CONNECTICUT STATEWIDE EMS PROTOCOLS v2023.1
SUMMARY OF CHANGES

Protocol	Change	Background/Rationale
2.20A Poison/overdose/substance use disorder	• Adds buprenorphine for management of moderate to severe opioid withdrawal post-naloxone administration. • Adds additional post-naloxone assessment and referral guidance. • Allows EMTs and EMRs to draw 0.4mg naloxone from a single dose vial and administer IM if approved by local sponsor hospital.	• Provides symptom relief and may assist with a path to recovery. • May be more cost-effective and available than IN formulations or autoinjectors. • Single dose vial draw and inject should be an easily mastered skill. • IM naloxone may produce more reliable drug delivery than IN. • It is hypothesized that the 0.4mg IM dose may be associated with a lower incidence and severity of withdrawal symptoms than the 4mg IN dose.
2.3P Allergic Reaction/Anaphylaxis Pediatric & 2.22P Septic Shock Pediatric	• Lowers the upper end of the pediatric epinephrine and norepinephrine infusion dose ranges to 0.5 micrograms/kg/min (range of 0.1 - 0.5 micrograms/kg/min).	• The v2022.1 protocol lists a dose range for both pediatric epinephrine and norepinephrine of 0.1 - 2 mcg/kg/min. While the upper ends of the range are described in guidelines, in practice, pediatric emergency physicians report rarely administering doses above 0.5 mcg/kg/min. • The extremely wide dose range requires different infusion concentrations to accurately administer, especially for services that still rely on drip sets/mechanical flow limiters as opposed to infusion pumps.

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Protocol	Change	Background/Rationale
(*con't*) 2.3P Allergic Reaction/Anaphylaxis Pediatric & 2.22P Septic Shock Pediatric		• QA chart reviews show very infrequent paramedic administration of pediatric vasopressor infusions. Greater dosing simplicity may decrease risk of errors and improve clinician confidence.
2.5 A/P Asthma/COPD/RAD	• Add standing order for EMTs to administer IM epi to patients with a known history of asthma AND have impending respiratory failure.	• Potential lifesaving intervention for asthma patients when paramedic arrival is delayed or not available.
2.6 Behavioral Emergencies – Adult/Pediatric	• Adds consideration for transport to a Pediatric Urgent Crisis Center (UCC) with sponsor hospital approval.	• To provide guidance around destination decision making in light of the four new Pediatric UCCs in CT. • Allows transport of select pediatric patients to a clinical environment that more appropriately meets their needs.
2.14 Nausea and Vomiting	• Adds Droperidol as an antiemetic	

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Protocol	Change	Background/Rationale
2.21 Adult/Pediatric Seizures	• Allow EMTs to assist with patient's prescribed intranasal midazolam or diazepam. Revise definition of status epilepticus to also include recurrent seizures without regaining full consciousness in between.	• Increasingly seeing patients with IN benzodiazepine prescriptions for seizures rather than rectal diazepam. EMTs should be familiar with IN route of administration from naloxone.
Ketamine Dosing	• Modifies weight-based dosing to "Ideal Body Weight" for low dose ketamine analgesia, RSI induction and post- airway sedation. • Adds ideal body weight chart to appendix. • Retains actual body weight dosing for restraint of severely agitated patients.	• Literature supports using ideal body weight for weight-based ketamine dosing • Using actual body weight for analgesia dosing may result in excess dosing and resultant dysphoria, dissociation or partial dissociation. • Using actual body weight for RSI and post intubation dosing in the critically ill patient may result in overdosage and potential myocardial depression/ hypotension. • For the severely agitated patient, time to administration may be critical and there is a wide therapeutic range with excess dosing primarily resulting in prolonged dissociation. • For all ketamine administrations, close attention must be paid to airway/ventilatory status and potential need to support the patient's airway and ventilation.

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Protocol	Change	Background/Rationale
3.1A Bradycardia	• Modifies atropine dose to 1mg	• Alignment with AHA/ECC Guidelines
3.2A Cardiac Arrest	• Removes continuous compression CPR with BLS airway. Removes passive oxygen (via non-rebreather) CPR. CPR should be performed using ILCOR/AHA compression/ventilation ratios with pauses for ventilation. Continuous compressions may be used once an advanced airway is in place or in limited circumstances with a lone rescuer who witnesses the cardiac arrest. • Allows AEMTs to administer IV epinephrine in cardiac arrest. • Modifies guidance for advanced airway to consider if not effective BVM ventilation. Directs consideration of early advanced airway for arrests of respiratory etiology. • Emphasizes early application, use and interpretation of ETCO2 monitoring. • Emphasizes 2 person BVM • More strictly limits mechanical CPR application until after at least 8 minutes of	• Multidisciplinary workgroup revised protocol to best align with current literature and streamline the document. • Adds clarity regarding appropriate management of suspected hyperkalemia in the setting of cardiac arrest

Protocol	Change	Background/Rationale
(con't) **3.2A Cardiac Arrest**	manual CPR and that interruptions in CPR must be <10 seconds during application. • Limits sodium bicarbonate administration to sodium channel blocker overdoses (removes indications for "pre-existing acidosis"" and hyperkalemia). Refers to hyperkalemia protocol for treatment of suspected hyperkalemia. • Clarifies decision-making for working on scene versus considering transport with ongoing CPR. • Adds detail regarding minimizing peri-shock pause and pre-charging defibrillator before rhythm checks. • Directs calcium administration and dose for suspected hyperkalemia in the setting of cardiac arrest. Refers to hyperkalemia protocol for continued post-ROSC management of hyperkalemia.	

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Protocol	Change	Background/Rationale
3.2 P Cardiac Arrest - Pediatric and 5.6 Orotracheal Intubation, Adult and Pediatric	• Modifies guidance regarding cuffed pediatric endotracheal tubes from "acceptable" to "preferred" over uncuffed endotracheal tubes. • Modify indication for sodium bicarbonate to "For suspected sodium channel blocker overdose (e.g. tricyclic antidepressants), consider:" • Directs calcium administration and dose for suspected hyperkalemia in the setting of cardiac arrest. • Add 6 J/kg and 8 J/kg defibrillation doses	Aligns with current recommendations to use cuffed pediatric ETTs (with low pressure, high volume cuffs) This will require additional training for safe use but have the advantages of: • Reduced risk of tube displacement • Reduced risk of injury at the subglottic stricture (with appropriate tube sizing) • Ability to deliver higher airway pressures to overcome reduced compliance (e.g. from atelectasis) Cuff over-inflation and/or an oversized ETT may result in injury to the trachea and/or tracheal lining. • Better aligns with evidence-based medicine • Adds clarity regarding appropriate management of suspected hyperkalemia in the setting of cardiac arrest Aligns with ECC guidelines for pediatric defibrillation

Protocol	Change	Background/Rationale
3.5 Tachycardia Adult	• Adds definition that protocol is for sinus tachycardia. • Removes "sustained rate >150" for treating stable afib with RVR. • Adds "modified Valsalva preferred, do not perform carotid sinus massage" to vagal maneuver direction. • Clarifies adenosine in wide complex tach by "may consider" and "if suspected supraventricular tach". Moves to last option in antiarrhythmic listing. Modifies diltiazem dosing from weight-based to a 10mg bolus every 10 minutes (max 30mg).	• Definition inclusion to help avoid misapplication of protocol. • Some patients with afib RVR <150 may benefit from rate control based on age, cardiac function, signs and symptoms. Treatment threshold of rate, <150 retained for treating stable, regular, narrow complex tachycardias due to concern for rates <150/minute likely being sinus tachycardia more frequently. • Modified Valsalva maneuver was shown in the REVERT and subsequent validation studies to be superior to standard Valsalva. Carotid sinus massage risks adverse events and is no longer in scope of practice. • Adenosine clarifications to avoid the mistaken impression that adenosine should always be given 1st line to wide complex tach. Adenosine may have adverse effects and potentially cloud the diagnostic picture when administered inappropriately. • Literature shows fixed diltiazem dosing is non-inferior to weight based for rate control and may represent a more consistent, conservative approach

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Protocol	Change	Background/Rationale
4.3 Prehospital Blood Product Transfusion	• Modifies title. • Expands protocol to include group O (both Rh positive and Rh negative) low titer whole blood and packed red blood cells. • Modifies adult transfusion volume range. • Adds cautions and guidance regarding alloimmunization.	• Allows for greater prehospital blood product options to account for limitations in supply and logistical considerations.
NEW 4.10 Hemorrhage Control	• New protocol that replaces tourniquet procedure. Adds interventions of junctional tourniquets and tranexamic acid.	
NEW 6.3A Central Line Access	• New procedure that allows and describes how to access external central lines. Limited to cardiac arrests, vasopressor infusions and when the line will be used for life-saving medications when other vascular access cannot be obtained. Does not allow accessing subcutaneous ports.	

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Protocol	Change	Background/Rationale
6.7 DNR Orders	• Clarifies DNR forms that may be recognized by EMS without DMO consult. • Provides images of DNR bracelets and forms. • Gives additional detail and link regarding Living Wills and advanced health care directives.	
NEW 6.7A **Gastric Tube Procedure**	• New procedure - Orogastric only and references to nasogastric tube insertion are removed.	
6.8 Intraosseous Access	• Adds images and additional detail regarding landmarking and placement of humeral head and proximal tibia IOs.	

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Protocol	Change	Background/Rationale
6.10 Needle Decompression	• Narrows indication in perfusing patients to suspected tension pneumothorax AND either persistent and/or worsening hypoxia despite supplemental oxygen **OR** hypotension and/or rapidly worsening hemodynamics. Modifies signs of tension pneumothorax from "decreased" to "absent" breath sounds.	• Modified at request of Trauma representatives in response to numerous identified QA cases of needle thoracostomies performed on patients who did not have apparent pneumothoraces on evaluation.
6.14 Refusal of Care	• Clarifies police authority to compel transport under psychiatric versus alcohol incapacitation statutes. • Provides additional clarity regarding emancipation, conservatorship and medical power of attorney. • Emphasizes role of direct medical oversight in helping to convince patient regarding need for transport.	

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Protocol	Change	Background/Rationale
6.16 Restraint	• Removes Olanzapine (Zyprexa). • Adds Droperidol. • Clarifies escalating approach to agitated patients, providing two different visualizations for clarity. Reserves ketamine for the most severely agitated patients who present an immediate risk of harm. • Adds Richmond Agitation Sedation Scale (RASS) for objective assessment and documentation of agitation level. • Replaces term "excited delirium" and “excited/agitated delirium” with "Extreme Agitation/Combativeness".	• Changes focus on using appropriate levels of restraint based on objective clinical findings.
NEW 6.19 Transcutaneous Pacing	• New procedure providing detail on procedure, assessing and correcting electrical capture, mechanical capture and perfusion.	• Developed in response to numerous identified QA cases of incorrect identification of capture and/or failure to recognize loss of capture / perfusion.

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Protocol	Change	Background/Rationale
6.20 Trauma Triage and Transport	• Aligns protocol with current national trauma triage guidance to bring the most injured patients to highest level trauma centers while allowing for less injured patients to be triaged to level III trauma centers or other facilities capable of managing injured patients. Some pediatric-specific vital sign parameters were added to the national guideline for the CT version. This guidance still modifies national guidance to treat level I and II centers as equivalent.	• Created in a cooperative fashion between the Connecticut EMS Medical Advisory Committee and the Connecticut Trauma Committee.
6.21 Ventricular Assist Devices (VAD)	• Modifies algorithm to direct CPR in non-perfusing VAD patients prior to extensive troubleshooting of the VAD. • Directs AED/Monitor and Defib/ cardioversion prior to initiating CPR. • Directs correction of any obvious and simple VAD problems prior to initiating CPR.	• In non-perfusing VAD patient, clinicians may be reluctant to start CPR due to appropriate concern for causing mechanical injury. However, troubleshooting VAD connection/power/ controller issues may result in significant delays prior to initiating CPR resulting in a prolonged "no-flow" state which has a high certainty of poor outcome. This approach balances the need to maintain perfusion while also focusing on restoring VAD function.

Protocol	Change	Background/Rationale
		• Rapid correction of VF/VT may restore enough intrinsic cardiac output to quickly restore perfusion and avoid CPR • Simple VAD problems such as a detached controller or battery connection should be able to be rapidly seen and corrected, potentially restoring perfusion while not significantly delaying the decision-point for initiating CPR.
7.0 Hazardous Material Exposure	• Adopts New Hampshire formatting / content with CT specific contact information.	
7.2 Radiation Injuries	• Reformats some content to the pearls. Clarifies appropriate PPE and risks of radiation exposure	
NEW Appendix 5	• Ideal Body Weight Chart	
NEW Appendix 6	• OPIOID Survivor Guidelines & Withdrawal Scale (COWS).	• Provides supporting detail related to protocol 2.20

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Protocol	Change	Background/Rationale
Pediatric Medication Reference	• Removes dopamine • Adds infusion ranges for epinephrine and norepinephrine • Adds cuffed ETT sizing • Adds 6 J/kg and 8 J/kg defibrillation doses	
Scope of Practice	• Adds epinephrine for anaphylaxis to EMR • Adds intramuscular route of administration of epinephrine to EMR • Adds intramuscular naloxone to both EMR and EMT	• Epinephrine for anaphylaxis may be administered by all levels via auto-injector. • Epinephrine for anaphylaxis may be administered by EMRs and EMT via vial and syringe (Check and Inject) if equipped and approved by sponsor hospital. • Naloxone for opioid overdose may be administered by EMRs and EMT via vial and syringe (Check and Inject) if equipped and approved by sponsor hospital.