

Improving safety in health care?

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Provincial, national, and international initiatives are driving system changes in health care. The objective of many of these initiatives is the enhancement of patient safety. But how do we know which actions will be most effective?

Answering this question requires a focus on systems, not individuals. By improving systems, we can generate improvement in human performance. The systems approach recognizes that:

- humans are incapable of perfect performance,
- human errors should be expected in any working environment,
- critical incidents are caused by poor design of the working environment (the system), and
- the risk of critical incidents can be reduced by building systems that are resilient to expected human errors.

In June 1999, learning from other industries and their own work in medication safety, the Institute for Safe Medication Practices in the USA published the Medication error prevention “toolbox” to improve medication systems. This list of error prevention tools is applicable to all aspects of health care. It describes, in rank order, actions that will enhance safety. Items at the top of the list, such as computerization are examples of more powerful tools because they fix the system. Next are tools that attempt to fix the system yet rely in some part on human vigilance and memory. Those at the end, such as education are old, familiar tools that are intended to fix people.

The error prevention tools include the following types of actions:

Forcing functions or constraints are actions that make it difficult or impossible for a health-care worker to complete a task incorrectly. For example, a unique size of line fittings has now been designed for each medical gas used in the operating room. These specialized fittings make it impossible to connect the wrong gas line to any equipment that delivers gas to a patient.

Automation and computerization assist health-care workers by improving the management and utilization of information. For example, computerized prescriber order entry systems provide decision support for prescribing and eliminate the legibility problems that are common with handwritten prescriptions. Similarly, bar code verification of patient,

drug, and medication at the bedside substantially reduces the potential that incorrect medications will be administered.

Simplification and standardization are principles frequently used in engineering to reduce the risk of error by decreasing the variety of options available. Pre-printed medication orders and care pathways are examples of standardized communication tools for medication use; they guide prescribing and support effective transmission of information

to other health-care providers.

Reminders, checklists, and double checks are commonly used in aviation and other high-risk industries to ensure that work is completed and checked systematically. The most effective double check is one that is independent, whereby a second practitioner conducts the verification in such a way that the first practitioner cannot communicate what he or she expects the second practitioner to see; this reduces the opportunity for bias and increases the visibility

of an error. Independent double checks are recommended for selected high-alert drugs and high-risk processes.

Rules, policies, education, and information, when used on their own, are the least effective methods for effecting change. However, they are necessary tools to support the more effective methods listed above. For example, practitioner education is needed when pre-printed order protocols are initiated, and training for “smart” infusion pumps is crucial to ensure that the technology is properly used and thus maximize the effectiveness of the safeguard.

Through increased awareness and use of higher-leverage strategies, as outlined in the error prevention “toolbox”, health-care organizations can improve their systems and therefore patient safety. It is important that individual practitioners are aware of this list as well, to ensure that improvements to enhance patient safety are understood, supported, and implemented.

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