Selecting the best strategy for remediating medication errors is not easy. Even when system-based causes have been identified, often the most effective action is not obvious and the best error-prevention tools to use in each situation are not clear. In this article, examples of these tools are listed in order of their effectiveness for creating lasting changes for safe medication use.

Items at the top of the list, such as computerization and forcing functions, are examples of more powerful tools because they fix the system. Next on the list are tools that attempt to fix the system but rely in some part on human vigilance and memory. At the end are old, familiar tools, such as education and information, that are intended to “fix” people. Although many have relied on these older tools in the past, they are weak and ineffectual when used alone.

1. **Forcing functions and constraints** are the most powerful and effective tools for preventing errors. Their use results in designing processes so that errors are virtually impossible or difficult to make. Examples include (a) removing potassium chloride for injection concentrate from all patient-care areas, (b) using medication cups or specially designed oral syringes (not parenteral syringes) that will not connect to intravenous tubing for all liquid oral medications, and (c) eliminating nursing access to the pharmacy when it is closed by establishing a carefully selected nighttime formulary and dispensing cabinet.

2. **Automation and computerization** of medication-use processes and tasks can lessen human fallibility by limiting reliance on memory. Examples include (a) the use of technologically and clinically sound computerized drug-information systems; (b) direct physician order entry, which provides drug information and warnings during order input; and (c) the use of intravenous infusion pumps with fail-safe design mechanisms to prevent free-flow.

3. **Drug protocols and standard order forms** guide the safe use of medications by eliminating problems with illegible handwriting and standardizing safe order communication. They offer less leverage as an error-prevention tool than those listed earlier, however, because they rely on human vigilance for their implementation. Nevertheless, sometimes they are the most appropriate tools and the only ones available for correcting a problem with medication use.

4. **Independent double-check systems** and other redundancies are tools that can reduce the risk of errors if one person independently checks another’s work. The likelihood of two individuals making the same error with the same medication for the same patient is quite small. The potential for error still exists, though, because this strategy is designed to detect human error, not to prevent it.

5. Most people prefer to intervene in a system at the level of **rules and policies**; however, establishing new rules and enforcing old policies are often reactive steps and are intended to control people, not necessarily to fix systems. These steps often complicate the system unnecessarily. Even though rules and policies are useful and are warranted in organizations, they should be used primarily to support more effective error-prevention strategies that are designed to fix the system.

6. **Staff education** can be an important error-prevention strategy when it is combined with other approaches that strengthen the medication-use system. However, it is a weak link that has little leverage to prevent errors when one attempts to use only this strategy for reducing errors. The ongoing nature of effective education and its unrealistic dependence on correct human performance are often overlooked.

Although all of the tools in the list can play an important role in the prevention of errors, we must become aware of those that, on the surface, seem to provide the easiest and fastest solution. Because people cannot be expected to compensate for weak systems, readers should select high-leverage, error-prevention tools that are designed to fix systems, not just people, whenever possible.