



## Fact Sheets and Information Papers

### Epinephrine Management

March 2004

1. BACKGROUND. Epinephrine is used pharmaceutically as a cardiac stimulant, and a relaxer to bronchial smooth muscles. It is also called adrenaline. It is found in bee sting kits, spinal anesthesia kits, and is usually administered from 1-2 milliliter pre-filled syringes and solutions containing very low concentrations (injection solution of 1:1000 or 1:10,000). Waste or expired shelf life epinephrine as the sole active ingredient in a solution is listed in section 40 CFR 261.33(e) of the Federal Environmental Protection Agency's (EPA) hazardous waste regulations as an acutely hazardous waste. The EPA hazardous waste code is P042. Residual epinephrine in dispensing instruments after use does not meet the criteria of a P042 waste as described below.

#### 2. EPINEPHRINE MANAGEMENT

a. According to a federal EPA clarification published in the December 1994 Monthly Hotline Report as Question No.3, residual epinephrine in a syringe after injection is not a P042 waste. According to the report, drug residues in dispensing instruments are part of the use of the chemical for its intended purpose and are not a hazardous waste unless it exhibits a hazardous waste characteristic. Because the residual epinephrine in the syringe is not listed, and because it does not show the characteristics of a hazardous waste (40 CFR 261.21-261.24), it does not meet the definition of a hazardous waste. Therefore, it is appropriate to discard syringes containing residual epinephrine (e.g. after administering it to patients) into any sharps container. Off-specification or exceeded shelf-life epinephrine would be considered unsuitable for use on patients and therefore it is inherently waste like. Any stocks that are an unused, sole active ingredient solution, and a commercial product, must be managed as an acutely hazardous waste (EPA hazardous waste code P042). Return of such stocks to the manufacturer is NOT appropriate unless the action is complete before the declaration of unsuitability or the expiration date. The one exception would be that outdated epinephrine may be used for training purposes, locally, without being managed as a hazardous waste.

b. Turn-in Procedures. Stocks supplied by the Prime Vendor mechanism are less likely to become outdated, and are not subject to the discussion that follows. Stocks that are purchased through the Federal Supply System or by local purchase are to be managed as discussed in the following paragraphs.

(1) To the maximum possible extent, end users should identify and return to Logistics any stocks of epinephrine that have not yet, but which soon will reach the expiration date. This action will make it more likely that Logistics can return old but not expired stocks to the manufacturer, either with or without credit. Any such return is shipped using ordinary practices that are customary for transportation of new product. The hazardous waste requirements do not pertain.

(2) Epinephrine that is off-specification, unserviceable, expired, or otherwise unusable must be turned-in through regular supply channels and managed as a hazardous waste. This pertains to stock where epinephrine is the sole active ingredient. It also pertains to stocks in any type of packaging (preloaded syringes, vials, ampoules, etc.). The hazardous waste management actions may vary among various Logistics or Medical Supply activities, but usually will involve any of the following: turn into DRMO, commercial contract with a permitted hazardous waste disposal firm, or other equivalent procedures that are recognized and approved by the environmental office at the supporting military installation.

3. MIXTURES. There are commercial products where epinephrine is an ingredient but not the sole active ingredient. When these products are unserviceable, off-specification, outdated, or used, they are not classified or managed as a hazardous waste [EPA Comment in 40 CFR 261.33d]. Examples include Bupivacaine HCL and Epinephrine, Lidocaine and Epinephrine, and Prilocaine and Epinephrine. Such mixtures can be returned to the manufacturer if arrangements can be made, or they can be destroyed using the disposal guidance in the Military Item Disposal Instructions (MIDI) database (<http://chppm-www.apgea.army.mil/hmwp/>).

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