



Medical Direction and Practices Board
2023 Maine EMS Protocols
New Pediatric Cardiac Arrest and Pediatric Post Cardiac Arrest Protocols
White Paper

Relative to the adult population, pediatric out-of-hospital cardiac arrest (P-OHCA) is a rare phenomenon, with unfortunately dismal outcomes. Caring for this patient population is challenging for many reasons including infrequency of events, high cognitive burden, and psychological stress related to these scenarios.

Please recall from the 2019 Maine EMS Protocol update that many of the pediatric treatments are currently spread throughout the Maine EMS Protocols and designated with the EMS for Children bear symbol. Overall, this change was well received and more user friendly for EMS clinicians for most pediatric treatment algorithms. However, due to feedback related to the protocols for treatment of pediatric cardiac arrest and post-resuscitation care, we have re-evaluated the integration of these specific protocols. As such, the 2023 Maine EMS Protocol update will include a new separate Pediatric Cardiac Arrest Protocol and Pediatric Post-Resuscitation Care Protocol, within the **Red** section.

The goal of these new protocols is to provide the EMS clinician with a systematic approach to the treatment of pediatric cardiac arrest and post-resuscitation care without additional distracting information pertaining only to adult patients, or the need to use multiple pages/protocols to provide the highest level of care.

The new **Pediatric Cardiac Arrest Protocol** highlights the following pediatric specific items:

- This protocol applies to pediatric patients greater than 28 days old
- Pediatric size AED pads should be utilized, if available, from birth to 8 years old
- Pediatric doses of medication and defibrillation are based on weight. If weight is not known, weight should be estimated using a length-based tape.
- For Ventricular Fibrillation/Pulseless Ventricular Tachycardia defibrillation doses are as follows:
 - Initial defibrillation at 2 J/kg
 - Second defibrillation at 4 J/kg, with subsequent shocks (if indicated) increasing by 2 J/kg per shock to a maximum of 10 J/kg or adult dose
- Patients may be hypovolemic, and should receive a NS bolus of 20 mL/kg (consider reducing to 10 mL/kg for patients with pre-existing heart disease)
- This protocol specifically lists the appropriate pediatric dosages for the following medications: EPINEPHrine, Amiodarone, Magnesium Sulfate, Sodium Bicarbonate, and Calcium Gluconate. This eliminates the need to refer to a separate chart (**Red 12**) for medication dosages, though this chart will still be available as needed for reference.



- Do not use mechanical CPR devices on patients under 18 years old

The new **Pediatric Post-Resuscitation Care Protocol** highlights the following pediatric specific items:

- The initial ventilation rate should be 12-20 breaths/minute
- Once IV/IO access is obtained, hypotension should be treated with fluid boluses (20 mL/kg NS) to maintain systolic blood pressure of 70 mmHg + (2 x age); may repeat to a MAX of 60 mL/kg. Consider 10 ml/kg fluid boluses if the patient has pre-existing heart disease.
- Post-resuscitation hypotension should be managed aggressively. This protocol offers specific dosing instructions for NOREPinephrine IV infusion, which must be administered via a Maine EMS-approved medication pump.

The complete versions of these pediatric specific protocols will be available in the 2023 Maine EMS Protocol update for you to review, along with associated educational material.