Letters to the Editor

Are Draconian Measures Necessary When Using Multidose Vials?

To the Editor:

I ask for your assistance in resolving a problem that has concerned both infection control committees, and pharmacy and therapeutics committees in long-term skilled nursing facilities.

Medications in multidose vials, such as furosemide 10 mL, metoclopramide HCl 30 mL, glycopyrolate 20 mL, prochlorperazine 10 mL, trifluoperazine HCl, and cimetidine 8 mL, have been given an automatic six-month life from the date the vial cap is punctured for use. Even though the expiration date may be two to three years beyond that six-month date and appropriate sterile technique has been used throughout, is there any confirming evidence for these draconian measures—particularly in these days of fiscal monitoring?

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William Craig, MD, responds to Dr. Silver's question:

The safety of multidose vials (MDVs) from microbial contamination has been reviewed previously in this journal.[1,2] The conclusion at that time was, "There is no specified length of time that a multidose vial can be considered safe." Little new information has emerged to alter that statement. Nevertheless, documented infections resulting from extrinsic contamination of MDVs are exceedingly rare.[3,4] Studies over the past decade to determine the frequency of contamination during use of these vials have failed to find any positive cultures with approximately 2,700 MDVs.[5-8] Although the duration of use of dated vials varied from 1 to 402 days, only about 1% of the MDVs were in use longer than 60 days.

Other studies have investigated the ability of gram-negative bacilli, gram-positive cocci, and *Candida albicans* to survive or proliferate when inoculated directly into the MDVs of commonly used medications.[8-10] For most of the medications tested, microbes persisted in the MDVs for only a few hours. On the other hand, a few drugs such as insulin, immune serum globulin, and Myochrysine y exhibited microbial persistence for up to seven days. Bacterial persistence in MDVs maintained at 4°C was significantly longer than in those kept at room temperature. The duration of bacterial recovery from MDVs varied among different bacterial genera and appeared to be longest for *Flavobacterium meningosepticum*, *Pseudomonas maltophilia*, and enterococci. Actual proliferation of bacteria was rare and was observed in only one of the three studies.

Current information suggests that the risk of acquiring a nosocomial infection from contaminated MDVs is very small. The absence of any contaminated MDVs in large prevalence studies have led hospitals such as our own to use the manufacturer's expiration date for discarding MDVs unless there is suspected or obvious contamination. In addition, there appears to be no reason to refrigerate in-use MDVs of medications for which storage at room temperature is recommended by the manufacturer.

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