



Technology Improves Efficiencies and Productivity in Healthcare and Retail Pharmacy Markets

An industry white paper by BarCode ID Systems



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The Challenge:

Healthcare markets, particularly retail and hospital pharmacies, are facing numerous business challenges and efficiency issues. Many of these challenges result from federal mandates for prescription document storage, which require pharmacies to store prescriptions, either in paper or electronic format, for up to ten years. Combined with document storage space limitations, pharmacies are also faced with inefficient and expensive document scanning technologies, insufficient countertop space, and the need for bar code scanning, efficient, on-demand printing and signature capture at the point of transaction. All such limitations and requirements can lead to deviations in workflow that reduce productivity, accuracy and efficiency.

Trends:

One of the fastest-growing trends faced by today's retail and hospital pharmacies is the use of letter-sized, computer-generated prescriptions by doctors and healthcare providers. Over the last three years, pharmacies have experienced greater than 50% increases in the number of patients submitting 8.5" x 11" printed prescriptions over traditional 4" x 6" handwritten sizes. While many pharmacies choose affordable roll-fed or flat-bed document scanners to scan the larger-sized documents, these scanners are typically slow, unreliable, produce large file sizes, and are unable to withstand the rigors of processing hundreds of documents daily per store. High-speed document scanners are typically expensive and far too large for the limited countertop space available in most pharmacies. As the average number of prescriptions purchased in the United States has topped 3.6 billion per year¹, pharmacies are overextended with processing times and storage capacity limitations.

Document imaging has changed considerably in the last few years, and the desire for consolidated devices to handle multiple tasks has increased in small retail spaces. Convergence of bar code scanning and image capture capabilities is becoming a necessary addition to the retail pharmacy. While first-generation imagers used serial communication to transmit low-resolution images, these devices were slow and unacceptable for a busy pharmacy. Additionally, early handheld imagers with only .3 mega pixel resolutions were not capable of capturing small fonts or full-page, 8.5" x 11" prescriptions at acceptable clarity or file sizes.

Accompanying a pharmacy's need for efficient data collection and management is the need for accurate and cost-effective printing technology. Today's pharmacies have multiple, crowded work stations which produce bar coded prescription labels, fill orders and control labels, as well as other necessary forms and labels. While many pharmacies use laser printers to print these integrated label/form combinations, they too have problems and limitations. Like large, high-speed document scanners, standard laser printers are expensive and have large footprints which consume valuable countertop space. They also have high maintenance and supply costs, and

¹ Kaiser Family Foundation, *Prescription Drug Trends*, June 2006, p.1 at <http://www.kff.org/rxdrugs/upload/3057-05.pdf>.

produce large amounts of waste. Many pharmacies also have software programs that use fonts to produce bar codes, which frequently result in un-decodable bar codes that must be keyed-in by hand when scanning fails. Power management is also another issue faced by pharmacies, as the addition of each new device typically comes with another power supply. Many retail locations are concerned about adding more equipment to each work station due to power limitations, fire hazards and employee safety. Today, however, high-volume businesses with limited space and budgets—such as retail pharmacies and physician/hospital groups—have new choices when it comes to efficient and effective printing, image capture, processing, storage and data collection.

Solution Objectives:

Working closely with Symbol Technologies (now Motorola Enterprise Mobility Business), Zebra Technologies and a large, Midwestern retail pharmacy chain client, BarCode ID Systems provided front-line feedback to help streamline the development of a complete solution designed to solve many of the specific business challenges and efficiency issues faced by the retail pharmacy market, including:

- How do we virtually eliminate the paper-driven record-keeping process?
- How do we make a cost-effective imager capable of aggressively decoding bar codes, including 2-D and linear codes?
- How do we improve accuracy in the prescription check-in/processing areas?
- How do we create a signature capture device with an imager?
- How do we reduce document image file sizes and data storage limitations?
- How do we improve image file transfer speeds using current technology?
- How do we integrate devices into legacy retail pharmacy applications?
- How do we eliminate the need for three separate pieces of equipment, including traditional bar code scanners, document scanners and signature capture devices?
- How do we increase the number of prescriptions or documents processed daily in each store?
- How do we leverage the newest imaging technology to read 6-point text on a card or a full-page 8.5" x 11" document?
- How do we increase countertop real estate for customer interaction?
- How do we scan curved bar codes on small and large pharmaceutical bottles on the first attempt?
- How do we print scannable bar codes on demand without adding additional power supplies?
- How do we integrate a cost-effective, integrated label printing solution?

Results:

These questions and project objectives were solved with a new Motorola bar code scanner/imager, and a PUSB (Power over USB) printer from Zebra Technologies, along with a unique software solution from BarCode ID Systems which enables the solution to be used across multiple industries.

The advanced data capture speed and technology of a new imager from Motorola enables retail pharmacies to improve initial prescription processing methodologies and reduce time spent scanning prescriptions and patient identification into electronic storage systems. The imager can reduce the time it takes to scan a letter-sized prescription by 900%, from as much as 1 minute per scan to less than 5 seconds. With the average pharmacy in the U.S. processing 1340 prescriptions per week², the labor efficiencies gained in document scan time alone can be remarkable—up to 15 hours per week of pharmacy staff time can now be saved or redirected. Furthermore, image compression technologies associated with the Motorola device can also produce dramatic disk space savings, replacing raw file sizes of 1-2Mb from traditional flat-bed or roll-fed scanners, to file sizes as small as 48Kb.

A new and unique PUSB printer from Zebra Technologies—the first of its kind and the only one available to date in the industry—was developed to replace virtually all laser printer workstations in the retail pharmacy, essentially eliminating the high initial cost, waste, maintenance, performance and size issues associated with laser printers. With power over its USB connection, the PUSB printer from Zebra provides on-demand label printing without adding additional power supplies at each workstation. A small footprint increases valuable countertop space formerly occupied by larger laser printers, and direct thermal printing technology prints precision prescription labels—including bar codes—for first-time accuracy and scanability, reducing the time and frequency with which pharmacy staff must manually enter bar code numbers. Optimized heat settings and internally-engineered power efficiency extend printhead life and reduce overall long-term maintenance costs. Combined with much lower equipment, media and maintenance costs, the PUSB printer from Zebra improves accuracy and reduces the total cost of ownership for pharmacy printing solutions.

In addition to the productivity gained by the retail pharmacy with the Motorola imager and Zebra printer, BarCode ID Systems has developed an integration utility that can incorporate the imager into legacy pharmacy applications, as well as make the solution available to other markets needing the dual functionality of bar code scanning and image capture, such as physician, hospital and medical groups. This solution, known as IDAS™ (Image and Data Acquisition Service), will enable the Motorola device to toggle between bar code scanning and image capture modes without code modifications in the client's software.

As a Windows service, IDAS works through the imager's native API (Application Programming Interface) to establish and maintain persistent communication with the Motorola device. The default mode of operation will pass bar code data through Windows as keyboard data; then, when a TWAIN (image capture) request is made to the IDAS application, it will switch the device into snapshot mode, process the acquired image, then switch back to bar code decode mode. The end result allows the Motorola device to switch seamlessly between the various outputs it offers without internal code modification on the client side. IDAS is the only software available today that can seamlessly capture image data from the Motorola imager via a TWAIN interface.

² Skrepnek GH, Armstrong EP, et al. Workload and Availability of Technology in Metropolitan Community Pharmacies. *J Am Pharm Assoc.* 2006; 46(2): 154-60, at <http://services.medscape.com/viewarticle/533426>

Basic model for IDAS:



Conclusion:

The printing and imaging technologies available to retail pharmacies and healthcare markets today are not only fast and efficient, they are reliable and serve multiple purposes. Advanced printing technologies can ensure that pharmacy orders, prescription labels and bar codes are printed quickly to the precise specifications of the imagers reading the data, eliminating the need for manual, error-prone human data entry. Small and inexpensive, yet efficient and reliable, Zebra's PUSB printers can increase the countertop space in pharmacy workstations, eliminate additional power supplies and reduce the total printing costs throughout the pharmacy.

Rugged Motorola imagers manage high-volume prescription image scans easily without downtime, and take less than five seconds between image acquisition and image view onscreen. While providing fast image capture of all prescription sizes at proper resolution for federal compliance, the imager can also capture patient signatures and process bar code data, which satisfies a pharmacy's need to scan original medication bottles, patient IDs, prescription numbers and other retail product purchases, without adding extra devices. The imager improves accuracy in processing prescriptions, virtually eliminates a paper-driven process and saves valuable countertop space.

This technology is not only applicable in the retail pharmacy space, but in virtually any other industry requiring fast capture of high-resolution document and/or signature images and bar code scanning. In the healthcare marketplace, medical groups, hospital groups and physician groups can benefit greatly from imager/scanning technologies and on-demand thermal printing to speed processes, increase productivity and reduce or eliminate numerous paper-driven processes. Combined with the IDAS solution from BarCode ID Systems, the retail pharmacy can incorporate converged technology into its operation while gaining tremendous efficiencies in labor productivity, processing speeds and accuracy.

For more information or to understand how this technology can be used in your industry, contact BarCode ID Systems at 800-452-7418 or at info@barcodeid.com.

BarCode ID Systems is a leading solutions provider of Auto ID technologies, specializing in mobile computing, bar coding and RFID systems. Privately owned and headquartered in Atlanta, Georgia, BarCode ID Systems focuses on data automation solutions for manufacturing, distribution and healthcare environments, including internal and external data management solutions for the growing mobile enterprise. BarCode ID Systems specializes in applications for the automotive, electronics, food/beverage, pharmaceutical, life sciences, paper/plastics, textiles and retail industries.

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