> The Challenge

Automated dispensing cabinets (ADCs) are widely used in large hospitals and healthcare facilities to improve patient safety, enhance medication availability and streamline operations.

However, for smaller hospitals and specialty healthcare facilities, the capital cost of ADC systems can present a substantial hurdle to adoption. In fact, according to Pharmacy Purchasing & Products*, only about 80 percent of facilities with less than 100 beds use ADCs, compared with 93 percent of hospitals with 201 – 400 beds and 96 percent of hospitals with more than 400 beds.

High startup costs were a primary reason for delaying adoption at Alliance Health Center, located in Meridian, Mississippi, a 134-bed acute care psychiatric and chemical dependency hospital dedicated to serving individuals with behavioral health disorders as well as chemical and substance abuse issues.

Prior to implementing ADCs, Alliance was distributing medication weekly via weekly cart fills and maintenance of a unit floor stock. However, the facility was experiencing issues with medication errors. Further, inventory procedures on controlled substances was time-consuming and error prone, with signatures frequently missing at the shift change.

In investigating options for ADC systems, Alliance sought to address critical challenges, including:

- Reducing medication errors;
- Improving security for controlled substances;
- Increasing reporting of adverse drug reactions;
- Improving inventory management; and
- Enhancing accuracy of charge capture and billing.

>>> At-a-Glance

**ORGANIZATION**
Alliance Health Center
Meridian, Mississippi

**BENEFITS OF METRO SOLUTION**
- Substantially reduced medication errors
- Improved reporting of adverse drug reactions
- Decreased inventory by 8 percent
- Enhanced charge capture and billing accuracy by 86 percent

“Since adopting the MedDispense system in 2007, we have seen significantly reduced medication errors and streamlined our pharmacy operations while improving reporting of adverse drug reactions. While a variety of factors have contributed to this success, the MedDispense system is the biggest reason we have achieved these important goals.”

Joanie Chesnutt,
Director of Pharmacy,
Alliance Health Center
To address the issue, in 2007 Alliance Healthcare chose the Metro MedDispense Series, which offers ADCs that ensure secure, 24/7 access to medications at about one-third the cost of other systems.

The MedDispense Series is designed for flexibility, enabling healthcare facilities to customize solutions that ensure safety and control of medications and supplies while saving time and money, reducing errors and improving efficiency.

The MedDispense Series offers a wide selection of base systems, auxiliary storage and accessories that can be configured to meet the specific needs of healthcare facilities of all sizes. The scalable system offers central control of all units and remote access to standard and custom reports.

To reduce medication errors, the Alliance pharmacy leveraged key features of the MedDispense system, including alerts for high-risk medications and “look-alike/sound-alike” medications. Among many safety features, the system allows pharmacists to specify monitoring parameters, such as requiring blood pressure checks or advice for patients prior to administering certain medications.

The pharmacy team also utilized MedDispense features to improve reporting of adverse drug reactions (ADRs). “The psychiatric medications we use can have significant side effects. We needed a better system to track these incidents and understand the risks for our patients,” said Joanie Chesnutt, Director of Pharmacy, Alliance Health Center. “MedDispense fit our specific needs and gave us a tool to ensure we can identify and investigate adverse reactions so we can improve care.”

In investigating options for ADC systems, Alliance sought to address critical challenges, including:

- Reducing medication errors;
- Improving security for controlled substances;
- Increasing reporting of adverse drug reactions;
- Improving inventory management;
- Enhancing accuracy of charge capture and billing.
For instance, the MedDispense system requires nurses to note when certain drugs were used to treat a suspected ADR. As a result, ADR tracking improved, enabling the care management teams to address a critical patient safety issue.

As part of the initial planning, Alliance carefully planned the layout of the drawers and controls to support its needs. The MedDispense design enhances patient safety by eliminating matrix drawers in favor of a single-drawer linear configuration.

Alliance also implemented measures to improve management of controlled substance inventories. For instance, two nurses must log in to witness wastage. Time spent on shift counts has been greatly reduced as nurses only need to count medications that have been accessed.

“The MedDispense system is easy to learn. One of our older nurses had never turned on a computer in her entire life and was able to learn how to retrieve medications within an hour,” says Joanie Chesnutt, Director of Pharmacy, Alliance Health Center.

> The Result
After adopting the MedDispense solution in the fourth quarter of 2007, the Alliance pharmacy staff carefully tracked results. Key findings:

Medication ERRORS were REDUCED substantially. Measurement of four key errors showed significant, measurable improvement in patient safety:

Wrong preparation declined by 43 percent (from 64 in 2006 to 36 in 2009)
Wrong dose declined by 11 percent (from 120 to 107)
Unauthorized drug declined by 31 percent (from 96 to 66)
Transcription error declined by 43 percent (from 23 to 12)
> The Result

**Reporting of suspected ADRs INCREASED from only seven in 2007 to 137 in 2009.**

Increased awareness of ADRs enable physicians to investigate trends to tailor treatment plans and improve quality of care.

**INVENTORY DECLINED by 8 percent within seven months after implementation.**

MedDispense enabled Alliance to reduce costs by reducing the amount of medication sitting on shelves. The automated system supports easy tracking of medication being used to enhance order accuracy.

**Charge capture and billing ACCURACY IMPROVED by 86 percent.**

To monitor accuracy of medication charges, the hospital conducts quarterly audits on 10 discharged patients. Since adoption of MedDispense, the audits reveal a dramatic decrease in errors on documentation on the medication administration record. After MedDispense was deployed in late 2007, billing errors have declined by 86 percent, from 2,599 in 2007 to only 342 in 2009.

“There are always reasons not to pursue automation, especially if the only factored considered is start-up cost. The reality is that we have seen significant cost and time savings in the long term as a result of automating our medication dispensation process as well as improvements in patient safety.”

Joanie Chesnutt