ISSN: 0976-7126
Jhariya & Dwivedi, 16(10):33-41, 2025

International Journal of Pharmacy & Life Sciences
Open Access to Researcher

AI- Powered Prescription processing: From Entry to Dispensing

Dhananjay Jhariya and Akanksha Dwivedi*

Acropolis Institute of Pharmaceutical Education and Research, Indore, (M.P.) - India

Article info

Received: 26/08/2025

Revised:25/09/2025

Accepted: 30/09/2025

© IJPLS

www.ijplsjournal.com

Abstract

Artificial Intelligence (AI) is revolutionizing multiple industries, including healthcare and pharmacy. Its integration across prescription processing and clinical decision-making enhances accuracy, safety, and efficiency. This review explores the role and benefits of AI in pharmacy practice, with a focus on prescription processing, dispensing, ADR prediction, and EHR integration. A comprehensive literature review was conducted on the applications, benefits, and challenges of AI in pharmacy using peer-reviewed journals and clinical case examples. AI has demonstrated significant contributions in ADR detection, clinical decision support systems, CPOE, drug-drug interaction prediction, and dispensing automation. Improved patient safety, efficiency, and regulatory compliance are major outcomes.

Incorporating AI into pharmacy practice provides a transformative opportunity for better patient care. Pharmacy education and policies must adapt to facilitate its ethical and effective implementation. AI has made great strides in the healthcare industry, playing important roles in the management and storage of data and information, including patient medical histories, medication inventories, sale records, and so forth; automated equipment; software and computer applications, including diagnostic tools like CT and MRI radiation technology, and many more, have all been developed to support and streamline healthcare procedures. Healthcare has undoubtedly been transformed by AI to become more effective and efficient, and the pharmacy industry is not an exception. Drug development, dosage form design, polypharmacology, and hospital pharmacy are just a few of the significant pharmacy domains that have seen a significant increase in interest in the application of AI technology in recent years. Because AI is becoming more and more important, we decided to write a thorough report that would help all practicing pharmacists grasp the major advancements made possible by the use of this subject.

Keywords: Artificial intelligence, pharmacy, pharmacist, polypharmacology, technology

Introduction

Artificial intelligence (AI) is a branch of intelligent machine learning, mainly intelligent computer programs, that generate results similar to the human attention method[1]. This process generally comprises data collection, efficient methods for data use, accurate or approximate results display, and self-corrections/adjustments[2]. Artificial intelligence (AI) is commonly employed to duplicate human cognitive activities and examine machine learning[2,3]. Both useful interpretation and more precise analysis are made possible by AI technology[3]. From this perspective, artificial intelligence (AI) technology blends computer intelligence with several useful statistical models[4]. The fear of unemployment is often associated with the development and innovation of AI applications[5].

***Corresponding Author**

E.mail: akd.pharma@gmail.com

ISSN: 0976-7126
Jhariya & Dwivedi, 16(10):33-41, 2025

But because of the guarantee, almost every advancement in AI applications is being implemented, which greatly increases its efficacy for the industry[6].

AI technology has recently emerged as a key component of the industry with practical uses in numerous technological and scientific domains. Looking back over the last 25 years, pharmacies have done a fantastic job of meeting the increasing demand for reduced reimbursements and rising operating costs. Additionally, pharmacies have done a fantastic job of utilizing enabling technological automation to increase workflow efficiency, reduce operating costs, and promote efficiency, accuracy, and safety in all pharmacy settings. In addition to improving patient outcomes, automated dispensing allows pharmacists to spend more time interacting with a larger number of patients [7].

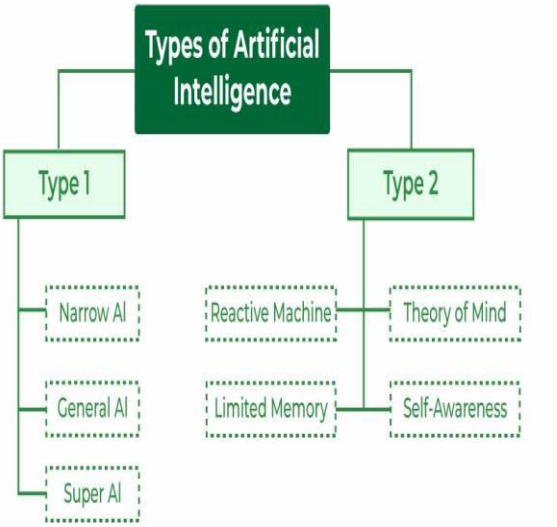
AI general overview

AI, also referred to as machine intelligence, is frequently used interchangeably with automation and robotics. The development of machines that can do challenging repetitive jobs is known as robotics, whereas artificial intelligence (AI) is the display of human-like traits or intellect by any computer or machine [8]. Historically, robots were not constructed with these "intelligent capabilities," despite the fact that they might be able to move or transport objects on their own through automation—a procedure that uses surface sensors and a specially created program. The creation of intelligent machines that can carry out tasks that are typically performed by humans is the main focus of the computer science discipline known as artificial intelligence (AI).[9]

The creation of digital computers or computer-controlled robots that can perform intellectual and cognitive tasks that are similar to those of humans on their own is a common application of artificial intelligence. Learning, thinking, problem-solving, perception, and language are examples of these cognitive and intellectual processes.

Because it is solely intended to carry out specific activities, such as internet search, voice and facial recognition, managing and operating automobiles, and so forth, the type of AI now in use is known as weak AI or narrow AI. But eventually, the AI community wants to create machines that can do better than humans on all cognitive activities on their own. The general artificial intelligence (AI) or strong AI (ADI) that entails building robots that are capable of carrying out any cognitive function that humans do [10].

Classification of AI:



Based on Capability

- **Artificial Narrow Intelligence (ANI) or Weak AI:**-It carries out narrow-range tasks like traffic signaling, chess practice, driving, facial recognition, and more.
- **Artificial General Intelligence (AGI) or Strong AI:**-Also referred to as human-level AI, it is capable of doing all that humans do. It can perform tasks that are foreign to humans and simplify their intellectual capacities.
- **Artificial Super Intelligence (ASI):-** It is more intelligent and active than humans in areas like painting, math, and space, among others.

Based on Functionality

Type 1(Reactive Machine):- It is utilized for certain purposes and lacks a memory system, so it cannot draw on prior experiences. We call it a reactive machine.

An IBM chess program that can identify the checkers on the chess playing board and make predictions is one example of this memory.

Type 2(Limited Memory):- Its memory system is limited, yet it can use past experiences to solve various challenges. Automatic cars have a system that can make judgments. Some observations are collected and used to document additional activities, but these recordings are not kept on file permanently.

Type 3(Theory of mind):- The "Theory of Mind" is its foundation. It implies that people's decisions are influenced by their unique thoughts, intentions, and desires. AI that doesn't exist is this system.

Type 4(Self awareness):- It is self-aware, meaning it is conscious and has a feeling of self. Moreover, this system is nonexistent AI.

Artificial intelligence in healthcare

The use of AI in healthcare has changed significantly over the past fifty years, resulting in notable breakthroughs across a range of medical specialties[11]. By expanding AI applications, machine learning (ML) and deep learning (DL) have made it possible to use personalized medicine instead of just algorithms. Clinical diagnosis, clinical decision-making, and diagnostic, surgical, rehabilitative, and prognostic procedures have all been profoundly altered by AI.[12]

Improved diagnostic precision, faster provider workflow, enhanced clinical operation efficiency, precise procedures, disease and therapy monitoring, and, eventually, better patient outcomes have all been made possible by this development in AI technology[13].

AI in Pharmacy practice

Through a variety of initiatives, including medication reconciliation, medication review, medication therapy management (MTM), drug information provision, patient education, adverse drug reaction (ADR) monitoring, and interprofessional collaborations, pharmacy practice plays a crucial role in the healthcare system, ensuring safe and effective medication management and optimal patient care.[14]

Prescriptions, complicated medication schedules, and administrative duties have all significantly increased as a result of the healthcare industry's quick improvements. Because of this, there is a growing need for cutting-edge technology that may help medical personnel with their everyday tasks and improve the provision of healthcare services.[15]

Using AI technologies gives pharmacists access to tools and systems that support them in making healthcare decisions that are precise and supported by evidence. Using AI algorithms and machine learning, pharmacists can swiftly examine a lot of patient data, such as prescription profiles, lab findings, and medical records. This enables them to determine possible drug interactions, evaluate the efficacy and safety of medications, and provide well-informed advice specific to each patient.[11,15,16]

Adverse drug reaction (ADR) detection:-

AI has been used in a number of studies to predict and detect ADRs. In a particular study, Mohsen and associates integrated two different datasets: ADR occurrence data from the Food and Drug Administration's (FDA) Adverse Events Reporting System (FAERS) database and drug-induced gene expression profiles from the Open Toxicogenomics Project-Genomics Assisted Toxicity Evaluation Systems (TG-GATEs) database, using Deep Neural Networks (DNN) for ADR prediction. Hyperparameter adjustment, feature selection, and data cleaning and filtering are all included.[17]

A clinical decision support tool (risk score) based on machine learning (ML) was created by Yalçn et al. to forecast the likelihood of the discovered ADRs by integrating the severity using the neonatal adverse event severity scale (NAESS) and probability using the "Du"ADRs algorithm into the risk matrix A clinical pharmacist was part of a multidisciplinary team that conducted the analysis. To identify the chemical, physical, and structural characteristics of substances that make them more likely to produce adverse drug reactions (ADRs), Hammann et al. employed decision tree induction, an ML technique. 78.9 to 90.2% were the high predicted accuracies of the models for hepatic, renal, CNS, and allergy ADRs.[18,19]

Overall, these research demonstrate the wide spectrum of AI applications in ADR detection, including knowledge graph-based algorithms, clinical decision support systems, and prediction models.

Clinical decision support system (CDSS)

The purpose of a clinical decision support system (CDSS) is to enhance the delivery of healthcare by adding patient data, clinical expertise, and other pertinent information to medical choices. Patient-specific evaluations or recommendations are then sent to the doctor for approval after matching individual patient features to a computerized clinical knowledge base in a CDSS. Pharmacists can use this technology to sort

through data and take action to stop pharmaceutical errors, lessen patient problems, and save money.[20,21]

Computerized prescriber order entry (CPOE)

According to the Institute of Medicine, medication errors—which cause over 7000 deaths annually—are the most prevalent kind of healthcare errors[22]. Despite the fact that pharmaceutical errors might have many causes, published research indicates that 11.4% of them are directly connected to drug name mismatches, including unclear dosage forms, unreadable prescriptions, and misinterpreted acronyms.[23]

The process by which a doctor enters and transmits medication orders, treatment orders, laboratory, admission, radiology, referral, and procedure orders electronically through a computer application, as opposed to using more conventional methods like paper charts, verbal orders, telephone, and fax, is called computerized physician order entry (CPOE), also known as computerized provider order entry or computerized practitioner order entry. This technique lessens mistakes brought on by handwriting that is difficult to read or transcribing problems in prescription instructions.[24]

The selection, presentation, and archiving of medication histories as well as the electronic delivery of pharmaceutical orders to pharmacies and dispensing pharmacists are managed by these CPOE systems. In addition to offering various chances to safeguard patient safety (such as allergy or renal dosage alerts), this new paradigm also increases the risk of numerous novel kinds of predictable and unpredictable prescribing and dispensing errors.[25]

Drug-drug interactions

Drug-drug interactions (DDIs) have been found to be a major contributor to adverse drug reactions (ADRs), which raise healthcare expenses[26,27]. It is necessary to consider several pharmacological properties and known DDI in order to predict DDI. The Kyoto Encyclopedia of Genes and Genomes (KEGG)[28], DrugBank[29], SIDER[30], TWO SIDES[31], Lexicomp[32], Micromedex[33].

Existing DDI computational techniques can be divided into three categories: ML techniques, networks-based techniques, and similarity-based techniques.

An algorithm created by Van Laere et al. forecasts QTc prolongation and sends out notifications when DDIs raise the probability of it[34].

In order to construct a l2-regularized logistic regression model for DDI prediction, Suyu Mei and Kun Zhang suggested a straightforward f-drug target profile representation to represent drugs and drug combinations

Electronic health record (EHR)

Better clinical decisions may result from the use of a new predictive EHR algorithm. This algorithm uses AI to identify patterns regarding appropriate medication use and vast amounts of EHR data to identify and notify users when a prescribed drug seems to deviate from its pattern of appropriate use. Additionally, by using automated categorization to identify which patients are most likely to have negative side effects from a certain medication, AI could help with drug selection[35,36].

Artificial Intelligence (AI) integrated with EHR systems by the Patient Safety Learning Laboratory (PSLL) can recognize, evaluate, and reduce patient safety risks.

To access and analyze unstructured, free-text data stored in millions of electronic health records (EHRs), such as medication safety, patient medication history, adverse drug reactions, interactions, medication errors, therapeutic outcomes, and pharmacokinetic consultations, hospital and health system pharmacies may find that using natural language processing (NLP) and machine learning (ML) is a crucial tool for enhancing patient care and conducting real-time assessments of medication efficacy. This tactic has a great deal of promise to help pharmacy and therapeutics (P&T) Committees make decisions and encourage risk-sharing arrangements[37].

Balestra M. et al. created a prediction algorithm that uses solely data about the ordering provider's interactions with the EHR to identify orders that need intervention.

AI in Drug Dispensing

Drug dispensing is the methodical process of preparing and delivering medications to a specific individual based on a prescription. The prescription, which includes the precise description of the prescriber's intentions as well as the methodical preparation and labelling, is used by the patient.

Every mistake made during the dispensing procedure can undoubtedly have an impact on the patient care, regardless of the location and time of the dispensing. Some initiatives focus on prescription habits, medication use, and medication administration and utilization by patients in order to improve reasonable use.

Artificial intelligence (AI) can be utilized in real time to diagnose problems based on available data.

Healthcare professionals give careful thought to the appropriate therapies for elderly patients whose needs change throughout the day and help them to make thoughtful choices. It has been demonstrated that artificial intelligence can predict future data based on the available data.

Artificial intelligence (AI) requires patient data to investigate not only populations but also individual data, especially for the application of its findings to the person in question. Sensors and loT gadgets provide the patient data[38,39].

The Benefits Of AI In Prescription Verification

Improved Accuracy

Pharmbotai ensures that every prescription is correct and safe for the patient by automating the verification process and lowering the possibility of human error[40].

Increased Efficiency

Prescriptions may be processed more quickly by pharmacies without sacrificing quality. As a result, pharmacists can devote more time to human-intensive duties like care management and patient consultations[40].

Enhanced Patient Safety

Patient outcomes are improved by the rapid and accurate identification of any drug interactions or contraindications due to AI's capacity to analyze vast datasets[40].

Compliance with regulations

Pharmacies have to abide by stringent safety and legal requirements. PharmBot AI helps lower the risk of compliance-related problems by ensuring that all prescriptions are checked against the most recent guidelines and standards[40].

Cost Savings

Long-term time and cost savings for pharmacies can be achieved by using PharmBot AI to streamline pharmacy processes and lower the likelihood of expensive mistakes[40].

Challenges in using AI in pharmacy practice:-

Data privacy and security

A growing number of AI-based applications have raised concerns over data security and privacy. Sensitive data breaches frequently target health information. Thus, it is essential to preserve patient data.

The sharing of data between big health systems and AI companies has prompted lawsuits, and some patients may worry that their privacy may be violated by the data collecting[41].

When it comes to data privacy issues, patient consent is crucial since healthcare institutions may permit the extensive use of patient data for AI training without getting enough individual patient agreement. In 2018, Deep Mind Health was purchased by Google. Their program, Streams, which has an algorithm for treating patients with acute kidney injuries, gained notoriety when it was discovered that the National Health Services (NHS) had provided DeepMind servers with

1.6 million patient records so that the algorithm could be trained without the patients' consent[42].

Data integration

The next difficulty after data collection is the creation of AI technologies. The system may overfit if it discovers unrelated correlations between patient variables and results. The reason for this is because the algorithm makes predictions using unsuitable characteristics since there are too many changeable parameters in connection to the results.

Applying certain classification and clustering methods to small amounts of data may yield very good accuracy, but this may not be relevant or feasible. In order to employ AI methods, the data must be pre-processed after collection. On the other hand, text data must first undergo a significant amount of natural language processing. In medical data processing, one of the most challenging problems is integrating text, numeric, image, and video data using the same algorithm.

Numerous forms and sources, such as pictures, 3D video sequences, medical imaging, and numerical data, can be used to gather medical data. Clean, reliable, and effective data collection is a challenge in healthcare data analysis[43,44,45,46].

Patient safety

Sometimes hospital data is of low quality or contains missing or erroneous information. Data

inaccuracy results, which is one of the most challenging issues in AI-assisted medical data processing. Another problem is ML algorithm judgment errors, which occur when the algorithm employed is not suitable for the data or when the data is not trustworthy enough to be used with Bayesian networks, neural networks, and decision trees, among other classification algorithms[46,47].

Social concerns

AI in healthcare is one of the main social worries since it would replace jobs and render healthcare personnel obsolete. Mistrust and resistance to AI-based healthcare interventions stem from the possibility of replacement. However, this view is mostly predicated on a misinterpretation of artificial intelligence in all of its manifestations.

In general, when it comes to integrating new technologies into their regular job, healthcare professionals have fallen behind other professionals. Prior healthcare experiences suggest that the implementation phase is a crucial phase of the innovation process. Developing and testing a novel AI system is insufficient in practice; there are additional factors that could prevent its application in actual healthcare, like etc.

(1) the current state of electronic health systems' inadequate data structure and quality,

(2the transformation of the patient-clinician relationship,

(3) The challenges related to interoperability and clinical integration must also be taken into account[48,49,50].

Conclusion

In recent years, there has been a noticeable increase in interest in the application of AI technology for the analysis and interpretation of several significant pharmacy domains, such as drug discovery, dosage form design, polypharmacology, hospital pharmacy, etc., since AI technological approaches are thought to be similar to human beings in terms of knowledge imagination, problem solving, and decision making. It has been shown that using databases and automated workflows for efficient analysis using AI techniques is beneficial. Thanks to the application of AI techniques, it is now simple and affordable to build new hypotheses, strategies, predictions, and assessments of numerous related elements.

Health care professionals can improve their decision-making and give patients more individualized care by integrating AI into clinical practice. AI makes it possible for multiple healthcare services to collaborate more effectively when providing care to a single patient. AI can help patients by guiding them on when and how to take medications, assisting with patient education, and encouraging medication adherence. It can also help patients understand how and where to get the most affordable healthcare, how to communicate with healthcare professionals, how to optimize health monitoring with wearable technology, integrating diet and exercise, and providing daily lifestyle and health guidance.

With the express purpose of enhancing patient care and safety, we suggest "pharmacointelligence," or the incorporation of AI/ML and related cutting-edge technology into pharmacy practice. Having said that, the pharmaceutical curriculum ought to include AI/ML ideas, and stakeholders ought to get ongoing education to stay up to date on developments in this area. The pharmacy education system needs to change as new technologies advance quickly to guarantee that our the profession is ready to take the lead in these care reforms

References

1. Mak KK, Pichika MR. Artificial intelligence in drug development: Present status and future prospects. Drug Discov Today. 2019;24(3):773-80.
2. Hassanzadeh P, Atyabi F, Dinarvand R. The significance of artificial intelligence in drug delivery system design.Adv Drug Deliv Rev. 2019;151:169-90.
3. Russel S, Dewey D, Tegmark M. Research priorities for robust and beneficial artificial intelligence. AI Mag. 2015;36(4):105-14.
4. Duch W, Setiono R, Zurada JM. Computational intelligence methods for rulebased data understanding.Proc IEEE. 2004;92(5):771-805.
5. Sakiyama Y. The use of machine learning and nonlinear statistical tools for ADME prediction.Expert Opin Drug MetabToxicol. 2009;5(2):149-69
6. Agatonovic-Kustrin S, Beresford R. Basic concepts of artificial neural network (ANN) modeling and its application in pharmaceutical research. J Pharm Biomed Anal. 2000;22(5):717-27
7. Dasta, J., Application of artificial intelligence to pharmacy and medicine.Hospital pharmacy, 1992. 27(4): p. 312-5, 319.
8. Honavar, V., Artificial intelligence: An overview. Artificial Intelligence Research Laboratory, 2006: p. 1-14.
9. Lopes, V. and L.A. Alexandre, An overview of blockchain integration with robotics and artificial intelligence.arXiv preprint arXiv:1810.00329, 2018.
10. Kawal, F., A Tour to the World of Artificial Intelligence.Cybernomics, 2020. 2(5): p. 33-35.
11. Bohr A, Memarzadeh K. The rise of artificial intelligence in healthcare applications.ArtificIntelligHealthc. 2020:25–60. https://doi.org/10.1016/B978-0-12-818438-7.00002-2.
12. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare.Future Healthc J. 2019;6(2):94–98. https://doi.org/10.7861/futurehosp.6-2-94.
13. Secinaro S, Calandra D, Secinaro A, Muthurangu V, Biancone P. The role ofartificial intelligence in healthcare: a structured literature review. BMC Med InformDecisMak. 2021 Dec;21:1–23.
14. Garcia-Cardenas V, Rossing CV, Fernandez-Llimos F, et al. Pharmacy practice research–a call to action. Res Social Adm Pharm. 2020 Nov 1;16(11):1602–1608.
15. Raza MA, Aziz S, Noreen M, et al. Artificial Intelligence (AI) in pharmacy: an overview of innovations. Innov Pharm. 2022;13(2). https://doi.org/10.24926/iip.v13i2.4839. Published 2022 Dec 12.
16. Manikiran SS, Prasanthi NL. Artificial intelligence: milestones and role in pharmaand healthcare sector. Pharm Times. 2019;51:9–56.
17. Mohsen A, Tripathi LP, Mizuguchi K. Deep learning prediction of adverse drugreactions in drug discovery using open TG–GATEs and FAERS databases. Front DrugDiscov. 2021 Oct 27;1:768792.
18. Yalçın N, Kas¸ıkcı M, Çelik HT, et al. An artificial intelligence approach to support detection of neonatal adverse drug reactions based on severity and Probality scores:a new risk score as web-tool. Children.2022 Dec;9(12):1826.
19. Hammann F, Gutmann H, Vogt N, Helma C, Drewe J. Prediction of adverse drug reactions using decision tree modeling. ClinPharmacol Therap. 2010;88(1):52–59.
20. Sutton RT, Pincock D, Baumgart DC, Sadowski DC, Fedorak RN, Kroeker KI. Anoverview of clinical decision support systems: benefits, risks, and strategies for success. NPJ Digit Med. 2020 Feb 6;3(1):17.
21. Artificial Intelligence Applications in education and Pharmacy Practice [Internet]. Available from https://www.pharmacytimes.com/view/artificial-intelligenc e-applications-in-education-and-pharmacy-practice; 2023 [Accessed on 15th June 2023].
22. Institute of Medicine. To Err Is Human: Building a Safer Health System. Washington, DC: National Academy Press; 1999.
23. Lesar, et al. Factors related to errors in medication prescribing. JAMA. Jan 1997; 277:312–317.

24. Jungreithmayr V, Meid AD, Haefeli WE, Seidling HM. The impact of a computerized physician order entry system implementation on 20 different criteria of medicationdocumentation—a before-and-after study.BMC Med Inform DecisMak. 2021 Dec;21 (1):1–2.
25. Schiff G. Brigham and Women's Hospital, Harvard Medical School, Partners HealthCare. Available from https://www.fda.gov/files/drugs/published/ Computerized-Prescriber-Order-Entry-Medication-Safety.pdf; 2023.
26. Han K, Cao P, Wang Y, et al. A review of approaches for predicting drug–druginteractions based on machine learning. Front Pharmacol. 2022 Jan 28;12:3966.
27. Mei S, Zhang K. A machine learning framework for predicting drug–druginteractions.Sci Rep. 2021 Sep 2;11(1):17619.
28. Kanehisa M, Furumichi M, Tanabe M, Sato Y, Morishima K. KEGG: new perspectives on genomes, pathways. Diseas Drugs Nucleic Acids Res. 2017;45:D353–D361. https://doi.org/10.1093/nar/gkw1092.
29. Knox C, Law V, Jewison T, et al. DrugBank 3.0: a comprehensive resource for'omics'research on drugs. Nucleic Acids Res. 2010 Nov 8;39(suppl_1):D1035–D1041.
30. Kuhn M, Campillos M, Letunic I, Jensen LJ, Bork P. A side effect resource to capture phenotypic effects of drugs. MolSyst Biol. 2010;6(1):343.
31. Tatonetti NP, Ye PP, Daneshjou R, Altman RB. Data-driven prediction of drug effects and interactions.SciTransl Med. 2012 Mar 14;4(125), 125ra31.
32. UpToDate [Internet] [Cited 2023 June 20]. Available from: https://www.uptodate.com/contents/table-of-contents/drug-information; 2023.
33. Micromedex [Internet] [cited 2023 June 20]. Available from: https://www.micromedexsolutions.com/micromedex2/librarian/deeplinkaccess?institution=31u5n877i33c6a9r5t42a1g1e6n5a210105%5E1466j%5E0f9h23&source=deepLink; 2023.
34. Van Laere S, Muylle KM, Dupont AG, Cornu P. Machine learning techniques outperform conventional statistical methods in the prediction of high risk QTcprolongation related to a drug-drug interaction. J Med Syst. 2022 Nov 23;46(12): 100.
35. Kelly CJ, Karthikesalingam A, Suleyman M, Corrado G, King D. Key challenges fordelivering clinical impact with artificial intelligence. BMC Med. 2019 Dec;17:1–9.
36. Segura JMG. Artificial intelligence in pharmacy practice: information technology [Internet]. Pharma Focus Asia; 2023.Available from https://www.pharmafocusasia.com/information-technology/artificial-intelligence-pharmacy-practice [Accessed on 20th June 2023].
37. Rio-Bermudez D, Medrano IH, Yebes L, Poveda JL. Towards a symbioticrelationship between big data, artificial intelligence, and hospital pharmacy. J Pharm Pol Pract. 2020 Dec;13(1):1–6.
38. Medication reconciliation National Patient Safety Goal, National Patient Safety Goals, Joint Commission on Accreditation Program, March,2009.
39. Tsai, P. H., C. S. Shih, and J. W. S. Liu, "Algorithms for scheduling multiple interacting medications," Institute of Information Science, Academia Sinica, Taiwan, Technical Report TR-IIS- 08001, April 2008 Pei HseunTseui, "Smart Medication Dispenser: "Design, Architecture and implementation", IEEE journal, Vol-5, March-2011.
40. https://www. pharmbotai.com/prescription-verification-with-ai/ Prescription Verification with AI – Pharm Bot AI.
41. Murdoch B. Privacy and artificial intelligence: challenges for protecting healthinformation in a new era. BMC Med Ethics. 2021 Dec;22(1):1–5.
42. Cohen IG, Mello MM. Big Data, Big Tech, and Protecting Patient Privacy. JAMA. 2019 Sep 24;322(12):1141–1142. https://doi.org/10.1001/jama.2019.11365.
43. Wiens J, Shenoy ES. Machine learning for healthcare: on the verge of a major shift in

healthcare epidemiology. Clin Infect Dis. 2018;66(1):149–153. https://doi.org/ 10.1093/cid/cix731.
44. Patii N, Iyer B. Health monitoring and tracking system for soldiers using internet ofthings (IoT). In: 2017 International Conference on Computing, Communication and Automation (ICCCA). IEEE; 2017 May 5:1347–1352.
45. Bennett C, Doub T, Bragg A, et al. Data mining session-based patient reported outcomes (PROs) in a mental health setting: toward data-driven clinical decision support and personalized treatment. In: 2011 IEEE First International Conference onHealthcare Informatics, Imaging and Systems Biology. IEEE; 2011, July:229–236.
46. Ali O, Abdelbaki W, Shrestha A, Elbasi E, Alryalat MA, Dwivedi YK. A systematic literature review of artificial intelligence in the healthcare sector: benefits,challenges, methodologies, and functionalities. J InnovKnowl. 2023 Jan 1;8(1): 100333.
47. Aung Yuri YM, et al. The promise of artificial intelligence: a review of the opportunities and challenges of artificial intelligence in healthcare. Br Med Bull. September 2021;Vol. 139(1):4–15. https://doi.org/10.1093/bmb/ldab016.
48. Sun TQ, Medaglia R. Mapping the challenges of artificial intelligence in the publicsector: evidence from public healthcare. GovInf Q. 2019 Apr 1;36(2):368–383.
49. Quaglio G, Pirona A, Esposito G, et al. Knowledge and utilization of technology-based interventions for substance use disorders: an exploratory study among healthprofessionals in the European Union. Drugs Educ Prevent Pol. 2019 Sep 3;26(5): 437–446.
50. European Parliament Directorate-General for Parliamentary Research Services, Lekadir K, Quaglio G, TselioudisGarmendia, et al. Artificial intelligence in healthcare – Applications, risks, and ethical and societal impacts. European Parliament; 2022.https://data.europa.eu/doi/10.2861/568 473.

Cite this article as:
Jhariya S. and Dwivedi A. (2025). AI- Powered Prescription processing: From Entry to Dispensing. *Int. J. of Pharm. & Life Sci.,* 16(10):33-41.

Source of Support: Nil
Conflict of Interest: Not declared
For reprints contact: ijplsjournal@gmail.com