UMB-UMBC Partnership To Boost Medical Research

August 12, 2019 | *By [Alex Likowski](#)*

The [University of Maryland, Baltimore (UMB)](#) and the University of Maryland, Baltimore County (UMBC) signed an agreement Aug. 12 designed to leverage UMBC's expertise in cyber security and artificial intelligence/machine learning to protect medical data and devices from cyberattacks, and also to collaborate on greater data-based medical research.

"Whereas before we would think about innovations, technological innovations, now we always think about cybersecurity as part of that, that is part of the project, with a clinical project or a research project," said **Stephen N. Davis, MBBS, FRCP, FACE, MACP**, UMB vice president of clinical and translational research, director of UMB's [Institute of Clinical and Translational Research](#) (ICTR), and director of the Department of Medicine at the University of Maryland School of Medicine.

Karl Steiner, Stephen Davis, Bruce Jarrell, Philip Rous

"We have a lot of medical expertise. UMBC has a lot of cybersecurity and information technology expertise, and the putting of these two together will certainly strengthen both our two universities and the State of Maryland," added **Bruce Jarrell, MD, FACS**, executive vice president, provost, and dean of the Graduate School. "It allows us to use the very broad data that we gather in delivering healthcare to ask research questions that perhaps we might not be able to ask in the past that would allow us to improve patient safety and advance our progress in cures."

"The work that we're about to do together is a very beautiful example of interdisciplinarity," said Philip Rous, PhD, UMBC provost and senior vice president for academic affairs. "It is centered around bringing together experts, faculty, students with deep knowledge in different areas or perhaps different disciplines essentially to both address, solve a problem, advance, innovate."

Through the partnership, UMBC provides critical capabilities, called core resources, to ICTR's Informatics Core, adding a new Cybersecurity and Artificial Intelligence Core that will enable the design of machine learning models to analyze large data sets, determine what additional data could be collected to potentially improve analysis, and uncover and overcome possible cybersecurity risks associated with devices and/or systems.

"It's an exciting two-way street," said Karl V. Steiner, PhD, UMBC vice president for research, noting how UMBC brings a cybersecurity core to the established translational research infrastructure at ICTR. "This institutional partnership will bring a much larger number of scientists together to develop meaningful bridges and research progress."

The UMB-UMBC partnership also provides important core capabilities in support of the Baltimore hub of the NIH-funded Clinical and Translational Science Award (CTSA). UMB joined Johns Hopkins University (JHU) this spring in this prestigious 5-year grant designed to "improve the translational process, getting more treatments to patients more quickly." The JHU-UMB "hub" is one of just 60 in the U.S.

In an Aug. 5 letter to the UMB community, President **Jay A. Perman, MD**, explained, "The (CTSA) program amplifies clinical and translational research across campus. It doesn't target a specific disease or a specific patient population. Rather, it targets the very capabilities we need to more efficiently get our best science out of the lab and into patient care." He went on to say that among other things, we're synthesizing our electronic health records. That means the partners "can aggregate and analyze patient and population data in a way that sheds light on those we serve and how we might serve them better. "

So, it's broader than cybersecurity," Steiner concluded. "Part of it is defense and part of it is scientific offense," he said, adding "the most exciting area" for the partnership is "looking through the vast amount of data being compiled and finding occurrences or finding opportunities, maybe a unique link that we didn't discover through natural language processing, through artificial intelligence, going through this data and really looking is there this needle in a haystack, except the haystacks are huge and the needles are really, really tiny, to see how we can really help our colleagues here with some discoveries."

The possibilities are endless, Davis said. "Any disease that might affect humans would come under our rubric, and we want to make medical advances."

https://youtu.be/4CbjmYZyW8Y