

An RxSafe White Paper



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Effects of Robotic Pharmacy Workflow Automation Technology on Retail Pharmacy Safety and Security

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Introduction & Problem Statement

The American Association of Colleges of Pharmacy (AACCP) recently surveyed a sample of community pharmacists, finding that 58% consider theft and fraud to be “a serious problem.”ⁱ All too often, prescription drug inventory management systems and workflow processes lack truly comprehensive security or real-time inventory tracking.

Prescription drug security is not simply an issue of lost inventory or fraud, it is also a serious safety concern. A study in *Medical Care* discovered that outdated filling technology and high pharmacist workload both lead to increased drug-drug interaction (DDI) errors.ⁱⁱ

In addition, same-store pharmacy prescription volumes will continue to rise in the United States as a result of increased utilization by an aging population. This market environment puts pressure on pharmacies to make their workflow processes as efficient as possible.

The obvious solution is implementation of efficient workflow automation technology, but the question remains: **what kind of technology should actually be implemented?**

In our view, if retail pharmacies could have access to an automated robotic workflow system that provides *continuous, real-time* secure storage and inventory management, then the current risks of theft, fraud, and cross-contamination could be drastically reduced, if not eliminated entirely.



**Background:
Current State of Robotic
Pharmacy Automation
Technology**

Robotic retail pharmacy automation technology has been available for more than 15 years, and its increasing acceptance in the marketplace has coincided with increasing same-store prescription volumes.

According to *ThomsenGroup* executives, “pharmacy operators, gearing up to meet the needs of aging Americans, will continue to automate their pharmacies. The trend in the coming years will be for more automated counting devices, more robotics, more central fulfillment facilities, and the addition of automated workflow systems.”ⁱⁱⁱ

Currently, the most common type of automation technology found in retail pharmacies is the vial-filling robot, followed by tablet-counting machines. Typical vial-filling robots will automate approximately 45% of daily retail pharmacy prescription volume at an initial installation cost of approximately \$200,000.^{iv}

The *ThomsenGroup* conducted a work-sample study of pharmacy workflow before and after the installation of a vial-filling robot, finding overall time savings of 23.5%, and also finding that pharmacists had more time to focus on quality and product verification, as well as patient counseling.

However, the impact that vial-filling robots can have on safety and security is limited by the fact that they do not provide secure storage for all medications. Pharmacy stock bottles are still out on shelves, and inventory management is essentially left unchanged.

Furthermore, pharmacy technicians must fill dispensing cells in vial-filling robots daily, which is a process still vulnerable to human error.

To be sure, vial-filling robots coupled with workflow management software have resulted in efficiency gains and some improvements in safety through additional quality control, but true drug *security* has thusfar proven elusive.



The RxSafe Difference

The RxSafe System represents an evolutionary leap in the scope of robotic pharmacy workflow automation technology. Rather than simply automating fast-moving drugs, the RxSafe System provides secure robotic storage and retrieval for the entire inventory of a retail pharmacy (**up to 5,400 prescription containers**) in less than 40 square feet of floor space.



How It Works

Rather than requiring pharmacy staff to manually fill dispensing cells, the RxSafe stores prescription containers *in their native packaging*, and integrates easily into retail pharmacy workflow.

The workflow efficiencies gained using an RxSafe System far outstrip those of a typical vial-filling robot:

Minutes per Rx Saved by Workflow Process

(based on 7 minutes/Rx without any robotic automation system installed)

	RxSafe ^v	Vial-Filling Robot ^{vi}
Put-Away	0.34	0.03
Filling	2.381	1.631
Container Storage	0.57	-0.017
Will-Call Rx Location	0.282	0.114
Total	3.573 (51% improvement)	1.758 (25% improvement)

Furthermore, all RxSafe System operators are uniquely identified to the system through a scan of RFID credentials every time a prescription container is checked out or put away. This makes each individual pharmacy technician accountable for every prescription they fill.

The RxSafe System is also compatible with all major pharmacy management systems, so purchasing additional workflow automation software is not necessary.

Inventory Security

The RxSafe workflow automation cycle begins with inventory “put-away”. Instead of manually stocking prescription shelves, the RxSafe System identifies individual prescription containers through NDC barcode scans, and operators can quickly put away inventory by taking



advantage of the RxSafe System's automated smart shelving.

Once pharmacy inventory is stored in the RxSafe System, individual containers can only be accessed by operators filling prescriptions after a prescription label transaction barcode and individual RFID wristband are both scanned. The RxSafe System tracks all pharmacy inventory down to the pill or package, so any count discrepancies can be quickly resolved.

More Time for Quality Control and Patient Counseling

The RxSafe System is expressly designed to allow pharmacies to easily and efficiently handle increasing same-store prescription volumes. Specifically, the significant time savings realized upon installation of an RxSafe System allows pharmacists to focus more on quality control and on patient counseling.

For example, in a retail pharmacy filling 500 prescriptions per day, **the RxSafe System can save almost 30 hours of daily labor in the prescription filling process alone.**

With this savings, registered pharmacists can spend minimal time on the fill line, and maximize their availability to patients, as well as data and product verification.

The ability to spend additional time with patients translates into a reduction of the potential for DDI errors, while additional time for quality control

ensures that pharmacy technicians are filling accurately and safely.

Summary

To truly ensure pharmacy safety and security, retail pharmacies need automation solutions that make safety and security a priority.

The RxSafe System securely stores and automates an entire pharmacy's inventory. By uniquely identifying pharmacy staff to the system, the RxSafe increases accountability for every pill in inventory.

In addition, the efficiency gains in prescription drug put-away, prescription filling, and automated inventory allow pharmacists to focus on patient counseling and quality control.

Up to now, the promise of pharmacy automation technology has always been greater than its actual benefits. The RxSafe System is the paradigm-shifting technology that finally achieves comprehensive robotic pharmacy workflow automation.



ⁱ Richey, C.E. and Lenell, A. (2007). Pharmacy security: a survey on pharmacists' perceptions and preparedness to handle prescription fraud and pharmacy robbery. *Paper presented at the annual meeting of the American Association of Colleges of Pharmacy, Disney's Yacht and Beach Club Resory, Lake Buena Vista, Florida.* Retrieved December 11, 2009 from http://www.allacademic.com/meta/p196098_index.html.

ⁱⁱ Levy, S. (2007). Make no mistake about it. *Drug Topics*, 151 (13), 18.

ⁱⁱⁱ Sipkoff, M. (2007). New technology changing R.Ph's, not just workplace. *Drug Topics* 151 (6), 57.

^{iv} Thomsen, C. (2003). Market survey of pharmacy technology and automation in retail and outpatient pharmacy. *Retail Pharmacy Management* (6), 2. Retrieved March 30, 2010 from <http://www.thethomsgroup.com/TTGI%20Pages/Studies%20and%20Research.htm>.

^v Based on retail pharmacy beta testing and internal lab benchmarking results.

^{vi} The Thomsen Group, Inc. (2004). Automating the prescription workflow process: a before and after analysis of an automated counting and workflow system and its effect on productivity, efficiency, and safety. Retrieved March 30, 2010 from <http://www.thethomsgroup.com/TTGI%20Pages/Articles%20Studies%20&%20Presentations/Workflow%20and%20Robotics%20Study.pdf>.