Treatment Protocols

S-121 Airway Obstruction

- **ALS**
  - **Previous:** Direct laryngoscopy and Magill forceps SO, MR PRN
  - **Revision:** Direct or video laryngoscopy and Magill forceps, MR PRN

S-122 Allergic Reaction / Anaphylaxis

- **BLS**
  - **Previous:** Attempt to identify allergen & route (injected, ingested, absorbed, or inhaled)
  - **Revision:** Attempt to identify allergen and route (injected, ingested, absorbed, or inhaled)
  - **Previous:** Safely remove allergen (e.g., stinger, injection mechanism), if possible
  - **Revision:** Remove allergen (e.g., stinger, injection mechanism), if possible
  - **Added:** “OR” between epinephrine auto-injector and assisting patient to self-medicate own prescribed epinephrine auto-injector
- **ALS**
  - **Added:** Allergic reaction treatment *(subheading)*

- **Previous:** Suspected anaphylaxis reactions
- **Revision:** Suspected anaphylaxis reaction
- **Previous:** Epinephrine 1:1,000 (1 mg/mL) 0.3 mg IM
- **Revision:** Epinephrine 1:1,000 (1 mg/mL) 0.5 mg IM
- **Rationale:** Evidence-based medicine shows the recommended IM dose of epinephrine for adult patients in anaphylaxis is 0.5 mg. This increase is in alignment with other LEMSAs in California.
- **Previous:** Anaphylaxis with respiratory involvement
- **Revision:** If respiratory involvement
- **Removed:** 0.083%
- **Added:** levalbuterol
- **Previous:** Anaphylaxis with SBP <90 mmHg
- **Revision:** Severe anaphylaxis or inadequate response to treatment
- **Removed:** BHO for push-dose epinephrine
- **Added:** or improvement in status

S-123 Altered Neurologic Function (Non-Traumatic)

- **ALS - Symptomatic hyperglycemia with diabetic history**
  - **Previous:** 500 mL fluid bolus IV/IO if BS >350 mg/dL or reads “high” SO x1, MR BHO
  - **Revision:** 500 mL fluid bolus IV/IO if BS ≥350 mg/dL or reads “high”, if no rales MR x1
- **ALS – Status epilepticus**
  - **Added:**
    - If vascular access present
      - Midazolam 0.2 mg/kg IV/IO to max dose of 5mg, MR x1 in 10 min. Max 10 mg total, d/c if seizure stops
  - **Rationale:** IM midazolam is first choice if no vascular access present; there should be no delay in treatment awaiting IV access. If vascular access is present, then administer IV midazolam.

S-124 Burns

- **ALS**
  - **Removed:** 0.083%
  - **Added:** levalbuterol

S-126 Discomfort / Pain of Suspected Cardiac Origin

- **BLS**
  - **Previous:** Do not allow patient to walk
  - **Revision:** Minimize patient exertion, including walking, when possible
  - **Added:** 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®) *(footnote)*
  - **Added:** Administer aspirin even if discomfort/pain has resolved *(footnote)*
  - **Removed:** BHO for push-dose epinephrine

S-127 CPR / Arrhythmias

- **Unstable Bradycardia**
  - Added**:** May omit atropine in patients unlikely to have clinical benefit (e.g., heart transplant patients, 2nd degree type II, or 3rd degree heart block) *(note)*
  - **Removed:** BHO for push-dose epinephrine
- **Supraventricular Tachycardia**
  - **Removed:** (or refractory to treatment)
  - **Rationale:** Hemodynamically stable patients should not be cardioverted. Contact Base Hospital for patients whose rhythm does not respond to adenosine treatment.
- **Ventricular Fibrillation / Pulseless VT**
  - **Previous:** Defibrillate as soon as monitor available/charged
  - **Revision:** Defibrillate at manufacturer's recommended energy dose as soon as monitor available/charged
- **Pulseless Electrical Activity – Suspected hyperkalemia**
  - **Previous:** $CaCl_2$ 500 mg IV/IO
  - **Revision:** $CaCl_2$ 500 mg IV/IO, MR x1 in 5 min for continued EKG findings consistent with hyperkalemia.
  - **Removed:** BHO for sodium bicarbonate
  - **Added:** Continuous albuterol/levalbuterol 6 mL via nebulizer
- **Pulseless Electrical Activity – Suspected hypovolemia**
  - **Previous:** 1L fluid bolus IV/IO, MR x2 SO
  - **Revision:** 1,000 mL fluid bolus IV/IO, MR x2
- **Pulseless Electrical Activity – Suspected poisoning / OD**

    - **Removed:** Contact BH
    - **Previous:** May consider treatment per Poisoning/Overdose Protocol (S-134)
    - **Revision:** For suspected tricyclic antidepressant, beta blocker, or calcium channel blocker overdoses, consider treatment per Poisoning / Overdose Protocols (S-134)
    - **Added:** Naloxone is not authorized in cardiac arrest *(footnote)*
- **Return of Spontaneous Circulation**
    - **Added:** Monitor blood glucose PRN
    - **Revision:** BHO for push-dose epinephrine
- **ALS Adjunct Cardiac Devices**
    - **Previous:** Contact BH and TAH coordinator
    - **Revision:** Contact TAH coordinator
    - **Added:** Consult BH Physician for orders for TAH recommended treatments
    - **Removed:** Treatment per BHO

S-130 Environmental Exposure

- **BLS**
    - **Previous:** Obtain baseline temperature
    - **Revision:** Obtain temperature

S-131 Hemodialysis Patient

- **ALS**
    - **Previous:** For immediate definitive therapy only
    - **Revision:** For immediate life threat only
    - **Previous:**
        - 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
    - **Revision:**
        - EJ/IO access preferred over accessing percutaneous dialysis catheter (e.g., Vascath) or shunt/graft
        - Monitor and administer via existing dialysis catheter (aspirate 5 mL prior to infusion*) OR
        - Access graft/AV fistula

- **Revision:** Removed BHPO for access
- **ALS – Suspected hyperkalemia**
  - **Added:** Continuous albuterol/levalbuterol 6 mL via nebulizer

S-133 Obstetrical Emergencies / Newborn Deliveries

- **ALS – Postpartum hemorrhage**
  - **Removed:** BHO for tranexamic acid

S-134 Poisoning / Overdose

- **BLS**
  - **Added:** Monitor blood glucose PRN
  - **Previous:** Obtain baseline temperature, if possible
  - **Revision:** Obtain temperature, if possible
- **ALS – Ingestions**
  - **Added:** Recommendation by Poison Control Center
- **ALS – Symptomatic organophosphate poisoning**
  - **Removed:** IM route
  - **Previous:** Atropine 2 mg IV/IM/IO SO, MR x2 q3-5 min SO. MR q3-5 min BHO
  - **Revision:**
    - Atropine 2 mg IV/IO
    - For continued signs/symptoms of SLUDGE/BBB, double prior atropine dose IV/IO q3-5 min
- **ALS – Suspected beta blocker OD with cardiac effects**
  - **Previous:** Glucagon 1-3 mg IV BHO, MR 5-10 min BHO, for a total of 10 mg
  - **Revision:** Glucagon 1-5 mg IV, MR 5-10 min for a total of 10 mg
  - **Removed:** BHO for glucagon
- **ALS – Suspected calcium channel blocker OD**
  - **Removed:** BHO for calcium chloride

S-135 Existing Devices and Medications

- **Previous:** Pre-Existing Medical Interventions *(title)*
- **Revision:** Existing Devices and Medications *(title)*
- **BLS – Transports to another facility or home**

        - **Removed:** Initiate cooling measures
- **ALS**
    - **Removed:** Labeled IV medication delivery systems *(section)*
    - **Removed:** IV delivery systems containing unknown medications *(section)*
- **ALS – Existing external vascular access with external port**
    - **Previous:**
        - Existing external vascular access with external port
            - To be used for definitive therapy only
    - **Revision:**
        - Criteria for use of existing peripheral vascular access with external port
            - For immediate life threat only
            - EJ/IO access preferred over accessing percutaneous dialysis catheter (e.g., Vascath) or shunt/graft
            - Monitor and administer via existing dialysis catheter (aspirate 5 mL prior to infusion*)
OR
            - Access graft/AV fistula
    - **Added:** Existing devices and medications include physician-prescribed medications *(note)*
    - **Added:** Dialysis catheter contains concentrated dose of heparin, which must be aspirated prior to infusion *(note)*
    - **Added:** Per Title 22, Chapter 2, § 100063, EMS clinicians may "assist patients with the administration of physician-prescribed … self-administered emergency medications…" *(note)*
- **ALS – Assisting patients with home IM emergency medications**
        - **Removed:** IM route
- **ALS – Existing ET tube after discontinuation of pre-existing sedative**
    - **Previous:** Existing ET tube after discontinuation of pre-existing sedative
    - **Revision:** Intubated patients with agitation and potential for airway compromise

S-136 Respiratory Distress

- **ALS – Suspected non-cardiac origin**
    - **Removed:** 0.083%
    - **Added:** levalbuterol

- **Previous:** Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide consider
- **Revision:** Severe respiratory distress/failure or inadequate response to nebulized treatments consider
- **Previous:** Epinephrine 1:1,000 (1 mg/mL) 0.3 mg IM
- **Revision:** Epinephrine 1:1,000 (1 mg/mL) 0.5 mg IM
- **Removed:**
  - No definitive history of asthma
    - Epinephrine 0.3 mg 1:1,000 IM BHPO, MR x2 q5 min BHPO
- **Added:** If concerned about aerosolized infectious exposure, substitute with MDI, if available *(footnote)*

S-138 Shock

- **ALS**
  - **Removed:** BHO for push-dose epinephrine
  - **Previous:** Neurogenic shock
  - **Revision:** Distributive shock
  - **Added:** Distributive shock includes neurogenic; drug and toxin-induced; and endocrine shock *(footnote)*

S-139 Trauma

- **BLS – Extremity trauma**
  - **Removed:** BHO for reduce grossly angulated long bone fractures with no pulse or sensation PRN
- **ALS**
  - **Previous:** Trauma-associated hemorrhage
  - **Revision:**
    - Trauma-associated hemorrhage <3 hours prior and at least one of the following:
      1. SBP <90 mmHg
      2. Shock Index ≥1.0 (HR ≥ SBP)
      3. Uncontrolled external bleeding
  - **Removed:** BHO for tranexamic acid
  - **Previous:** Crush injury with compression of extremity or torso ≥2 hours
  - **Revision:** Crush injury requiring extrication with compression of extremity or torso ≥2 hours
  - **Previous:** Just prior to extremity being released

- **Revision:** Immediately prior to anticipated release
- **Previous:** 500 mL fluid bolus IV/IO, then TKO SO
- **Revision:** 1,000 mL fluid bolus IV/IO
- **Previous:** $CaCl_2$ 500 mg IV/IO over 30 sec BHO
- **Revision:** $CaCl_2$ 500 mg IV/IO over 30 sec, MR x1 in 5 min for continued EKG findings consistent with hyperkalemia
- **Revision:** Removed BHO for calcium chloride
- **Added:** Continuous albuterol/levalbuterol 6 mL via nebulizer

S-141 Pain Management

- **ALS**
  - **Previous:** Special considerations for pain medications
  - **Revision:** Pain medication considerations
  - **Previous:** Changing route of administration requires BHO
  - **Revision:** When changing route of administration, consider the potential time difference in onset of action
  - **Removed:** Changing analgesic (other than acetaminophen) requires BHO
  - **Previous:** Treatment with opioids if SBP <100 mmHg requires BHO
  - **Revision:** If SBP <100 mmHg, ketamine may be preferred over opioids, which can cause hypotension
  - **Removed:** Refusal of opioids, no severe hepatic impairment, or active liver disease
  - **Added:** If patient refuses or has contraindications to acetaminophen, may treat as moderate pain *(footnote)*
  - **Removed:** Also applies to patients with mild pain (score 1-3) who refuse or have contraindications to acetaminophen and ketamine
  - **Removed:** (e.g., trauma, burns or envenomation injuries)
  - **Previous:** Ketamine requirements (must meet all)
  - **Revision:** Requirements for use of ketamine on SO (must meet all)

S-142 Psychiatric / Behavioral Emergencies

- **BLS**
  - **Added:** Employ de-escalation techniques
- **ALS**
  - **Removed:** adjust PRN
  - **Removed:**

- If midazolam administered, as soon as able
  - Monitor/EKG/capnography
  - O_2
  - Ventilate PRN

S-143 Sepsis

- **BLS**
  - **Previous:** Obtain baseline temperature
  - **Revision:** Obtain temperature
  - **Added:** Monitor blood glucose PRN

- **ALS**
  - **Previous:** 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
  - **Revision:** If history suggestive of infection with ≥2 of the following
  - **Previous:** RR ≥20
  - **Revision:** RR ≥20 or $EtCO_2$ <25 mmHg
  - **Added:** Altered LOC
  - **Added:** SBP <90 mmHg
  - **Previous:** If BP <90 after initial fluid bolus, give second 500 mL fluid bolus regardless of lung sounds SO
  - **Revision:** If no rales or SBP <90 mmHg, give additional 500 mL fluid bolus IV/IO, MR x2
  - **Previous:** If BP refractory to fluid boluses
  - **Revision:** SBP <90 mmHg after fluid boluses
  - **Removed:** BHO for push-dose epinephrine
  - **Added:** Suspected sepsis should be reported to the Base Hospital and upon transfer of care at the receiving hospital (footnote)

S-145 Opioid Withdrawal / Opioid Use Disorder

- **ALS**
  - **Previous:** For suspected opioid withdrawal with COWS score ≥7
  - **Revision:** For suspected opioid withdrawal in patients ≥16 years with COWS score ≥8

- **Previous:** Provide naloxone kit (or Leave Behind Naloxone kit and education)
- **Revision:** Provide Leave Behind Naloxone kit and education
- **Added:** BHO for buprenorphine-naloxone initial dose
- **Removed:** BHO for buprenorphine-naloxone repeat dose

- **Added:**
  - Buprenorphine Pilot Program exclusion criteria:
    - Any methadone use within the last 10 days
    - Lack of opioid withdrawal signs or symptoms
    - Under 16 years of age
    - Severe medical illness (e.g., sepsis, respiratory distress)
    - Unable to give consent or comprehend potential risks and benefits for any reason, including altered mental status.

Section IV – Pediatric Treatment Protocols

S-160 Airway Obstruction

- **ALS**
  - **Previous:** Direct laryngoscopy and Magill forceps SO, MR PRN
  - **Revision:** Direct or video laryngoscopy and Magill forceps, MR PRN

S-161 Altered Neurologic Function (Non-Traumatic)

- **ALS – Status epilepticus**
  - **Added:**
    - If vascular access present
      - Midazolam IV/IO per drug chart, MR x1 in 10 min
  - **Rationale:** IM midazolam is first choice if no vascular access present; there should be no delay in treatment awaiting IV access. If vascular access is present, then administer IV midazolam.

S-162 Allergic Reaction / Anaphylaxis

- **BLS**
  - **Previous:** Safely remove allergen (e.g., stinger, injection mechanism), if possible
  - **Revision:** Remove allergen (e.g., stinger, injection mechanism), if possible
  - **Added:** "OR" between epinephrine auto-injector and assisting patient to self-medicate own prescribed epinephrine auto-injector
- **ALS**
  - **Added:** Allergic reaction treatment *(subheading)*
  - **Previous:** Suspected anaphylactic reactions
  - **Revision:** Suspected anaphylaxis reaction
  - **Previous:** Anaphylaxis with respiratory involvement
  - **Revision:** If respiratory involvement
  - **Added:** levalbuterol
  - **Added:**
    - Respiratory distress with stridor at rest
      - Epinephrine 1:1,000 per drug chart (combined with 3 mL normal saline) via nebulizer, MR x1
  - **Previous:** Anaphylaxis with hypotension for age
  - **Revision:** Severe anaphylaxis or inadequate response to treatment
  - **Removed:** BHO for push-dose epinephrine
  - **Added:** or improvement in status
  - **Added:** If concerned about aerosolized infectious exposure, substitute with MDI, if available *(footnote)*

S-163 CPR / Arrhythmias

- **Supraventricular Tachycardia**
  - **Removed:** (or refractory to treatment)
  - **Rationale:** Hemodynamically stable patients should not be cardioverted. Contact Base Hospital for patients whose rhythm does not respond to adenosine treatment.
  - **Removed:** BHPO for midazolam pre-cardioversion
  - **Removed:** BHPO for initial synchronized cardioversion
  - **Previous:** Synchronized cardioversion at manufacturer's recommended energy dose
  - **Revision:** Synchronized cardioversion per drug chart

- **Removed:** If no manufacturer recommendation, synchronized cardioversion per drug chart BHPO, MR x2 BHPO
- **Ventricular Tachycardia**
  - **Removed:** BHPO for midazolam pre-cardioversion
  - **Removed:** BHPO for initial synchronized cardioversion
  - **Previous:** Synchronized cardioversion at manufacturer's recommended energy dose
  - **Revision:** Synchronized cardioversion per drug chart
  - **Removed:** If no manufacturer recommendation, synchronized cardioversion per drug chart BHPO, MR x2 BHPO

- **Ventricular Fibrillation / Pulseless VT**
  - **Previous:** Defibrillate as soon as monitor available/charged
  - **Revision:** Defibrillate per drug chart as soon as monitor available/charged
  - **Previous:** Defibrillate q2 min while VF/VT persists
  - **Revision:** Defibrillate per drug chart q2 min while VF/VT persists
- **Pulseless Electrical Activity – Suspected hyperkalemia**
  - **Previous:** $CaCl_2$ per drug chart IV/IO SO
  - **Revision:** $CaCl_2$ per drug chart IV/IO, MR x1 in 5 min for continued EKG findings consistent with hyperkalemia
  - **Removed:** BHO for sodium bicarbonate
  - **Added:** Continuous albuterol/levalbuterol per drug chart via nebulizer
- **Pulseless Electrical Activity – Suspected poisoning / OD**
  - **Previous:** Consider treatment per Poisoning / Overdose Protocol (S-165) BHO
  - **Revision:** For suspected tricyclic antidepressant, beta blocker, or calcium channel blocker overdoses, consider treatment per Poisoning / Overdose Protocols (S-165)
  - **Added:** Naloxone is not authorized in cardiac arrest *(footnote)*
- **Return of Spontaneous Circulation**
  - **Added:** Monitor blood glucose PRN
  - **Added:** titrate to adequate perfusion
  - **Removed:** BHO for push-dose epinephrine
- **Adjunct Cardiac Devices**
  - **Previous:** Contact BH and TAH coordinator
  - **Revision:** Contact TAH coordinator
  - **Added:** Consult BH Physician for orders for TAH recommended treatments
  - **Removed:** Treatment per BHO

- **Removed:** BHPO for amiodarone
- **Removed:** BHPO for lidocaine
- **Added:** MR BHPO for amiodarone
- **Added:** MR BHPO for lidocaine

S-165 Poisoning / Overdose

- **BLS**
  - **Added:** Monitor blood glucose PRN
- **ALS – Symptomatic Organophosphate poisoning**
  - **Removed:** IM route
  - **Previous:** Atropine per drug chart IV/IM/IO SO, MR x2 q3-5 min SO. MR q3-5 min PRN BHO
  - **Revision:**
    - Atropine per drug chart IV/IO
    - For continued signs/symptoms of SLUDGE/BBB, double prior atropine dose IV/IO q3-5 min
- **ALS – Suspected tricyclic antidepressant OD with cardiac effects**
  - **Removed:** BHO for sodium bicarbonate
- **ALS**
  - **Added:** Suspected beta blocker or calcium channel blocker OD, contact Poison control Center and Base Hospital
  - **Added:** Base Hospital Physician may order recommendation from Poison Control Center *(footnote)*

S-166 Obstetrical Emergencies / Newborn Deliveries

- **ALS – Postpartum hemorrhage**
  - **Removed:** BHO for tranexamic acid

S-167 Respiratory Distress

- **ALS**
  - **Previous:** Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide consider
  - **Revision:** Severe respiratory distress/failure or inadequate response to nebulized treatments consider
  - **Added:** levalbuterol

- **Added:** If concerned about aerosolized infectious exposure, substitute with MDI, if available *(footnote)*

S-168 Shock

- **ALS**
  - **Removed:** BHO for push-dose epinephrine
  - **Previous:** Neurogenic/cardiogenic/anaphylactic shock
  - **Revision:** Distributive/cardiogenic shock
  - **Added:** Distributive shock includes neurogenic; drug and toxin-induced; and endocrine shock *(footnote).*

S-169 Trauma

- **BLS – Extremity trauma**
  - **Removed:** BHO for reduce grossly angulated long bone fractures with no pulse or sensation PRN
- **ALS**
  - **Previous:** Crush injury with compression of extremity or torso ≥2 hours
  - **Revision:** Crush injury requiring extrication with compression of extremity or torso ≥2 hours
  - **Previous:** Just prior to extremity being released
  - **Revision:** Immediately prior to anticipated release
  - **Previous:** IV/IO fluid bolus per drug chart
  - **Revision:** IV/IO fluid bolus per drug chart, MR BHPO
  - **Added:** CaCl2 IV/IO over 30 sec per drug chart, MR x1 in 5 min for continued EKG findings consistent with hyperkalemia
  - **Added:** Continuous albuterol/levalbuterol per drug chart via nebulizer

S-170 Burns

- **ALS**
  - **Previous:** If not improved after epinephrine via nebulizer x2 or impending airway compromise
  - **Revision:** No improvement after epinephrine via nebulizer x2 or impending airway compromise
  - **Added:** levalbuterol

S-173 Pain Management

- **ALS**
  - **Previous:** Special considerations for pain medications
  - **Revision:** Pain medication considerations
  - **Previous:** Changing route of administration requires BHO
  - **Revision:** When changing route of administration, consider the potential time difference in onset of action
  - **Removed:** Changing type of opioid analgesic while treating patient requires BHO
  - **Removed:** BHO for fentanyl in <10 kg patients
  - **Removed:** MR BHO for fentanyl in ≥10 kg patients
  - **Removed:** MR BHO for morphine

S-175 Psychiatric / Behavioral Emergencies

- **BLS**
  - **Added:** Employ de-escalation techniques
- **ALS**
  - **Removed:** adjust PRN
  - **Removed:** Patient ≥8 years
  - **Removed:** Patient <8 years
  - **Removed:**
    - If midazolam administered, as soon as able
      - Monitor/EKG/capnography
      - O_2 SO
      - Ventilate PRN SO

S-176 Environmental Exposure

- **BLS**
  - **Previous:** Obtain baseline temperature
  - **Revision:** Obtain temperature

S-177 Sepsis

- **BLS**
  - **Added:** Monitor blood glucose PRN
  - **Added:**
    - Assess for altered mental status
      - 1 month – 1 year: lethargic or irritable, limp and flaccid
      - 1 year – 10 years: lethargic, change in baseline per guardian
- **ALS**
  - **Previous:** Sepsis
  - **Revision:** Suspected sepsis
  - **Previous:** 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
  - **Revision:** If history suggestive of infection with ≥2 of the following
  - **Added:** Tachycardia
  - **Previous:** Tachypnea
  - **Revision:** Tachypnea or $EtCO_2$ <25 mmHg
  - **Added:** Altered LOC
  - **Previous:** IV/IO fluid bolus per drug chart SO, MR x2 SO if no rales
  - **Revision:** IV/IO fluid bolus per drug chart regardless of initial BP or lung sounds
  - **Added:** If no rales or hypotensive for age, give additional IV/IO fluid bolus per drug chart, MR x2
  - **Previous:** Hypotensive for age after second fluid bolus
  - **Revision:** Hypotensive for age after fluid boluses
  - **Removed:** BHO for push-dose epinephrine
  - **Added:** Suspected sepsis should be reported to the Base Hospital and upon transfer of care at the receiving hospital *(footnote)*