



ONONDAGA COUNTY MEDICAL SOCIETY

# BULLETIN

VOL. 82, NO. 2

JUNE 2018

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# The Legal Treatment

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## Artificial Intelligence in Medicine – Legal Concerns

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In the futuristic science-fiction film *Ender's Game*, starring Harrison Ford, one of the main characters is critically injured and suffers brain trauma after a fight with a colleague at a “battle school.” In a subsequent scene, the injured character is ultimately healed after undergoing brain surgery intricately performed by a robot. The robot-surgeon is not remotely controlled by any human and performs the life-saving procedure seemingly of its own plan and volition. Though the prospect of robots performing such complex surgical procedures may seem far-fetched today, it is not unreasonable to imagine such technology being a reality in the future. As these technologies progress, we find ourselves in uncharted legal waters, and we can now only speculate as to its ramifications.

That is not to say that Artificial Intelligence (“AI”) does not play a role in modern medicine. In fact, it is a burgeoning tool that is assisting physicians

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**Note:** The Legal Treatment is a new regular feature in the Onondaga County Medical Society Bulletin courtesy of OCMS general counsel Norris McLaughlin & Marcus. If you have a legal question or an issue that you would like NM&M to address in the next issue, please email your suggestion to [semmi@oncms.org](mailto:semmi@oncms.org) for consideration.

and patients at an ever-increasing pace. With the increasing utilization of interconnected electronic medical record systems, the respective medical data of countless patients can be analyzed and run through complex algorithms to determine trends and optimal treatments by AI applications. Likewise, medical papers and case studies can be memorized and analyzed to predict which medicines can be most effective for patients on a case-by-case basis. Currently, several projects are being developed by major corporations in this field. For example:

- IBM's Watson's Oncology, in conjunction with Memorial Sloan Kettering, the Cleveland Clinic, CVS Health, and Johnson & Johnson are collaborating on respective applications to predict optimal chronic disease treatments and drug developments;
- Microsoft has initiated its "Hanover" project, developing an artificial intelligence application to predict the most effective cancer treatments for patients;
- Google's "DeepMind" platform is being utilized to detect health risks through data collected via a smartphone app; and
- Intel has invested in an artificial intelligence application that would identify at-risk patients and develop optimal treatment options.

The utilization and analysis of patient data by AI applications do not come without legal pitfalls and dangers. Of paramount concern is that patients' Protected Health Information be protected from dissemination or hacking. Considering the prevalence of data breaches in the news today, this appears to be a difficult goal to achieve. Moreover, collectors of such data may be under an obligation to procure consents from patients to obtain their data, regardless of what de-identifying measures have been implemented.

Another concern is algorithmic bias, which raises not only legal but ethical concerns. For example, if a hospital system incorporates an algorithmic AI system into its protocols, is it lawful/ethical to implement a "cost consideration" variable into its calculations? Likewise, how would such a system handle do-not-resuscitate implications? Also, would such an application be capable of performing a risk/benefit analysis to consider how optimal short-term treatments would affect a patients' future overall health and prognosis?

Regarding more hands-on applications, AI has made great headways in the fields of radiology and surgery. In multiple experiments, AI applications have exceeded humans in the ability to detect lesions and cancers in diagnostic images. Furthermore, surgical robots, such as the Da Vinci Surgical System, have become increasingly autonomous. Again, legal implications arise as it becomes increasingly difficult to determine who (or what) is liable should something go wrong.

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