Artificial Intelligence (AI): Reforming the Health Care Industry

By Jackie Lee

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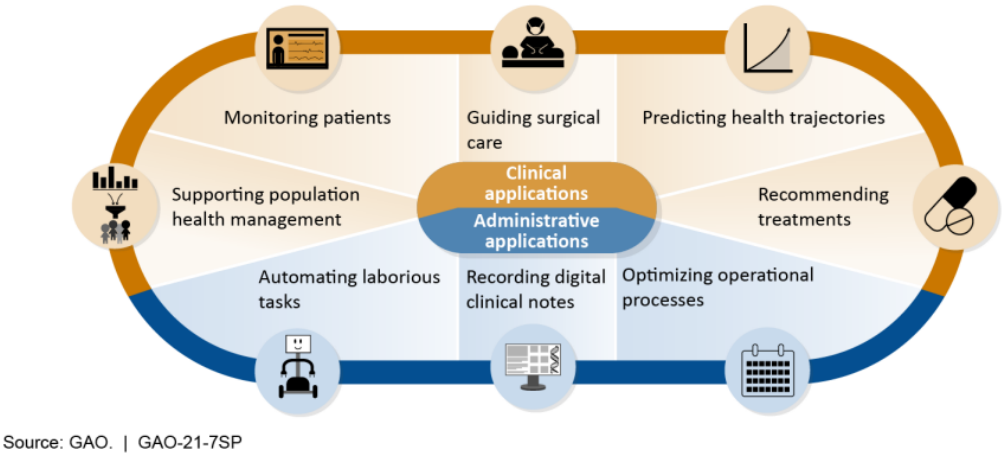
Artificial intelligence (AI) has become more pervasive in people's lives over recent years. With the development of ChatGPT, Google Cloud, and other AI software, medical industry leaders and experts are not only putting it to work, but expanding on how AI can improve the health care industry overall by providing better health outcomes for patients. Health insurance carriers are providing their feedback with the AI initiatives used, stimulating change to provide improved user intuition, ease of access, and other general upgrades designed to be more advantageous to the user overall.

Background: Advantages and Obstacles

A U.S. Government Accountability Office (GAO) November 2020 study found that AI offers potential advantages in both clinical and administrative applications, as seen in Figure 1. However, the study also revealed challenges surrounding AI tools: high-quality data access, data bias, and tool transparency, seen in Figure 2.

Figure 1



Source: GAO. | GAO-21-7SP

Figure 2

Data	Bias	Transparency
•"*Difficulties accessing sufficient high-quality data may hamper innovation in this space.*"	•"*Some available data may be biased, which can reduce the effectiveness and accuracy of the tools for some people.*" •"*Addressing bias can be difficult because the electronic health data do not currently represent the general population.*"	•"*The limited transparency of AI tools used in health care can make it difficult for providers, regulators, and others to determine whether an AI tool is safe and effective.*" •"*Existing case law does not specifically address AI tools, which can make providers and patients reticent to adopt them.*"

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A Brookings Institution March 2022 report found that AI adoption in the health care industry was lagging. The report noted four "important barriers to adoption are algorithmic limitations, data access limitations, regulatory barriers, and misaligned incentives."

The Current State of Affairs

During a September 2023 KPMG Insurance Industry Conference, Brian Bacsu, director of architecture and platform engineering with DXC Technology, stated "AI eats data, so getting your house in order around data is essential […] Data means not only your database, but it means your documentation as well. It includes your image libraries, your scans; it can include your emails."

The adoption of AI in the health care industry was prominent in 2023 in both clinical and administrative applications. Machine learning (ML) and natural language processing (NLP) find structure in the data to ensure efficiency. This includes such examples like using natural language processing to review cancer study documentation at a rate of "10,000 medical charts per hour to find patients with the right inclusion criteria", and using machine learning "to predict patient outcomes, including hospitalization, and to identify which patients may have COVID-19". Doctors in the U.S. are using AI to determine cardiovascular risk, as well as trialing AI that screens for mental health conditions since the deployment of the technology in large-scale clinical settings in the United Kingdom.

U.S. healthcare companies, such as HCA Healthcare, Hackensack Meridian Health (HMH), Huma Therapeutics, and Highmark Health, have partnered with Google Cloud to incorporate generative AI capabilities. Generative AI includes software like ChatGPT. In September 2023, Hint Health announced their collaboration with OpenAI on a new product, Hint AI, which will allow their Direct Primary Care (DPC) providers to "record patient consultations, transcribe those encounters, and automatically generate clinical documentation in the patient's medical record."

However, the adoption of AI does not come without its drawbacks to patients, plans, and providers. A Center for Medicare Advocacy (CMA) January 2022 report concluded that it would be important to "rein in the influence of AI-powered decision-making tools in Medicare" as blanket "rule of thumb" decisions are made. CMA stated the cause is that "AI-powered decision-making tools offer decisions that are based on previous patient experiences, ignoring the nuance and individuality of the current patient." Further, CMA alleges in the report that this results in AI influencing decisions to deny care without adequate medical review, resulting in denial even after appeal. Also, hospitals using AI tools for their utilization review process have decision-making processes affecting Medicare coverage based on the classification of "inpatient" or "outpatient" observation services.

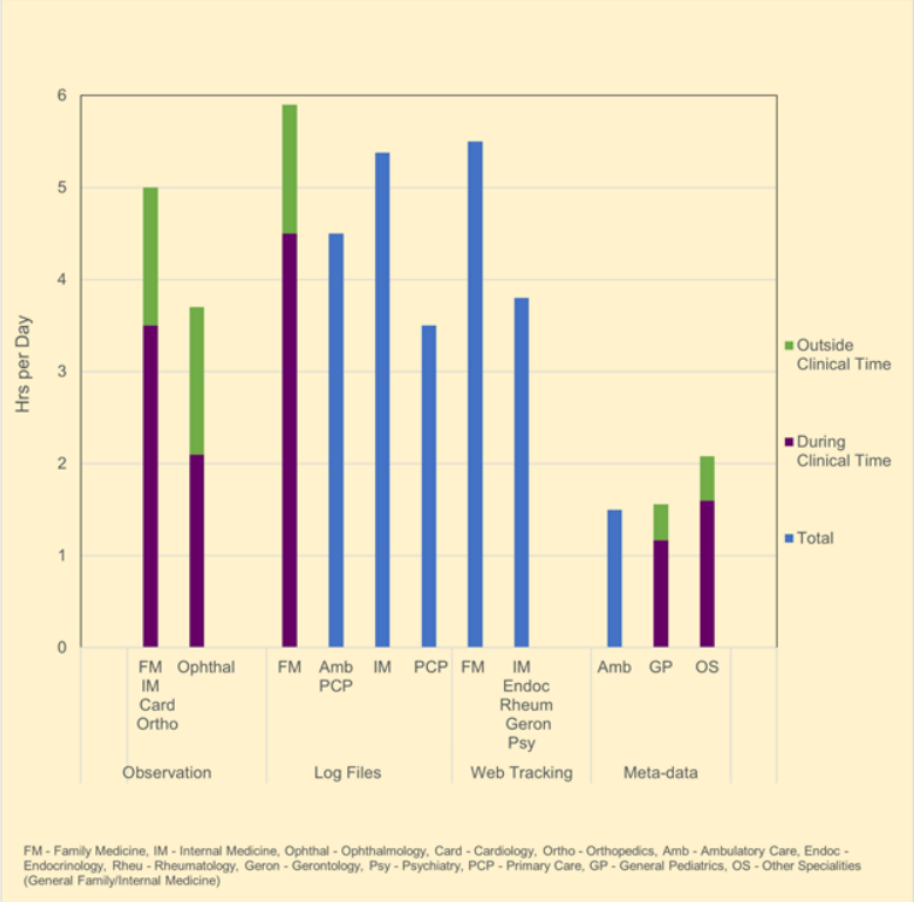
AI Potential

Microsoft is currently pilot testing their Fabric system, which intends to combine data from various sources, such as electronic health records (EHR) and medical devices, in an effort to create a unified platform that will "eliminate the time-consuming process of searching through multiple sources to find necessary information." These various sources make up silos of information, often incompatible with each other. "Even if data is theoretically compatible between systems, siloed organizations aren't accustomed to seeing and assessing information from beyond their domains."

An April 2022 study found that physicians spend an estimated 4.5 hours per day on EHR tasks, broken down in Figure 3. The impact of the potential time savings is incalculable on the overall improvement for providers

and patients, as this can translate into enhanced quality of life for both, better access to health care, even financial savings.

Figure 3



Regarding more clinical applications, the use of AI and medical robots have potential in the areas of detection, surgery, and rehabilitation and advanced prosthetics. AI can also assist with recognition of masses and tissues and provide a diagnosis for a doctor to review. However, there are issues to be considered, from regulations that protect patients, providers, and health plans, to the essentials, like the necessary computing power to enable real-time decisions. The World Economic Forum believes that "health systems are able to deliver truly proactive, predictive healthcare" by 2030. This will include AI-powered predictive care, connected care via networked hospitals, and better patient and staff experiences overall.

It is exciting to imagine and watch how AI is going to impact the health care industry. We should all continue to watch the innovation and upcoming developments as we will all learn from the successes and failures.