University of Maryland Baltimore

UMB VIRTUAL FOUNDERS WEEK 2020

David J. Ramsay Entrepreneur of the Year Presentation

Joseph R. Scalea, MD

School of Medicine
Associate Professor, Department of Surgery

"Rejecting the Status Quo: A Vision for the Future of Transplantation"

OCT. 13 | 4 P.M.

"Rejecting the Status Quo: A Vision for the Future of Transplantation"

Transplantation has blossomed since the first successful organ transplant more than 60 years ago. Major advances in immunology, surgery, and patient care have culminated to make transplantation the gold-standard therapy for organ failure. As remarkable advances in information technology, communication, and unmanned aircraft have developed simultaneously, transplantation now has a unique opportunity to integrate sophisticated solutions to its most challenging problems.

As a result of improved donor-recipient matching, the optimal organ donor may be separated from the recipient by several hundred miles. In fact, the distance between donor and recipient is increasing, challenging organ procurement groups to safely and quickly move human organs. More concerning yet, there is an increasing disparity between the number of people who need transplants and the number of transplantable organs. This challenge of moving organs has been described as the "final frontier" for deceased donation. There is an unmet need to move organs more quickly and with greater transparency.

Using a combination of industry-informed information technologies and aviation advances, our group has begun exploring on-demand, unmanned shipment of human organs. After constructing the first-ever comprehensive organ monitoring system, we are generating the data required to learn how and when organs should be moved by unmanned aircraft. We will further improve the system of organ allocation to optimize the potential for the gift of life for all those patients dying of organ failure. The future is now.

Joseph R. Scalea, MD

School of Medicine
Associate Professor, Department of Surgery

In addition to his School of Medicine (SOM) faculty position, Dr. Scalea is a multi-organ transplant surgeon and director of pancreas and islet cell transplantation at the University of Maryland Medical Center (UMMC). During his four years at SOM, he has cultivated impressive collaborations in research, education, and entrepreneurism.

After conceptualizing, designing, coordinating, and testing technologies that made the shipment of human organs by unmanned aircraft possible, Dr. Scalea's team performed the first transplant of a human organ transported by drone in April 2019, drawing national attention and acclaim. He was the project leader and one of the surgeons who performed the kidney transplant at UMMC.

Dr. Scalea, a 2007 SOM graduate, founded Transplant Logistics and Informatics, a data analytics startup that was restructured in 2020 into MissionGO. The Baltimore-based company aims to commercialize life-saving technologies through logistics and supply chain innovations. MissionGO has spun off a company, MediGO, which is working to produce software/hardware solutions to improve organ tracking and monitoring.

Dr. Scalea was recruited to SOM in 2016 to direct the pancreas program and tasked with improving access to pancreas care. Using a multidisciplinary and entrepreneurial approach, his team increased patient volume by more than 200 percent in less than 24 months while improving quality of care and providing an annual revenue increase of $10 million.

Dr. Scalea's efforts have led to multiple state, society, and National Institutes of Health grants and three patents. He also has written more than 65 peer-reviewed publications and 10 book chapters.

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