

Block Scheduling for Medical Residents



Monday December 4, 2017, 4:40PM in 1123 LBME

Each year, the leadership teams for medical residency programs must construct the annual block schedule, which assigns each of their residents to various services throughout the year in order to provide both appropriate training for the individuals and sufficient patient care coverage for the services. This process is traditionally done by hand, costly in resources and time, and often fails to meet the needs of the residents, programs, and services. This manual construction process is further complicated by the need to coordinate across multiple residency programs staffing the same services. In close collaboration with clinical and administrative leadership, our team develops a linear programming model capable of capturing the needs of numerous residency programs and their partner services. Moreover, the model incorporates the metrics and objectives by which the clinicians may assess the quality of one potential schedule compared to another. We apply these tools to rapidly construct schedules for more than 400 residents and 150 services at the University of Michigan each year. We find that linear programming models can be used to not only automate the process, but also provides for better quality schedules by satisfying more requests and equitably balancing each resident's schedule fairly.

Amy Cohn, PhD, joined the faculty in the Department of Industrial and Operations Engineering at the University of Michigan in 2002 as an Assistant Professor and was promoted to Associate Professor in 2009; in 2011, she was also named a Thurnau Professor and in 2017 was promoted to Full Professor. She currently holds the position of Associate Director for the Center for Healthcare Engineering and Patient Safety. Her primary research interest is in robust and integrated planning for large-scale systems, predominantly in healthcare and aviation applications. She also collaborates on projects in satellite communications, vehicle routing problems for hybrid fleets, and robust network design for power systems and related applications. Her primary teaching interest is in optimization techniques, at both the graduate and undergraduate level.

William Pozehl, MSE, is a researcher at the Center for Healthcare Engineering and Patient Safety (CHEPS) at the University of Michigan. He completed both his undergraduate and Master's degrees in Industrial & Operations Engineering at the University of Michigan. Since joining CHEPS as an undergraduate researcher, his projects have primarily focused on building models to schedule patient care providers with the goals of improving schedule quality and reducing the burden of constructing said schedules.

Garth W Strohbehn, MD, MPhil, is a general internist and Chief Medical Resident (CMR) at the University of Michigan Health System. He completed his undergraduate degree in Biochemistry and Chemistry at the University of Iowa, followed by graduate work in Clinical Biochemistry at the University of Cambridge Addenbrooke's Hospital and medical school at Yale University. He has been a member of the Internal Medicine Residency Program since 2014 and, along with three colleagues, Chief Resident since June 2017, where his major shared responsibilities include developing yearly schedules at day-by-day resolution for approximately 150 physicians-in-training, preparing and delivering core daily educational sessions, mentoring resident career development, and, most importantly, advocating for resident well-being. Inspired by his current responsibilities and academic background, his current research interests include systems redesign in medical education, novel educational methods in medicine incorporating visual arts and mindfulness, randomized controlled trials in medical education, and drug development in hematology/oncology.

The seminar series "Providing Better Healthcare through Systems Engineering" 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 additional information and to be added to the weekly e-mail for the series, please contact genehkim@umich.edu



CENTER FOR
HEALTHCARE ENGINEERING & PATIENT SAFETY
UNIVERSITY OF MICHIGAN