

Successful Bedside Scanning Begins in Pharmacy

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ABSTRACT

Successful bar code medication administration (BCMA) processes can be achieved only with a meticulously managed bar-code medication-use infrastructure. This foundation must be established and continuously refined by the pharmacy. When the bar-code infrastructure becomes strained, it has a cascading, negative impact downstream, from pharmacy to nursing to the point of care. Further, due to rapid technological change, particularly with respect to clinical, diagnostic, and patient information systems that intersect with pharmacy services, continual refinement of the bar-code medication-use process must be an organizational imperative. This creates an opportunity that places hospital pharmacies in a unique position to be proactive in driving out process impediments to patient safety, process efficiency, and cost containment.

INTRODUCTION

Hospital pharmacy practice is becoming increasingly integrated, and the lines between medication distribution roles and clinical roles are blurring. Virtually all hospitals (97.3%) have pharmacists regularly monitor medication therapy in some capacity; nearly half monitor 75% or more of their patients.¹

These exciting and promising trends are fueled largely through technology adoption, much of which is concentrated on preparing for bar code medication administration (BCMA) systems. For instance:

- Nearly 28% of U.S. hospitals were live on BCMA systems in 2009, compared to just 1.5% in 2002¹
- 233% growth in central pharmacy automation systems, 1999-2006²
- 500% growth in "machine-readable coding"* used to verify doses before dispensing, 2002-2008³
- 61% growth in hospitals outsourcing unit-dose bar-code packaging, 2002-2008³
- 83% of the 500 most frequently prescribed oral solid medications are available in manufacturer unit-dose, bar-coded packaging⁴

* Robots, carousel systems, and sometimes manual unit dose pick stations use machine-readable coding to verify removal and replenishment of medications.

Riverside Methodist Profile

The above trends are typified at Riverside Methodist Hospital. The flagship of OhioHealth, Riverside Methodist is a 1,058-bed tertiary care facility based in Columbus, Ohio, and a nationally recognized center for cancer, cardiology, and neurosciences. The hospital has been live on BCMA since 2005, enabled by bar-code automation systems in pharmacy.

Pharmacy Services – Service Model (early 2009)

- 6 million doses dispensed annually
- Hybrid distribution
- Horizon Admin-Rx bar-code medication administration
- ROBOT-Rx automated dispensing for cart fill
- MedCarousel for cabinet replenishment
- IntelliShelf Rx for refrigerated meds
- Decentralized cabinets

REFERENCES

- 1 Pedersen, C, Schneider, P, Scheckelhoff, D. 2010. ASHP national survey of pharmacy practice in hospital settings: Monitoring and patient education—2009. *Am.J Health-System Pharm.* 67:542-58
- 2 Pedersen, C, Schneider, P, Scheckelhoff, D. 2007. ASHP national survey of pharmacy practice in hospital settings: Monitoring and patient education—2006. *Am.J Health-System Pharm.* 64:507-20
- 3 Pedersen, C, Schneider, P, Scheckelhoff, D. 2009. ASHP national survey of pharmacy practice in hospital settings: Dispensing and administration—2008. *Am.J Health-System Pharm.* 66:926-4
- 4 McKesson Health Systems data report 2007-2008. Oral solids sales data; Sky Pharmaceuticals data report, February 2009. Unit dose availability



METHODS & MATERIALS

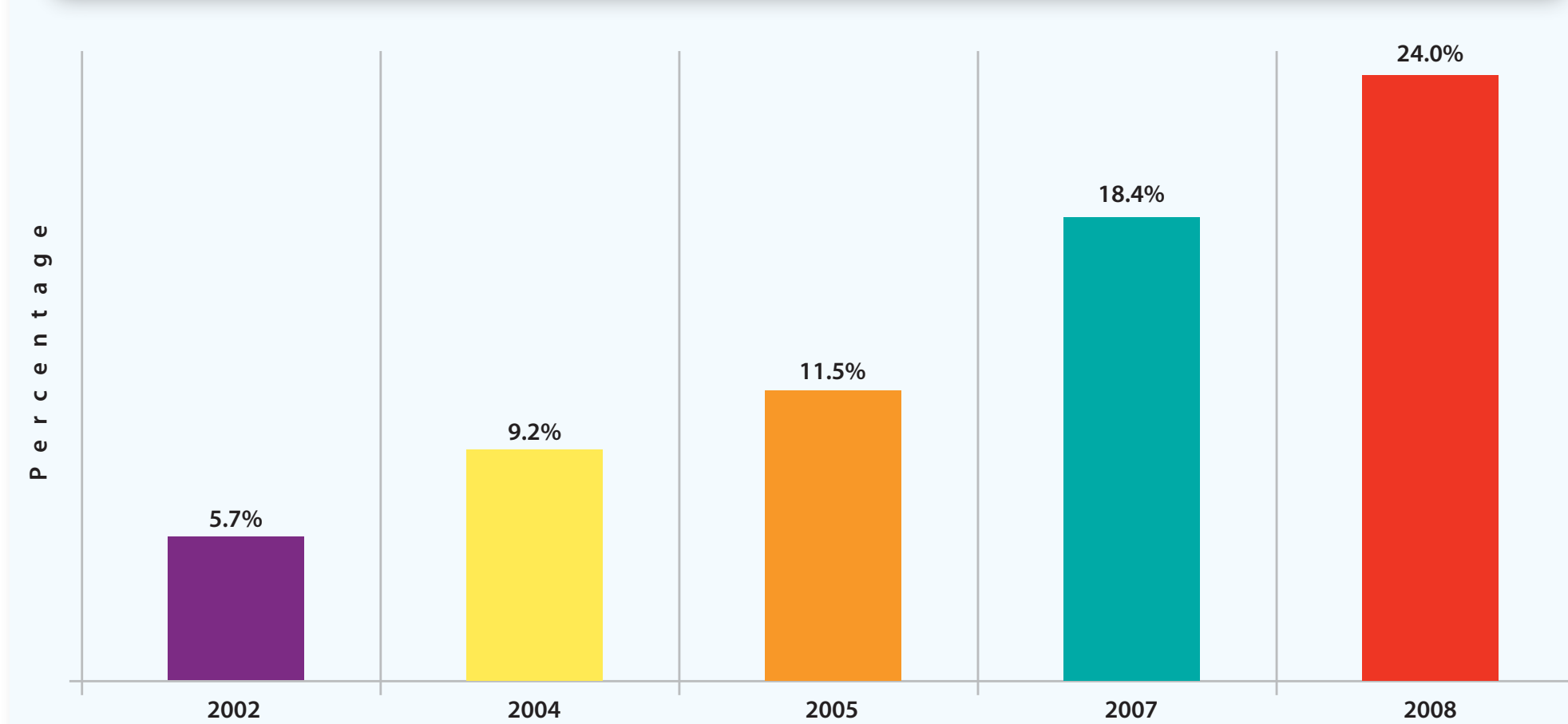
Despite sophisticated pharmacy automation processes in place, increases in average daily census, case-mix index, and patient acuity rates were driving up daily medication dispensing volume. This was beginning to strain pharmacy automation capacity. The pharmacy was performing 1,000 manual picks per day, prompting growing concern from both safety and efficiency standpoints. To address these issues, pharmacy leadership entered a beta agreement with McKesson to implement the new PROmanager-Rx automated medication dispensing system.

With PROmanager-Rx, Riverside Methodist was able to:

- Automate the storage and dispensing of nearly 3,000 oral solid doses daily—approximately 300 different medications.
- Leverage manufacturer unit-dose bar-coded packaging, with its inherent safety features that freed pharmacists from packaging verification and dispensing checks.
- Optimize medication storage locations across all automated systems.
- Accommodate PROmanager-Rx in a compact space—able to store 12,000 doses in less than 80 square feet—and integrate the system into existing pharmacy workflow.

Furthermore, by automating dispensing—and ensuring of 95% or more of all medications were bar-code scanned prior to leaving pharmacy—pharmacy leadership could focus on other organizational imperatives. Among the initiatives: medication charge capture upon administration. The pharmacy's credo: "If it can be charted, it can be charged for."

Growth in Machine-Readable Coding* Verification Prior to Dispense³



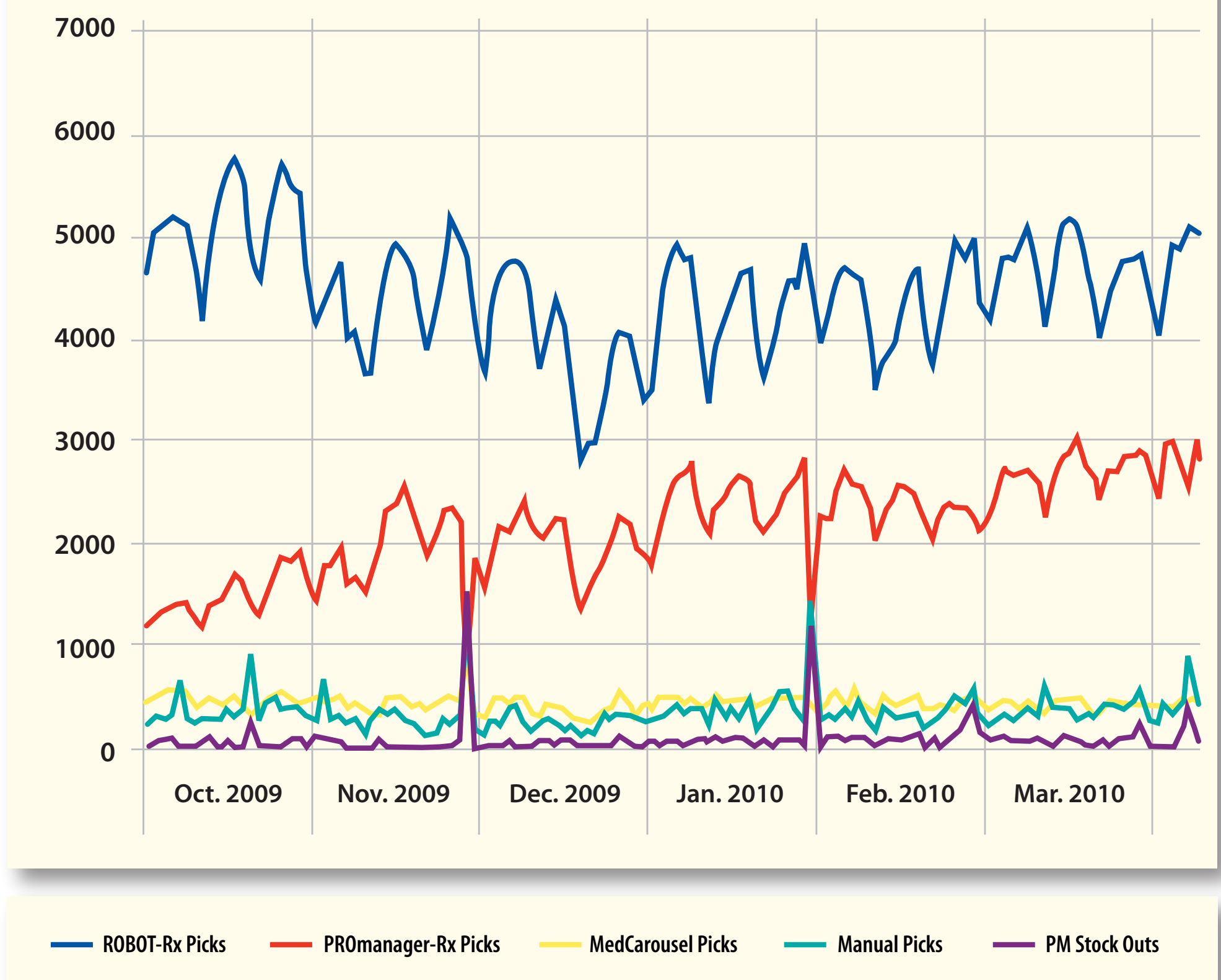
* Robots, carousel systems, and sometimes manual unit dose pick stations use machine-readable coding to verify removal and replenishment of medications.

RESULTS

With PROmanager-Rx and use of pre-packaged medications integrated into central pharmacy automation workflow, Riverside Methodist realized these results:

- Drove down the number of daily manual picks to virtually zero.
- Reduced pharmacist package checking labor by .5 FTE, enabling redeployment to order entry and patient-centric roles.
- Received a check waiver from Ohio's State Board of Pharmacy to conduct a 10% QA check in lieu of a full pharmacist check for medications dispensed by PROmanager-Rx.
- Achieved 95%+ scan rate for all medications leaving pharmacy.
- Limited dependence on outsourced medication packaging services.
- Achieved 95% rate for charge capture on medication administration.

Riverside Methodist Pharmacy Dispensing Methods, October 2009-March 2010



CONCLUSIONS

Building on the established bar-code technology foundation, Riverside Methodist was positioned to continuously refine and improve outcomes—clinical, operational, and financial.

"Between improved staff satisfaction, automation of the picking process, and improved safety, PROmanager-Rx is a big win. On the front end, we can order a pre-packaged product direct from a wholesaler, receive it, and immediately put it into our medication-use process. And because we have a check waiver in place from the Ohio Board of Pharmacy, we can improve patient safety at the same time we're minimizing pharmacist involvement in cart fill."

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