



Editorial

Urgency of Artificial Intelligence (AI) in Disease Prediction

The rising cost of healthcare is outpacing economic growth, placing severe financial pressure on health systems around the world. Countries with fewer resources are often hit hardest during major infectious disease outbreaks. These events can rapidly overwhelm medical infrastructure, resulting in shortages of critical supplies, including medicines, protective gear, and ventilators. During such crises, healthcare workers face heightened exposure risks, which can further reduce available staff at crucial times.

Accurately predicting patient outcomes is crucial to timely and effective medical actions. The complexity and rapid changes in patient health is so unspecified that traditional assessment tools find difficult to consider. With the advent of artificial intelligence (AI) and predictive analytics, new ways have been created for better clinical forecasting and significant outcomes. Although the popularity of AI-powered healthcare solutions is on the rise, their actual impact in real life is still under discussion.

AI predictive analytics utilizes powerful algorithms and complex machine learning methods to analyze large and diverse datasets. These datasets include demographic factors, medical histories, test results, and responses to treatment. These detailed datasets enable AI to identify minor patterns and connections within the data. Based on this, AI models are created that predict patient outcomes with a degree of precision that is often unattainable with conventional methods. Notably, these AI systems optimizes

the predictive power of the models over time by continually absorbing new clinical data. These AI systems are designed to adapt to changing populations parameters and health care requirements.

The ability of AI to learn, reason, and informed decision-making is currently being utilized in modern medicine. Therefore, AI is being used to monitor the progression of diseases, optimize treatment planning, and recovery. This set of capabilities could lead to improve data sources, including electronic health records (EHRs) and sophisticated imaging and genomic analysis. The application of machine learning (ML) and deep learning (DL) to predictive systems is hastening the transition towards personalized and precision medicine. These steps will eventually enable humans to detect diseases earlier, discover precise drugs, and develop tailored treatment plans.

The ethical aspects of patient privacy, data security, algorithmic fairness and transparency must be considered in terms of responsible implementation. Although AI can revolutionize clinical decision-making and health service delivery but safe and effective application requires robust ethical standards. Furthermore, ongoing performance oversight, and strict validation procedures will ensure these technologies complement human healthcare.

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