



Management of Used and Unused Insulin

FACT SHEET 37-060-0913

1. BACKGROUND: M-cresol, also known as meta-cresol and 3-methylphenol, is a methyl substituted phenol used as a preservative in insulin. The insulin may be administered to patients by injection, insulin pens, pump, or through an IV.

M-cresol is a chemical that appears on the Resource Conservation Recovery Act (RCRA) list of hazardous constituents that can cause a waste to be classified as a toxic characteristic hazardous waste (EPA Waste Code D024) if it exceeds the regulatory limit of 200 parts per million (ppm).

Based on the information gathered from a review of Material Safety Data Sheets of the most commonly identified insulin brand names (NovoLog, Novolin R, Novolin N, Novolin 70/30, Lantus, Humalog, QuickPen), the concentration of m-cresol preservative in the insulin solutions ranges from 0.17 % to 0.3%. This equates to 1,700 – 3,000 ppm, exceeding the 200 ppm regulatory level for a hazardous waste. Insulin prepared for an IV bag and mixed at a 1:1 ratio of insulin to diluents would also exceed the 200 ppm regulatory level with a concentration ranging from approximately 850-1,500 ppm.

2. MANAGEMENT OF USED INSULIN:

Pens and sharps (syringes) used to inject insulin will be placed in sharps containers and managed as regulated medical waste.

Partially used vials that contain some amount of insulin and can no longer be used on patients are required to be managed and disposed of as a hazardous waste.

Partially used IV bags which contain some amount of insulin must be managed as a hazardous waste. Empty bags and tubing may be disposed of as solid waste.

Vials that have been used and contain no residual insulin may be disposed as solid waste.

Contact the installation Environmental Office for guidance on establishing an accumulation area for the hazardous waste items.

3. MANAGEMENT OF UNUSED INSULIN: In most states, stocks of unopened insulin containers (injectors, vials, cartridges for pumps) may be returned to a pharmaceutical reverse distributor.

Note that some states have determined that once an unused item which meets the definition of a hazardous waste expires; is no longer needed; or is routinely disposed of by the reverse distributor as a hazardous waste, it must be managed onsite at the healthcare facility as a hazardous waste and may not be sent to the reverse distributor.

Refer to the USAPHC Fact Sheet on Pharmaceutical Returns to see which states do not allow the return of expired items that would be classified as hazardous waste.

4. ASSISTANCE: HCFs may contact USAPHC, Hazardous and Medical Waste Program at 1-800-276-MIDI (6434) or DSN 584-3651 for additional assistance.

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