# WARNING: RISK FOR SERIOUS OR FATAL MEDICATION ERROR

*A National Alert Network message from the American Society of Health-System Pharmacists and the Institute for Safe Medication Practices*

## EPINEPHrine pre-filled syringe shortage

**EPINEPH**rine emergency syringes 1 mg/10 mL (0.1 mg/mL) are currently on backorder from the sole manufacturer of this product. Although the shortage is expected to resolve later this summer, practitioners should be aware of risk for error created by the shortage.

Although injectable **EPINEPH**rine is still available in 1 mg/mL in **1 mL ampuls or vials**, 1 mg/mL in **30 mL vials**, and 1 mg/10 mL (0.1 mg/mL) **emergency syringes with an intracardiac needle**, these products may not be safe alternatives for code carts, in emergency vehicles, and for other emergency needs, for the reasons that follow:

- **Misuse of syringe with intracardiac needle.** **EPINEPH**rine 0.1 mg/mL in 10 mL syringes have a 3.5 inch needle for intracardiac use, which is not removable and not compatible with needleless tubing/systems. Attempting to use this product for intravenous or endotracheal administration with the needle attached or attempting to remove the needle may result in injury to both patient and caregiver.
- **No option for pharmacy to prepare doses.** **EPINEPH**rine is sensitive to light, air, and pH, with a short stability time when extemporaneously prepared, making it unsuitable for bulk compounding by pharmacy departments.
- **Dose miscalculations.** Practitioners may not recognize or understand the difference between 1:1,000 (1 mg/mL) and 1:10,000 (0.1 mg/mL) strengths and may miscalculate when, for example, a physician orders 0.2 mg of a 1:1,000 **EPINEP**Hrine injection. The Institute for Safe Medication Practices (ISMP) has received reports of a number of fatal events due to these miscalculations (www.ismp.org/Newsletters/acutecare/articles/20040812.asp).
- **Product concentration confusion with 30 mL multiple dose vials.** The 30 mL vial more easily facilitates an accidental overdose by providing enough volume of drug to allow 10-fold overdoses.

**Recommendations:**

- Pharmacists should evaluate all potential areas where **EPINEPH**rine emergency syringes are used, including area emergency services and response teams, and communicate information about the shortage and recommended substitute products.

- Conserve current supplies of **EPINEPH**rine emergency syringes for code boxes and emergency responders where pharmacists would not be present during a code situation to dilute **EPINEPH**rine. Assess whether the number of syringes can be reduced to two per cart.

- Do not stock multiple-dose 30 mL vials of injectable **EPINEPH**rine 1 mg/mL in code boxes. These look very similar to the 30 mL vials of topical **EPINEPH**rine that may also be stocked in code boxes or used in the OR.

- Place auxiliary labels on intracardiac **EPINEPHrine** that warn against intravenous and endotracheal use, and caution practitioners about the danger of injury with attempted removal of the fixed needle. If not labeled FOR INTRACARDIAC USE ONLY, include this information as well.

- If using 1 mg/1 mL ampuls or vials in lieu of emergency syringes, package the vial, diluent, and syringe label in a clear plastic bag prominently labeled with the drug name and strength. Include instructions on preparing a dilution equivalent to a prefilled 1 mg/10 mL emergency syringe (i.e., **EPINEPH**rine 1 mg - dilute in 9 mL of sodium chloride 0.9%).

- If substituting ampuls or vials labeled as 1:1,000, provide a chart for converting doses in milligrams to mL along with instructions for preparing a dilution in code carts, and post the charts in areas where **EPINEPH**rine is frequently used.