Artificial Intelligence and Robotics in Medicine

Call for Abstracts

The Solomon Center for Health Law and Policy at Yale Law School and the Information Society Project —in partnership with the *Yale Journal of Health Policy, Law, and Ethics* and the *Yale Journal of Law and Technology*—are pleased to announce a call for abstracts examining the future of telemedicine, artificial intelligence, robotics and related topics.

With technological advances rapidly expanding the reach of physicians, enhancing medical research, and potentially supplanting doctors themselves through robotics and machine learning, how should law and regulation respond? Contributors will address these as well as other cutting-edge issues shaping the future of telemedicine, artificial intelligence, and robotics.

The authors of selected papers will be invited to present their work at a conference hosted at Yale Law School on November 2, 2018. A publication based on the conference will result. We also welcome submissions that could eventually become scholarly articles, policy briefs, and white papers intended for policymakers at the state and federal level, medical practitioners, ethicists, and other key stakeholders.

Research Areas of Interest - *Deadline for Abstracts: June 1, 2018*.

We invite contributions that address a range of questions relating to the law and regulation of telemedicine, robotics, and artificial intelligence. Potential topics include:

Telemedicine, Artificial Intelligence, and Robotics "On the Ground": Past, Present, and Future

- Telemedicine is allowing more and more complex care to move from the hospital to the home. What are the risks and rewards of this transition? What is the early data on outcomes and on cost?
- Artificial intelligence and machine learning platforms will potentially empower midlevel healthcare providers (nurses, physician assistants, APRNs) to make diagnoses and drive care, replacing the need for high-level expert providers. What will be the impact of this evolution on patient care and traditional employment models?
- How will artificial intelligence and telemedicine platforms impact the cost of care in the United States? What will the costs involved with these platforms be? Who will pay?
- What are the possible impacts of telemedicine on healthcare more broadly, including access to care: Fragmented doctor-patient relationships? Lower costs? Shifts in medical training? Greater opportunities for rural communities? For prisoners? For the disabled?
- What role does artificial intelligence play in preventative and chronic disease care (e.g., through fitness apps and permanent medical surveillance generally as well as in specific contexts, such as diabetes)?
- What defines the frontier of telemedicine: artificial intelligence and machine learning? Remote surgery? Remote control of implanted devices?
- What is the history of the law and regulation of telemedicine, artificial intelligence, and robotics—including but not limited to key legislation and agency action?

Regulation and Regulatory Challenges

- Is the present regulatory scheme governing telemedicine, robotics, artificial intelligence, and related matters adequate or should it be reformed? What regulatory and statutory frameworks will better promote innovation while preserving patient safety?
- We encourage work addressing how the different regulatory frameworks that currently oversee the performance of surgery, drugs, and devices, respectively, may be compressed by telemedicine, AI & Robotics. What should happen when regulatory schemes collide?
- Whenever a drug is remodeled or a device is changed it must be approved by a regulating body. How does this apply to changes in software and the algorithms that underlie artificial intelligence platforms? For example, does altering a single line of code require a new submission?
- How should wearables used for diagnosis and treatment be regulated, along with the information they generate and the uses for that information (e.g., health data donation)? How should wearable data be integrated into clinical research?
- How might telemedicine impact state-based physician licensing (vs cross-border licensing) and how does licensing currently constrain or otherwise frame the development of telemedicine?

Data Gathering and Data Privacy

- Artificial intelligence and machine learning platforms are built and "trained" on a foundation of data. In applying these technologies to healthcare, that data is *patient* data and very closely guarded. What is the current state of healthcare data acquisition and access, and how will it need to evolve going forward to allow these data foundations to grow?
- How will patient data privacy be maintained as large healthcare providers partner with private companies to produce innovative programs?
- How will HIPAA be affected by developments in telemedicine, robotics, and artificial intelligence?
- Many countries, particularly in western Europe, have aggregated the genomic and clinical data of their citizenry through government-sponsored public initiatives. What would be the pros, cons, and barriers to aggregating national data in the United States?

Other areas of the Changing Legal Landscape

- What professional standards of care will apply to algorithmic clinical decision-making programs and what questions of liability might these programs raise? How will advances in robotics relate to the above?
- Liability and telemedicine: How will telemedicine affect tort law? Where will the liability lie in the inevitable case of an accident? How will medical malpractice be altered? What privacy protections would patients and practitioners be able to demand? Where ought liability lie in the event of a breach?

Disparities in the Advance of Telemedicine, Artificial Intelligence, and Robotics

- How will telemedicine impact healthcare disparities—for better or for worse?

Telemedicine, Artificial Intelligence, and Mental Health

- How might telemedicine affect mental health parity and enhanced continuity of care in counseling as well as other mental health services? While we welcome contributions addressing this topic generally, we are particularly interested in work addressing this in the context of the elderly and those with disabilities.
- Expanding on the theme of telemedicine's role in counseling: How might telemedicine assist the shift towards healthcare parity around mental health? Toward enhanced continuity of care in counseling and other mental health services?
- What impact might artificial intelligence and machine learning have on talk therapy? Talk therapy presented the original artificial intelligence health program—where are we now?

Please note that this list is not meant to be exclusive or exhaustive. Instead, it suggests potential avenues for inquiry. We encourage other contributions that engage how law and policy shape the development of telemedicine, artificial intelligence, and robotics, as well as related topics.

How to Participate

Those interested in submitting their work are asked to send a one-page abstract of their proposed paper to Heather Branch at heather.branch@yale.edu no later than **June 1, 2018**. Successful abstracts will go beyond stating a topic; instead, they will explain the importance of the topic and sketch the argument that the eventual paper will advance.

Please contact Katherine Kraschel at katherine.kraschel@yale.edu should you have questions.