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"Medical, Legal, And Ethical Challenges Associated With Artificial Intelligence In Health Care". - An Analytical Study

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Abstract

The term "artificial intelligence" is generally used to describe computer-based systems that can perceive and derive data from their environment, and then use statistical algorithms to process that data in order to produce results intended to achieve pre-determined goals.

The entire health care cycle, from pre-clinical to clinical, and from individualized to epidemic demands, requires a holistic approach. In recent years, deep learning and algorithmic problem-solving programmes have made it possible for machines to more closely mimic human analytical ability and decision-making than ever before. The power is shifting from narrow to broad Artificial Intelligence (AI) applications as they become more widely used. The pace and magnitude of the changes that artificial intelligence (hereinafter referred as AI) technologies are bringing about magnificent change posing problems for both society and every individual.

Technological advancement is essential to guarantee that more advanced AI systems may be used in a way that respects human rights and ensures that the rewards of innovation are distributed fairly. The development of public health policies should be guided by this needs-based approach, which will also provide guidance for future. Collecting patient data and images to test AI algorithms becomes difficult due to the dispersion of medical data across numerous Electronic Health Records (EHR) and IT platforms. In this research paper the researcher will focus on the requirement a framework in which the abilities of humans and machines are combined to enhance one another.

Key Words: Artificial Intelligence, Human Rights, Vulnerability, Electronic Health Records (EHR), IBA Global Employment Institute Report, Data Protection Law. Right to Privacy, Regulatory, General Data Protection Regulation (GDPR), European Union (EU), American Medical Association (AMA), Ministry of Electronics and Information Technology (MEEITY), The National Association of Software and Service Companies (NASSCOM).

Introduction:

"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next 10." - BILL GATES

Many people think AI is going to change healthcare, from clinical applications in fields like imaging and diagnostics to workflow optimization in hospitals to the usage of health apps to evaluate a person's symptoms. Economic forecasters have predicted explosive growth in the AI health market in the coming years; according to one analysis, the market size will increase more than 10-fold between 2014 and 2021[1]. Experiments like Chat GPT in the field of AI are fueling curiosity. You can ask Chat GPT, the popular chatbot from Open AI, any question [2] . AI is one of the newest sciences[3], which is attracting the attention of entrepreneurs, political leaders, and policymakers the world over. Most mature democracies are now using AI tool for better pieces of legislations and parliamentary procedures [4].

There are several issues associated with this progress, so it is essential that AI is included into the healthcare system in an ethical and legal manner which will also outline issues that AI in healthcare raises.We'll start by briefly defining AI and providing an overview of the current state of the law and ethical issues surrounding AI in healthcare. Future AI systems are likely to advance and have the capacity to perform a greater range of tasks without human intervention, input or management. In the event that this occurs, some have proposed that AI systems learn how to "be ethical" and how to make moral choices. In this article, the following social, legal and ethical concerns with AI in healthcare are covered in detail:

1) **Informed Permission to Use:** Consent is the cornerstone of privacy in AI[5]. Informed consent is a core cornerstone of ethics in human subject research[6]. In healthcare, the basic concept of informed consent seems fairly straightforward. A patient is informed about a proposed test, treatment, or procedure; its benefits and risks; and any alternative options. With this knowledge, the patient decides to either consent or not consent to the recommended plan [7].Yet, informed consent is actually a more comprehensive process that entails non delegable tasks and varies in extent depending on the test, treatment, or procedure in question.With applications including machine learning, deep learning, neural networks, and natural language processing, AI is advancing in the healthcare industry, raising new ethical and practical questions about informed consent. When should healthcare professionals inform patients that they are employing AI for diagnostic and therapeutic purposes? How much technical information should they make public? What are the most effective ways to concisely describe the intricacies of AI?

   The management of big data, largely made of individual clinical data, poses specific ethical challenges that must be addressed in research studies and that should be reflected in the informed consent process [8]. To use technology or engage with research or medical treatment typically requires user consent: agreeing to terms of use with technology or services, or providing informed consent for research participation, for clinical trials and medical intervention, or as one legal basis for processing personal data [9].

   Global regulations such as the Global Data Protection Regulation (2016) set standards for what consent should look like**:** ***"Consent must be freely given, specific, informed and unambiguous. In order to obtain freely given consent, it must be given on a voluntary basis. The element "free" implies a real choice by the data subject. Any element of inappropriate***

pressure or influence which could affect the outcome of that choice renders the consent invalid."

To be clear, this is just one of a number of issues raised by medical AI/ML—which includes data privacy, bias, and the optimal regulatory pathway—but it is one that has received surprisingly little attention[10].

2) **Safety, Effectiveness and Transparency:** "The more we are going to apply AI in business and society, the more it will impact people in their daily lives" [11]. The lack of transparency is one of the AI's fundamental challenges, but the concept of transparency might be even more opaque than AI itself [12]. The relevance of the fact that transparency expresses a conceptual metaphor of more general significance, linked to knowing, bringing positive connotations that may have normative effects to regulatory debates[13].

Here, researcher referring to machine learning AI, as opposed to symbolic or rule-based AI. Humans can examine the rules and logic used by symbolic AI, making them transparent to human review [14].In contrast to symbolic Intelligence, which is transparent by nature, machine learning systems are not transparent by design as of the year 2020.

3)Algorithmic Fairness and Biases: Governments and corporations worldwide increasingly are harnessing the power of AI and predictive technologies to guide life-changing decisions in policing, criminal justice, consumer rights, hiring, and more[15].Yet algorithms also have the ability to unfairly hurt some of the most defenseless members of society by widening racial and social disparities that already exist.The legal and ethical issues that confront society due to AI include privacy and surveillance, bias or discrimination, and potentially the philosophical challenge is the role of human judgment[16].

4) **Data Protection, Cyber Security and Privacy:**

2023 promises to be a landmark year for technology and digitization in India[17].No words can better describe the present scenario of technology than the following stated by Cosmos-the villain in the "Sneaker". ***"The world is not run by weapons any more, or energy or money. It is run by ones and zeroes-little bits of data. It is all electrons. There is a war out-a world war. It is not about who has the most bullets. It is about who controls the information. What we see and hear, how we work, what we think. It is all about information****[18]*.We will discuss more legal issues that are now being litigated in: General Data Protection Regulation (GDPR) was first enacted by the European Union (EU), as it amended the privacy legislation in other countries, such as the US and Canada[19].In accordance with these regulations, the union-based data processor or controller processes all personal data and the operations of foreign communities and businesses in order to provide adequate protection for the information of natural persons.

(5) Liability: India recorded a whopping 5.2 million injuries each year due to medical errors and adverse events Approximately 3 million years of healthy life are lost in India each year due to these injuries[20]. AI is now being used for decision-making in life and death situations [21]. Rapidly evolving digital technologies are changing modern healthcare in unprecedented ways. Novel digital health solutions are embracing machine learning and AI tools that empower patients and healthcare providers alike. However, given the speed of innovation, it can be challenging to stay abreast of the latest technological advances [22].

AI is likely to play an ever- expanding role in health care liability in the future. AI-enabled electronic

health records are already playing an increasing role in medical malpractice cases. AI-enabled surgical robot lawsuits are also on the rise [23]. Current liability frameworks are inadequate to encourage both safe clinical implementation and disruptive innovation of AI[24].

AI is important in emerging medical law because new technologies are one of the biggest drivers of liability risk [25]. In June 2018, the American Medical Association (AMA) adopted its initial proposals on AI policy.

"There are no recorded cases yet on AI in medicine, so the area of liability is open-ended, and hospital administrators and physicians are really going to have to watch the development of the field to stay abreast of the latest developments"[26]. A complicated landscape with numerous parties, doctrines, and interactions is presented by physician, institutional, derivative and direct hospital liability, developer's liability, and liability for medical AI. For both individual actors inside the system and policymakers thinking about how to best shape the adoption of high-quality AI moving forward, understanding the moving parts is crucial.

According to recent studies AI may assist transform healthcare, particularly in terms of diagnosing patients before unfavorable outcomes."Hospital management should consider a number of factors,"Moreover, updated definitions of the standards of care in malpractice lawsuits may affect medical institutions and practitioners.Software developers may also contend that their product was suitable up until the point at which the health system began to alter it.Al has the potential to improve healthcare, but raising questions about the potential legal ramifications of its expanding use.

(6) AI makers, physicians, patients, ethicists, and lawmakers must all participate in the ethical and legal discussion over how AI is successfully applied in practice in order to fully fulfill AI's enormous promise to improve healthcare.As it enables computational systems to learn from data and improve their performance without being explicitly designed, a subset of AI, has recently been the most common strategy of contemporary AI healthcare applications.We will also examine some instances of AI products that are currently being used in clinical settings, as well as AI trends. The talk is then tailored to the ethical and legal concerns around AI in healthcare and research by examining, AI strategy and how they attempt to compete against their main rival.

Six Conditions For Reliable AI:

While AI has substantial potential to improve medical practice, errors will certainly occur, sometimes resulting in injury. Who will be liable?[27].AI is truly a revolutionary feat of computer science, set to become a core component of all modern software over the coming years and decades. This presents a threat but also an opportunity[28].A piecemeal approach to cyber policy will not work; to minimize weak links in cyber security, a holistic strategy is required. The application of AI in clinical healthcare practice has enormous potential to improve it, as the previous section suggested, but it also poses ethical issues that we now examine.Even while integrating AI into clinical practice will present some immediate challenges, there is a serious matter that has not garnered enough attention in the ethical discussion. It is necessary to investigate when (if ever) the informed consent principles should be used in the context of clinical AI.Medical practitioners might be concerned about this lack of understanding. In the field of medicine, self-regulation through a code of conduct refers to a doctor regulating his behavior as a medical practitioner by complying with a code of conduct laid down by a recognized medical association or a peer group of doctors[29].

How much must a clinician, for instance, explain that they are unable to completely understand the AI's diagnostic or therapy suggestions? How much openness is required? How does this interact with the alleged "right to explanation" provided by the GDPR .What about situations when the patient would be hesitant to consent to the use of specific data categories (such genetic information and

family history)? How can we effectively strike a balance between patient privacy and the security and efficiency of AI? Currently, most applications of AI are narrow, in that they are only able to carry out specific tasks or solve pre-defined problems [30].Reliability and safety are key issues where AI is used to control equipment, deliver treatment, or make decisions in healthcare [31]. Recent events have shown that technology is changing how we think about privacy, national security, and maybe even democracy itself [32]. The usage of data, automation, and the reliance on technology more generally, ethical and social concerns with 'tele health' and assistive technology use are only a few of the ethical and social issues that are presented by AI. The future of the digital era will be shaped by problems in main areas, including the justice system, impact on democracy, global security and international war, the impact of automation and AI on the labour market, identification, and privacy.

A) Insufficient Infrastructure:

The most limited reform—and one of the simplest to carry out—is changing the standard of care. Physicians are liable for medical malpractice when they deviate from a standard of care—the practice of the profession in a certain clinical situation [33]. AI is quickly making its way into the health care industry and playing important roles in everything from managing patients and medical resources to automating tedious and typical chores in medical practice. Potential solutions are complex but involve investment in infrastructure for high-quality, representative data; collaborative oversight by both the Food and Drug Administration and other health-care actors; and changes to medical education that will prepare providers for shifting roles in an evolving system [34].

B) Integrating with Current Systems:

While AI may have many benefits, there are a number of issues to be concerned about, including: errors and injuries, availability of data bias and inequality, reorganization of the workforce.

According to the Indian AI Healthcare Market 2019- 2025 report, Indian AI in the healthcare industry is estimated to grow significantly at a CAGR of 50.9% during the forecast period [35]. Significant problems with quality, accessibility, affordability, and parity plague India's healthcare systems. Due to a lack of skilled healthcare professionals, there are substantial medical service discrepancies between urban and rural communities. By detecting, recognizing, and forecasting diseases and their impact on the patient, artificial intelligence is applied in the Indian healthcare system. The National E-Governance Division (NEGD), the National Association of Software and Service Businesses, and the Ministry of Electronics and Information Technology (MEEITY) have joined forces to develop INDIAai[36], (NASSCOM). The Indian government introduced it on June 1st, 2020.

C) AI Talent Shortage: One of the most problematic concerns in healthcare is the lack of qualified personnel in the field of AI [37].Both healthcare practitioners and patients may experience challenges as a result of a lack of standardization.Limited data, also however, is a serious obstacle in this process, particularly in India. It is challenging to train AI models because health data is frequently segregated and difficult to access.Most legacy systems are built on antiquated technologies that are incompatible with more modern ones. Data interchange between the two systems, which is required for AI applications, may be challenging as a result.Fear of change and skepticism towards AI is one of the road bumps in adopting AI.

D)Using AI system too confidently: AI in the healthcare system is being extensively used and improved in two major areas namely, prediction and identification [38].

E)Cost Specifications and Requirements: Another issue with implementing AI in healthcare is its high cost across the board. Although AI has many potential uses in the healthcare industry, the high

costs associated with its deployment and development continues to be a major obstacle to its mainstream adoption.

F)Various AI Challenges like Lack of qualified personnel, Integration with legacy systems, Low-Quality and Inadequate Data,andIntellectual Property law**.**

CONCLUSION:

"AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making)"[39].In India, AI is booming. It is significantly influencing all facets of human life. Healthcare and life quality are two such factors. The healthcare system and quality of life are both improving daily as a result of technological improvement.Role of AI is expanding; organizations are planning to invest in AI to address business scenario across functions ranging from customer service, HR, IT automation to security. More than 1900 AI focused start ups are providing innovative solutions [40]. Nowadays, the digitized economy and technological advancements are increasing at a faster pace. One such technology that is gaining popularity in the healthcare sector is AI.

AI systems should be developed, implemented, and used in such a way that respects human autonomy and upholds the ethical ideals of damage minimization, fairness, and explain ability [41].Recognize and resolve any potential conflicts between these values.I will conclude that the present structures are largely fit to deal with the challenges AI technologies are posing. In some areas, sector-specific revisions of the law may be advisable, particularly concerning non-discrimination and product liability [42].This piece seeks to offer an early contribution with a comprehensive perspective on the "decision-making" capabilities of AI technology. The potential ethical and legal repercussions against the backdrop of the current frameworks are needed to view.

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