

Drug Shortage Communication and Action Plan: IV Lorazepam (Ativan)

Products affected:

- Lorazepam injectable 2mg/ml carpupject syringes and vials, 4mg/ml carpupject syringes and vials.

Reason for shortage:

- Bedford discontinued lorazepam in May 2011 to concentrate on the manufacturing of other products.
- West-Ward acquired Baxter's lorazepam injection products in May 2011. The company cannot provide a reason for the shortage.
- Hospira states lorazepam vials are on shortage due to increased demand. The 1 mL iSecure syringes were discontinued in September 2011.

Expected resolution time: Late January 2012

Inventory on hand:

- Network supply is estimated to be one week, but product availability is very unreliable and receipt of product is intermittent at best.
- Injectable diazepam is currently unavailable and injectable midazolam is also in short supply leaving few alternatives if the injectable lorazepam supply is depleted.

Recommended alternatives/management:

- Use IV formulation for emergent indications only (e.g. status epilepticus, alcohol withdrawal, etc).
- Switch to oral lorazepam for non-emergent indications (i.e. general anxiety, premedication for procedures such as MRI or surgery) whenever possible. Administer early enough to have desired effect at the necessary time. (Bioavailability = 90 percent; time to peak concentration = two hours; elimination half life = 12 hours)
- During this shortage, use alternative and available injectable benzodiazepines. However, injectable diazepam is currently unavailable and injectable midazolam is also in short supply.
- There are no direct dosage conversions between the benzodiazepines because each has a distinct pharmacokinetic profile that dictates the agent's therapeutic use and dosing. The following table compares the pharmacokinetics of injectable benzodiazepines.

Pharmacokinetics of Injectable Benzodiazepines

Agent	Onset of Action (min)		Duration of Action (hours)		Half-life (hours)	Active Metabolites
	Intravenous	Intramuscular	Intravenous	Intramuscular		
Diazepam	1–5	^a	0.3–0.5	^a	20–120	Yes
Lorazepam	5–20	15–30	6–8	6–8	8–15	No
Midazolam	1–5	5–15	≤2 ^b	2 ^b	3–11	Yes

^a Intramuscular administration results in slow and erratic absorption.

^b The pharmacologic effect of midazolam may last up to six hours in some patients

Date action plan effective: Jan. 9, 2012

References: [ASHP Drug Shortages Website](#).