

HOSPITAL CHARACTERISTICS

## PARKVIEW MEDICAL CENTER

- ▶ Pueblo, CO
- ▶ 305 beds
- ▶ <http://www.parkviewmc.com/>

Parkview Medical Center offers acute healthcare and behavioral health specialty services. It provides a full range of health care services including a certified Level II trauma center and a certified stroke center.

### S . T . E . E . E . P .



#### SAFE

Medication error rate dropped from 20 to 8 percent.



#### TIMELY

Turnaround time for new medication orders was cut by 30 minutes.

# TECHNOLOGY—A TOOL FOR MEDICATION SAFETY

## The Problem

Medication errors in the health care delivery system are the most common type of error, according to the Institute of Medicine. At least 1.5 million people are harmed each year and drug-related injuries occurring in hospitals amount to \$3.5 billion a year. The staff at

Parkview Medical Center thought they could dramatically improve patient safety by focusing on its medication administration processes.

## The Solution

Staff examined and reengineered its entire medication administration process. A multi-disciplinary team of front-line staff from pharmacy, nursing and information technology worked on breaking down the silos between nursing and pharmacy and eliminating error-prone steps, such as waiting till midnight to reconcile medications. Then they worked on automating steps to give the nursing staff capability to verify that the entire process was followed.

## Results

Medication error rate dropped from 20 percent to 8 percent.

Pharmacy turnaround time for new medication orders dropped from 45 to 15 minutes.

## Background

There are many points during the medication administration process where an error can occur. Missed doses, wrong techniques, illegible orders, duplicate therapies and drug-drug interactions are the top five, according to the Agency for Healthcare Research and Quality.

While many of these errors can be reduced by redesigning processes to eliminate possibility of human error, adding a technical

component can ensure the all administration steps are followed in a timely fashion. Technology can provide an added layer of protection.

This is how Parkview Medical Center, Pueblo, Colo., approached its implementation of wireless handheld bar-code devices at the bedside. Many hospitals are implementing technology to improve safety, especially around medication administration, with some experiencing more success than others. The successful hospitals are examining and re-engineering the entire medication administration process and then adding appropriate changes to help caregivers further improve medication safety.

“There is not a nurse in the world that doesn’t believe they are administering medications absolutely right,” says Eileen Dennis, RN, chief nursing officer. And yet medication errors occur regularly. According to AHRQ, adverse drug events vary from 2 per 100 admissions to 7 per 100 admissions and are estimated to cost as much as \$5.6 million per hospital annually. So Parkview leadership took a hard look at its medication administration practice to see how or when errors were occurring.

Medication administration began with the unit secretary receiving an order from a physician, transcribing it and scanning it over to the pharmacy. The nursing staff

## TEAM MEMBERS

**Eileen Dennis, RN**

Chief Nursing Officer

**Denise Crepeau**

IntelliDot Coordinator and System

Analyst

signed off physician orders comparing them to the medication administration records that were handwritten by the unit secretary, thereby verifying the order. The pharmacy referenced the physician order and then entered it in the pharmacy information system. An auto printed medication administration record was reconciled at midnight by the nurse to identify potential errors.

This process was error prone especially because nursing and pharmacy did not communicate directly and the nurse had no way of knowing that all the steps before the actual administration of medicine were followed. There were many questions among the nursing staff—was the drug transcribed correctly? Is the dosage correct? The nursing staff had no way of knowing the answers to these questions.

### **Principles of Performance Excellence**

#### **Creation of High-Reliability Culture**

The medication administration process needed improvement to not only ensure that patients were receiving the right drug at the right dose at the right time, but also to support the nursing staff so they were confident that the medication they administered was correct. To work on this problem, senior leaders brought together a multi-disciplinary team of front-line staff from the pharmacy, nursing and information technology and provided senior support from Dennis.

The team was focused on improving the entire process. While automating processes was an option, the team knew it had to work on breaking down the silos between the pharmacy and nursing staff and

changing steps that were just plain error prone, such as waiting until midnight to do medication reconciliation.

The team also recognized that the nurse administering medications at the bedside was the last person to prevent an error from occurring. This person needed to be able to verify that all the steps in the process happened and that the medications were verified at several different points.

The team slowly started to tweak the process. They had the pharmacy scan in the orders from the physicians; they had the nursing staff sign off at various points to ensure steps were being followed. While these changes improved the medication process, everything was still manual and relied on human intervention to move to the next step. “We ran flat into a wall,” says Dennis. “You can only do so much when trying to check a manual piece.”

At this point they turned to technology. The team wanted to provide the nursing staff a tool in order to check and track that each step in the process was followed and verified. They implemented a wireless handheld device for the nursing staff to carry with them. When a nurse scans a patient’s wristband at the bedside, the device provides up-to-date medication information. Additionally it alerts the nurse to when doses are due or if there is a change in medications. The device is connected to the pharmacy, streamlining the number of steps.

Before improving the medication administration process and implementing the technology, Parkview conducted a med-

ication error study and found that 20 percent of doses had an associated error. That error rate dropped to 8 percent. Additionally, data also showed that 97 percent of nurses failed to use two identifiers before administration and 85 percent did not record clinical observations on the medical administration record.

Further, pharmacy turnaround time for new

medication orders dropped from 45 to 15 minutes. Parkview has been able to sustain these results since 2005 and plans to roll the system to other units in the hospital.

You can't just purchase the technology, implement it and expect great results, says Denise Crepeau, IntelliDot coordinator and system analyst. Processes need to be

reexamined and changed. In Parkview's case, nursing and pharmacy needed to connect and talk to one another on a regular basis. Only after processes are improved can technology be added to ensure success.