Although an organization’s medications that are protected inside sealed packages rarely carry infections, the bins storing these medications may harbor infections or nosocomial pathogens. These pathogens can be a potential source of indirect contamination when a nurse or other staff member touches the bin and carries the packaged medication and then touches a patient. Patients immunocompromised by AIDS, transplantation, or cancer therapy and patients with increased susceptibility to infection as a result of diabetes, trauma, or severe burns are at particular risk. Staff needs to be aware of the possible infection control (IC) risks and take steps to minimize the risks.

Standard IC.2.10 requires organizations to conduct surveillance, collect data, and identify trends in IC. In addition, Medication Management standard MM.2.20 requires an organization to periodically inspect medication storage areas, in accordance with its policy, to ensure that medications are properly and safely stored. Each compartment or medication bin of an automated medication distribution system may be designed to contain one specific medication or all an individual patient’s medications for a 24-hour period.

Pharmacy staff in a 300-bed general medical/surgical hospital investigated the degree of contamination in the hospital’s medication bins. The study found that 84% of the bins tested were contaminated with bacterial and/or mold growth. Although most of the eight microorganisms identified were generally harmless environmental contaminants (indicating a poor degree of cleanliness), some (such as coagulase-negative staph and pseudomonas) were capable of causing serious infection. Other studies have identified the viability of several clinical and environmental bacteria and fungi on fabrics and plastics commonly used in hospitals.

There is a general lack of awareness about the potential problem of dirty medication bins and the potential for spread of infections. Five key strategies to minimize infection risk from medication storage bins follow.

1. **Identify potential risk in your organization.** Ask pharmacy, nursing, and IC staff for their observations about how medication bins are used, whether staff uses gloves, whether the bins are carried into patient rooms, and under what circumstances the bins are cleaned or replaced. Organization staff may even want to take swab samples to test for the presence of bacteria or molds.

2. **Establish or review a cleaning procedure for medication bins.** Many organizations clean a bin only when it is dirty beyond use or when a regulatory or accreditation body is expected. Organizations should clean bins on a regular basis, such as on patient discharge, regardless of their appearance. Decide who is responsible for cleaning (nursing or pharmacy) and when. For example, the cleaning procedure could be added to the regular cart filling tasks of the pharmacy. Include in the procedure the cleaning of automated dispensing systems as well as nurses’ medication carts. Provide staff education on the importance of maintaining clean medication bins to reduce infection risk. And, as always, emphasize hand hygiene and proper glove use.

3. **Consider the use of bin liners.** Although the risk of contaminants still exists with bin liners, it is significantly reduced. Bin cleaning can be costly, time-consuming, and damaging to the bins over time. Disposable liners provide a consistent, convenient, and cost-effective method for maintaining clean bins. Bin liners can be replaced on a regular basis and whenever the liner becomes soiled.

4. **Create a closed system for preparing intravenous (IV) medications.** Preparing IV medications under a laminar flow hood keeps them in a relatively sterile environment. The laminar flow prevents objects from settling on surfaces, making sure that bacteria do not settle on the IV bag or its contents. After admixing the medications in the laminar flow hood, place a sterile cap (not a foil cap) on the IV bag while still under the hood. In this way, staff creates a closed system in which bacteria and other infection agents cannot get into the IV bag. So even if the IV bag is placed in a nonsterile medication bin, the medication will not become infected. (This process is required under standard MM.4.20.)

5. **Monitor the state of medication bins for cleanliness.** IC staff can add medication bin status to their walk-rounds and ensure that the medication bins are cleaned properly. However, changing pharmacist and nurse behavior to consistently clean the bins will be the greatest challenge. To prove medication bin cleanliness, consider documenting that medication bins have been cleaned, use the data in trend analysis, and benchmark the values.

**References**


