



PROVIDING BETTER HEALTHCARE THROUGH SYSTEMS ENGINEERING:

Analyzing the Value of Flexibility in Design & Operations of Outpatient Health Centers

Jackie Griffin, Ph.D.

Northeastern University

4:30 PM EST, Monday 10/26 ([RSVP for Zoom Link](#))



Although it is understood that healthcare systems are complex and dynamic systems, many times the operations of these systems, particularly around the allocation of fixed resources and physical space, is treated as fixed or static. As such policies regarding (i) the flow of patients, (ii) allocation of exam rooms, or (iii) the assignment of medical assistants to physicians are set at the beginning of the day, week or month, and remain unchanged across that duration. While the static nature of these schemes are meant to support stability and reduced complexity in the operations, this fixed mindset can hinder the ability to drive quality improvement. This presentation will review applications of simulation modeling in support of assessing the value that can be obtained from integrating flexibility into operational policies. We will review dynamic room allocation policies and staffing policies as applied to a crowded cardiovascular clinic. Additionally, we will explore similar concepts in multiple orthopedic clinics. Finally, we will present how these concepts can be similarly examined with a continuous-time Markov model.

Jackie Griffin is an Associate Professor in the Mechanical and Industrial Engineering Department at Northeastern University. Her research focuses on applications of Operations Research, Optimization, and Simulation methodologies in designing, managing and operating resilient healthcare delivery systems, ranging from outpatient clinics to regional emergency response networks to global pharmaceutical supply chains. Currently she leads a National Science Foundation funded project focused on tackling the ongoing challenge of drug shortages in the United States through the analysis of analytical models of pharmaceutical supply chains. Additionally, she has partnered with many prominent healthcare organizations to examine new strategies for improving the design and operation of health care systems while accounting for the need to balance multiple system objectives in ensuring delivery of high quality health care services. Her recent collaborations include organizations such as Massachusetts General Hospital, Tufts Medical Center, Boston Children's Hospital, Beth Israel Hospital, Brigham and Women's Hospital, and the IQVIA Institute for Human Data Science. Other past collaborators include the Centers for Disease Control and Prevention (CDC), Children's Healthcare of Atlanta, DeKalb Medical Women's Center, Emory University Hospital, Grady Memorial Hospital, and World Vision International. She received her PhD from the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Institute of Technology. Additionally, she completed her MS and BS degrees in the Industrial and Systems Engineering department at Lehigh University.

This seminar series is presented by the U-M Center for Healthcare Engineering and Patient Safety (CHEPS): Our mission is to improve the safety and quality of healthcare delivery through a multi-disciplinary, systems-engineering approach. For the Zoom link and password and to be added to the weekly e-mail for the series, [please RSVP](#). For additional questions, contact CHEPSseminar@umich.edu. Photographs and video taken at this event may be used to promote CHEPS, College of Engineering, and the University.