Providing Better Healthcare through Systems Engineering: Seminars and Discussions

Mondays 4:30-6PM ET, IOE 1680 (rsvp for Zoom) Fall 2023 Sept 18:

Prescriptions & Drones

The health care field has undergone historical transformation in the last few years. Shaped by the pandemic, economic forces, workforce shortages, and significant financial headwinds, we have seen exponential adoption of virtual care and are now taking care of patients more than ever from the comfort of their home. We must continue to find innovative ways to meet the needs of the communities we serve, while lowering costs and ensuring we uphold the highest quality of care. Health systems must also take responsibility for the impact we have on our environment, and at UM Health we have embarked on a multi-year plan to reduce our carbon footprint. Utilizing drones for home deliveries to our patients sits at the cross section of these two economic forces. Starting with prescriptions, in 2024 UM Health will deploy this option for patients who are currently receiving their packages via traditional truck deliveries. Opting into this program will result in faster prescription delivery, with a significantly more responsible environmental impact. Doing something this new also raises many questions, and we're going to explore those together today alongside colleagues from the College of Engineering.

Drones are steadily becoming cheaper/more accessible for consumers to play with … but also have been becoming a plausible option for companies/organizations needing to deliver goods. However, what you get delivered (think groceries, specialty diets, prescription medications, high-priced valuables, etc.) to you can say a lot about you, including information you might not want to share publicly. As recently as March of this year, Michigan Medicine announced a plan to use Zipline drones to deliver prescription medications. Questions to consider—some of which I will address, some are very much open and unexplored—include: How is such surveillance and privacy risk possible? How might we quantify such risks? What are some ways we can mitigate them? Are there other problems lying on the intersections of mobility, privacy, and the healthcare system that require interdisciplinary perspectives to frame and address them?

A Michigan native, **Dana Habers, MPH** serves as University of Michigan Health System's Chief Innovation Officer and Chief Operating Officer for Pharmacy Services. Dana joined U of M in 2016 as Chief Department Administrator for Radiology, and in late 2020 lead efforts to bring Covid-19 vaccination and therapeutics to our entire U of M system and the surrounding community. She holds a BS in Economics from Grand Valley State University, and a MPH from University of North Carolina – Chapel Hill.

Max Li, PhD, MSSE, is an Assistant Professor of Aerospace Engineering at the University of Michigan, Ann Arbor, with courtesy appointments in Industrial and Operations Engineering as well as Civil and Environmental Engineering. Max received his PhD in Aerospace Engineering from the Massachusetts Institute of Technology in 2021. He received his MSE in Systems Engineering and BSE in Electrical Engineering and Mathematics, both from the University of Pennsylvania, in 2018. Max's research and teaching interests include air transportation systems, airport and airline operations, Advanced Air Mobility, networked systems, as well as optimization and control.