

# ARTIFICIAL INTELLIGENCE: THE GAME CHANGER?

## CSHP HEALTHCARE REFORM COMMITTEE

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The world is constantly evolving and development of advanced technology has impacted our lives significantly. Artificial intelligence (AI) has been the cause of many technological breakthroughs, including pharmaceutical care. The industry has continuously explored and applied these inventions to promote safety and enhance patient care through improving workflow efficiencies and decreasing costs.

### WHAT TYPE OF ARTIFICIAL INTELLIGENCE IS BEING APPLIED IN PHARMACEUTICAL CARE TODAY?

AI, also known as “machine learning,” is an area of computer science that focuses on the simulation of human intelligence through algorithms and software, which allows medical data analysis and processing. AI can be extremely helpful in facilitating decision making, saving human efforts and costs.

Types of AI technology changing the pharmaceutical field include:

- Drug Design and Discovery (e.g., [Atomwise](#), [Pharm.AI](#), [Augusta](#))
- Population Health/Epidemiology (e.g., [Ariene](#), [IBM Watson Oncology](#))
- Diagnosis & Treatment Plan (e.g., [IBM Watson](#))
- Treatment Results Prediction (e.g., [GNS Healthcare REFS Platform](#))
- Medication Adherence/Counseling (e.g., [Wellness Coach Mabu](#))
- Pharmacogenomics (e.g., [Deep Genomics](#), [Google's DeepVariant](#))
- Robotics for drug preparation and delivery (e.g., [TUG Robot](#))

### HOW DOES AI PLAY A ROLE IN THE PROFESSION OF PHARMACY?

AI is becoming an integral part of the pharmaceutical industry, especially in the Research & Development (R&D) process of drug development. Uses of AI in R&D include prediction of feasible synthetic routes for drug-like molecules, identification of new pathways and targets, identifying drug candidates, predicting toxicity risks, and analyzing large datasets. Developing a new FDA approved prescription medicine is estimated to cost drug makers \$2.6 billion. With the computational power afforded by AI technology – the drug development process could be revolutionized.

The FDA has also taken an interest in new technologies. The [Digital Health Innovation Action Plan](#) outlines their efforts to ensure all American have timely access to high-quality, safe and effective digital health products. The goals of this act is to

- 1) advance the level of expertise of digital health staff at the FDA
- 2) launch digital health software precertification pilot program, and
- 3) issue guidance to modernize their policies.

The FDA will be focusing on mobile health (mHealth), health information technology, wearable devices, telehealth and telemedicine, and personalized medicine.

- *How can pharmacy harness the power of digital technology to advance our capabilities to improve patient outcomes?*
- *What type of training do pharmacists need today to be prepared for the potential of AI in the future?*
- *How do pharmacists position themselves to help shape the opportunities created by AI towards incremental or transformational change in pharmaceutical care so they can assume those roles?*
- *Share your thoughts/experiences/comments [HERE](#).*

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