


Maine EMS 2019 Protocol Update Change Reference

This document is intended to act as a quick reference to the major changes occurring in the Maine EMS 2019 Protocol update. This document should act only as a reference and is not intended to supplant attendance at a Maine EMS Protocol Update and review of the Maine EMS 2019 Protocols, which can be found on the Maine EMS website (<http://maine.gov//dps/ems/>) under the “Publications and Forms” section.

For questions regarding these changes, please refer to your Maine EMS Regional Medical Director, the Maine EMS Medical Director/Associate Medical Director, or another member of the Maine EMS Medical Direction and Practices Board (MDPB). Thank you for reviewing this information.

Pink – While the Pink (Pediatric) Section remains the 8th chapter of the Maine EMS Protocols, the changes in the 2019 version of the Pink Section impact the rest of the protocol document and are therefore covered FIRST in this Change Reference. In particular, the MDPB chose to combine pediatric and adult conditions in which there are fundamental commonalities in the management of both age groups. For instance, the following protocols existed for both adults and pediatrics, and while there are differences in the care of adults and pediatrics in these protocols, the MDPB chose to combine the adult and pediatric management into a single, common protocol:

- 1) Pediatric Nausea and Vomiting – Combined into the Nausea & Vomiting Protocol (*Gold 19*)
- 2) Pediatric Pain Management – Combined into Universal Pain Management Protocol (*Green 17-19*)
- 3) Pediatric Coma - Combined into Coma Protocol (*Gold 5*)
- 4) Pediatric Seizure - Combined into Seizure Protocol (*Gold 8-9*)
- 5) Pediatric Respiratory Distress/Pediatric Respiratory Failure – Combined into Respiratory Distress with Bronchospasm Protocol (*Blue 7-9*)
- 6) Pediatric Respiratory Distress with Wheezing – Combined into Respiratory Distress with Bronchospasm Protocol (*Blue 7-9*)
- 7) Pediatric Diabetic/Hypoglycemic Emergencies - Combined into Diabetic/Hypoglycemic Emergencies Protocol (*Gold 6-7*)
- 8) Pediatric Medical Shock - Combined into Medical Shock Protocol (*Gold 14 – 17*)
- 9) Pediatric Cardiac Arrest - Combined into Cardiac Arrest Protocol (*Red 7-11*)

In all of these sections, pediatric-specific care is designated by the EMS-C Bear symbol. 

The Pink Section will continue to exist, but will be reserved for conditions that are specific to pediatrics, including the following:

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| 1) Brief Resolved Unexplained Event | 5) APGAR Score |
| 2) Pediatric Respiratory Distress with Inspiratory Stridor | 6) Neonatal Resuscitation |
| 3) Neonatal and Young Infant Fever | 7) Normal Pediatric Vital Signs |
| 4) Childbirth | 8) Pediatric Specific Equipment Sizes |
| | 9) Pediatric Transportation |

The Neonatal and Young Infant Fever and Pediatric Transport Protocols are in bold above because these are new protocols in the 2019 Maine EMS Protocol and were initiated based on EMS Provider and EMS Medical Director input as well as an effort to standardize the transport of pediatric patients based on best practices through the EMS-C program.

Another change in the 2019 Maine EMS Protocols specific to pediatrics is the On-Line Medical Control (OLMC) option for dexamethasone in Pediatric Stridor/Croup, at doses of 0.6 mg/kg **PO/IV/IM/IO** with a maximum dose of 10 mg. Maine EMS providers will be educated to consider **PO** delivery of the **IV** formulation of dexamethasone when clinically appropriate.

Foreword – The Brown Section (Foreword) is the first chapter of the 2019 Maine EMS Protocols and is intended to explain the MDPB’s philosophy and treatment principles when developing the protocols. The MDPB introduced Ventricular Assist Devices into the Maine EMS Protocols in 2008. In the 2018 Maine EMS Protocols, the MDPB introduced a more comprehensive VAD Protocol to the Red (Cardiac) Section but left the prior protocol in the Brown Section to ensure that providers familiar with prior protocol documents could always find the VAD Section. After 1 protocol cycle with the VAD Protocol in the Red (Cardiac) section, the MDPB opted to remove the reference to VADs from the Brown Section. The MDPB also made changes in the Brown Section reminding EMS Providers of the *poor* sensitivity and specificity of field portable CO Monitors and encouraged providers **not** to make transport decisions based on these device readings. Finally, the MDPB has spent some time in the Brown Section to reinforce the process and presence of Special Circumstances Protocols, intended to be patient-specific care plans, motivated by the patient or their primary care team, approved by the Regional Medical Director and authorized by the MDPB.

Maine EMS 2019 Protocol Update Change Reference



Definitions – The Purple (Definitions) Section is the second chapter in the 2019 Maine EMS Protocols. Changes in this section include the addition of naloxone to the Emergency Medical Responder scope of practice and additional considerations when placing an IO. Based on literature identifying poorer outcomes when out-of-hospital cardiac arrest (OHCA) patients have tibial IOs vs peripheral IVs AND based on different evidence/experience suggesting humeral head placement of IOs is more proximate to the central circulation, the MDPB is asking providers to consider humeral head placement for IOs, particularly in OHCA patients.

Respiratory – Major changes in the Blue (Respiratory) Section include the above mentioned combinations with the Pink (Pediatric) Section, including combining the airway management sections and respiratory distress (wheezing) sections into universal protocols that still address the nuances between pediatrics and adults. Please see above for all of the Blue Section protocols this addresses. The MDPB has added pediatric dosing for post-intubation anxiolysis to the protocols. On-Line Medical Control Providers, if you are contacted about anxiolysis post intubation, the MDPB has approved **midazolam only** for this indication at the following doses:

- 6 months to 5 years: midazolam 0.05 – 0.1 mg/kg **IV**
- 6 – 12 years: midazolam 0.025 – 0.05 mg/kg **IV**
- 6 months to 12 years: midazolam 0.1 – 1.5 mg/kg **IM**

Please use these doses when providing OLMC and note that the common **IV midazolam** dose for all age groups is 0.05 mg/kg **IV**. Ketamine remains for adults only for post-intubation anxiolysis. The Blue Section saw the development of two new protocols, a Surgical Cricothyrotomy Protocol and a Tracheostomy Care Protocol. The Surgical Cricothyrotomy Protocol is intended to maintain awareness of an infrequent, but likely lifesaving procedure. The protocol describes one means of performing the procedure and DOES NOT mandate providers to use only that procedure. The Tracheostomy Care Protocol is intended to assist EMS Providers in the management of tracheostomy complications, including plugging and hemorrhage. Another change not necessarily related to the protocols, but recent to the practice of Maine EMS Providers, is the ability for EMS agencies to adopt video-laryngoscopy programs.

Cardiac – The Red (Cardiac) Section has updated the STEMI Criteria to reflect the most recent AHA recommendations for 12-lead interpretation. The MDPB has also removed the need for OLMC when providing patients with fentanyl for chest pain. The MDPB believes that on-line medical CONSULTATION may be beneficial for patients in certain, complex circumstances. In the Red Section, this possibility arises in cardiac arrest as well as patients suffering bradycardia. In the Bradycardia Protocol, the MDPB removed the requirement of contacting OLMC prior to initiating EPINEPHrine drips but left the option of consulting OLMC in complex situations. The MDPB has added the option of mechanical CPR devices to be used at the discretion of the EMS agency in three potential circumstances: prolonged resuscitation events, resuscitation events with few rescuers, and arrest (or re-arrest) during transport. Providers are asked to first perform manual CPR and then, if a device is to be used, apply the device over a series of CPR cycles. The Tachycardia Protocol has been changed to reflect recommended starting doses of electricity when cardioverting various tachyarrhythmias. The MDPB changed the approved pressor from NOREPinephrine to EPINEPHrine in bradycardia to reflect current AHA recommendations.

General Medical – The Gold (General Medical) Section saw a number of formatting changes and was perhaps the most affected section by the combination of adult and pediatric patient protocols. In addition to these changes, the Stroke Protocol was updated to ask EMS providers to alert hospitals of incoming stroke patients if the patient's time from last known well is less than 24 hours. While such patients may be outside a window for tPA, they may still be inside a window for endovascular therapy. The MDPB is also introducing the FAST-ED scoring system into EMS practice. The FAST-ED stroke scale attempts to identify large vessel occlusive strokes. The protocol includes a "plain language" scoring system. In patients who screen positive (i.e. a FAST-ED score of greater than or equal to 4, which provides a PPV of 0.72), the EMS provider is asked to provide this information to the receiving hospital. The new stroke protocol also includes Destination Support Guidance for patients who have a FAST-ED score of greater than or equal to 4. If these patients are also more than 3 hours out from their LKW and/or HAVE potential exclusion criteria for tPA, providers are asked to consider transporting directly to an endovascular capable center OR a comprehensive stroke center IF the added transport time add less than 30 minutes to the transport. The MDPB's thought process is that these patients are UNLIKELY to receive tPA (due to time from LKW or due to exclusion criteria for tPA) but may still be endovascular candidates. Patients who are less than 3 hours from their LKW and have NO contraindications to tPA are asked to be transported to the closest hospital capable of providing tPA.

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Maine EMS 2019 Protocol Update Change Reference

General Medical – (Continued) Other changes to the Gold Section include:

- 1) As many of the steps in EMS stroke care are NOT ALS level skills, the MDPB has authorized EMTs to identify and provide entry calls to hospitals.
- 2) The MDPB, working with the Maine Stroke Alliance, added additional elements to the Acute Stroke Checklist/tPA Screening questionnaire.
- 3) Given current national shortages of CLIA-waived field lactate monitors, lactate monitoring has been removed from the sepsis protocol.
- 4) **ODT** ondansetron has been added to the AEMT scope of practice.

Trauma – The Green (Trauma) Section was updated collaboratively with the Maine EMS Trauma Advisory Committee and in some cases (the Burn Protocol) specialty surgeons. Changes to this section include:

- 1) The Chest Trauma Protocol has been updated to encourage needle thoracostomy at the anterior axillary line based on literature revealing lower frequency of failure in this location vs at the mid-clavicular line.
- 2) The Head Trauma Protocol was revised to include education on signs of herniation in the context of head trauma as well as the option of hyperventilation (with goal ETCO₂ of 30-35) and OLMC consultation.
- 3) The Burn Protocol was revised with the input of state burn surgeons and has updated recommendations for determining body surface area involvement and initial dressings.
- 4) The MDPB created 2 new protocols in the 2019 Green Section. The first is the Crush Injury Protocol. This protocol guides providers through initial management steps and the recognition and treatment of hyperkalemia with Calcium Gluconate once the patient is removed from the entrapment. The second new protocol is a protocol addressing facial injuries.
- 5) The Ophthalmology Protocol has been moved from the Yellow to the Green Section.

Toxicologic/Environmental – The Yellow (Toxicologic and Environmental) Section underwent a significant revision to consolidate and update the pre-hospital approach to poisonings. The recommendation to check a finger CO level in known or suspected CO poisoning has been removed from the 2019 protocols. The accuracy of these devices has not been well established and should not be used to guide treatment or to determine transport decisions. The recommend treatment for CO poisoning remains high-flow oxygen. The MDPB has created a Radiation Injuries Protocol for providers who encounter the rare circumstance of radiation emergencies. Finally, the Agitation/Excited Delirium Protocol was moved to a new section, the Orange Section and the Ophthalmology/Eye Injury Protocol was moved to the Green Section.

Behavioral Emergencies – The Orange (Behavioral Emergencies) Section is a new section in the 2019 Maine EMS Protocols and is intended to highlight three Behavioral Emergencies protocols, including 2 new protocols and one updated protocol. The new protocols include a Depression/Suicidal Ideation Protocol which includes the SAD PERSONS and Columbia Suicide Screening tools which are intended to assist providers in obtaining history and communicating risk with receiving Emergency Medicine/Emergency Nursing staff. These are NOT being used to determine the need for patient transport. The second new protocol is the Restraint Protocol. This protocol lays out the conditions in which restraints may be used (when a patient poses a significant danger to themselves or others and other measures to control the patient's behavior have failed). Under these circumstances, EMS providers are authorized to restrain a patient using soft commercial restraints. The protocol includes a process for application of restraints and encourages the assistance of Law Enforcement personnel when available. The Agitation/Excited Delirium Protocol was moved to this section and was updated to remove partial dosing of ketamine in intoxicated patients. Please remember, the recommended dose of ketamine in this protocol is 4 mg/kg **IM**. On-Line Medical Control providers and EMS providers are encouraged to remember that the option of ketamine is restricted to patients under the age of 65 suffering from excited delirium, as defined by an Altered Mental Status Score (AMSS) of +4. Patients greater than 65 or with an AMSS of less than +4 are still candidates for treatment, however, in these circumstances, *midazolam* is the preferred option at this time.