


Chapter 3

AI for Public Health and Population Health Management

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ABSTRACT

Artificial intelligence (AI) has great promise for changing the healthcare industry, especially in resource-constrained settings. From the discovery of medications to public health, artificial intelligence has reshaped traditional approaches to health innovation. Its applications are well-documented: machine learning algorithms have been employed by electronic health record (EHR) systems to identify data and perform predictive analysis to alert doctors to co-morbidities and high-risk situations. Electronic health records, mobile health, telemedicine, artificial intelligence, and other digital health practices, together with smartphone-based healthcare solutions, are effective instruments in the battle against infectious illnesses that are prone to pandemics. It is possible to hunt down those who are infected by using sign-monitoring devices. AI-powered gadgets that constantly track the vitals of patients along with medical metrics can help healthcare professionals recognise the beginning stages of DRPs or poor responses.

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1. INTRODUCTION

AI technologies such as natural language processing, machine learning, and data analytics have demonstrated exceptional capabilities in a wide range of fields, including healthcare. By analysing massive amounts of patient data, genetic data, research studies, and drug databases, AI can improve drug discovery, enable targeted therapy, optimise the administration of medications, identify adverse reactions along with security queries, offer real-time monitoring, personalised authorization assistance, and facilitate remote medical treatment. While looking forward to the next a century of DRP leadership with AI integration, it's clear that these advancements have a chance to revolutionise how substances are recommended, administered, and examined, ultimately improving patient safety, therapy efficacy, and overall standard of care. However, there are challenges to this integration, including safeguarding information, adherence to laws, and comparable availability of AI-powered products. Some of the strategies for overcoming these challenges include promoting cooperation among medical professionals, technology developers, and lawmakers that would help to capitalise on AI's full potential in revolutionising drug administration and improving patient-centred care in the future (Fatima et al., 2023; Leechun, 2015). Drug management entails a variety of tasks, including as providing suitable prescriptions, reducing medication mistakes, monitoring interactions among medications and adverse effects, and encouraging patient medication adherence. The introduction of AI (Artificial Intelligence) technology has resulted in substantial breakthroughs in the landscape of drug administration in Indian Cotecare, with the potential for transforming the way medications are prescribed, delivered, and monitored. In the ever-changing face of the medical field, there are several sectors where the use of AI technology has the potential to generate favourable outcomes. This investigation on the potential influence of artificial intelligence attempts to identify important sectors where these revolutionary innovations might dramatically improve healthcare delivery and outcome for patients. AI-powered healthcare conversation bots will grow more sophisticated and accessible. Such virtual assistants will provide patients with accurate and customised data on their drugs, as well as potential through utilising the possibilities of AI in specialised healthcare applications, may open up fresh opportunities for improved diagnosis, customised treatment plans, more quickly administrative operations, and improved patient care. Through the investigations, it is anticipated to shed the spotlight on the exciting possibilities of AI for developing a more efficient, effective, and patient-focused healthcare ecosystem. Based on the data available in this arena, the most significant health care providers can be identified and how they help in controlling drug-related difficulties can be recognized (Grover et al., 2024, Ahuja, 2019). The healthcare industry is capable of employing these resources to handle and oversee a variety of problems associated with drugs effects.

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