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Research Article

Use of AI in Health Insurance and Hospital

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A B S T R A C T

Technological developments in artificial intelligence, data sciences and big data-large volumes of extremely diverse data from numerous sources that can be analyzed quickly-may enhance the way the health system operates and progress individualized treatment and the general welfare. These technologies won't, however, take the role of the core elements of the health system, such as moral leadership and governance, nor will they eliminate the necessity of a strong ethical and regulatory framework. In this paper, we outline examples of safeguards and participation processes that should be put in place, as well as what a strong ethical and regulatory framework for big data analytics in health insurance might entail.

First, a structure for data governance that is both explicit and efficient is essential. In addition to encouraging and providing incentives for insurers to embrace a human-centered approach in the development and application of artificial intelligence and big data analytics, legal criteria must be implemented. Second, defining what information can be utilized and how requires a transparent and accountable procedure. Third, individuals whose data may be utilized ought to be empowered by actively participating in the management and governance of their personal data. Fourth, in order to guarantee the accuracy and transparency of the big data analytics based on artificial intelligence that are generated, insurers and governance organizations, such as regulators and policymakers, must collaborate.

1. Introduction

Health insurance is widely recognized as crucial to advancing universal health coverage (UHC), which is a component of the sustainable development goals[1]. The majority of studies demonstrate that having health insurance lowers mortality and enhances health outcomes, with some vulnerable groups-such as newborns, individuals with disabilities, and those infected with the human immunodeficiency virus-benefitting more than the general population. Furthermore, research indicates that continuous health insurance coverage is more successful in preserving health than intermittent or nonexistent coverage. Depending on their socioeconomic circumstances and cultural settings, various nations have developed distinct insurance plan models. National or social health insurance, voluntary and private health insurance and community-based health insurance are the three main and frequently overlapping types of health insurance programs[2].

All stakeholders find healthcare systems to be complicated and difficult, but artificial intelligence (AI) has revolutionized a number of industries, including healthcare, and has the potential to enhance patient care and quality of life. Rapid advances in AI have the potential to transform healthcare by incorporating it into clinical procedures.

2. AI in Healthcare

Artificial intelligence (AI) is capable of analyzing vast volumes of data, including photographs, clinical research trial data, and medical claims. It can also spot patterns and produce

insights that could be difficult to find using manual human skill sets. Insurers may save a significant amount of money by using this information help discover trends in fraud, misuse, waste management, and claims utilization. According to a McKinsey analysis, improved information and decision-making tools, as well as increased efficiency in clinical trials and research, might result in an annual savings of up to $100 billion. In order to generate profound insights into the medical cost of claims, AI can use machine learning to enable sophisticated, rapid and dynamic data analysis of health insurance data and electronic health records.

These findings may then be applied to networks, claims, pricing and risk management.

Based on a set of predetermined criteria, AI may automate prior authorization operations with greater accuracy and efficiency and facilitate more effective claims adjudication. It can give up-to-date and predicted analytical findings more quickly than a human could by learning and analyzing experience data[3]. AI can streamline operational processes, applying robotic process automation to repetitive administrative processes, leading to more efficiencies, reduced operational expenses and better-utilized resources for more technical functions. In addition to serving as a gatekeeper and reducing administrative expenses, chatbots are being utilized to improve member engagement, customer service management, triage services, differential diagnosis, referral to relevant specialties, and appointment booking.

Many AI products for healthcare are still in the design and development stage, and despite over ten years of intense concentration, there is still limited use and adoption of AI in clinical practice. Although there are various approaches to developing AI systems for the healthcare industry, attempts are all too frequently made to fit square pegs into round holes, that is, to identify healthcare issues to solve with AI without giving local context-such as clinical workflows, user needs, trust, safety, and ethical implications-enough thought. We believe that rather than taking the place of human intelligence, AI enhances and augments it. Therefore, when developing AI systems for healthcare, it's crucial to concentrate on improving the efficacy and efficiency of human contact rather than replacing its essential components. Furthermore, a thorough, human-centered comprehension of the intricacy of patient journeys and care pathways will be the foundation for AI advancements in healthcare.

3. Ethics In Healthcare

Artificial intelligence-based big data analytics may help health systems provide higher-quality, more individualized, and responsive goods and services. It may also be a type of intertemporal insurance where premiums paid more accurately reflect present health conditions. However, to guarantee that such analytics are used for health insurance purposes in ways that are reliable and compliant with ethical norms, legislative protections, policy guidance, and operational mechanisms are needed. We outline four examples of protections, policies, and processes, while the precise type and structure would vary depending on the particular circumstances and context[4].

4. AI in Hospital

By examining medical photos and big databases to find trends, AI can assist physicians in diagnosing illnesses. AI systems, for instance, may examine x-rays to identify pneumonia and notify medical professionals. Wearable technology with AI capabilities and remote monitoring platforms can assist in gathering patient data, which may result in proactive treatment and early detection.

Patients can receive individualized health information and reminders via AI-powered virtual assistants. Wait times can be decreased and patient experiences enhanced by using AI to manage patient flow and scheduling. AI can assist in making sure patients are taking their prescription drugs as directed. For instance, clinical teams are alerted by the AiCure mobile app when patients fail to take their prescriptions.

Build a multidisciplinary team including computer and social scientists, operational and research leadership, and clinical stakeholders (physician, caregivers and patients) and subject experts (eg for biomedical scientists) that would include authorizers, motivators, financiers, conveners, connectors, implementers and champions[7]

Concerns regarding AI in healthcare include the following:

Safety: The safety of artificial intelligence in healthcare is still up for debate.

Regulation: How AI should be governed in the healthcare industry is a topic of debate.

Bias: Preexisting health inequities for specific populations based on age, gender, race, ethnicity, or other demographic characteristics may be exacerbated by AI bias[7].

5. AI in Health Insurance

Health insurance uses artificial intelligence (AI) to increase the effectiveness of several procedures and automate tasks: Claims processing: AI can automate claim processing by analyzing vast volumes of data, which can decrease human error and expedite the approval process.

5.1. Fraud detection: To enhance fraud detection, AI can look for irregularities in claim data.

5.2. Prior authorization: The processing of prior authorization requests can be automated with AI.

5.3. Personalization: AI can tailor health management by analyzing personal health data.

5.4. Data analysis: In order to find trends and produce insights, AI can examine data from clinical research studies, pictures and medical claims.

5.5. Operational procedures: By automating repetitive administrative chores using robotic processes, artificial intelligence (AI) can optimize operational procedures.

Big data analytics regulation is becoming more diverse, decentralized, and cooperative in the healthcare setting. In order to make big data analytics as precise and transparent as possible, a platform that allows insurers and governance organizations, such as regulators and policymakers, to collaborate should be built[5]. If price discrepancies do not represent the difference in predicted loss and expenses, unfair discrimination may occur, even if it is not the intention. Defects in analytical models, selection bias, erroneous data, or data that includes subjective judgments are some of the reasons why this could occur. It's crucial to understand that, even in the age of big data, worries

about the accuracy and dependability of traditional data collecting and analysis still have weight. A human-centered AI approach combines an ethnographic understanding of health systems, with AI. AI systems would operate within existing norms and practices to ensure adoption, providing appropriate solutions to existing problems for the end user[6].

6. Conclusion

Insurers may be able to: develop new tools for loss mitigation; enhance sustainability reporting (as a way to examine the overall performance and impact of the organization's work and activities); and better understand factors related to health insurance design from their data sources thanks to big data technologies. Inappropriate use and design of these technologies, however, will undermine credibility. Insurers may be able to: develop new tools for loss mitigation; enhance sustainability reporting (as a way to examine the overall performance and impact of the organization's work and activities); and better understand factors related to health insurance design from their data sources thanks to big data technologies. Inappropriate use and design of these technologies, however, will undermine credibility.

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