Technology: Will it help or hurt the future of pharmacy practice?

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As society’s use of technology continues to increase, and as technology becomes more accessible and sophisticated, digital health is here to stay. From automation that can fill prescriptions to apps that provide drug information, there is a fear that technology may one day replace many of the hospital pharmacist’s and hospital pharmacy technician’s functions.

Get in the game

With technology changing current medical thought and practices, it is critical for pharmacists to embrace the use of technology to expand pharmacy services and grow beyond traditional roles. “Technology offers hospital pharmacists the ability to counsel more patients, have a greater visibility on hospital floors, and expand clinical roles, but only if we are willing to take a leap of faith and embrace change,” said Timothy Dy Aungst, PharmD, Assistant Professor of Pharmacy Practice at the School of Pharmacy at MCPHS University in Worcester, MA.

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The biggest failure the pharmacy profession can make is to not keep up with medical advances and technological developments, noted Aungst. “We can sit back and keep practicing as we see what works, while the rest of the field flies past, or we keep up with changes and keep relevant. We cannot be complacent with current practice, but rather question how can we get better,” he said in an interview with Pharmacy Today.

Aungst used the example of Uber’s rise to success to demonstrate the danger of becoming complacent. “I don’t think any taxi driver thought that they would eventually have competition like this, but there is because someone thought of something different,” Aungst explained. “Could someone do the same for pharmacy?”

Positives and negatives

Today, there are many machines on the market capable of filling prescriptions and checking medications. “These technologies help speed up the logistics of drug preparation and verification so patients get their medications faster,” said Aungst. “There is no question that these machines are replacing traditional technician and pharmacist roles.”

On the positive side, automation technologies can offer many benefits. They can help improve patient safety by potentially reducing medication errors. By automatically filling prescriptions, pharmacists have more time to spend in patient counseling roles. Pharmacists will be relied upon to answer the really “hard” questions that patients can’t quickly google or look up the answers to, Aungst noted.

An emerging technology that has the potential to improve patient care is placing remote tags on medications dispensed in hospitals. “Imagine if a nurse calls the hospital pharmacy to ask where a patient’s medication is,” Aungst told Today. “A pharmacist could look up the remote tag and see if the medication is on the way, if it’s still in the pharmacy, or if it is on another floor because it got lost.”

For pharmacists worried about being replaced by technology, Aungst offered the story of the 2005 remake of the movie Charlie and the Chocolate Factory. In the new version, Mr. Bucket is replaced by a robot to screw the cap on toothpaste. “This leads to a job loss, and the family panics,” said Aungst. However, at the end of the movie, Mr. Bucket is rehired to take care of the robot.

“I like this story because despite all that robots can do, it reminds me that pharmacists will need to be part of the operations. Someone has to verify the drugs going into the machine and the final product, because at the end of the day, someone needs to be accountable.”

For hospital pharmacists, technology has the potential to replace pharmacists in terms of dispensing roles, but it could also free up pharmacists to spend more time on the hospital floors so they can interact with patients and provide clinical information to physicians.

Medical developments

Many technologies coming on the market may help patients and other health care workers with drug information. “If you go back 20 or 30 years before the widespread use of the Internet, patients and providers relied on pharmacists for drug information because we had the information, and they didn’t,” said Aungst.

Today, many mobile apps coming on the market are capable of processing drug interactions, performing medication identification, and serving as drug information services.

Aungst believes these apps could be viewed as a threat to pharmacists. “Imagine if the time comes when a pharmacist offers counseling on medications, and the patient says, “No need, I can just use my phone to look up the information,”” said Aungst.

Medication identification

For example, the National Institutes of Health (NIH) is exploring the development of an app to identify tablets and capsules. “They have all the photos of the medications, and they are trying to..."
figure out a way a patient could take a photo of a drug and identify it,” said Aungst. Although this could eliminate a patient’s trip to the community pharmacist, a medication identification app could have a positive influence during the hospital admission medication reconciliation process. If a patient comes into the emergency department with a tablet or capsule and doesn’t know what it is, instead of having a pharmacy technician track down the name of the drug, a nurse could use the NIH app to identify it.

“Pill identification apps could be a threat, but they could also be great in the grand scheme of things because it would free up that technician to have more time to dedicate to patient care responsibilities,” said Aungst.

Pharmacist involvement
Aungst noted that pharmacists need to jump in and take the reins in terms of clinical content when it comes to developing tools for patients and providers. “Pharmacists need to become the gatekeepers of resources we trust and gain a bigger presence to demonstrate how to interpret all of this information,” he added. “I have been meeting with pharmacists and students interested in leveraging technology and using it in pharmacy practice, so as a whole we do have active players involved, but we could use more support across the profession.”

InpharmD, developed by Ashish Advani, PharmD, professor at Mercer University’s College of Pharmacy, is the first iPhone app to offer customized drug information. Subscribers submit complex clinical questions through the website or the app and receive customized, evidence-based responses within a requested time period. In addition to answering drug information queries, InpharmD collates information from accurate resources to speed up topic searching. According to the company’s website, the service has more than 20,000 scientific journals, more than 20 million scientific articles, and several other resources.

“This is a very positive example of a pharmacist using technology, offering ... clinical services and knowledge to answer complicated drug questions,” said Aungst. The pharmacist “has a huge scalability to reach as many people as possible.”

Technology and provider status
According to Aungst, technology is something that plays in to pharmacists’ run for provider status. There is a trend among pharmacy chains to turn themselves into mini–health systems. “We are getting to the point where there is more communication between hospitals and community pharmacies, and [in] many community pharmacy chains like CVS and Walgreens, walk-in clinics are located right next to the pharmacy,” said Aungst.

In addition to having walk-in clinics located in some of its pharmacies, Walgreens recently partnered with Theranos, a high-complexity laboratory that can perform lab tests quickly with just a few drops of blood.

“One potential outcome that could be a positive for pharmacists interested in expanding their services would be the ability to see patients, conduct laboratory work, and follow up at the pharmacy without relying on outside services,” said Aungst. “This will have huge ramifications because not only does the pharmacy have that laboratory data, the patient’s provider will want that data, which will need to be shared through an integrated electronic health record system.”

The pharmacy becomes a one-stop shop because pharmacists have access to medication and lab results, and they can counsel patients and collaborate with patients’ providers to optimize their medications.

“We can use technology to leverage our services and functions when it comes to provider status, and I could envision that as a changing nature of our profession,” said Aungst.

Taming technology
As technology continues to evolve, the medical field as a whole is trying to learn how to adjust to technology, noted Aungst. Student pharmacists and practicing pharmacists need to keep an eye out for opportunities where technologies can be incorporated into pharmacy practice. “We need to make technology work for us. We should not have to work for technology,” said Aungst.

He feels that technology could pave the way to expand pharmacy services so that pharmacists can do more, but pharmacists need to take control now so traditional roles aren’t eliminated or replaced.

Aungst pointed out that pharmacists do not develop many of today’s apps, websites, and programs. He noted that companies that produce medication adherence apps may not even involve a pharmacist or have one on the clinical staff. “We as pharmacists need to step up to the plate and be involved in the development process and give our two cents,” said Aungst. “We are in a good position to seize the initiative and use technology to take us places we couldn’t before.”

He noted that when used correctly, technology could lead to improved patient care. “We need to stay abreast of what is coming out and get involved with technology at the development phase,” said Aungst. “If we don’t, everyone else will make the technology without pharmacist input. Pharmacists need to develop technologies how we want them to be.”

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