What Impact Will Artificial Intelligence (AI) Have on Clinical Trials?

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The increasing complexity of clinical drug trials in the United States has resulted in the cost and time to commercialize a drug to skyrocket. In this context, artificial intelligence appears perfectly timed to help reduce the costs and time for clinical trials while potentially providing better results. Some of the most promising changes in the conduct of trials are directly facilitated by AI: monitoring through wearables (which also enables site-less or virtual trials), centralized trial monitoring, drug-adherence monitoring, and pre-emptive in-trial risk-monitoring.

AI will depend on collecting and sifting through enormous pools of data. While simultaneously improving and expanding data collection methods and data quality, AI could shrink trial periods and reduce costs. The sum is that AI has the potential to help bring therapies and drugs to market quicker, with more reliability, and at a reduced cost.

The promise is clear. However, there are formidable challenges. The foremost challenge is the limited availability of talented AI professionals, as nearly every endeavor seeks to deploy artificial intelligence. Those AI experts who can be wooed to pharmaceuticals are unlikely to have the desired background. Ordinarily, I would consider regulatory approval to be a barrier, but the FDA's implementation of the 21st Century Cures Act supports hope that the FDA will support the use of AI in clinical trials.

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After about 18 months of healthcare data being overlaid into a Deep Learning AI system, the AI will be able to not only give predictive insights into the data for millions of patients based off of the collective data, but able to find trends, relationships between medications and their efficacy that are not easily evident to singular healthcare providers, along with data that would present a strong case for a clinical trial.

What this means is that clinical trials may increase at a very fast pace once the AI makes correlations based on immense amount of data. It could also mean that clinical trials could be proven and sped up through the AI data. For instance, if the AI picks up that a group currently on medicine A, has a side effect that solves a different medical issue, that data will come forth more quickly than it does today due to the massive processing power and deep thinking that mimics the frontal cortex of the human brain. In other words, the AI, because of its ability to process more data than any human, will find case uses and studies before humans do.