



# Pittsburgh Regional Healthcare Initiative

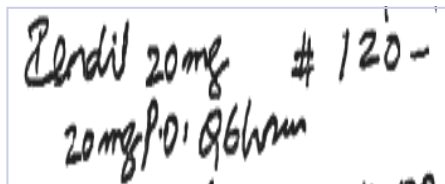
Reprinted from *PRHI Executive Summary*, September 2005

Naida Grunden, editor

## LifeCare Hospitals of Pittsburgh

### Big improvements the low-tech way

Not every hospital can afford sophisticated pharmacy tracking software. For smaller and community hospitals, advanced-but-expensive tools like computerized physician order entry or bar code medication administration may be



**Pens can kill.** When 42-year-old Texan Ramon Vasquez received Plendil, a calcium-channel blocker, instead of Isordil, a longer-lasting version of nitroglycerin, the error was fatal. Hospitals in the Pittsburgh region are using high-tech and low-tech improvements to prevent such errors.

Example reprinted by permission of Robert Wachter, M.D., co-author of *Internal Bleeding*.

years off. And while implementing these state-of-the-art programs can eliminate a whole host of problems, it can introduce others that can tax the problem-solving capabilities of their organizations. What low-cost, low-tech steps can a hospital take to begin to make medication administration safer? LifeCare Hospitals of Pittsburgh is working on some innovations.

#### **1. Throwing down the gauntlet on incomplete orders**

In early May, LifeCare CEO Cliff Orme threw down the gauntlet on illegible and incomplete pharmacy orders, setting the expectation that staff would work together to

eliminate them. An improvement team of front-line doctors, nurses and pharmacists began by addressing the basics: a clear order form. The existing form allowed for mostly free text. Hasty handwriting and incompleteness were continual sources of confusion once the order reached the pharmacy.

The key to making the form easier lay in the “visual cue.” With columns of information asking for drug-dose-route-frequency, missing information was immediately obvious. The first revision was introduced in mid-May, followed quickly by several revisions.

“It was the first time changes were made spontaneously, without seeking approval from a committee. It was also the first time that changes were made by the people doing the work rather than a group of leaders in a conference room,” said Pharmacy Manager Darlene Schreiber. “The form dramatically improved completeness of orders. Although it wasn’t designed to eliminate illegible orders, we actually saw improvement in that area as well.” (see chart).

#### **2. Home-grown automation**

The next step may be to eliminate handwritten orders. A home-grown computer program for order entry, created a few years earlier, had never really taken off. The information includes up-to-date lists of

physician staff members, patients, and the formulary.

The improvement team believed this system could be useful, and two physicians agreed to try it. Coming to the program with differing degrees of computer expertise, the physicians needed varying degrees of one-on-one coaching to become conversant with the ordering system. As they have learned to use it, they have called for help as needed, and the team has responded with real-time problem-solving.

Orme hopes that within the next few months, the automated system will be rolled out throughout LifeCare Pittsburgh. Troubleshooting techniques taught by PRHI and paid consultants\* will help the staff quickly identify and remedy the initial problems or “growing pains,” and further reduction in illegible and incomplete orders is anticipated.

### 3. Improving the pharmacy

The pharmacy itself has been the focus of a three-month improvement effort with the goal of reducing waste and inefficiency and freeing up time for the pharmacy technicians. At first, two technicians needed one 8-hour shift apiece per week to order

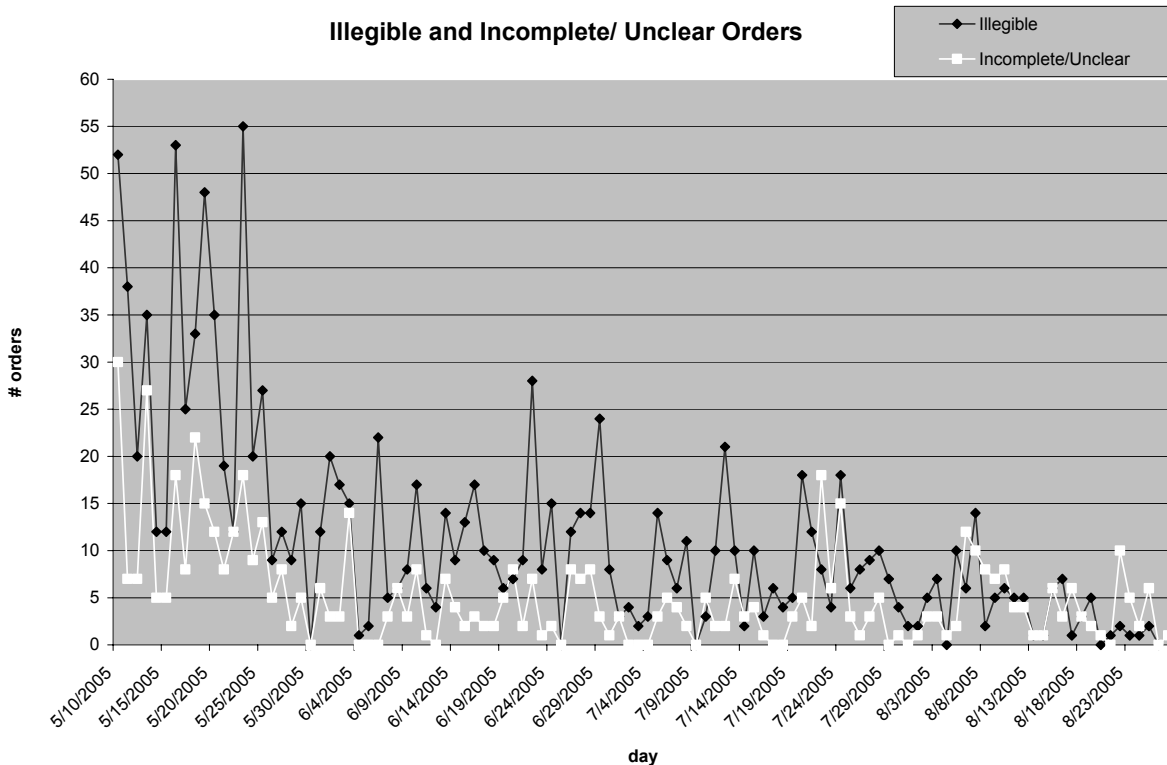
pharmaceuticals from outside suppliers. The ordering method was cumbersome and inefficient, the drug list incomplete, the restocking amounts poorly understood.

Starting in 2002, Schreiber led an effort to understand the inventory needed and reduce unnecessary supply. The result was a reduction in pharmacy inventory of about one-third between 2002 and 2004.

Yet inventory excesses and stock-outs continued.

Convinced that “reducing inventory” was not the ultimate goal, Schreiber worked with consultants to understand the current need. They purchased a customized report on actual usage and used the information to calculate (1) how much of each drug was needed to avoid stock-outs, (2) which vendor to order from, and (3) when and how much to reorder. Pharmacy Technicians Debbie Reichbaum and Sherry Miller and took charge of the project.

The result is a kanban system, based on the principles of the Toyota Production System. Kanban cards contain all necessary information for reorder:



vendor, contact information, amount to order and so forth. These cards are placed at a “trigger” point in the inventory, when enough product remains for a specified number of days—more than enough time for the stock to be replenished. When the trigger point is reached, the worker removes the kanban and places it in the specified bin. Within 24 hours, the kanbans are collected and orders are placed.

As they went from item to item in the pharmacy creating kanbans, Reichbaum and Miller discovered some items long-unused, and some of insufficient quantity. Adjusting the amounts required research and intuition.

“Many customizations were required,” said Schreiber. “But now, the technicians order every day as part of their regular work. Having the entire pharmacy on a kanban system has freed up 16 hours of technician time. My happy dilemma is going to be choosing what to do with that 16 hours, and in this case, we will be expanding our problem-solving capacity.”

The number of stockouts and other problems have been so greatly reduced that now, each problem that comes up can be examined and solved quickly, in real time.

The pathway for orders—from the physician’s pen to the patient’s bedside—is being continuously examined at LifeCare for improvements. Clear and complete orders, a reliable supply of medications, and a way to solve problems in real time every day are key to the work at LifeCare.



Pharmacy Techs Sherry Miller (above) and Debbie Reichbaum helped implement the *kanban* system of stocking in the LifeCare pharmacy. Strategically placed cards show exactly when and how much to order, eliminating guesswork, making ordering part of everyday work, and restoring 16 hours of technician time per week—time that can be used to make more improvements.



*Kanban cards: Low-cost, low-tech, high impact*

*\*The improvements at LifeCare have been guided by PRHI, a community resource, and by paid consultants from Value Capture, a for-profit healthcare improvement consulting firm.*

