**Future aspects in Pharmacy**

**Abstract**

Personalised medicine is another growing trend in the pharmacy industry, as more and more pharmacists are using genetic testing to create personalised treatment plans for patients based on their individual genetic profiles. This approach is helping to improve patient outcomes and reduce healthcare costs.

For instance, pharmacies can use secure text messages to remind customers to fill and pick up their prescriptions. Some pharmacies are also now launching pharmacogenomics programs that use genetic profiles to determine a patient's responsiveness to a specific medication treating a certain disease state.

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**Introduction**

As the tools of pharmacy continue to evolve, so too will the role of the pharmacist. Pharmacy automation is expected to more than double by 2030. This use of automation will allow pharmacists to spend more time on virtual and physical patient care. From its beginnings, telemedicine has been used in a variety of health care fields, although widespread interest among healthcare providers has only now become apparent with the development of more sophisticated technology. In the present establishing system for patient care using telecommunication technologies is feasible, but there is little evidence of clinical benefits. In the future, telemedicine may be an useful tool for diagnosis and clinical assistance of patients in remote areas of the world and/or rural area far from clinical center.

**Problem in Pharmacy**

1. Big-Box Pharmacies. Big-box pharmacies are everywhere, and they make up nearly
2. 45 percent of the prescription market.
3. Drug Shortages. Drug shortages are nothing new.
4. Staff Shortages.
5. Adaptation.

**Four Technology Trends in the Pharmacy Industry**

Unless you’ve been cryogenically frozen since 1994, you’re aware that technology has crept its way into nearly every facet of life, both personal and professional. We wake up, check our smartphone, and stream online music in the car on the way to work where we rely heavily on computers to do the heavy lifting. You can even order pizza from an app to arrive hot and ready for when you get home.

If you’re sitting there in your Nirvana t-shirt with a blank stare on your face after reading that paragraph, then I must warn you that the rest of this article is going to fly right over your head. We’ll be discussing some technologies that are a little more complex than your 8-bit [Tamagotchi](http://www.bandai.com/tamagotchi/)that’s probably due for a feeding.

The use of technology to improve efficiencies is something that has spread to virtually every industry, and it’s not going away. That includes healthcare and, more specifically, pharmacy. Pharmacists everywhere are putting to use new technology to enhance patient therapies, run efficient tests, and ultimately provide better care to their patients.

Below is a list of the top 4 technology trends and the impact they have on the pharmacy industry:

**1. Digiceutical Apps**

Also known as “digital therapeutics,” [digiceutical apps](https://www.linkedin.com/pulse/what-digiceuticals-glenn-carter/) are apps for your smartphone that serve as an alternative treatment (or sometimes a complementary treatment) for diseases, disorders, and addictions.

The idea of apps on your phone replacing or aiding in the treatment of ailments might seem like it’s a far-off development, or perhaps it sounds like the premise of an episode of “The Twilight Zone,” but this technology exists right now, and healthcare professionals are taking notice of the growing trend. In a [recent survey](https://www.pharmacytimes.com/conferences/ashpmidyear2018/increasing-technological-reliance-among-pharmacy-predictions-for-2019) by the American Society of Health-System Pharmacists, 48% of pharmacists said that they believe digiceutical apps will become accepted therapy in at least 50% of health systems.

In 2018, there was a [massive growth in investment](https://www.ft.com/content/8ba02c74-997d-11e8-ab77-f854c65a4465) in the field of digital therapeutics, and the Food and Drug Administration (FDA) has actually been on board with the trend for quite some time as well. In late 2017, they launched a [digital health pilot program](https://www.fiercehealthcare.com/regulatory/fda-apple-fitbit-verily-precert-pilot-program-software-digital-health-scott-gottlieb), which included 9 companies. Among the participants were the big guys like Apple, Samsung, and Johnson and Johnson, yet small-but-mighty startups were also included. One such startup is [Pear Therapeutics](https://peartherapeutics.com/), which has already received [FDA approval for two of its app products](https://peartherapeutics.com/science/product-pipeline/); one for substance abuse, and the other specifically for [opioid use](https://www.pharmacytimes.com/news/treatment-app-available-by-prescription-for-adults-with-opioid-use-disorder-). The [goal of the program](https://www.fiercehealthcare.com/regulatory/fda-unveils-precertification-pilot-for-digital-health-technology) is to soften the regulatory requirements for digital health companies with proven records of developing and testing quality products.

The FDA’s approval of these new technologies is not only exciting for the digiceuticals industry, but for healthcare tech as a whole. The FDA’s willingness to adopt new ideas and innovations shows its commitment to enabling the best possible treatment of U.S. patients, regardless of how new and foreign the treatment methods might be.

**2. Mail-Order Pharmacies**

Mail-order pharmacies are internet-based pharmacies that ship prescriptions to customers in the mail. Online pharmacies have been around for a while, but a recent event has drawn attention to them and has sent shockwaves through the pharmacy world.

That event would be the [nearly $1 billion acquisition](https://techcrunch.com/2018/06/28/amazon-buys-pillpack-an-online-pharmacy-that-was-rumored-to-be-talking-to-walmart/) of online pharmacy startup [PillPack](https://www.pillpack.com/) by Goliath - I mean, Amazon - in 2018. This certainly grabbed the attention of Amazon’s newfound competitors, as the shares of large chain pharmacy players like Walgreens Boots Alliance, CVS Health, and Rite Aid all [took a dive](https://www.marketwatch.com/story/amazon-acquisition-of-online-pharmacy-startup-pillpack-sends-health-care-stocks-into-a-nosedive-2018-06-28) after news of the deal broke. The loss [totaled $11 billion](https://www.pharmacytimes.com/news/amazon-enters-the-pharmacy-world-with-acquisition-of-pillpack--) collectively in just one day.

While the big guys are obviously a little concerned with the entrance of Amazon to the marketplace, it begs the question: What impact is this going to have on retail pharmacy, namely independent community pharmacies?

While there are [mixed reactions](https://www.pharmacytimes.com/news/amazon-enters-the-pharmacy-world-with-acquisition-of-pillpack--) regarding what the impact might be, there is reason for small pharmacies to feel good about their chances at staying competitive.

On-demand service, personal care, and quick turnaround times on antibiotics are all examples of the [value community pharmacies provide](https://www.forbes.com/sites/forbestechcouncil/2018/09/18/how-local-pharmacies-can-compete-with-mail-order-prescription-businesses/#30f222f24658) that the online pharmacies can’t. The one major selling point that these online pharmacies stress is the convenience of having the meds shipped to your door. That’s something that [retail pharmacies have begun addressing as well](https://www.cvs.com/content/pharmacy/same-day), with the help of services like [ScriptDrop](https://www.scriptdrop.co/) and [iOmni](https://www.iomni-llc.net/wp/).

As long as pharmacies are willing to embrace technology, make changes, and work hard to stay competitive, they can continue to provide an incredible level of service and convenience that online pharmacies won’t be able to match.

**3. Artificial Intelligence**

[Artificial intelligence (AI)](https://www.techopedia.com/definition/190/artificial-intelligence-ai) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans.

Artificial intelligence has long been a futuristic, and somewhat scary idea that has made great material for science fiction movies. Commonly, the plot consists of [robots getting fed up with serving humans](https://www.imdb.com/title/tt0343818/) and then deciding to rebel and take over the world. So far, there have been no reported incidents of home products like Alexa or Siri getting violent (but perhaps they’ve [been a little creepy](https://bgr.com/2018/03/07/amazon-alexa-laughing-bug-scary-creepy-wtf/)).

Despite the warnings of Hollywood, AI continues to be developed, and has proven to be incredibly useful across many industries. In recent years, the pharmacy industry has been using AI for [various stages of the pharmaceutical development process](http://www.pharmexec.com/8-tipping-points-pharm-exec-s-2019-industry-forecast?pageID=2). Whether it be for research and development, clinical processes, 3D drug printing, mining and organizing complex and abstract data, the pharmaceutical industry is [making use of AI](https://www.forbes.com/sites/insights-intelai/2019/02/11/how-machine-learning-is-crafting-precision-medicine/#1f3b22f75941) to efficiently and accurately make decisions and streamline processes.

In fact, there has been an increase in the amount of [AI companies dedicated to new drug discovery](http://files.pharmtech.com/alfresco_images/pharma/2019/01/07/04af50e1-cbca-4fce-86e1-40bd490c4b05/Outlook%20AI%20chart.png?__hstc=40333757.a115c9d987c0259740225993380d807d.1547248316065.1547330917140.1547392241475.3&__hssc=40333757.1.1547392241475&__hsfp=1951149518), as well as a massive spike in the amount of money invested in these companies over the last several years.

**4. Telepharmacy**

This isn’t a new technology trend in pharmacy, per se. It has been around for quite some time, but has yet to catch on to the masses. With only 28 states permitting telepharmacy, it is very much still gaining popularity and trending among the pharmacy world.

**Uses of Emerging Technology**

1. Pharmacists should embrace the innovations technology can offer in order2 to enhance patient engagement.
2. Improve workflows, increase patient safety, and simplify communication.
3. One of the biggest challenges consumers face is incorporating complex and multiple medication regimens into their daily lives.

**Future of Artificial intelligence in Pharmacy**

Artificial intelligence is revolutionising the pharmaceutical and biotechnology industries. Its unparalleled power to make predictions based on large data sets is advancing understanding of diseases, improving diagnostic speed and accuracy, accelerating drug discovery, and improving clinical trials.

**Exploring the latest trends and innovation in the pharmacy industry**

1. **Automation and Technology**

One of the biggest trends in the pharmacy industry is the increasing use of automation and technology to streamline operations and improve efficiency. Automated dispensing systems, robotic medication storage, pharmacy apps and barcode scanning are just a few of the ways that pharmacies are using technology to improve their operations.

1. **Telemedicine**   
   The rise of telemedicine is also having a big impact on the pharmacy industry, as more and more patients are able to receive healthcare services remotely. Pharmacies are increasingly incorporating telemedicine into their operations, enabling patients to consult with healthcare professionals remotely and receive medication and treatment without having to visit a physical location.
2. **Personalised Medicine**

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**4. Home Delivery**

Home delivery of medication is becoming more and more popular as patients seek more convenient ways to receive their medication. Pharmacies are increasingly offering home delivery services, enabling patients to have their medication delivered directly to their homes.  
**5. Health and wellness**

Health and wellness products are becoming increasingly popular as people look for natural and organic alternatives to traditional medication. Pharmacies are beginning to include health and wellness products in their inventory and many are offering health and wellness services such as acupuncture, nutritional counselling and yoga.

The pharmacy industry is constantly evolving, and these are just a few of the many exciting new trends and innovations happening today. By staying informed and embracing new technologies and approaches, pharmacies can position themselves for success in the face of an ever-changing industry.

**Conclusion**

Pharmacists will be able to take on a role similar to a physician, and use AI to complement their consulting work. Pharmacists will be able to operate as care providers and advise patients on their medical conditions while delegating administrative tasks like the collection of medications to AI-powered machines.

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