



STATE OF MICHIGAN

DEPARTMENT OF HEALTH AND HUMAN SERVICES

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M E M O R A N D U M

DATE: March 26th, 2019

TO: State of Michigan EMS Medical Control Authorities

FROM: William Fales, MD, State Medical Director, Division of EMS and Trauma

SUBJECT: Pediatric Epinephrine Auto-Injector Shortage – Emergency Protocol

Our office has received numerous calls regarding the ongoing shortage of epinephrine auto-injectors. We have reached out to several manufacturers and have not been able to obtain any further information on the likelihood of the shortage ending.

We have been advised that the pediatric auto-injector (0.15 mg) is completely unavailable and that there are numerous hospitals that are unable to obtain replacements for expiring or utilized medications. Please see the attached, statewide emergency protocol for the shortage of the pediatric epinephrine auto-injector. The Division is also pursuing an optional statewide protocol permitting EMTs to manually draw up and administer intramuscular epinephrine, as an alternative to an auto-injector. However, this protocol will require extensive initial and ongoing training and is not yet ready for widespread statewide implementation.

The emergency protocol is based on a recognition that the risks of not administering epinephrine to a child with anaphylaxis outweigh the potential consequences of administering higher than recommended doses of epinephrine¹. Medical control authorities adopting this emergency protocol should assure that impacted personnel receive appropriate training. This training should emphasize recognition of significant distress, shock, and impending respiratory failure for which the 0.3 mg (adult) auto-injector may be used on pediatric patients less than 30 kg. In addition, it should be emphasized that if ALS is readily available, BLS should consider deferring epinephrine administration until ALS arrival, if clinically appropriate. The use of 0.3 mg versus 0.15 mg epinephrine auto-injectors has been studied in a small group of pediatric patients weighing 15-30 kg. While the higher dose produced more frequent and severe adverse effects (e.g., pallor, tremor, anxiety, palpitations, headache, and nausea) there were no life-threatening events. The authors stated these side effects were definitely *not* a reason to delay or avoid the higher dose epinephrine². Severe, biphasic and fatal anaphylaxis have been reported in infants as young 7 weeks of age, highlighting that fatal anaphylaxis can occur in infancy³. However, little is known regarding the safety and efficacy of 0.3 mg epinephrine in pediatric patients under 15 kg. Therefore, the emergency protocol, includes direction to contact medical control (when possible) for patients under 15 kg, although in truly life-threatening situations, high dose epinephrine likely justifies the risk.

This protocol is available for all medical control authorities experiencing shortages to utilize. You will need to notify Emily Bergquist, MCA Coordinator, at bergquiste@michigan.gov, if you need to enact the protocol. The protocol will need to be evaluated every 60 days, if the shortage continues. Please reach out to the EMS Office if you have any questions.

¹ Halbrich M, Mack DP, Carr S, Watson W, Kim H. CSACI position statement: epinephrine auto-injectors and children < 15 kg. *Allergy Asthma Clin Immunol.* 2015;11(1):20. Published 2015 Jun 12. doi:10.1186/s13223-015-0086-9

² Simons FE, Gu X, Silver NA, Simons KJ. EpiPen Jr versus EpiPen in young children weighing 15–30 kg at risk for anaphylaxis. *J Allergy Clin Immunol.* 2002;109(1):171–5. doi: 10.1067/mai.2002.120758.

³ Tarim O, Anderson VM, Lifshitz F. Fatal anaphylaxis in a very young infant possibly due to a partially hydrolyzed whey formula. *Arch Pediatr Adolesc Med.* 1994;148(11):1224–9. doi: 10.1001/archpedi.1994.02170110110026.