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Our annual look at the technology used to increase prescription processing efficiency, improve patient care, and generate new revenue. *story begins on pg. 15*

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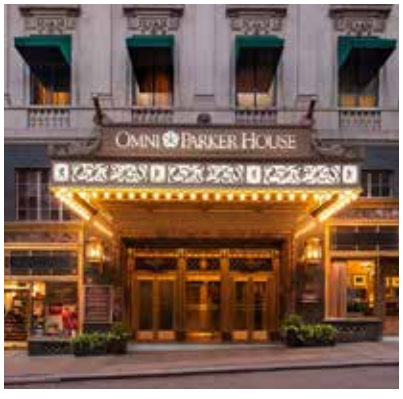

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FOR THE PHARMACIST

July | August 2022
The intersection of technology and management

CHAIN MARKET TRENDS

Our annual look at the technology used to increase prescription processing efficiency, improve patient care, and generate new revenue.

by Will Lockwood

2022 has seen chain pharmacy operations getting back to a more normal footing. Overall the trend is to look for efficiency gains everywhere, as pharmacies balance prescription volumes with clinical activities. Chains are doing their best to address challenges such as PBMs' (pharmacy benefit managers) continual tightening of performance requirements associated with DIR (direct and indirect remuneration) fees, reimbursements for clinical services that aren't remotely commensurate with the service and pharmacy costs, and a consolidation among technology vendors that can unsettle long-standing partnerships that chains have developed.

story begins on pg. 15

features

departments

direct access

Robotics is now a mainstay in many pharmacy settings and has transformed the dispensing process, making it more efficient and safer for patients. In this interview with *ComputerTalk*'s publisher, Bill Lockwood, Mike Coughlin, founder and CEO of ScriptPro, tells us how it all came about and the trajectory of the company since then.

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Disruptions

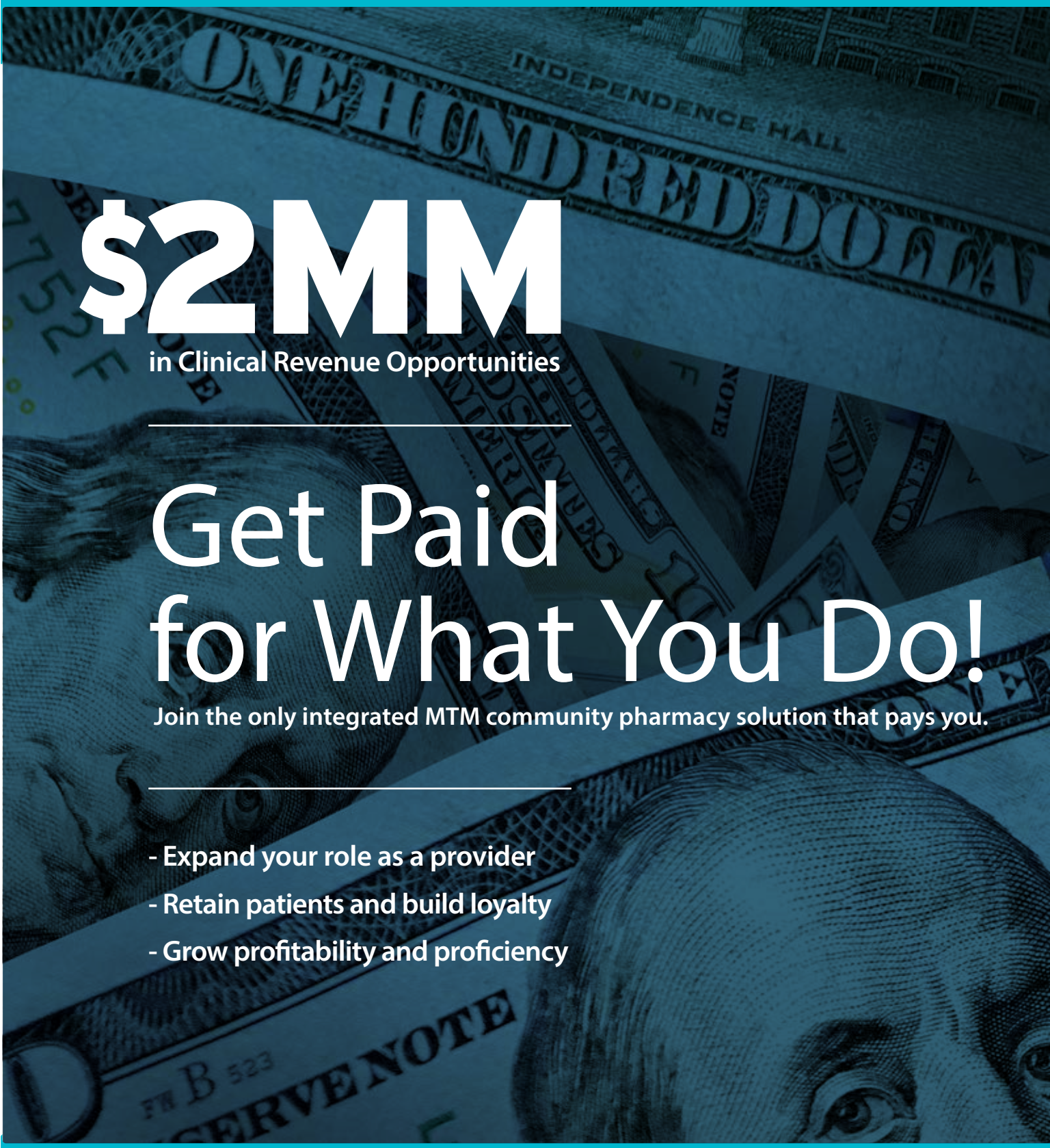
COMMUNITY INDEPENDENT PHARMACIES are continually facing pressure on prescription profits from the pharmacy benefit managers (PBMs). The PBMs apparently have, in a sense, taken ownership of this channel of distribution. These companies dictate how much is going to be paid for dispensing prescriptions. It is a take-it-or-leave-it proposition for the pharmacies. Then there are the DIR fees (direct and indirect remuneration), or clawbacks. CMS (Centers for Medicare and Medicaid Services) has finally stated that pharmacies would be told what the DIR fee is at the point of sale, not retroactively, but not until Jan. 1, 2024. Now the PBMs want bulk purchases reported to them. Another indication of channel ownership.

What I find interesting is that when Walgreens stopped taking prescriptions covered by Express Scripts because of low reimbursement, the other major chains could have decided to do the same. This would have sent a sobering message to PBMs. But what did the other chains do? They posted signage that they accepted these prescriptions. The short-term profit motive won out.

Now there is a new disruption for pharmacies. A *Wall Street Journal* article on June 21 was titled "Pharmacy Backed by Cuban Is Cheaper, Study Says." Cuban is Mark Cuban, billionaire owner of the NBA's Dallas Mavericks. He opened a pharmacy in January to circumvent the PBMs. He is selling popular generics directly to consumers with a 15% markup plus a $3 dispensing fee and a $5 shipping charge. Fortunately, generics don't carry the profit margin they once did. But it does take away business.

The article says that a group of Harvard Medical School researchers found that Cuban's pricing model can save the Medicare Part D program plenty of money. They estimate that the Medicare program could save as much as $3.6 billion annually if it used Cuban's pharmacy rather than insurance plans and retail pharmacies for the generics covered under Part D.

Clearly, Cuban is trying to be a disruptive force. However, community independent pharmacies have faced similar disruptions in the past. Brick-and-mortar pharmacies have the advantage of front-end business. The major chains would be in trouble if they did not have robust front-end sales. The community independent pharmacy is a prime prescription source for long-term care facilities and group homes. The independent has the advantage of offering medication synchronization programs that ensure refill compliance. Immunizations factor in as well. The independents are entrepreneurs. They have always seemed to come up with creative solutions to the disruptions faced over the years. And they have had plenty of help from the technology used to operate an efficient business. **CT**



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TABULA RASA HEALTHCARE (TRHC) announced that it has entered into an acquisition agreement with **TRANSACTION DATA SYSTEMS (TDS)** to sell its PrescribeWellness business. PrescribeWellness has a national footprint of more than 15,000 community and chain pharmacies. TDS sees the PrescribeWellness patient relationship management platform as very complementary to its portfolio of clinical applications.

The companies also announced a strategic partnership to offer TRHC's proprietary MedWise Science, an accumulative, simultaneous, multidrug analysis tool that identifies medication-related risk. This clinical platform will be incorporated into TDS' pharmacy management systems.

BECTON, DICKINSON (BD) has signed a definitive agreement to acquire **PARATA SYSTEMS** for $1.525 billion. The transaction will complement BD's solutions in medication management safety and patient outcomes.

Parata's revenue for the last 12-month period, ended March 31, 2022, was approximately $220 million. Parata provides BD with access to a new $600 million pharmacy automation market segment that is expected to grow approximately 10% a year to $1.5 billion in the United States alone over 10 years.

MICRO MERCHANT SYSTEMS has announced the appointment of **Alessio Nasini** as the company's new chief financial officer. Nasini has over 15 years of finance and corporate development experience in healthcare technology, software, and media industries. Most recently he served as chief financial officer for Halo Health, an SaaS (software as a service) provider of clinical collaboration and communication solutions for healthcare organizations. Prior to Halo Health, he oversaw finance, corporate development, and strategic planning at Merge Healthcare.

Nasini holds an M.B.A from the Kellogg School of Management at Northwestern University and a bachelor's degree in business and economics from Roma TRE University. He will split his time between the company's headquarters in Syosset, N.Y., and a regional office in Chicago.

SOFTWRITERS has released the latest version of its long-term care software, FrameworkRxP (RxPertise). The software supports consultant pharmacists performing regular medication regimen reviews (MRRs) for residents in the post-acute care setting. "We are very excited to add FrameworkRxP to our suite of products," says Jay Loeper, Pharm.D., senior product manager at the company. Loeper, a consultant pharmacist, originated RxPertise for his own practice in the mid-1990s. "It fits well with our other successful solutions and will make a similar impact on productivity. We believe that we have developed a consulting tool that will go beyond current expectations of what an MRR solution can do," he says.

As a web-based product, FrameworkRxP provides centralization of data, accessibility across multiple device platforms, and high scalability, all of which help to break down silos and facilitate the collaborative effort required in long-term care.

The company will hold its annual user conference in late September at the Aria in Las Vegas.

REDSAIL TECHNOLOGIES announced that **Ed Vess, R.Ph.**, director of pharmacy professional affairs, received the South Carolina Pharmacy Association's pharmacist of the year award for guiding the pharmacy profession and effecting meaningful change. Vess is an avid supporter of pharmacist-reimbursed enhanced services, working to identify, evaluate, and implement programs for pharmacists to improve patient outcomes while maintaining or improving the financial stability of the pharmacy.

MEDICINE-ON-TIME has introduced a program that supports member pharmacies to empower technicians to manage adherence programs. The program includes consultations with technicians and a tailored training program that addresses workflow, marketing, sales, DIR (direct and indirect remuneration) fee mitigation, and more.

Also learn more about the company's Performance Program at the computertalk.com video series, where Germaine Robinson talks about her experience implementing the program at Germ's Thrift Clinic in Opelousas, La. Medicine-On-Time's experts collaborate with pharmacy staff to combine appointment-based models with adherence solutions to formulate a plan that lowers DIR fees and maximizes pay-for-performance opportunities. Robinson, a proponent of compliance packaging, participated in a pilot and found that her PDC (proportion of days covered) score for low-performing patients increased 30% and her performance payout increased 500%. Hear Robinson's story at wp.me/p9LtTd-4Kg. **CT**

How Central Fill Can Lead Techs to New Roles

by Christine Cline-Dahlman, B.F.A., C.Ph.T-Adv

WHEN EVERYTHING ABOUT PHARMACY TECHNICIAN training focuses on dispensing tasks, I get excited when I hear how technicians can engage with technology for a next step in their career. With all the public discussion of "burnout" for pharmacy personnel this past year, I kept thinking that technicians face burnout sooner because they do not know the variety of opportunities ahead for them. How does the profession get them to imagine the future of pharmacy and their role? I smile, because we have the same challenge with pharmacists.

> Do you want to keep the technicians you have? The Great Resignation revealed that workers will seek the environment, the job description, and the wage they desire.

In January, I attended a webinar on central fill. The presentation focused on central fill in a large healthcare system. I concluded from the Q&A chat that I was an outlier attendee, as I am a pharmacy technician. But the presenters made a point to state that automation was "NOT" designed to eliminate technicians. Their roles would change, but more technicians would be required for the workflow. They would be "repurposed" and retrained for task assignment. Technicians would actively incorporate the tech-check-tech practice in verification, and they would be involved in medication history review and then follow through with selected patient communication.

Is your first response to the concepts of central fill and tech-check-tech to stop reading this article because these two realms are not permitted in your state? Please read on.

We all know about the Great Resignation —and have probably experienced it. How can we keep the good staff we have? Let's find ways to help them advance so they are ready to adapt to new roles.

Tech-check-tech is more formally known as technician product verification (TPV). Studies that measure accuracy for technician verification that were completed in hospitals, chain pharmacies, and independent pharmacies show that technicians are accurate 97% to 99% of the time. Any inaccurate occurrence revealed that an error occurred in the workflow and was caught by the verifying technician. The error was process based, not person based.

TPV does not just focus on the verification process. A technician must have a current and broad knowledge for medications, their pharmacology, their therapeutic purpose, potential drug interactions along with recommended dosing requirements. Technicians need to know what the prescrip-

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tion is saying and what is needed to keep that patient safe.

If you are working alongside a technician for traditional dispensing, have you thought about monitoring the accuracy of their work? Could you begin to introduce the points of verification that you use as a pharmacist, as your measure? Demonstrate the technology that your software provides for the verification process.

If you are a hospital pharmacist who works with automated sterile compounds, could you work with your technicians to develop their skills in verification? Could you work with them to introduce the software you use that calculates the formula to make those compounds? The software that controls the dispensing of fluids and medications into the bag?

Remember — medication knowledge is comprehensive for this process, and a technician is accountable.

Why am I bringing these points forward? Do you want to keep the technicians you have? The Great Resignation revealed that workers will seek the environment, the job description, and the wage they desire.

Chains have already been implementing the ideas presented in the January webinar. The *Dallas Morning News* reported in February 2021 that Walgreens central pharmacy fulfillment acquired 100,000 square feet of space to establish a central fulfillment operation. In July 2021, *Supply Chain Dive* reported that Walgreens would open an additional 11 micro-fulfillment operations in the United States by the end of 2022. In March 2022, CNBC reported that the Dallas fulfillment center was up and operating. They made a point to report that this location "is staffed by about 220 workers, with only a handful of pharmacists."

Look at a chain's use of central fill as an opportunity for you, the independent community pharmacy owner, to pivot and adapt. Develop your staff now so they are ready when the concepts of central fill and TPV come to your state. They are just around the corner.

The entire time of the webinar, I was imagining how this information could be adapted for independent community pharmacy owners. For example, an owner of three to four pharmacies in rural locations could hold the bulk of their inventory at a single location, particularly the controlled substances, then use automated dispensing equipment to fill the script.

I could see how the concepts of central fill could also assist the owner who owns multiple pharmacies in a metro area with efficiencies for inventory, workflow, and staff wages through identified locations with automated packaging equipment. Limiting inventory of select medications to designated locations but using central-fill could reduce exposure to burglary and robbery of controlled substances. There is not a state that has not seen a rise in pharmacy break-ins, for all practice settings.

Look at a chain's use of central fill as an opportunity for you, the independent community pharmacy owner, to pivot and adapt. Develop your staff now so they are ready when the concepts of central fill and TPV come to your state. They are just around the corner. **CT**

Christine Cline-Dahlman, C.Ph.T.-Adv, is a pharmacy technician who has served in advanced roles within independent, chain, and health-system pharmacies. She can be reached at CClineDahlman@gmail.com.

Protecting Your Patients and Business

More on DSCSA Compliance Requirements

by J. Randall Hoggle, B.Pharm., D.Ph., M.B.A.

IN MY FIRST ARTICLE IN THIS SERIES in the May/June issue, I explained what the DSCSA (Drug Supply Chain Security Act) is and what pharmacy teams must do today to meet the additional five of 10 requirements.

Now I will outline the five new requirements that must be implemented by Nov. 27, 2023. These are summarized below.

Requirement #6: Serialization codes validation, authentication, and documentation management

Dispensers may only buy and sell products encoded with product identifiers.

Requirement #7: Lot number validation, authentication, and documentation management

Dispensers must verify every product at the product package lot number level, including the SNI (serialized numerical identifier).

Requirement #8: Electronic advanced shipping notification (ASN) — 10 data sets for internal system integration

While the FDA (Food and Drug Administration) has a self-assigned deadline for providing Section 203 guidance with issuance by Nov. 27, 2022, for this requirement, most retail chains and large health systems have already embarked on meeting these system integration requirements — for example, ensuring that all orders are made using the NDC (national drug code) rather than UPC (universal product code) as commonly used by pharmacy/grocery chains.

Dispensers must validate the electronic shipment notification's 10 data elements for accuracy of that data matched to suppliers' 10 data elements, and where there are gaps in supplier prescription product data sets, correct those deficiencies.

Requirement #9: Interoperability of DSCSA compliance data exchange

While the FDA has a self-assigned deadline for providing Section 203 by Nov. 27, 2022, for this requirement, as well as for requirement #8, most retail chains and large health systems have already initiated work with their authorized trading partners and software vendors. At a minimum, the ASN 10 Rx product data points must be accurate and match your suppliers', as the Office of Inspector General (OIG) stated in its February 2020 report (www.oig.hhs.gov/oei/reports/oei-05-17-00460.pdf).

To meet requirement #9, the dispensers must have internal interoperability between ordering, the pharmacy management system, and the invoicing systems, and externally with trading partner data exchanges.

Requirement #10: Comprehensive DSCSA compliance reporting capabilities for government authorities

While the FDA had a self-assigned deadline for providing Section 203 guidance with issuance by Nov. 27, 2021, for this requirement, this guidance has not yet been issued. The requirements #8 and #9 guidance really depends on the delivery of requirement #10.

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The FDA will still provide guidance on the development of regulations establishing comprehensive reporting requirements of enhanced drug distribution security (EDDS) interoperable electronic tracing of product at a package level.

UNDERSTANDING WHAT EDDS MEANS TO PHARMACY TEAMS

Requirements #8 through #10 are designated the "enhanced drug distribution security" and have been depicted in a schematic developed by KPMG's David Colombo, a director within its Life Science Advisory Practice, in an article titled, "Are You Prepared for the U.S. Enhanced Drug Distribution Security (EDDS) Requirements?," at BioProcess Online, Oct. 5, 2020 (https://www.bioprocessonline.com/doc/are-you-prepared-for-the-u-s-enhanced-drug-distribution-security-edds-requirements-0001).

Summary of Requirements #6 Through #10 and Their Impact on Pharmacy Teams:

- **Requirement #6 and requirement #7:** Pharmacy teams are currently receiving Rx product serialized codes and lot number information from over 90% of their direct-selling suppliers. Pharmacy teams are not currently receiving Rx product serialized codes and lot number information from the three largest wholesalers. These wholesalers may not start to transmit the serialized codes or lot number Rx product data until the Nov. 27, 2023, deadline. You should discuss with your prime wholesaler when you will receive the serialized code and lot number data transmissions on your ASNs.

- **Requirement #8 through requirement #10:** The EDDS requirements are where the pharmacy teams' responsibilities exceed those of your suppliers, as pharmacy is the only authorized trading partner that has responsibilities for dispensing the medication.

These are the most common pitfalls for pharmacies when inspected:

(a) Assumption that the wholesaler has you covered:

The FDA announced it will add nonphysical remote inspection tools like remote assessment auditing and monitoring systems.

- The primary wholesaler is just one supplier and does not have any of your other suppliers' data.

- The primary wholesaler, secondary wholesalers, and direct-selling generic suppliers should provide the 10 data ASNs, but portal access to an electronic packing slip or transaction history summary does not have all 10 data sets required on the ASN documentation.

(b) Belief that you don't need to worry about federal DSCSA compliance until you hear about inspections occurring:

The FDA on Feb. 2, 2022, announced effective Feb. 7, 2022, that they were renewing their supply chain compliance inspections based on the COVID-19 pandemic subsiding.

Additionally, the FDA announced it will add nonphysical remote inspection tools like remote assessment auditing and monitoring systems. Our expectation is that these remote tools will include a tabletop electronic audit with the request of up to six years of data, as allowed under the law.

(c) Belief that you don't need to worry about state DSCSA compliance inspections: The state boards of pharmacy have been the more active inspection authorities. Also, if the state boards of pharmacy use the remote assessment auditing and monitoring systems to be used on the federal level, then the number of pharmacies being inspected at a state level and the frequency of inspection could be greatly increased. **CT**

J. Randall Hoggle, B.Pharm., D.Ph., M.B.A., is the managing director of Advasur, LLC, the Advasur Audit & Supply Chain Resource Center in Rockville, Md. The author can be reached at r.hoggle@advasur.com. *You can read part one of the series "What is DSCSA and What Do Pharmacists Have to do Today to Comply" at wp.me/p9Ltd-4Ki.*

Creating a Services-Based IT Development and Implementation Roadmap

by Lisa Schwartz, Pharm.D.

ONE OF MY FAVORITE THINGS to bring up when talking about independent pharmacy is that the entire pharmacy profession and all of retail pharmacy benefit from creative owners trying to both address patient needs and reach their own goal of operating a profitable pharmacy practice. Of course, that's after I refute that these owners are part of a dying breed. Technology solutions often get high marks for automating tasks that help patients and make pharmacy operations more efficient.

> The challenge for most pharmacy owners is evaluating applications and vendors with the goal of creating a seamless experience for patients and pharmacy operations.

I wouldn't dream of opening a pharmacy today that didn't have computerized dispensing records. The last time I met an owner who used only paper records was in 2003 — and that was hard to believe 20 years ago. Contrast this to medicine and other health professions that were much slower to adopt electronic health records until incentive and penalty programs came about in the last 10 years. Computerized records mean it's possible to adjudicate prescription claims in real time, quickly screen for drug interactions, receive and send e-prescription messages, report to immunization registries or prescription drug monitoring programs, and produce a variety of reports for regulatory compliance and business insight. A computerized point-of-sale system is another must-have for processing HSA/FSA (health saving account/flexible spending account) debit cards, customer loyalty programs, and reports to manage front-end inventory and marketing campaigns. The last thing to mention here is a security alarm, but there's more to that than deterring burglars with motion detectors and video cameras.

APPLYING FOR A LOAN

If I were to take everything I've learned from my work at the National Community Pharmacists Association (NCPA) and from meeting countless owners, I would be sure that any loan application I made would have the above technology basics covered, plus a bunch of upgrades and extras. There are certainly business plans that leave these out until the break-even point on the loan or some cash flow milestone. But my plan for business success would anticipate operating at a volume that would leave pharmacy staff scrambling without these technologies. The dispensing system must be able to save a prescription image, enable refill synchronization, manage prescription inventory and wholesaler orders, allow remote access, and use safety checkpoints in the dispensing workflow. At a minimum, any loan request needs to include a countertop pill counting machine. Devices with barcode scanning, image verification, and image capture are upgrades worth serious consideration. An interactive voice response system requires multiple phone lines, but meets patient expectations of never hearing a busy signal and makes operations more efficient

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when refills ordered after hours are waiting to be processed when the store opens. Access to or a contract with a language service is pretty close to something that belongs in the previous paragraph, but in most cases it can very quickly be added when it's needed. Several states, however, require label translations. A security alarm connected to a robust phone system can have a line dedicated to calling for emergency service when the smoke detector goes off or the pharmacy triggers a silent alarm. Geotags can be useful for tracking valuable or diversion-prone inventory, as well as delivery driver safety, with the driver's consent. Speaking of deliveries, mobile payments and signature capture go hand in hand with offering hand delivery.

WHAT I HEAR

In my work at the NCPA, I get to spend time with the NCPA Technology Steering Committee. This group makes it obvious that a savvy owner is using the newer e-prescription transactions (RxChange and CancelRx), using business intelligence applications to evaluate payer contracts, capturing pediatric height and weight from e-prescriptions, relying on robotics, scheduling appointments, collecting secure forms, and using secure messaging with prescribers or patients.

These owners also see exciting solutions on the horizon to create a seamless experience for patients and operations. High-quality pharmacy care requires access to complete medication history and relevant lab results. Pharmacy applications need to be poised for interoperability. Secure messaging or health information exchange is worth repeating. Using 2D barcodes will be unavoidable after November 2023, when the last compliance date for the Drug Supply Chain Security Act (DSCSA) arrives, but using the serialized product ID can improve response to recalls today. Two more e-prescription transactions, NewRx Request and RxTransfer, are overdue for widespread adoption. Pharmacies that may have been skeptical of the transfer transaction quickly came to see the value with pharmacy staff shortages and intermittent closures reported during the pandemic. Owners want workflow insight at a glance on the home screen to identify bottlenecks at any step and reassign staff to keep things moving — basically, tracking that everything requested gets billed and every paid claim gets filled. Remote access to the dispensing system could have allowed well-but-quarantining pharmacists to ease the strain of not being able physically staff the pharmacy. The last thing to mention (that these owners know they want) is a complete patient record: dispensing records, vaccine records, lab data (sent by or to the pharmacy), patient encounters and care plans, and pharmacist office visit billing.

High-quality pharmacy care requires access to complete medication history and relevant lab results. Pharmacy applications need to be poised for interoperability.

Technology solutions on the horizon that don't often come up in conversation but need to be on everyone's radar include prescribing (certain states give pharmacists authority to prescribe), "dispensing" digital therapeutics, referral transactions, and telehealth, which could encompass remote dispensing site supervision, remote patient monitoring, and virtual visits for medication management or for evaluating patients who could start a medication prescribed by the pharmacist.

Most, if not all of these technology solutions exist. The challenge for most pharmacy owners is evaluating applications and vendors with the goal of creating a seamless experience for patients and pharmacy operations. It may not be realistic to find a dispensing system that can optimize delivery driver routes, bill a telehealth visit for starting hormone contraception, and send that prescription electronically to a different pharmacy in town. But reasonable efforts to develop interfaces to transfer data and work between applications will appeal to pharmacists. **CT**

Lisa Schwartz, Pharm.D., is senior director of professional affairs at the National Community Pharmacists Association. She can be reached at lschwartz@ncpa.org.

Kneeland's Notes

by Bruce Kneeland

I READ A SOCIAL MEDIA POST RECENTLY that linked to an article by a physician complaining about large PBMs (pharmacy benefit managers). What made this article worth mentioning is that it was published in a journal whose readers are primary care physicians. It's nice to know we aren't fighting this battle alone.

The actual article is lost in old LinkedIn posts and can't be found. But no worries, the author said little that *ComputerTalk* readers do not already know. However, the author did share a couple of statistics that I found interesting. First, even though there are 66 PBMs, the largest three serve approximately 89% of the market, according to a post from the Center for Insurance Policy and Research updated April 11, 2022 (content.naic.org/cipr-topics/pharmacy-benefit-managers).

While not included in the article, I am told that most of the smaller PBMs do what a PBM is supposed to do: validate patient eligibility, process claims, negotiate better prices for payers, and reimburse pharmacies in an equitable manner.

The National Community Pharmacists Association (NCPA) publishes a list of independent/transparent PBMs. These PBMs have pledged to conduct business in accordance with a set of guiding principles developed by NCPA that align the interests of patients, employers, and community pharmacies. You can access the list here: www.ncpa.co/pdf/advocacy/pbm/independent-transparent-pbms-listing.pdf.

In September 2019 I wrote an article for a prominent pharmacy publication about how one smaller PBM worked with a pharmacy owner to get the school board in the pharmacy's area to switch to a smaller but more pharmacy-friendly PBM. The pharmacy owner involved in the process was on the school board and reported that the change resulted in saving the school district about a half-million dollars. He also said reimbursements to pharmacies in the community were significantly improved.

So what's the point? Just this: The people, processes, and companies are already in place to solve many of the problems pharmacies have with the large PBMs. What's needed is for more companies to choose one of these more pharmacy-friendly PBMs.

One way to make this happen is to invite the hundreds of companies that sell to pharmacies to look into the advantages of contracting with one of the smaller PBMs. And the best way I know for that to happen is for those reading this article to start asking the companies they buy from which PBM they use for their employee benefits. It would be great if pharmacy organizations, both state and national, joined the effort by encouraging their corporate members to do the same.

Imagine what would happen if pharmacy owners started including in their vendor selection process the question "What PBM does your company use?" Then imagine what would happen if a few supplier companies started including in their marketing materials a statement like this: "XYZ Company Is Proud to Contract With a Pharmacy-Friendly PBM."

Of course, we need to recognize that for a supplier company to make this kind of switch is complicated. Frequently, when a company selects a health insurance plan, it is then left to the

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healthcare plan provider to select a PBM. Thus, the employer may not be able to switch. But there are self-insured companies where making that change is less complicated. Even when it is not practical for a pharmacy vendor to engineer the switch, the fact that they are asking the question will prove useful. Doing so will force the healthcare plan provider to look more carefully at the PBM providers they choose.

No one idea, strategy, or tactic is the final answer to the PBM problem. Political action and legal challenges are the central part of a winning strategy. But it just seems to me that the idea of pharmacists asking their suppliers to join in the fight is one more tool we can use to solve the problem.

> The people, processes, and companies are already in place to solve many of the problems pharmacies have with the large PBMs.

Vendors need to know that what PBM they choose just might help them win more business. The bottom line is: We need help in fighting this battle. It seems to me that one good way to make that happen is to ask for help from the companies that sell to, and are dependent upon, retail pharmacy.

I'd love to know what you think. Email me at BFKneeland@gmail.com. **CT**

Bruce Kneeland is an independent pharmacy veteran, author, and podcaster. He can be reached at BFKneeland@gmail.com and listened to at www.pharmacycrossroads.com.

CHAIN MARKET TRENDS

by Will Lockwood
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2022 has seen chain pharmacy operations getting back to a more normal footing. Key elements of the COVID-19 pandemic response will remain and, in fact, should prove to be very useful as standard tools within the pharmacy workflow.

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OVERALL THE TREND IS TO LOOK FOR

efficiency gains everywhere, as pharmacies balance prescription volumes with clinical activities. Chains are doing their best to address challenges such as pharmacy benefit managers' (PBMs') continual tightening of performance requirements associated with DIR (direct and indirect remuneration) fees, reimbursements for clinical services that aren't remotely commensurate with the service and pharmacy costs, and a consolidation among technology vendors that can unsettle long-standing partnerships that chains have developed.

CLINICAL SERVICES GROWING

Over the last few years, COVID drove a major increase in resources dedicated to clinical services. While areas such as medication therapy management, health screenings, and even vaccination programs were common, COVID necessitated testing programs beyond the scale of anything pharmacies had implemented before, and then a steep ramp-up in vaccination capacity. While the massive effort necessitated by the COVID response did in some cases sideline longer-standing clinical services, according to our interviews, it had two significant benefits.

First, it put chain pharmacies to work in close concert with a range of offices across all levels of government. This was a perfect opportunity for these pharmacies to show just how effective they can be in public health efforts, as well as in patient care more generally.

Second, and on the technology front, some of the key tools that supported the testing and vaccination workflows will continue to be valuable, such as technology for scheduling.

In fact, remote services and telehealth should gain in importance as both pharmacies and patients are becoming more and more accustomed to using video conferencing, for example, and the technology and bandwidth for remote interactions continues to improve. These will be tools that pharmacists can use to expand the scope of the profession, notes one chain.

STREAMLINING IMMUNIZATIONS

While the resources demanded by the COVID response were extraordinary, it also turned out to be a golden opportunity to identify inefficiencies in critical processes. Patient-facing technology for scheduling visits and collecting required paperwork ahead of time was particularly important, and its widespread adoption by pharmacies and acceptance by patients should yield dividends for some time to come.

For example, chains found that the volume of immunizations required that they find a way to collect informed consent and health questionnaires online. It was clearly not just inefficient, but a public health hazard as well, to have a waiting area full of people at COVID immunization clinics going through forms on clipboards. The circumstances demanded that, as much as possible, when the patient arrived at the site you had as many of the preliminary tasks out of the way as possible.

This was, in general, a brand-new tool for pharmacies and a new experience for patients. It is a prime example of a technology and a process that will continue to pay dividends for pharmacies.

BUILDING ON SCHEDULING TECHNOLOGY

Patient-facing scheduling technology will continue to be mission critical. As one chain put it, web- or app-based self-service scheduling can now be the norm for all vaccines and for other appointment-based services as well. It should be a key source of efficiency gains as pharmacies seek to provide not just COVID testing and vaccines but also to help patients catch up on other vaccines, such as those for shingles, pneumonia, and flu.

These broader vaccination efforts will get a boost from pharmacy access to state immunization registries, another element of the vaccine process that one chain notes changed for the better during the pandemic response. It is now the standard of practice for pharmacists to access these registries for the rich data

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*Market Study by Health Advances LLC

Innovation **Reliability** **Customer Service**

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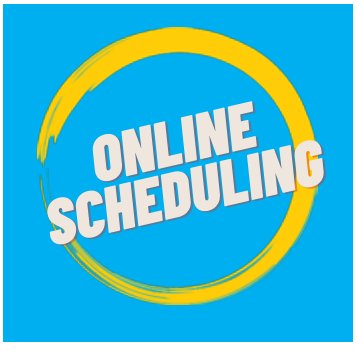
they provide on patient status across a range of immunizations. The pharmacist can easily have the information he or she needs to minimize errors and identify immunization gaps that can be addressed with a patient.

REACHING THOSE MOST IN NEED

The widespread adoption of both scheduling technology and registry access is making an impact on the ability for pharmacies to better serve those patients most in need, according to one chain. For example, when a chain sponsors off-site clinics in assisted living or long-term care facilities, or for people in other settings with a high social vulnerability index, the scheduling tool is useful to allow facility staff or a caregiver to register patients for the offsite event and complete the required paperwork.

One beneficial wrinkle in scheduling technology is the ability to create unique, private URLs for offsite events. This means a closed schedule, which was critical for COVID vaccine scheduling to prevent appointments from filling up with people from outside the intended population. Of course, that's not likely to be an issue now, but it can still be a good feature since it allows a pharmacy to create scheduling parameters that are tailored to a specific event.



CONNECTING VIA TEXTING AND APPS

Texting is currently the preferred communication channel, according to our interviews. The word is that patients do not want phone calls, and it's been clear for some time that pharmacies need to limit staff time spent on the phone to only the most necessary situations. While text messaging is convenient and efficient, you can also expect chain pharmacies to work toward greater adoption of smartphone apps by patients. One chain said that the goal is to nudge patients from texting over to the app in an effort to both improve pharmacy efficiency and increase the service level for patients.

Apps have moved beyond simple prescription status text messages to providing patients with a list of prescriptions, in-depth health content, and more. In the end, the app can cover all the areas that text messaging does, but texts cannot do everything an app can.

Overall, there's a need for consistent and systematic communication between pharmacy and patients. Both pharmacies and patients have a strong interest in easy patient access to prescription status, whether it's a refill due, a request to the prescriber for more refills, or a prescription ready to pick up.

INTELLIGENT PHONE SYSTEMS

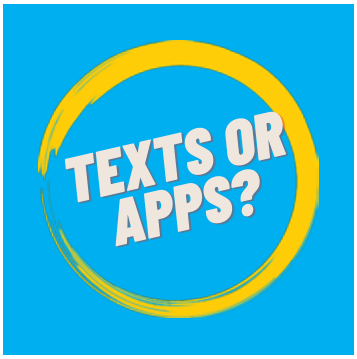
Certainly, each phone call into the pharmacy that a staff member answers can easily take a couple of minutes to resolve, and there's quite a bit else that can get done in that time. However, the goal, according to our interviews, is not to eliminate the phone as an option. Instead, it is to automate the phone interaction and make it as much of a self-service event as possible, limiting live phone calls between patients and pharmacy staff to only the most important interactions.

What we should look for then is a more intelligent phone system that will move beyond the classic and not terribly well-loved IVR (interactive voice response) menu. Ideally, the phone system will identify a caller and provide a smart path of options designed to find the right answer without needing to connect to a pharmacy staff member. This could be driven by artificial intelligence.

There are phone systems out there right now that promise to bring greater automation and intelligence, and there are chain pharmacies that will be testing this model this year to see if the theory is backed up by solid data and a strong return on investment.

PHARMACY NEEDS, TECHNOLOGY SOLUTIONS

One challenge in chain pharmacy is ensuring that pharmacy staff can communicate their needs effectively and that developers can set appropriate expectations for a timeline and feasible features. This was particularly acute amid the all-out push to build the technology capabilities needed for pandemic response. And although project timelines may be getting back to normal, it remains a fact that most pharmacists and other patient-focused staff don't speak "engineer," and developers are not experts in pharmacology, patient care, and the details of pharmacy workflows.



AUTOMATION AND EFFICIENCY

Dispensing automation in central fill is an area that can be important to driving efficiency in pharmacy processes, according to one chain. In this case, central fill accounts for about 50% of prescriptions. This chain is using central fill for both new and refill prescriptions, with daily deliveries from central fill locations to pharmacy sites. Pharmacies still maintain a formulary on site that permits dispensing for walk-in patients. The idea is that moving as much dispensing as possible out of the pharmacy is a way to safely and efficiently maintain high volumes while allowing on-site pharmacy staff the time to focus on patient engagement and high service levels.

PAYMENT MODEL CHALLENGES

PBMs remain a major issue for chain pharmacies. The pressure here is intense. With each contract renewal PBMs seem to increase the expectations without any commensurate increase in reimbursements. In fact, DIR fees are structured in a way that does not reflect reality, with adherence tiers reaching 90% and higher required to allow a pharmacy to recoup as little as 3% of DIR fees. That amount available to recoup is small, but more importantly the adherence threshold is nearly impossible to achieve.

In the face of this, there's the fact that, as one chain sees it, clinical services, rather than filling prescriptions, are going to be the way that pharmacy stays relevant. The scope for the services is only increasing, as pharmacies leverage telehealth for remote counseling or medication therapy management. And, as one chain notes, payers are coming to expect pharmacies to provide a range of clinical services. But, again, the contracts that PBMs are offering don't even begin to provide an appropriate level of reimbursement. It is certainly the case that pharmacies have a wide range of perfor-

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mance metrics available to them, but it can still be a challenge to measure and report on the real impact of services in a timely manner. In one example, a chain pharmacy noted that adherence metrics were up to two fllls out of sync with dispensing, making it very difficult to connect the dots and demonstrate the pharmacy's impact on outcomes.

CONSOLIDATING TECH VENDORS

Another challenge mentioned by a chain is the changing landscape of pharmacy technology vendors. There's been a great deal of consolidation in recent years, with the new owners frequently being investment firms. This can often mean turnover in staff at the vendors that disrupts long-standing relationships; rationalization of product portfolios that ends up de-emphasizing a chain's chosen instance of a technology that had been offered independently by each of the consolidated companies; and a chain moving from being a major client to the proverbial smaller fish in a bigger pond. This is all important, as this chain puts it, because chain pharmacy technology projects are of a scope and complexity that work best as real partnerships with strong continuity and a shared vision that extends beyond next quarter's numbers. When your vendors of record are turning over regularly through no choice of your own, it creates uncertainty and a need for a chain to redirect resources to managing the vendor relationship rather than strategically managing technology resources.

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The latest news on chain pharmacy and PBMs from the National Association of Chain Drug Stores (NACDS).

An NACDS report on how pharmacy expertise and accessibility supports healthcare transformation.

American Association of Colleges of Pharmacy (AACP) resources on direct patient care.

The opportunities for retail clinics located within pharmacies.

A blog post from Merative (formerly IBM Watson Health) on the value of expanding roles for pharmacists that are improving access to health services.

WHAT'S ON THE RADAR?

The trends suggest that chain pharmacies are going to continue to look for every ounce of efficiency in dispensing and patient care workflows. One major opportunity right now is for chains to build strategically on the engagement with patients over the last few years and the new tools that have rolled out to position pharmacies as truly the most convenient source for a range of clinical services available to consumers. That's one piece of the puzzle. The other is reimbursement, of course. There's certainly technology that addresses DIR fees and paltry dispensing fees and all the other ways that PBMs squeeze pharmacy, but it may actually be the connections pharmacy can build with plan sponsors and through political channels that lead to recognition of pharmacy's importance. That's because it's never going to be enough to simply be more efficient or track a set of metrics more precisely. What chain pharmacies can do is broadcast the message that what they did during the pandemic response was indeed truly exceptional, but it does not have to be the exception. It's the kind of community engagement and care that they can offer every day. The message is that these are services that require investment in both people and technology, and pharmacy deserves fair payment. **CT**

Evolution of Robotic Dispensing

MIKE COUGHLIN, FOUNDER AND CEO OF SCRIPTPRO, took pharmacy to the next level of technology in making the dispensing process more efficient and safer. Pharmacies have benefited as well as patients. That said, ScriptPro is a company that has transformed the dispensing process. In this interview with *ComputerTalk*'s publisher, Bill Lockwood, Mike tells us how it all came about and the trajectory of the company since then.

ComputerTalk: You are the person who brought robotic dispensing to the pharmacy market. Let's start with how you came up with the idea.

Mike Coughlin: In the mid-1990s, we began exploring ways to help pharmacists and support staff who were struggling to keep up in busy retail and hospital ambulatory pharmacies. We saw reports in the press and medical literature of tragic results when there was a pharmacy error. Wait times, stress on staff and patients, and stories about dispensing errors or other bad experiences in pharmacies were common discussion topics.

Then, and even to a greater extent today, healthcare tends to be based on medications. Patients receive medications by the billions from chain, independent, and hospital pharmacies. Pharmacists and support staff are on the front line answering questions and giving advice on a range of subjects. In addition to addressing medications with patients and doctors, they deal with insurance complexities and help patients make difficult choices about how or whether to pay for their prescriptions — all while they retrieve and return drug stock bottles, count pills, and peel and stick labels. ScriptPro looked for a way to use robotics to relieve pharmacy staff of this last step so they could devote more attention to the other functions.

As we worked on designing a pharmacy robot, ScriptPro sponsored a national dispensing error study that was performed by a team at Auburn University. The study became a landmark in the field of medication errors when it reported: "Dispensing errors are a problem on a national level, at a rate of about four errors per day in a pharmacy filling 250 prescriptions daily. An estimated 51.5 million errors occur during the filling of 3 billion prescriptions each year." When we released our first robot in 1997, the industry was ready.

"I have always had a desire to make things work well. Whether it's a robot or a company with an expansive vision of what the world needs."

– Mike Coughlin

CT: What was the development time on the first robot?

Coughlin: About three and a half years.

CT: And where was the first beta site?

Coughlin: The University of Kansas Medical Center in Kansas City, where ScriptPro has always had its home base.

CT: When did you introduce the system to the pharmacies?

Coughlin: At the National Association of Chain Drug Stores annual convention held in Boston in October 1997.

CT: It seems to me that with the high cost of pharmacist and technician salaries, a robot would be a good investment. Your thoughts?

Coughlin: It has been a great investment from the very beginning. Our earliest customers recovered their investment quickly and have enjoyed the benefits of robotics ever since. We have taken care of our customers from the start with 24/7/365 all-inclusive customer support at a very affordable rate. We have protected our early adopters and the many who came later through continuous hardware and software upgrades. Our policy has always been to offer these improvements as retrofits to our installed base. In 1995 I recruited an aircraft manufacturer to help us design some of the critical systems. Many of our earliest robots are still running today with no end of life in sight.

CT: How many pharmacy management systems now provide an interface to the system?

Coughlin: All of them.

CT: You didn't stop with robotics. You went on to develop a pharmacy management system as well. What does your product line look like today?

Coughlin: While we are still the same com-

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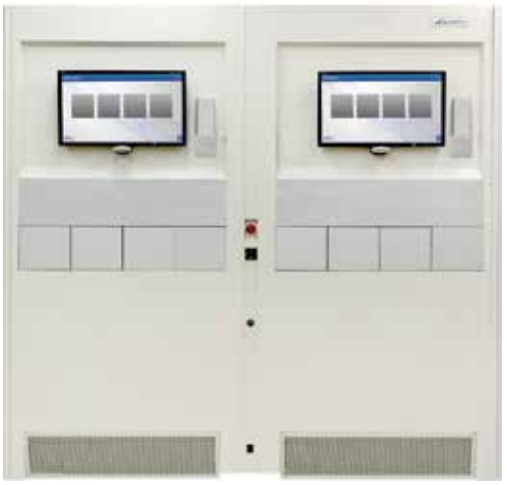
pany with the same culture, ScriptPro today is much more than the ScriptPro that developed the first robotic pharmacy dispensing system 25 years ago.

ScriptPro used its robotic dispensing experience to develop a comprehensive suite of integrated hardware and software products that pharmacies use to ensure operational efficiency and accuracy. This includes a workflow system that employs the barcode controls and prescription labeling processes built into the robots. It incorporates the drug database we built for the robots and extended to print drug images and markings on prescription labels so patients can verify for themselves that they have the right drug. It can be the anchor of a telepharmacy network. Our latest invention is a robot that manages bags waiting for patient pickup to prevent handout errors.

Today, ScriptPro offers integrated solutions that meet the needs of the full range of pharmacies, from the basic to the most advanced. It replaces a collection of applications that are otherwise required to get the job done. There is nothing even close to this available in the market.



Then: **The SP 200/OCC, above, the company's original robot (robotic prescription dispensing system).**

Now: **The newest robot, the SRS, left, that manages bags in will-call. This is a modular system that can expand to meet the needs of the pharmacy.**

CT: Now tell us a little about your background.

Coughlin: I had a great teacher in high school, Sister Mary Kathleen. She got me interested in chemistry and physics. I went to St. Louis University, where I received a B.S. in physics and the James I. Shannon award upon graduation. I had many jobs that added to my government loans in order to get through SLU. My favorite job was analyzing Explorer IV satellite telemetry data in the physics department.

Upon graduation I was awarded a fellowship to study physics at Ohio State University. I received an M.S. in physics and an M.B.A. at OSU. I also worked at Bell Telephone Laboratories while in Columbus.

Hewlett-Packard hired me out of graduate school. I went to Palo Alto to become manufacturing operations manager of their fledgling microelectronics department. Bill Hewlett and Dave Packard were still there, and the term "Silicon Valley" had not yet been coined. A "chip" was still a "potato chip." At HP I learned to love the concept of making technology products do important jobs.

My wife Sherry and I decided to move our young family (the first two of our four daughters were with us then) back to the Midwest. We were both from Topeka, so we moved to Kansas City, where I took a job in management consulting with Arthur Andersen & Co., then one of the big five accounting firms. I became a manager in the firm and obtained the certified public accountant designation.

I then started MEC Management Company, an accounting, business development, and systems integration firm that became the incubator for ScriptPro.

CT: Before we close, is there anything else you would like to offer?

Coughlin: I have always had a desire to make things work well. Whether it's a robot or a company with an expansive vision of what the world needs. I enjoy contributing to the effort of developing mechanisms and processes that help enterprises like ScriptPro and its customers do their jobs. It's a privilege and an honor to shoulder these responsibilities and to have the trust of others. **CT**

Collaborating to Maximize Health Information Technology Innovations

Brent I. Fox, Pharm.D., Ph.D.

WE OFTEN DISCUSS A chicken-and-egg scenario when debating the source of information technology (IT) innovations that occur in healthcare (including pharmacy) and in the information systems that support healthcare delivery. Do innovations originate during practice when an observant and enterprising clinician recognizes an opportunity to improve their practice? These innovative ideas are often the "gotcha" pain points that continually frustrate providers. Once identified, these ideas are then passed to the "implementers" who make the ideas a reality. Or, are innovations born from observations made by those who are one or two levels removed from practice? These innovations are often identified because they routinely impact providers across the spectrum and/or locations of care. Regardless of the source of the innovative idea, innovations can result from the existence of a suboptimal process, tool, etc., and from the absence of a necessary process, tool, etc.

Another aspect of healthcare innovations is the method in which they are planned, implemented, evaluated, and shared among those who are interested or impacted by the innovation. We can all likely think of a new feature that a pharmacy management system vendor asked us to test, review, or provide feedback on. Some of us have even participated in small-scale rollouts to test innovations in multiple practice locations. Still others have scars from "big bang" implementations in which major system changes were implemented essentially overnight. For those who desire a low-risk approach to learn about healthcare IT innovations, research articles are a valuable source, and are the focus of this column.

> Pharmacists are frequently at the cutting edge of healthcare IT adoption. In some cases, the pharmacist is adopting the innovation, but in many others, the pharmacist supports the patients' efforts to integrate an innovation into the management of their health.

HEALTH APPS

The concept of prescribing mobile apps to support patients' health behaviors is not new. In fact, this practice has gained limited traction in terms of reimbursement from third-party payers. While the majority of pharmacists have yet to receive broad prescribing authority, it is reasonable to expect that patients will seek out their pharmacist's opinion or insight related to a recently prescribed app. Like any treatment modality, we expect that the prescriber will have performed due diligence to ensure the app meets the patient's needs prior to prescribing. However, as a partner in the patient's health, pharmacists should be ready to assist patients with apps intended to support disease management.

A recent article (https://mhealth.jmir.org/2022/6/e36761) provides a useful framework to guide discussions with patients about apps (whether or not the app was prescribed). The paper reviewed apps for conditions pharmacists commonly face in the community setting: headache, insomnia, and pain. The paper uses an existing tool from the American Psychiatric Association to guide a review of 201 apps. The tool includes objective questions that reviewers use to evaluate an app across several domains: accessibility, privacy and security, clinical

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foundation, engagement style, and interoperability and sharing. Readers who are interested in learning about the findings for this specific group of apps are encouraged to check out the article linked above.

However, the broader take-home message from this article is the availability of the tool and questions to evaluate health apps. Certainly, a discussion of all questions may not be feasible in a community pharmacy setting. But might there be an opportunity to highlight critical app evaluation questions (and the desired answers) that are most relevant for the patient, and review these with a patient to guide their search for an app? Or might a pharmacist use a subset (or all) of the questions to identify apps to then suggest to a patient? These questions are worth considering.

POPULAR APPS

Continuing the theme of mobile health innovations, two of the most popular app categories are those that promote physical activity and those that promote healthy eating. Your author is a frequent user of an app from the first category, primarily using the app to review data and share it with my "accountability group." Similar to the article discussed above, we can apply principles from a recent article to community pharmacists' patients' use of mHealth services from these two groups. Specifically, the article presents results of a systematic review, which is an article that combines the results of other articles to draw broad conclusions about the topic of interest.

The full description of the study is available online (https://humanfactors.jmir.org/2022/2/e34278). If we move to the primary findings, we see that users believe mHealth services can provide value in promoting health behavior change (i.e., physical activity and healthy eating), but improvement is needed to realize long-term value in changing behaviors (i.e., exercise and diet) that must be sustained to achieve maximum health benefits.

Digging a bit deeper, the review identified five themes across all studies. From a user's perspective, services should be bidirectional and dynamic to provide an engaging experience and meet users' needs for support. mHealth services should also provide an experience that varies and is multifunctional. This translates into interactions that are novel instead of repetitive or motivational in nature. In other words, users desire new content and methods of engagement. The third theme stresses the importance of simplicity. Users desire an mHealth service that requires little cognitive effort on their part to use the service. Manual data entry is not preferred. As physical activity and one's diet are truly personal experiences, it is not surprising that mHealth services that are individualized to the user are preferred. This includes timing of messages, tailoring of exercise routines, and similar aspects of the service. The last theme, reliability, encompasses several relevant aspects. Users desire mHealth services that are provided by trustworthy sources. They also want their data to remain confidential. Any objective measures (e.g., steps) must be accurate. Lastly, requiring payment to access content or service decreases the user's sense of reliability.

Pharmacists are frequently at the cutting edge of healthcare IT adoption. In some cases, the pharmacist is adopting the innovation, but in many others, the pharmacist supports the patients' efforts to integrate an innovation into the management of their health. The first article discussed in this space provides a useful tool to support evaluation and selection of existing health-related apps. Related, the second article provides a useful guide to assist prospective development of an mHealth innovation to support patients' behavior change. In either case, the pharmacist can partner with patients and other stakeholders to support patients' efforts for improved health. Your comments are welcome., **CT**

Brent I. Fox, Pharm.D., Ph.D., is an associate professor in the Department of Health Outcomes Research and Policy, Harrison School of Pharmacy, Auburn University. He can be reached at foxbren@auburn.edu.

Research Leads to Innovation

Research articles are a low-risk but valuable way to explore technological innovations. The sources quoted in the article are below:

Assessment of Smartphone Apps for Common Neurologic Conditions (Headache, Insomnia, and Pain): Cross-sectional Study: https://mhealth.jmir.org/2022/6/e36761

User Perceptions of eHealth and mHealth Services Promoting Physical Activity and Healthy Diets: Systematic Review: https://humanfactors.jmir.org/2022/2/e34278

Pharmacogenetics: Pharmacy Evolution Rolls On

Patricia Milazzo, R.Ph.
Arvin Sequeira

THE PRACTICE OF RETAIL PHARMACY continues to rapidly evolve, with no end in sight. In January 2020, common pharmacy concerns surrounded periodic drug shortages, Amazon's entry into the pharmacy space, declining reimbursement rates, and DIR (direct and indirect remuneration) fees. Within 12 months, pharmacies would be catapulted into the role of one of the nation's central vaccine providers in response to the COVID-19 pandemic. Pharmacies quickly operationalized the administration of multiple vaccinations and boosters into their dispensing and claims adjudication software. This year's federal Test to Treat COVID initiative challenged pharmacies to absorb yet another workflow change. Emerging from the shadow of COVID, however, other components of pharmacy practice are gathering momentum for disruption.

Pharmacogenetics and the need to capture standardized patient pharmacogenetic data within pharmacy systems are rapidly growing. Pharmacogenetics, sometimes called pharmacogenomics, is the study of the genetic factors that affect drug metabolism, drug transport, or drug receptors in individual people. Genetic variations cause individuals to respond differently to medications and may cause patients to be more or less sensitive to certain drugs, versus their peers. This results in the increased likelihood that a given drug will be ineffective or produce an adverse reaction. The FDA provides an alphabetical list of drugs with affected genes and gene subgroups, and a description of the gene-drug interaction.

TESTING PRODUCTS

Pharmacogenetic testing products have been available in retail pharmacies since 2017; however, the integration of pharmacogenetic data into pharmacy systems, including standardized communications with payers or prescribers, has not been widely established in pharmacy operations. As health plans and PBMs integrate pharmacogenetic data into their formulary models, pharmacies will be required to receive, store, and integrate a patient's genetic profile. It is expected that this genomic data will be required as part of the prior authorization process and may be needed to determine formulary alternatives, which could be determined by the presence or absence of specific genetic information. The pharmacist can be notified to conduct a specific pharmacogenetic intervention or pharmacogenetic-required test. Pharmacies can offer pharmacogenetic (PGx) testing that can be completed at home or in the pharmacy.

Because the functionality to specifically capture pharmacogenetic data does not yet exist, pharmacies are using existing practice management system tools, such as the allergy tables, disease/problem lists, or pharmacy notes, to store a patient's genetic data. Doing this requires the pharmacist to manually monitor for interactions, determine appropriateness of therapy, and access additional references for detailed clinical pharmacogenetic information. The interoperability of pharmacogenetic data depends on pharmacy and payer systems' ability to share common data structures to digitize this communication. Options for prescriber and pharmacy systems include using internal technology services to design and implement pharmacogenetic data into an existing system or purchasing a software package to layer over or within an existing system. In the EHR (electronic health record) market, Genelex is an example of a laboratory corporation that has partnered with YouScript to provide a layered software package to integrate a patient's PGx results into existing EHRs. This software also provides

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clinical decision support for the prescriber, and that support is specific to the genetic test.

Beyond pharmacies and prescribers, PBMs (pharmacy benefit managers) will also need access to pharmacogenetic data. For example, the NCPDP Foundation recently awarded a grant to Xact Laboratories, a biotechnology company focused on providing molecular diagnostic tests and results integration. The grant will be used to help integrate pharmacogenetic data into existing PBM systems. The Xact Vertical Integration System (XVIS) was developed for:

> *"integrating laboratory test results data, particularly genetic-based pharmacological efficacy data, into existing electronic systems like electronic health records, healthcare information exchanges, payor systems, self-insured employer groups, and pharmacy benefits manager systems."*

Xact would model incorporation of PGx data into PBM systems and/or modules, allowing direct communication between the pharmacy and payer. As described by NCPDP:

> *"The Xact system would allow clinicians to make clinical decisions utilizing genomic data to better aid in their prescribing and drug choice but in line with the current processes in place today. Instead of incorporating an entirely new system to include this new genomic information, Xact Laboratories XVIS would incorporate themselves into the current systems already in use."*

Similarly, pharmacy systems will require enhancements to accommodate patient genetic data and make this data accessible to the pharmacy's clinical decision support tools. In such a system, an alert would trigger if a drug were prescribed that was contraindicated for patients with this specific gene. These alert functions are contingent upon the genetic profile being accessible to the clinical decision support software. Through a SCRIPT RxChange message, prescribers could be notified of more appropriate medications based on the PGx test outcomes. Pharmacists could also use SCRIPT RxChange messaging to send notifications for products with PGx considerations, requesting a prescription for a different product that may be more appropriate for the patient. These transactions offer prescribers an opportunity to see available alternatives or to issue a prescription for the product recommended by the pharmacist.

Once limited primarily to oncology treatments, PGx testing is in a period of rapid growth across many disease states. Historically, only hospital pharmacists had access to a patient's genetic profile, but the enormous growth of self-testing and self-reporting has begun to create a need for retail pharmacies to be privy to genetic test results. As the utilization of PGx testing in patient care expands, so do the opportunities for pharmacists to better manage patient care on a personalized basis. By using pharmacogenetic testing, pharmacists can work with providers to improve patient outcomes and work with PBMs, pharmacies, and health systems to better implement personalized care. **CT**

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COVID-19 and Its Aftereffects

Marsha K. Millonig
B.Pharm., M.B.A.

THIS IS ONE OF THE WORST TRAVEL SEASONS IN MY memory, and it may be in yours, too. Every day there is another story about airline flight cancellations and delays and their impact on travelers. There were tens of thousands of cancellations over Father's Day weekend and the Juneteenth holiday. According to the FlightAware flight tracking website on Friday, June 24, there were more than 21,000 flight delays and 2,825 flight cancellations overall, and 6,370 flight delays and 711 cancellations into, out of, or within the United States.

News stories on the situation name numerous factors that are impacting travel:

- Staff shortages, including pilots, flight crew, baggage handlers, and others.
- Aircraft shortages.
- Maximum threshold hours for pilots being reached.
- Weather problems.

The airlines, like many industries, are still in postpandemic recovery mode. There were staff layoffs and early retirements during the pandemic, when airline travel demand dropped. The industry was not sure how air travel would rebound. Now, postpandemic, many people can't wait to travel, and the demand for air travel is at record levels. Yet the airlines say they are 12,000 pilots short. And pilot certifications are not meeting this demand. According to the American Airline Pilots Association, only 8,000 pilots have been certified during the past year. Also contributing to the shortage are changes in pay, benefits, and retirement structures put in place after 9/11 that decreased the pilot training pool. As in many other industries, airline employees have found new occupations after the pandemic.

Pharmacy has been impacted by the pandemic in many ways. As an essential service, many pharmacies actually expanded hours to meet patient demand for their medication-related needs.

Pharmacy has also been impacted by the pandemic in many ways. As an essential service, many pharmacies actually expanded hours to meet patient demand for their medication-related needs. Additionally, once COVID vaccines were approved, pharmacies saw demand for vaccines and related services soar — at times to the breaking point. Many of my pharmacist colleagues who were close to retirement decided to leave their positions early, with the demands of the pandemic a contributing factor. The same holds true for pharmacy technicians who saw their scope of practice expand during the pandemic, with many now trained and authorized to provide immunizations.

The profession is experiencing a severe shortage of pharmacy technicians. The CEO of the Pharmacy Technician Certification Board (PTCB), William Schimmel, attributes pharmacy technician vacancies and high turnover to "disruptions related to the COVID-19 pandemic." A recent survey conducted by the PTCB and the American Society of Health-System Pharmacists (ASHP) found the pharmacy technician turnover rate had tripled to between 21% and 30% in 2021 compared to the last survey conducted in 2019. Administrators that responded to the survey said they had lost at least 41% of their technicians.

And it is not only within the hospital environment. Community pharmacies have been impacted as well. Because of pharmacy technician vacancies, I have been working two to three times as

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frequently at the pharmacy where I fill in, providing coverage. To try to manage the workload, many pharmacies have closed their drive-thru windows or are cutting hours. I have found that frequently when I have called another pharmacy to have a patient's prescription transferred, they are closing at 6:00 p.m. rather than 9:00 p.m. during weekdays. My colleagues are reporting similar issues in other parts of the country. I talked to two community pharmacists this week on the West Coast and in the South who have been at their pharmacies for nearly two decades. One said, "We are all looking to job shift because retail has gotten so awful." The other noted, "More help would be good. I come to work, and there is a person waiting to get a COVID shot, three people are lined up to get their prescriptions, there is a backlog of work to do, and now they want me to start doing booster shots for children."

ASHP has launched PharmTech Ready, a resource that can help bridge the professional development and training gaps that were also identified as drivers of the current nationwide shortage of pharmacy technicians.

Part of the pharmacy technician issue stems from low pay and the ability to find much better paying positions given the postpandemic shortage of workers in many industries. The May 2022 unemployment rate remained low at 3.6%, about the same as before the pandemic (see https://www.bls.gov/news.release/pdf/empsit.pdf). According to the U.S. Chamber of Commerce, the transportation, healthcare and social assistance, and accommodation and food sectors have had the highest numbers of job openings. In 2021, the U.S. Chamber reports "more than 47 million workers quit their jobs, many of whom were in search of an improved work-life balance and flexibility, increased compensation, and a strong company culture."

The pharmacy environment can be stressful. Patients can be demanding — they are frustrated they can't always walk in for an immunization, they get impatient waiting for their prescriptions to be filled, and at times misplace their anger about their medication's cost onto the pharmacy staff. Why not leave this stressful job and go work for $20 or more an hour somewhere else, like the other 47 million workers?

Efforts are underway to address this situation. Walmart announced that it would be hiring 5,000 pharmacy technicians with starting pay at more than $20 per hour — a sizable increase from typical pay in the community setting. The starting pay currently, according to the Pharmacytechnicianguide.com is $25,400 annually, which is $12.21 per hour for a full-time position. That will bring pay in line with or slightly higher than what is being offered at many retailers that have job openings posted in my area. ASHP has launched PharmTech Ready, a resource that can help bridge the professional development and training gaps that were also identified as drivers of the current nationwide shortage of pharmacy technicians. The adaptable program features over 160 hours of entry- and advanced-level content on more than 70 topics and includes supplemental materials that will allow healthcare organizations to leverage their sites for experiential training. In several of the pharmacies I have been at recently, besides pay increases they are implementing processes to manage workload, including requiring appointments for vaccines, implementing central fill for chronic prescription management, and establishing operational efficiencies that also address forthcoming Drug Supply Chain Security Act (DSCSA) requirements.

Hopefully, these measures will bring some relief in the coming months. Speaking of coming months, I hope you have the 2022 ASAP Midyear Conference, September 14–16 at the Omni Parker House in Boston on your calendar. The program lineup looks great, and that's a beautiful time of the year to be in Boston. And by then some of the travel kinks may be worked out of the system. I'll be there — will you? **CT**

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