

Tech Giants Target Healthcare AI

Much of the dialogue surrounding the use of *artificial intelligence* (AI) has focused on its impact in the clinical section of healthcare, possibly as a direct result of the integration of AI start-ups, such as *Flatiron Health*, a healthcare technology company widely known for its cloud-based platform for oncology.¹ In addition to investments in AI by healthcare enterprises, there has recently been a noticeable influx of investments, acquisitions, and overall interest in AI healthcare technology by some of the largest companies in the technology industry. For example, during the 60-day “*sunrise period*” for trademark holders prior to the domain launch of *DotHealth* (the registry for the *.health* domain extension),² technology companies *Alphabet* (formerly known as *Google*), *Amazon*, *Facebook*, *Apple*, and *Instagram* each registered for a *.health* domain, in addition to well-known healthcare providers, payors, and pharmaceutical manufacturers, such as *Mayo Clinic*, *Pfizer*, and *UnitedHealthcare*.³

In addition to registering for a *.health* domain, Amazon has also developed a “*tech team*”, named *1492*, that is currently exploring opportunities to expand into the healthcare industry and potentially develop a platform for electronic medical records, telemedicine, and health applications for Amazon devices such as *Amazon Echo*.⁴ Further, Amazon is purportedly taking steps in preparation to enter the pharmaceutical industry, potentially functioning as a pharmacy benefits management company and/or in pharmaceutical sales.⁵ Amazon is not the first technology company to explore expanding its business portfolio to the healthcare industry, or develop a platform for patient health data; in 2008, *Google* launched *Google Health*, a program with similar efforts, which program was discontinued on January 1, 2012, because it was not adopted by enough users or insurers.⁶

Industry leaders such as Tesla Co-Founder and Chief Executive Officer Elon Musk have expressed significant concern regarding the rapid pace at which AI technology is advancing because of its risks and the lack of government regulation;⁷ however, this concern has not obstructed Musk’s goal of using AI to link human brains with computers through his new company, *Neuralink*, within the next four years.⁸ Musk predicts that, “*Artificial intelligence and machine learning will create computers so sophisticated and godlike that humans will need to implant ‘neural laces’ in their brains to keep up.*”⁹

Similarly, “*tech titan*” Mark Cuban, who stated that he feels intimidated by how rapidly new technology advances,¹⁰ is buying into companies such as *Twitter* that work with AI, deep learning, and machine learning.¹¹ Paul Singer, Hedge Fund Manager of *Elliott Management Corporation*, also made a notable investment in May 2017, purchasing more than nine percent of stock in *Athenahealth*, a company known for its AI cloud-based technology.¹² This recent combination of enterprises, both in the healthcare and technology industries, investing in and undertaking other entrepreneurial efforts related to AI health technology, may be attributable to the speculative fiscal impacts associated with AI use.

Among other benefits, AI has the potential to significantly improve patient access, while enhancing efficient care, through referral rates, revenues, and patient satisfaction scores.¹³ For example, “*using past patient data, patient demographics, chief complaints, location, and environmental factors, algorithms can predict who will show up late, who will cancel, and who will no-show;*” using these predictions, physicians can be more efficient in seeing patients in a timely manner.¹⁴ A single patient no-show can cost a medical practice approximately \$200;¹⁵ the total cost of no-shows within the U.S. healthcare industry exceeds \$150 billion per year.¹⁶ By examining medical records, patient history, and physician habits, machine learning tools use predictive analysis in “*right-sizing*” appointment times (predicting more accurate appointment time lengths), allowing physicians to see more patients, have a more predictable schedule, and decrease patient wait times.¹⁷ This type of “*predictive modeling*” is already being used at Johns Hopkins Hospital to decrease patient wait times in the emergency department “*from an average of 10 hours to four hours in just one year.*”¹⁸

AI also has the potential to drive down pharmaceutical costs by identifying which medications are contributing to rising costs and which physicians are prescribing them, and, through this analysis, influence physicians to prescribe “*more cost effective drugs.*”¹⁹ For example, *HealthJoy*, a Chicago-based tech startup, is using AI and chatbot technology to help employees find the lowest prices for prescription drugs, ultimately lowering costs for employers.²⁰

“*Although the field of A.I. is exploding with microdiscoveries,*” and has great potential in healthcare,

“progress toward the robustness and flexibility of human cognition remains elusive.”²¹ While AI has been implemented and utilized in *some* parts of the healthcare industry, much of its current impact has been *minimal* compared to what it is *expected* to do in the near future.²² For example, *Accenture* projects that the AI health

market will reach \$6.6 billion by 2021, a significant increase from the market size of \$600 million in 2014.²³ According to Mark Cuban, “*the world’s first trillionaires*” will likely be those individuals working with AI.²⁴

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