

## Case Discussion

Read "Making the Problem Worse," and prepare answers to the following questions:

1. What went wrong? How can you explain how the technology actually led to more rather than fewer mistakes?
2. What theories of change implementation would have helped the administrators at the Springfield General Hospital solve the problem of medication mistakes?
3. How might you have gone about solving the problem at Springfield General? To what extent, if any, would new technology have been helpful?

### Making the Problem Worse

It's likely that many people simply skipped the morning newspaper on Thanksgiving 2010. Had they scanned the front page, however, they may have noted a headline: "Hospitals Make No Headway in Curbing Errors, Study Shows." The article did not make encouraging reading. After 10 years of efforts designed to reduce hospital errors, a study found "that harm to patients was common and that the number of incidents did not decrease over time."<sup>31</sup> To help understand this matter, we can look at one hospital that made an effort to avoid mistakes, and, in doing so, made matters worse.

#### Springfield General

The chief administrators at the Springfield General Hospital (a disguised name), a large urban teaching hospital, were determined to use technology to solve a nagging and disturbing problem: medication mistakes.<sup>32</sup>

**The Problem** Prescribing errors, confusion over drugs with similar names, inadequate attention to the synergistic effects of multiple drugs and patient allergies—those and other related errors that are lumped together under the label "adverse drug event"—kill or harm more than 770,000 patients annually in U.S. hospitals. In added health care costs alone, adverse drug events add several hundred billion dollars a year. And the most common type of error—the simplest to understand and, seemingly, to correct—is "handwriting identification": poor or illegible handwriting by the prescribing physician.

**The Solution** Administrators at Springfield General called upon a computerized physician order entry (CPOE) system to solve the problem. CPOE worked to ensure safety and accuracy by the following steps:

- All physician prescriptions for medicine and treatment would be entered into the hospital's IT network.
- Those computer entries would be available to all hospital staff, including both treatment and pharmacy staff.
- The system would catch all prescription errors: incorrect dosages, duplicate requisitions, patient allergies, and even adverse impact statements of multiple medications being prescribed to a patient.
- The system would also display the patient's complete medical history as well as the latest clinical guidelines for treatment.

Ample evidence existed that CPOE can and has been used to reduce both errors and costs.

**The Results** Surprisingly, the results at Springfield General were stunningly disappointing. Not only did the CPOE system not eliminate errors, it actually increased adverse drug events.

A subsequent study identified a number of problems:

- **Incorrect Dosage Information**—House staff often rely on CPOE displays to determine minimal effective or usual doses. The dosages listed in the CPOE display, however, are based on the pharmacy's warehousing and purchasing decisions, not clinical guidelines. For example, if usual dosages are 20 or 30 mg, the pharmacy might stock only 10-mg doses, so 10-mg units are displayed on the CPOE screen. Consequently, some house staff order 10-mg doses as the usual or "minimally effective" dose.\*
- **Discontinuation Failures**—Ordering new or modifying existing medications is usually a separate process from canceling (discontinuing) an existing medication ... medication-canceling ambiguities are exacerbated by the computer interface and multiple screen displays of medications ... viewing one patient's medications may require 20 screens.\*
- **Patient Confusion**—"It is easy to select the wrong patient file because names and drugs are close together, the font is small, and, most critical here, patients' names do not appear on all screens. Different CPOE computer screens offer differing colors and typefaces for the same information, enhancing misinterpretation as physicians switch among screens. Patients' names are grouped alphabetically rather than by house staff teams or rooms. Thus, similar names (combined with small fonts, hectic workstations, and interruptions) are easily confused.\*"

How could this have happened?