

How AI is driving new medical frontier for physician training

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A handful of medical students at Duke University School of Medicine are getting ready to embed themselves this fall on cutting-edge AI projects that are harnessing data science and machine learning to find ways to improve clinical care.

They will become the fourth group of MD candidates to join the Duke Institute for Health Innovation (DIHI) during their third year of medical school as part of a program that aims to bring together clinical, quantitative and data expertise to create technology that will enhance how physicians provide care.

Although the program is not branded as an augmented intelligence (AI) program, the work the students are doing is part of the emerging field and it is preparing medical students to think about data and technology in ways previous generations did not and to understand how technology can be leveraged to improve care.

“In the past, a lot of technology was developed outside of health care and then applied in the health care setting. We are an innovation group within health care and we are bringing health care expertise in as part of the design,” said Mark Sendak, MD, DIHI’s Population Health & Data Science Lead who first took an interest in harnessing technology for medical innovations when he was a medical student at Duke. “We are training future leaders.”

Helping predict sepsis

Students work on a primary project and a secondary project and are expected to write papers, give presentations to the health system leadership and at conferences. They also attend fireside chats to see how other MDs have gone on to use data and technology in their careers.

In the program’s three years, medical students’ work is getting noticed. One student was on the team and authored a paper that showed how a machine-learning project that used predictor variables

commonly found in electronic health records could be used to help predict sepsis in hospital patients, on average, five hours before patients met the clinical sepsis definition.

Another student is getting ready to stay on for an additional year because she, along with Duke's surgical department, felt that the solution developed during the past year was so valuable that continuing the efforts could accelerate science and innovation while greatly enhancing her learning experience at Duke.

As a part of her research project, she created a model with 38 billion data points to take a comprehensive look at every invasive procedure performed at Duke. This prototype is further helping the Duke surgeons explore a spectrum of innovations, from identifying predictors for surgical site infections to designing efficient workflows for operating rooms.

At the 2018 AMA Annual Meeting, the AMA House of Delegates adopted new policy on AI that seeks greater physician involvement in the burgeoning field of AI to ensure it reshapes care in a positive direction. Delegates also directed the AMA to "encourage education for patients, physicians, medical students, other health care professionals and health administrators to promote greater understanding of the promise and limitations of health care AI."

Learn how the AMA Accelerating Change in Medical Education Consortium schools are adapting technology in new ways to solve key problems and advance physician training.