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MEMORANDUM

TO: MA Licensed Ambulance Services
CC: EMCAB Members
FROM: Jon Burstein, State EMS Medical Director
Abdullah Rehayem, Director
DATE: August 10, 2010
RE: Drug Supply Shortages: D50, furosemide and substitutions in temporary shortages

1. **D50:** Currently, the Department of Public Health (Department)/Office of Emergency Medical Services (OEMS) is aware of a shortage of D50. The typical adult dose is 25 grams of glucose, given as 50 ml. of 50% dextrose solution (500 mg. of dextrose per ml.). In any situation where D50 would be used, as specified in the Statewide Treatment Protocols, ambulance services may use any of the following acceptable substitutions:

- a. An equal-dose amount of D25. Since this is packaged in 10 ml. syringes, the usual adult dose would be 10 syringes of 10 ml. each of D25, or 100 ml. of D25. All 10 syringes should be packaged in the same container.
- b. A sterile IV bag containing 250 ml. of D10W, delivering 25 grams of glucose.
- c. A vial of glucose solution and syringe and needle-systems to draw up and deliver 25 grams of glucose.
- d. Locally made preloaded syringes to deliver 25 grams of glucose.

2. **Furosemide:** Currently, the Department's OEMS is aware of a shortage of furosemide. The typical adult dose is 40 to 80 mg. In any situation where furosemide would be used, as specified in the Statewide Treatment Protocols, ambulance services may substitute bumetanide for furosemide at a dose equivalence of 1 mg. bumetanide = 40 mg. furosemide.

3. **Future temporary drug shortages:** In response to the regularly occurring problem of temporary shortages of specific medications ambulance services carry and EMTs use in accordance with the Statewide Treatment Protocols, the Department's OEMS and its EMS medical director are issuing in this Advisory the following standard authorization for all MA licensed ambulance services:

Whenever a medication is temporarily not obtainable in typical dosage forms as called for in the Statewide Treatment Protocols, substitute concentrations may be used, in accordance with this Advisory. All such temporary substitutions must be approved by the service's affiliate hospital medical director and affiliate hospital's pharmacy director, with a date of expiration for the temporary substitution authorized. Temporary substitutions may only be made when there is a shortage of the medication in the dosage forms as listed in the Statewide Treatment Protocols; otherwise, only the medications in the dosage forms listed in the Protocols shall be carried and used by ambulance services. These temporary substitutions

must deliver the same amount of active medication, and be packaged in a manner that prevents as far as possible any medication errors. This should include clear labeling, separate packaging (e.g. zip-seal plastic bags) containing the medication with diluents, if any, and administration materials, and instructions for administration. In all such substitutions, ambulance services and their EMTs must pay careful attention to medication expiration, sterility, potency, and dose equivalent. Ambulance services must also make sure that all EMTs who will be administering such substitute dosage forms of medications in times of temporary shortage are appropriately trained and oriented on use of the substitute dosage form of the medication.

If you have any further questions about these issues, please contact Renee Lake, EMT-P, OEMS Compliance Coordinator, or Jon Burstein, MD, preferably by email, at renee.lake@state.ma.us, or jburstei@bidmc.org.