

## ORGANIZATIONAL PROFILE



### Shore Memorial Hospital

1 E. New York Ave.

Somers Point, NJ 08244-2300

(609) 653-3500

www.shorememorial.org

**Industry:** Healthcare

**Employees:** 1,700

## PROJECT HIGHLIGHTS

- Forecast a 28% ROI in less than five years, and a project net present value of more than \$700,000.
- Established a bar-code foundation to support patient safety, productivity, and inventory management initiatives.
- Projected a 3% annual revenue increase over ten years (totaling \$220,000) as a result of accurate charge capture of floor stock and controlled substance medications.
- Increased by 220% the documented clinical interventions by pharmacists, resulting in an additional yearly savings of \$416,000 through reduced ADEs.
- Cut pharmacist checking labor by 90%.
- Increased medication inventory turns by 42%, effectively cutting inventory costs by 30%, and saving \$166,000.
- Reduced by 80% the number of medication stock outs on nursing units.
- Cut by 93% the time required for narcotics reconciliation.

# Integrated Pharmacy Automation Systems Lead to Increases in Patient Safety and Significant Reductions in Medication Inventory Costs

## Background

Shore Memorial Hospital, the flagship of Shore Memorial Health System (SMHS), is a not-for-profit acute care facility licensed for more than 300 beds. With 35 medical and surgical specialties, the hospital is a regional leader in cardiovascular services, neurosciences, oncology services, and high-technology acute care. Clinical affiliations with the University of Pennsylvania Health System assures seamless access to clinical trials, research, and treatment options. Similarly, SMHS shares clinical affiliations with Children's Hospital of Philadelphia, world renown for its highly specialized pediatric care.

Shore Memorial Hospital received a 2007 Voluntary Hospitals of America (VHA) Inc. Leadership Award for Clinical Excellence in Cardiac Care. Only 100 of the 2,400 VHA affiliated hospitals earned this designation. Additionally, Shore Memorial Hospital is a recipient of the Consumer Choice Award from the National Research Corporation for the most-preferred hospitals for quality and image.

## The Challenge

Prior to Shore Memorial's automation initiative, the hospital's medication distribution process involved labor-intensive dispensing, checking, and distribution of medications. Pharmacists spent the majority of their time on medication distribution and order-entry activities, limiting the amount of time spent on clinical activities that could positively impact patient outcomes.

In addition to being time-consuming, the manual processes in filling and distributing medications contributed to the potential for human error. Non-patient-specific floor stock medication inventories were stored in an ad-hoc fashion on each floor, limiting effective inventory control, stock replenishment, and patient charge capture. Narcotic tracking and paper follow-up was cumbersome and time consuming. Manually creating the daily medication replenishment order limited the ability to optimize pricing.

Targeting improvements to these areas, Shore Memorial formed a multidisciplinary committee. The committee established two main goals:

- Develop a plan to implement an integrated, automated medication administration process, based on bar-code technology, to deliver patient safety and productivity benefits.
- Gain substantial benefits from bar-code-based automation: patient safety, inventory management, productivity gains, better utilization of pharmacy personnel skills, and improved job satisfaction.

## The Results: Quantifiable Benefits

The committee recommended a single-source, integrated solutions approach to the medication distribution process—from medication order, dispensing, and storage to charge capture and inventory replenishment.

Shore Memorial selected McKesson's integrated automation solutions, including:

- The ROBOT-Rx® system to create the bar-code basis for dispensing patient-specific, unit-dose medications. This increased productivity and reduced the chance for human error.

"Having had previous experience with pharmacy automation projects before coming here, it was clear Shore Memorial could gain substantial benefits from bar-code-based automation: patient safety, inventory management, better utilization of pharmacy personnel skills, and improved job satisfaction."

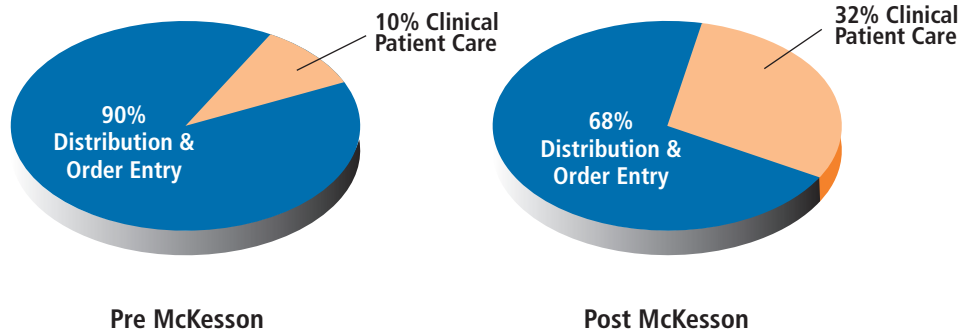
**Barbara Giacomelli, Pharm.D., MBA**  
**Director of Pharmacy**



"This is a great program. It has enabled the pharmacist on the floor to be more accessible in assisting with questions or concerns. Questions on medication interactions are a good example. The knowledge received from these types of inquiries is invaluable, not just for the immediate concern but the significant education obtained for future reference."

**Michael J. Ginieczki, M.D., F.I.C.S.**  
**Administrative Director of Physician Integration**

### Increased Pharmacy Productivity



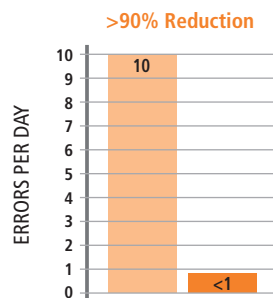
- The MedCarousel® system, with bar-code scanning and pick-to-light technologies, improved accuracy in picking stock for unit-based cabinets. This contributed to improved patient care and reduced expedite work for nurses and pharmacists.
- AcuDose-Rx® cabinets introduced medication bar coding at the nurse level for patient safety, charge capture, and inventory control.
- The Horizon MedComm-Rx™ communication system provides real-time, online access to patient medication orders, saving time and improving accuracy.
- Fulfill-Rx<sup>sm</sup> software integrates the MedCarousel to McKesson Pharmaceutical to cut in half the time required to prepare the daily replenishment order. This integration streamlines inventory replenishment, automates inventory re-ordering, and optimizes medication cabinet inventory.

This systems-wide approach maximizes enterprise value, minimizes potential failure points, reduces maintenance costs, simplifies employee training, and promotes smart, incremental growth of the automation infrastructure. It also paves the way to completing the closed-loop system, including computerized physician order entry (CPOE) and bar-code scanning of medications at administration. Among the key results:

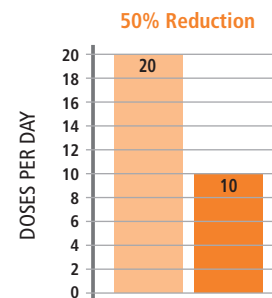
- Projected 3 percent annual revenue increase over ten years (totaling \$220,000) as a result of accurate charge capture of floor stock and controlled substance medications.

### Improved Medication Safety

#### Pick Error Reduction



#### Missing Doses



#### First Dose Turn Around Time



Pre McKesson Post McKesson

"The integrated pharmacy medication-distribution system gives us accurate inventories and the ability to set min/max and par levels. We can 'see into' the storage locations for all pharmacy automation solutions across the enterprise. The Fulfill-Rx software automatically selects the preferred medication for our order. This enables us to maximize our rebates from negotiated contracts with vendors, and to select the lowest price equivalent item for non-contract items. This saves time and lowers medication costs."

**Ed Mowbray, C.Ph.T.**  
Pharmacy Inventory Coordinator

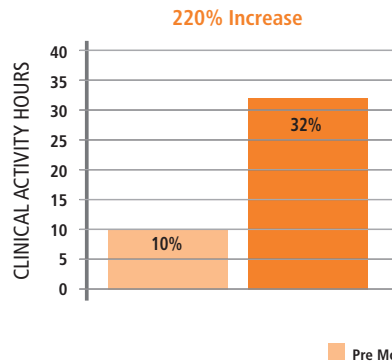


"The feedback from the nurses and from the medical staff has been very positive. They now see the pharmacists making a difference in the patient care areas, and the pharmacists feel more a part of the healthcare delivery team."

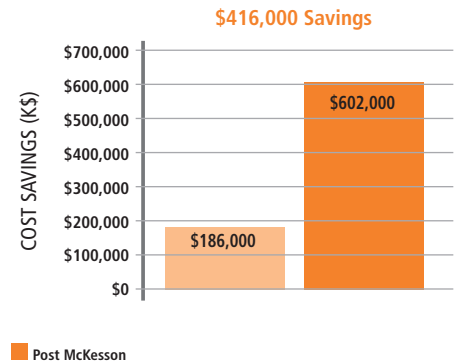
**Barbara Giacomelli, Pharm.D., MBA**  
Director of Pharmacy

## Increased Pharmacist Clinical Interventions

Pharmacist Involvement



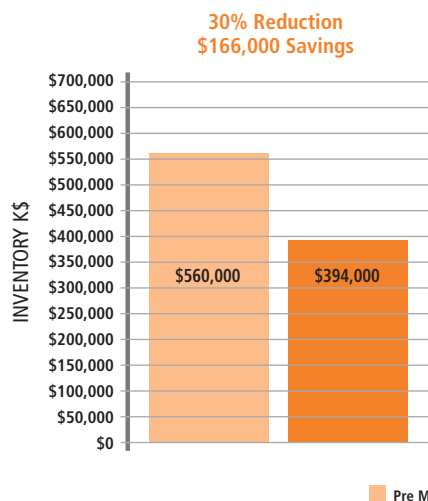
Clinical Intervention Cost Savings



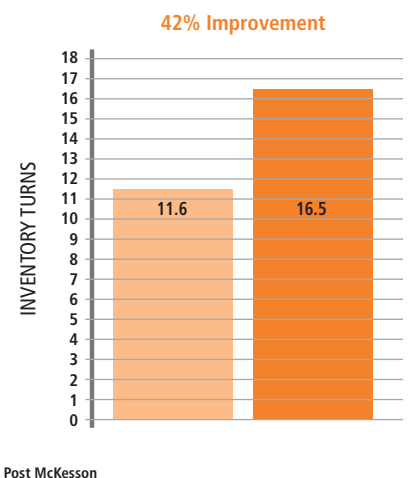
- Increased by 220 percent the documented clinical interventions by pharmacists, resulting in an additional yearly savings of \$416,000 through reduced adverse drug events (ADEs).
- Cut by 90 percent the amount of pharmacist labor required to check patient medications.
- Increased medication inventory turns by 42 percent.
- Lowered medication inventory costs by 30 percent for a first-year savings of \$166,000.
- Decreased by 80 percent the number of medication stock outs on nursing units.
- Reduced by 93 percent the time required for narcotics reconciliation, by storing controlled substances in AcuDose-Rx cabinets.

## Inventory Efficiency

On-hand Inventory



Inventory Turns



## Summary

Patient safety was the driving force behind Shore Memorial's pharmacy automation project. This independent evaluation demonstrates that the implementation of McKesson's integrated automation solutions delivered significant quantifiable benefits as well as strategic benefits.

The net present value of the pharmacy automation project represents the net economic benefit that will be realized by Shore Memorial. It takes into account project costs and benefits, and discounts the cash flows from this project by the time value of money. Shore Memorial will be \$701,000 better off through the quantifiable benefits gained through automation.

The return on investment of 59 percent is outstanding. An enterprise should invest in any project that returns more than its cost of capital. On average, the cost of capital for a community medical center is in the 6-to-8-percent range, further proving the value of the pharmacy automation project.

Additionally, the bar-code-based foundation was in place when Shore Memorial implemented medication administration scanning in April 2007. Money saved by the project was to be invested in a CPOE system.

Among the non-quantitative benefits of the project are:

- Reduced risk of major medical error resulting in potential litigation.
- Elevated the role of the hospital pharmacist to be an integral part of the patient's medical team.
- Improved job enrichment for pharmacists, resulting in zero full-time pharmacist turnover in three years in a highly competitive environment.

**Shack & Tulloch, Inc.**  
 375 Woodcliff Drive  
 Fairport, NY 14450  
 (585) 248-2000

*Information contained in this publication has been obtained from sources Shack & Tulloch considers to be reliable, but is not warranted by Shack & Tulloch.*

© 2008 Shack & Tulloch, Inc. All rights reserved.

