CONNECTICUT STATEWIDE EMERGENCY MEDICAL SERVICES PROTOCOLS

Initial Roll Out Education Aid
2016
Goal

To establish a standard format for the roll-out of 2016 Statewide Emergency Medical Services Protocols
Objectives

• At the end of the presentation the participant will:
  
  • Recognize the benefit of unified, evidence-based EMS protocols
  
  • Differentiate between foundational, required protocol and sponsor hospital approved “add-on” protocols.
Objectives

• At the end of the presentation the participant will:

  • Distinguish between previous regional guideline allowable practice and new evidence-based protocols

  • Collaborate with other providers to roll-out new protocols in a timely manner.
Protocols Background

- “Living Document” developed and drafted by the Statewide Protocols Committee of CEMSMAC. May be edited and updated at any time.

- Formally reviewed, edited and released every two years.
Protocols Background

- Protocols are as evidence-based as current literature will allow (February 2016)

- Protocols establish the standard of EMS patient care for all levels of EMS provider.
Protocols Background

• Protocols address MINIMUM/FLOOR competencies that everyone will be able to demonstrate at BOTH BLS and ALS levels

• Sponsor Hospitals may chose not to authorize specific meds or procedures but may not add or substitute anything not already written in the protocols.
Review Process

- Protocols are formally reviewed, edited and released every two years by CEMSMAC

- Approved by CEMSMAC, CEMSAB and Commissioner

- Subcommittee with diverse EMS representation will review and recommend changes
Protocol Changes

- Individual Sponsor hospitals may petition CEMSMAC and the commissioner for approval of local variations in scope of practice and treatment protocols.

- The Commissioner shall notify each sponsor hospital, EMS organization and EMS personnel of approved statewide EMS protocols no later than 10 days after the effective date of such protocols.
Protocol Format

- Color coded within each protocol by provider level
- EMR routine patient care is separately addressed in section 1.1
- Pediatric protocols generally integrated - not a separate section
- Procedures listed at the end
## Symbols used in Text

<table>
<thead>
<tr>
<th>Legend</th>
<th>Definition</th>
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<tr>
<td>EMR</td>
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<td>A</td>
<td>Advanced Emergency Medical Technician (AEMT)</td>
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<td></td>
<td>Telephone Direct Medical Oversight</td>
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**Blue underline** – text formatted as a hyperlink
Hyperlinks

- In the electronic version of the protocols, clicking on a blue protocol title or page reference in the table of contents will take you to that page.

Connecticut Statewide Protocols 2016 – Table of Contents

(Alphabetical order by section)                                                                                     Page

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Tachycardia – Pediatric                                                                                            3.5P
Local Protocol Options

• Many protocols have several treatment options to choose from.

• Local medical control will determine which options in the protocols will be available to their sponsored services.
Table of Contents

Protocols divided into the following Sections:

• Section 1 – General Patient Care
• Section 2 – Medical Protocols
• Section 3 – Cardiac Emergencies
• Section 4 – Traumatic Emergencies
• Section 5 – Airway Protocols & Procedures
• Section 6 – Other Procedures
• Section 7 – Hazmat & MCI
• Appendices
1.0 Routine Patient Care

- Provides a framework for all EMS patient encounters
- Outlines basic response and assessment expectations
- Directs the provider to identify and follow the correct protocol based on initial assessment findings
- Gives guidance for transport decision making
1.1 EMR Routine Patient Care

- Establishes EMR scope of practice
- Provides a framework for patient assessment and care by EMRs
- Directs the provider to identify and follow the correct protocol based on initial assessment findings
1.2 Exception Protocol

- Identifies the Statewide Patient Care protocols as the accepted standard for patient care.
- Recognizes that there may be very limited instances when no protocol fits the patient being cared for.
- Provides guidance on when and how a provider may act outside of protocol in these very limited situations.
2.1 Adrenal Insufficiency

• Adrenal insufficiency is listed as a "rare disease" by the Office of Rare Diseases (ORD) of the National Institutes of Health (NIH).
• Affects less than 200,000 people in the US population.
2.1 Adrenal Insufficiency

- Illness or trauma can result in refractory shock or death for patients dependent on maintenance doses of hydrocortisone (preferred) or methylprednisolone.

- Patients with chronic adrenal insufficiency require “stress dose” hydrocortisone during times of physiologic stress.
2.3 Apparent Life-Threatening Event (ALTE)

- An apparent life-threatening event (ALTE) describes an acute, unexpected change in an infant’s breathing, appearance, or behavior that is frightening to the parent or caretaker.

- It is not a specific diagnosis, but rather a “chief complaint” that brings an infant to medical attention.
2.5 Behavioral Emergencies – Adult & Pediatric

- Identifies Excited Delirium (ExD) as distinct entity under broad Behavioral Emergency protocol
- References new hyperthermia protocol in treatment beyond chemical and physical restraint of patient
2.8 Hyperthermia – Adult & Pediatric

- Addresses global concept of hyperthermia (heat exhaustion / heat stroke, exertional hyperthermia, excited delirium)

- Adds immersion cooling to realm of EMS care for these patients
2.12 Nerve Agent/ Organophosphates

- Added to protocols as a medical emergency (outside of realm of Hazardous Materials incident)

- Pralidoxime (2-PAM) added to ALS treatment beyond duo-dote and Atropine auto-injector to treat muscarinic effects of organophosphates
2.16A Pain Management – Adult
Hydromorphone and Ketamine

• Adult Pain Management Protocol provides for an “A” or “B” or “C” format of drug selection

• Adds hydromorphone (Dilaudid®) and ketamine to selection of allowable pharmaceuticals for pain management

• Individual Medical Control in conjunction with hospital pharmacies will decide which of the potential analgesic / anesthetic agent(s) will be approved for sponsored services
2.19 Septic Shock

• Now differentiated from remainder of shock states
  • Carries 50% mortality in severe cases

• Identifies common findings which increase suspicion of sepsis
2.19 Septic Shock

- Allows choice of norepinephrine or epinephrine infusions following sufficient fluid boluses

  **ADMINISTRATION OF ALL PRESSORS WILL NOW REQUIRE AN INFUSION PUMP OR FLOW RESTRICTING DEVICE**
2.21 Smoke Inhalation
Cyanokits

- Hydroxocobalamin is a chemical compound with a similar structure to vitamin $B_{12}$.

- Hydroxocobalamin, partially identifiable by its red color, plays an integral part in DNA synthesis and supports cell replication.

- Hydroxocobalamin binds with cyanide molecules to form cyanocobalamin, a $B_{12}$ vitamer.
3.0 Acute Coronary Syndrome – Adult Nitrates

- Acute Coronary Syndrome protocol expanded to include transdermal and IV nitroglycerin

- Inclusion for individual services usage will be determined by Medical Control
3.2 Cardiac Arrest

• Focus on uninterrupted 2 minute cycles of CPR and addition of AED early if indicated
• Ventilations / oxygenation determined by presumed origin of arrest
  ➢ **Passive insufflation** for cardiac etiology only.
  ➢ **BVM ventilation** – may be used for all etiologies. 1 breath every 10 chest compressions.
3.2 Cardiac Arrest

- Vasopressin has been removed from formulary
- Lidocaine is back for adult and pediatric arrests
- Consider advanced airway after 4 cycles (8 minutes). Do not interrupt compressions during placement.
3.2A Team Focused CPR - Adult

- Use of “pit crew” approach recommended.
- Training should include teamwork simulations, predefined roles.
- Several models available to follow.
3.3 Congestive Heart Failure (Pulmonary Edema)

- Nitroglycerin expanded from SL to include transdermal and IV routes
  - Will be dependent upon approval of individual medical control
- Initial dose increased to range of 0.4 – 0.8 mg
- Transdermal route may be beneficial in conjunction with CPAP to avoid breaking seal and / or increasing patient anxiety
3.4 Post Resuscitative Care

• Post-resuscitation hypotension that is refractory to fluids can be managed with norepinephrine, epinephrine, or phenylephrine.

• Orogastric or nasogastric tubes should be considered for intubated patients who achieve and sustain ROSC.

• Recognition and appropriate transport destination for post-arrest STEMI patients to PCI capable hospitals.
3.5 Tachycardia

Lidocaine Returns!

- In addition to VF / pVT arrests Lidocaine is back for perfusing wide complex tachycardia
  - Stable monomorphous VT with preserved ventricular function
  - Stable polymorphous VT with normal baseline QT interval and preserved LV function
  - Can be used for stable polymorphous VT with baseline QT interval prolongation if torsades is suspected
4.1 Drowning/ Submersion Injuries

- CPAP may be considered in management of submersion injuries.

- Pediatric CPAP starts at 5 cmH₂O.
4.2 Eye & Dental Injuries

- Obtain Visual History (contact lens, surgeries, etc.)
- Assist with removal of contact lens
- Flush chemical irritants with 0.9% NaCl or copious amounts of water.
- Foreign bodies- Patch both eyes.
4.2 Eye & Dental Injuries

- Proparacaine/Tetracaine 2 gtts to affected eye every 5 min up to 5 doses.

- Consider Morgan Lens
4.2 Eye & Dental Injuries

- Morgan Lens video place holder.
5.2 Continuous Positive Airway Pressure

Pediatric Use

• Gaining Popularity for use in Pediatric population.

• Indications - Same as Adult- Asthma/ COPD, Congestive Heart Failure/ Pulmonary Edema, Pneumonia or Drowning, and Bronchiolitis.

• Start with 5 cmH\textsubscript{2}O of PEEP.

• Monitor SaO\textsubscript{2}, ETCO\textsubscript{2}, and EKG.
5.3 Cricothyrotomy (Percutaneous)

- Percutaneous commercially prepared rapid cricothyrotomy devices.
  - No devices requiring use of guide wire.

Approved devices by Sponsor Hospital will have plastic cannula loaded onto a metal introducer. (e.g. Rusch QuickTrach®)
5.6 Orotracheal Intubation

• 3 ATTEMPTS Maximum!
  - Oral Attempt defined as placement of blade into the patient’s mouth.
  - Nasal Attempt defined as placement of tube into patient’s nare.

• Confirm appropriate placement by quantitative waveform capnography.

• Video Laryngoscopy maybe used with appropriate training and local approval.
5.11 Surgical Cricothyrotomy Bougie Assisted - ADULT

• Requires sponsor hospital training and approval

• NOT indicated in < 12 years of age.
5.13 Ventilator

- Adult patients with advanced airways placed by EMS.
- Adult and Pediatric patients on own ventilator.
  - If operational, transport with patients ventilator.
  - If not operational, assist with troubleshooting ventilator with caregiver utilizing SCOPE mnemonic.
5.13 Ventilator

- S- Suction
- C- Connections
- O- Obstructions
- P- Pneumothorax
- E- Equipment/ Tube Dislodgement

- Not indicated in Pediatric Patients with advanced airways placed by EMS
5.13 Ventilator

- Tidal Volume – 6-8 ml/kg
- Rate- 8-12 titrated to ETCO₂ based on patient condition.
- FiO₂- Start at 100% and titrate to maintain SpO₂ >94%
- PEEP- 2 to 5 cmH₂O.

This procedure may vary slightly dependent on device specific directions.
6.1 Abuse and Neglect – Children & Elderly

• According to CT laws, any and all cases of suspected abuse, neglect, or exploitation of children or the elderly must be reported.

• This applies even in cases when the patient is not transported.

• Protocol provides direction on how and when to report.
6.2 Air Medical Transport

- Protocol provides guidance for determining the need and appropriateness of Air Medical Transport.

- Of note:
  - AMT is not indicated for patients in cardiac arrest.
  - Transfers from ground ambulance to air-ambulance at a hospital heliport - no transfer of care to the hospital is implied or should be assumed by hospital personnel, unless specifically requested by EMS providers.
6.4 Communications Failures

• Protocol provides guidance on how to handle communication failure with Direct Medical Oversight due to equipment malfunction or incident location.

• Of Note:
  • Providers acting under this protocol will provide a written notification pertaining to the communication failure describing the circumstances of the communication failure and the actions taken, to the agency’s medical director or hospital EMS coordinator within 48 hours.
7.1 Mass/ Multiple Casualty Triage

- Defines a Mass Casualty vs. Multi-Casualty Incident according to the FEMA definition.
- Identifies expectations for command structure, communication, triage.
Appendix – 2016 EMS Adult Formulary

• All adult medications referred to in the protocols are listed in Appendix 1 which includes indications and contraindications for use, the protocol the medication appears in and the dosing.

• Pediatric Medications are listed in the Pediatric Color Coded Appendix (Appendix 2).
Appendix – 2016 Pediatric Color Coded Appendix

• Provides a weight based reference for pediatric mediations, vital signs, airway management equipment and defibrillation energy.

• Uses standard color coded ranges by length
Appendix – Scope of Practice

Specific skills are broken down by provider level

There are 3 sections to this appendix:
1. Adult Scope of Practice
2. Pediatric Scope of Practice
3. Adult & Pediatric Scope of Practice

<table>
<thead>
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X: Skill allowed under protocol and taught in the National Educators Standards.
▲: Skill allowed under protocol after AEMT provider courses and is authorized to practice under the 2007 scope of practice manual.
●: Skill allowed under Sponsor Hospital Direction.
Acknowledgement

Special thanks to those who have provided input into this training program:
• Douglas Gallo, MD
• Richard Kamin, MD
• Connecticut EMS Advisory Board members

And especially:
   The Connecticut EMS Advisory Board, Education and Training Committee for putting it all together.