Abstract
Industrial engineering tools can be critical in improving the delivery of healthcare, to improve outcomes, reduce costs, increase access, and decrease medical errors. These tools alone, however, are insufficient – it is equally important to overcome challenges associated with communication between clinicians and engineers, scoping open-ended problems, determining appropriate metrics and objective functions, and acquiring relevant data. I will discuss three examples of our efforts at the University of Michigan Center for Healthcare Engineering and Patient Safety. The first is in developing a scheduling tool for medical residents working in the pediatric emergency department, with a focus on reducing sleep disruptions and other negative attributes that can both increase the risk of patient harm and also reduce the quality of the residents’ educational experiences. The second is in developing a simulation tool to help cardiothoracic surgeons better understand the conflicts associated with attempting to merge planned and stochastic activities. Specifically, we look at the random arrival rate of heart and lung transplant opportunities, and how these training opportunities are distributed across residents on a daily-rotating call schedule. The third is in developing patient scheduling tools for outpatient chemotherapy infusion. I will focus on contrasting a “traditional academic approach” with the realities of implementing such an approach in practice.

Biography
Professor Amy Cohn is an Associate Professor and Thurnau Professor in the Department of Industrial and Operations Engineering at the University of Michigan College of Engineering. She is also the Associate Director of the University of Michigan Center for Healthcare Engineering and Patient Safety, as well as an Affiliate of the MIT Global Airline Industry Program. Her research interest is in applied combinatorial optimization, primarily in aviation and healthcare. She received her Ph.D. in Operations Research from the Operations Research Center at the Massachusetts Institute of Technology in 2002 and earned the A.B. in Applied Mathematics from Harvard University in 1991.