

AI in the Healthcare Industry

Balancing Innovation and Risk

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The healthcare industry is experiencing breakthroughs, integration and adoption of artificial intelligence (AI) at a rapid rate. To understand this growth, it helps to examine the historical evolution of AI, current market dynamics, real-world applications, financial implications and the associated risks in the healthcare industry. As AI gains influence, the need for careful consideration, caution and risk management is imperative to help mitigate the risk while preserving safety and integrity.

The Evolution of AI

Although AI may still feel new and unfamiliar, the technology has been around since the 1950s, stamped by significant milestones such as Alan Turing's imitation game (Turing Test) and Arthur Samuel's development of the first computer program capable of learning. Significant advancements in AI started around the year 2017 with language models, conversational language models and most recently, the arrival of ChatGPT in 2022. The widespread adoption of AI in daily life through platforms like Google Assist, Alexa, Navigation and other social media platforms demonstrates the influence of this technology.

The arrival of ChatGPT launched generative AI, which is a subset of AI. Generative AI learns patterns of input and can generate new types of content like music, text, images, audio and other synthetic data. ChatGPT reached over one million users in the first five days after its launch and has now reached over 180 million monthly users and 100 million weekly active users.¹ More than 92% of Fortune 500

companies utilize ChatGPT, and the tool receives over 1.7 billion page visits each month.

Historical Use of AI in Healthcare

AI in healthcare is not a new concept. Its evolution began with AI used to interpret instructions in the 60s, followed by a ranking algorithm used for diagnosis in the 70s. In the 1980s, cardiologists debuted a clinical tool that combined AI and Stats to help identify heart patients most likely to suffer a coronary event.²

In the modern day, AI has proven to enhance productivity, and offer financial benefit. The AI Healthcare Global market valued at \$11.2 billion as of 2022 and is estimated to achieve a market size of \$427.5 billion by the year 2032 - growing at a CAGR of 44%.³ There is a significant influx of financial resources with opportunities for substantial gain and at present, there is no indication of this trend diminishing.

1. Acumen Research and Consulting. (2023). *AI in Healthcare Market Analysis - Global Industry Size, Share, Trends and Forecast 2023 - 2032*. Acumen.

2. Alkhalidi, N. (2023, September 6). *5 ways to use generative AI in healthcare*.

3. Austin, D., & Hayford, T. (2021). *Research and Development in the Pharmaceutical Industry*. Congressional Budget Officer.



With any innovative technology, there appears to be a race to determine the dominant players in this space. The use of AI in the healthcare industry has major financial and economic impacts in terms of cost reduction and revenue creation. The financial commitment and rapid adoption underscore the potential of AI in healthcare. For example, AI could help aid in patient diagnosis or reduce the number of medical incidents. Additionally, AI-powered chatbots could decrease expensive emergency room visits or help with physician burnout. The goals of AI in this industry aim to reduce costs, boost revenue and enhance patient care.

Healthcare Impacts of Generative AI Today

Generative AI is everywhere – from developers to businesses, organizations to consumers or any combination thereof. The current, innovative technology differs from AI available in the past and is revolutionizing healthcare applications. Exemplified by ChatGPT, it is trained by data to recognize patterns, but more distinctly, it can learn and generate new content based on the users’ input. From personalized medicine and drug discovery to medical imaging and patient monitoring, generative AI is reshaping the delivery of care.

Below are examples of how generative AI is used in the healthcare industry:

- 1 Personalized medicine
- 2 Medical imaging
- 3 Digital health
- 4 Predictive maintenance
- 5 Drug discovery
- 6 Medical notetaking
- 7 Patient monitoring
- 8 Drug development
- 9 Medical robots
- 10 Diagnosing diseases
- 11 Medical training
- 12 Medical image analysis

Additionally, examples of AI applications in the healthcare industry include the following:

Clinical	Function	End User	System
<ul style="list-style-type: none"> • Cardiovascular • Oncology • Infectious disease • Dermatology 	<ul style="list-style-type: none"> • AI robotic surgery • Virtual assistants • Aid clinical judgment • Workflow and administration • Image analysis 	<ul style="list-style-type: none"> • Hospitals and Clinics • Clinical research • Healthcare organizations • Diagnostic 	<ul style="list-style-type: none"> • Telemedicine • Electronic records • Drug interaction • Disease diagnosis

Real-World Applications

Clinical documentation, imaging, patient monitoring, research and robotics are the main uses for AI in healthcare today.⁴ Some notable studies and achievements include the following:

- The University of Michigan is working to build a generative AI model that can produce various scenarios for simulating sepsis treatment.
- A team of researchers experimented with extract and enhance features in low-quality medical scans, transforming them into high-resolution images. This approach was evaluated on brain MRI scans, dermoscopy, retinal funduscopy and cardiac ultrasounds, displaying a superior accuracy rate in anomaly detection after image enhancement.
- AI presents an opportunity to personalize medicine or treatment plans. AI can be used as a tool that could rapidly analyze genetic information and health records, swiftly identifying what contributes to a patient's well-being and subsequently devising a plan tailored to our individual requirements.
- The possibilities of drug discovery, developing new antibiotics, drug repurposing, genomic sequences and diagnosis of diseases present many opportunities for research and potential AI optimization.⁵
- According to the Congressional Budget Office, the process of new drug development costs \$1-2 billion, which also includes failed drugs.⁶ Fortunately, there is evidence that AI has the potential to cut the time needed to design and screen new drugs almost by half, saving the pharmaceutical industry around \$26 billion in annual expenses in the process. This technology has the potential to reduce costs associated with clinical trials by \$28 billion per year.⁷
- Over 795,000 incidents of death or permanent disability are attributed to diagnostic error annually.⁸ AI has the potential to avoid and prevent diagnostic errors, improve patient outcomes and prevent malpractice claims.
- AI will continue to learn, adapt and progress to help improve diagnostic error, patient triage, critical workflows, treatment plans, medication administration, radiologic interpretation and pathology study.
- There are opportunities to improve the delivery of care by reducing delays, misidentification of patients and drugs and flagging process errors before resulting in patient harm. The goal of AI in this instance is to reduce the number of medical errors or incidents, inherently reducing medical malpractice claims.

However, most Americans today are uncomfortable with a provider relying on AI in their healthcare. According to Pew Research, over half of U.S. adults reported that they would feel uncomfortable if their healthcare provider relied on AI for diagnosis and treatments. 40% of those surveyed believe AI would reduce rather than increase the number of mistakes made by healthcare providers.⁹

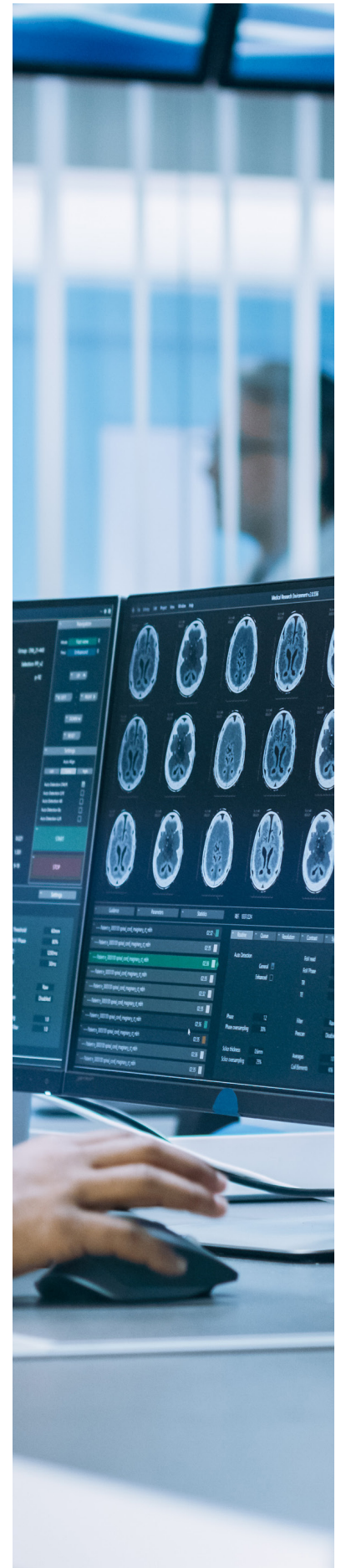
5. Gawora, K. (2020, December 7). *Fact of the Week: Artificial Intelligence Can Save Pharmaceutical Companies Almost \$54 Billion in R&D Costs Each Year.*

6. John Hopkins Medicine. (2023, July 17). *Report Highlights Public Health Impact of Serious Harms From Diagnostic Error in U.S.*

7. Laviola, E. (2023, July 11). *What Types of AI Are Being Used in Healthcare?*

8. National Academy of Medicine. (n.d.). *Toward a Code of Conduct for Artificial Intelligence Used in Health, Health Care, and Biomedical Science.*

9. Pierson, B. (2023, November 14). *Lawsuit claims UnitedHealth AI wrongfully denies elderly extended care.*



The industry may realize a decrease in the number of claims, although, those that do occur could lead to hyper-nuclear verdicts. At this time, the landscape is still shifting, but it is still important to address the known risks of using AI.

Associated Risks of AI

While the potential benefits are vast, it comes with risks warranting consideration. The World Health Organization (WHO) published a statement calling for the safe and ethical use of AI for healthcare,¹⁰ joining the voices of many AI researchers and those at the forefront of this technological advancement. AI is imperfect, and it can make mistakes – especially in its infancy.

The quality of the data the AI runs on will determine the quality and accuracy of its results. Providers of healthcare utilizing free versions of AI introduces additional exposures, liability, and the potential for harm. In the absence of good data, AI can and will provide misinformation, which is known in the tech world as hallucinations. Because of this, there is potential to harm a large number of patients, should an algorithm be poorly designed or poorly maintained. In November 2023, a class-action lawsuit alleged that a health insurer used an AI model to wrongfully deny medically necessary care for elderly and disabled patients.¹¹

Cyber hacks, system malfunctions, lab and diagnostic errors, privacy and informed consent are just a few of the known risks.

Regulation: There are several regulatory bodies that are actively working on establishing guidelines. The President signed an executive order in October 2023,¹² to establish the first set of standards for using AI in healthcare and other industries. The order seeks to strike a balance between managing the potential risks while encouraging innovation.

The National Academy of Medicine is also working on a code of conduct, which is estimated to take three years.¹³ While regulations, ethics, and code of conduct are in progress, organizations using AI are encouraged to implement risk management strategies.

Managing the Risks

As the healthcare industry navigates the evolving landscape of AI, initiative-taking strategies and effective risk management becomes primary. Key considerations should include the development of specific AI policies, transparency in decision-making processes, representative datasets, data privacy protection and comprehensive informed consent.

Governance plays a vital role in navigating the complexities of AI. Establish designated governance for AI within your organization and provide education initiatives to providers to stay abreast of the latest developments. Develop, implement and monitor procedures for safeguarding data and auditing AI systems.

Incident response workflows and robust IT infrastructure are fundamental for managing AI related risks. Organizations must equip themselves with the capabilities necessary for adopting AI tools. Recognizing the complexity of AI and the multitude of potential risk, seeking professional consultation is advised. A professional broker can help align your organization's goals with the intricacies of the healthcare AI environment.

The use of AI brings new challenges, risks, and exposures to multiple lines of insurance coverage beyond professional medical liability. Vicarious Liability, Tech E&O, Product Liability, Life Sciences, General Liability, Cyber Liability, and Management Liability all require thoughtful planning and review.

Amid the generative AI boom, the potential and the number of healthcare applications is exciting. Generative AI possesses the potential to improve medical diagnoses, increase healthcare quality, decrease repetitive tasks, optimize resources and more. The rapid deployment of AI is introducing new and additional risks, necessitating a comprehensive review of both current and future policy language. AI offers the prospect of achieving and living in harmony with a reliable and amicable automated system. However, if left unchecked, potential consequences may arise.

10. Shewale, R. (2024, January 12). ChatGPT Statistics — User Demographics (February 2024).

11. The White House. (2023, October 30). FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence.

12. Tyson, A., Pasquini, G., Spencer, A., & Funk, C. (2023, February 22). 60% of Americans Would Be Uncomfortable With Provider Relying on AI in Their Own Health Care. Pew Research Center.

13. World Health Organization. (2023, May 16). WHO calls for safe and ethical AI for health.



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