

PHARMACY TECHNOLOGY

# Regional Chain Store Shows Improvements With Automated Counting, Workflow Installation

Can automated pill counters integrated with workflow software take a high-volume, almost entirely manual pharmacy and make it significantly more efficient and virtually 100% accurate? And at about one-third the cost of installing robots?

As one of several pharmacy operators taking part in a year-long series of “before-and-after” efficiency evaluation studies being implemented at the request of the National Association of Chain Drug Stores (NACDS), Marc’s, a chain of discount drugstores based in Cleveland, Ohio, had a chance to find out.

This April, one of the oldest and highest-volume of Marc’s 53 drugstores became the second subject of a “before-and-after” analysis of pharmacy automation’s impact on productivity, efficiency and safety. The analysis was implemented by The ThomsenGroup, a Kansas City, Mo.-based market research and consulting firm for community and outpatient pharmacy.

## Second Study in Series

Christopher Thomsen, president and founder of The ThomsenGroup, said that the findings of this study were very similar to what The ThomsenGroup had discovered when it performed a similar “before-and-after” workflow/automation survey in Siegels Pharmacy, an independently owned pharmacy located in Trenton, N.J. (See the July/August issue of *Retail Pharmacy Management* for the results of that study.)

In the Siegels study, implemented just a few weeks before the Marc’s study, The ThomsenGroup looked at the impact of installing Vernon Hills, Ill.-based AutoMed’s Efficiency Workflow software integrated with an AutoMed FastFill automated robotic dispenser in a 500-square-foot pharmacy located inside a 6,000-square-foot drugstore.

Marc’s, on the other hand, installed two 50-cell Innovation Associates PharmASSIST cabinets and their Symphony workflow management software in an approximately 1,000-square-foot pharmacy located inside a 30,000-square-foot, 20-year-old Marc’s deep-discount drugstore in Canton, Ohio.

In Siegels’ case, a robot, integrated with workflow, turned out to be an excellent solution. However, Joe Raso, RPh, MBA, vice president of pharmacy operations for Marc’s, said the chain wanted to find out if automated counters, integrated with workflow, could do almost as much as a robot in a mid-volume pharmacy environment, but at virtually one-third the cost.

Marc’s, said Mr. Raso, needs automation that it can economically deploy to stores filling more than 2,000 prescriptions a week. A robotic solution, at a cost of approximately \$180,000

per unit, was likely not the best option.

“If we could install automated counters and workflow and get a very high degree of accuracy and most of the efficiencies we are seeking, that would be the most cost-effective solution for us,” explained Mr. Raso.

## Methodology

Using a time-and-motion taping methodology, The ThomsenGroup, assisted by a team of four 3- to 5-year PharmD students from the University of Missouri, Kansas City, set up digital cameras, audio equipment and observers in a Marc’s pharmacy in Canton, Ohio.

After spending five days in April taping how the pharmacy operated without automation, except for an interactive telephone response system and an electronic signature pad, Marc’s installed two 50-cell PharmASSIST cabinets and the Symphony workflow management software, both from Johnson City, N.Y.-based Innovation Associates.

The team returned in July and took five days of “after” measurements.

Among other things, The ThomsenGroup looked at how extensively the presence of workflow software and automated counters affected productivity, accuracy and efficiency. At the same time, it considered how long it might reasonably take a pharmacy of this volume, which was filling an average 542 prescriptions a day in July, to recoup a return on its investment.

The findings from these two studies were part of a major presentation this past August at the NACDS Pharmacy & Technology show in San Diego.

In the second part of *Retail Pharmacy Management’s* coverage of a series of studies, Marc’s discovered, as had Siegels, that workflow, in conjunction with automation, dramatically improved accuracy and efficiency (Tables 1-4).

## Retailer Profile:

Store: Marc’s

Location: 53-unit chain headquartered in Cleveland, Ohio; study performed in a Marc’s in Canton, Ohio

Established: 1979

Owners: Marc Glassman, Inc

Scripts filled per day: 526

Store size: 30,000 square feet

Pharmacy size: 1,000 square feet

Pharmacy sales: Not available

Pharmacy automation: None except for an IVR and an electronic signature pad

## ACCURACY: FROM TWO SAFETY CHECKS TO SIX



Before (left): Marc's had two safety checkpoints. After (right): Marc's had implemented six checkpoints.

image into the software, scan the prescription vial's bar code, which includes the NDC [National Drug Code] number, and view digi-

"We had no inaccuracies, zero in the period following the installation," said Mr. Raso. "We didn't have many before, but zero is what we shoot for, and it feels very good to have it."

Mr. Raso attributed the gains in accuracy to the fact that the Symphony workflow management software gave the Marc's six safety checkpoints, whereas before, when the pharmacy was manual, there were only two safety checkpoints, both visual.

"The Symphony workflow gave us the ability to capture digital images of the original paper scripts, and that made a big difference in the accuracy," said Mr. Raso.

"Now when we get a new prescription, we can scan its

tal images of all medications. So when the pharmacists go to check and validate the prescription, everything is right in front of them. The checking becomes much more sophisticated."

With the new automated systems, the pharmacists in this Marc's increased the time they were able to spend checking the safety of prescriptions. Liberated from most dispensing activities, the pharmacists increased the time they spent verifying prescriptions from an average of 9 seconds to an average of 23 seconds.

"This is one of the benefits of workflow," explained Mr. Raso. "The pharmacy is better organized now. Pharmacists are doing very little filling. They have more time to pay attention to verifications."

**Table 1. Effect of Integrated Workflow Software on Safety And Accuracy**

Metrics	Before *	After †	Net change	Percentage change
Number of safety/accuracy checkpoints before prescription is released to patient	2	6	4	200%
Average time spent on inspection/verification per prescription, seconds	9	23	14	155%
Average time to scan an original prescription, seconds per prescription	NA	4	4	NA

## CUSTOMER SERVICE IMPROVEMENTS

Because the workflow process is "much smoother now," and 40% of the total prescription volume is filled by the PharmASSIST cabinets, said Mr. Raso, "the pharmacists and the technicians can reallocate their time, using it to handle higher-level tasks.

"This is a big change for us," said Mr. Raso. "Because our pharmacists now have more time to spend with our customers, they spend more time consulting, recommending over-the-counter drugs and building a rapport with their customers."

The system also saved a significant amount of time in locating prescriptions. The number of lost prescriptions plummeted from an average of 12 a day to an average of two a day, an 83% improvement. The time spent in locating misplaced prescriptions was reduced by an average of 103 minutes a day, with the aver-

age time to find a lost prescription dropping from 9 minutes and 37 seconds to 6 minutes and 14 seconds, a 35% gain in efficiency.

Marc's also implemented Monaco's Will Call Bag system, integrating it into Symphony by bar coding the outside of each prescription bag in addition to the prescriptions inside the bag. That enhancement shaved 7.5 seconds off the time it had previously taken to find a prescription in will call, a 38% increase in efficiency.

Mr. Raso said that workflow proved to be effective in streamlining the final step of bagging the prescriptions for will call.

"That pharmacy used to have boxes in alphabetical order under the counter, and that was not a good workflow situation," said Mr. Raso. "Now we put all the prescriptions in bags as they are filled, the bags go into trays on the counter and we bar code the outside of the bags."



Before (top): Will call at Marc's was in bins under the counter.

After (bottom): Once the automated will call system was installed, there were 83% fewer lost prescriptions.

**Table 2. Effect of Fully Integrated Workflow Software On Customer Service**

Metrics	Before *	After †	Net change	Percentage change
Average time spent counseling patients, minutes per day	119	130	11	9%
Average time spent helping patients find front-end merchandise, minutes per day	11	15	4	36%
Number of misplaced prescriptions, per day	12	2	-10	83%
Amount of time to locate a misplaced prescription, minutes and seconds per prescription	09:37	06:14	-03:23	35%
Average time to locate a prescription in will call, seconds per prescription	19.8	12.3	-7.5	38%

## PRODUCTIVITY AND EFFICIENCY

Almost immediately after the installation, the pharmacy began experiencing the increases in efficiency that Mr. Raso had been hoping for.

According to Mr. Thomsen, when done manually, it had taken 2 minutes and 37 seconds, on average, to stage and fill a prescription. With workflow and automation, filling times per prescription were reduced to an average of 1 minute and 22 seconds, a 48% increase in productivity.

Before the installation, the pharmacists and technicians had no standardized process for filling a prescription, said Mr. Raso. Pharmacists and technicians worked side by side filling prescriptions on a 20-foot counter in the back of the pharmacy. Although the pharmacists worked on an elevated platform, customers approaching the counter could see the pharmacists and frequently interrupted them in the middle of their tasks, interfering with their concentration. Like many manual pharmacies, the environment was noisy and frequently

a little "chaotic," said Mr. Raso. On busy Mondays and Tuesdays, as many as three pharmacists and five technicians could be on duty during peak times.

"It's definitely more efficient, and I've seen the Innovation Associates system in place in another pharmacy chain and I know how fast it can be, so our pharmacy is going to continue to get more efficient as our pharmacists and technicians get used to the process."

Mr. Thomsen said that before the installation, it had taken 6 minutes and 21 seconds to completely process a prescription, from the point of receiving it on through dispensing and billing. After the installation, it took an average of 5 minutes and 22 seconds, an efficiency gain of 15%.

The number of prescriptions filled by one person in a day also improved from an average of 75.6 to an average of 89.4, an increase of

18.3%. "It certainly has sped up the process so far," said Mr. Raso, "and I think it will get even better once our people are over the learning curve."

Although Marc's did not change the design of the pharmacy, when they added automation, they did move some equipment so that the two PharmASSIST cabinets would be in arm's reach of the technicians. The order entry station, manned by the pharmacist, was moved farther to the side, out of the view of customers, minimizing opportunities for distractions.

Before Symphony and the PharmASSIST cabinets were installed, pharmacists filled 43% of all prescriptions while technicians did the rest. Now the pharmacists fill only about 7% of all prescriptions, said Mr. Thomsen. The PharmASSIST cabinets fill 40% of the average daily volume while the technicians manually fill the rest.

One of the key differences between a robot and an automated counter, pointed out Mr. Thomsen, is that a robot selects the vial, measures the medication and pours it into vials while also labeling and in some instances capping the vials.

According to the results of the study, working with automated counters instead of robotics, it takes only 23.4 seconds per prescription for a technician to locate a vial, apply the label and then retrieve the tablets or capsules from the automated counting system.

"In essence," Mr. Thomsen said, "there was no perceptible loss in speed. Because of the proper location of the automated counting system and clearly established roles for each of the staff, even with the daily prescription volume increasing from an average of 526 per day in April to 542 per day in July, there was no standing around waiting for the automated counting system to catch up."

**Table 3. Effect of Integrated Workflow Software On Productivity and Efficiency**

Metrics	Before *	After †	Net change	Percentage change
Average daily volume of prescriptions filled, per day	526	542	16	3%
Average time to stage and fill a prescription, minutes and seconds per day	02:37	01:22	-1:15	48%
Average time to remove vial from counter and label it, seconds	NA	23.4	23.4	0%
Average number of steps taken to process a prescription	17	13	- 4	24%
Percentage of prescriptions filled by pharmacists, per day	43%	7%	NA	83%
Percentage of prescriptions filled by technicians, per day	57%	93%	NA	63%
Prescription filling capacity per person, per day	75.6	89.4	13.8	18.3%
Percentage of daily volume filled by automation	0	40%	NA	NA
Total average time to complete and dispense a prescription, minutes	06:21	05:22	-0:59	15%



Before (top): Marc's pharmacists and technicians had no standardized filling process. After (below): Marc's work process became less chaotic and more standardized.

## COST SAVINGS AND ROI

Mr. Raso, who admitted to having a soft spot in his heart for robots, said that in the world of pharmacy, robots are to automation what Cadillacs are to cars. Counting machines are not as flashy, he said. They are more the “Chevrolets of pharmacy automation.”

But, he noted, “sometimes you have to make a decision. Do you need a Cadillac or do you need a Chevrolet?”

“That’s how I look at it from an expense standpoint. The robots, from everything I’ve seen, are really good, but to justify the cost of an investment, you probably need to be filling 5,000 prescriptions or better a week. And possibly, you might want to use robots if you are doing, or plan to do, central filling or mail order.

“But in an individual drugstore, I think automated counters and workflow may be the way to go, and this study has reinforced that conviction for me.”

According to Mr. Thomsen, automated counting technology plus workflow cost approximately \$60,000 to \$120,000, depending on the configuration (the number of cabinets and workstations), and can cost less when purchased in volume.

Mr. Raso said it is still too soon to say whether Marc’s will go



Before (left): Pharmacists and technicians dispense at the counter. After (right): Automation standardized the workflow process.

ahead and install Innovation Associates’ PharmASSIST Enterprise System (counting technology combined with Symphony workflow software) in more stores, but they are looking at what it might cost to finance an expansion and if they can negotiate a mutually acceptable price, Mr. Raso says they would probably put the counters plus the workflow into stores doing an average 350 prescriptions a day or 2,000 a week.

“If we could do that and get an ROI [return on investment] in less than a year, that would be excellent and that could be very feasible in higher-volume stores.”

The prescription volume in the Marc’s store in Canton has been growing at a rate of 9% year to year. Not all of Marc’s pharmacies do as well, but the chain is planning to continue to expand, said Mr. Raso, and automated counters and workflow “gives us the opportunity to grow our pharmacy volume without adding to staff, and that just makes us more efficient.”

### Table 4. Effect of Fully Integrated Workflow Software On Cost Savings/ROI

Metrics	Before *	After †	Net change	Percentage change
Number of pharmacists on staff	3	3	0	0
Number of technicians on staff	5	5	0	0
Number of prescriptions filled per person, per day	75.6	89.4	13.8	18.2%

For all tables:

\* Pharmacy measurements without workflow and automation except for IVR and electronic signature pad

† Pharmacy measurements with workflow and automated pill counters

**Technology:** Innovation Associates’ PharmASSIST Enterprise System automated counting technology and Symphony workflow management software.

Based on a “before-and-after” time-and-motion study performed over two five-day periods in April 2004 and July 2004 in a Marc’s pharmacy in Canton, Ohio.

**Source:** The ThomsenGroup Automated Pharmacy Workflow Systems Study, presented at the NACDS Pharmacy and Technology show, August 2004.

—Liz Parks

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