

Session 1: Applications of Analytics in Hospital Management 8:35am – 10:10 am

Topic: Consecutive Surgeries with Complications: The Impact of Scheduling Decisions

Speaker: Adam Diamant, Schulich School of Business, York University.

Time: 8:40am-9:10am

Abstract: Few studies have investigated the quality implications of workers exercising discretion in scheduling their own work, i.e., deciding which tasks to perform and when, far in advance of when the tasks are actually completed. To this end, our study focuses on general surgeons who are given privileges at a hospital to perform elective surgery, i.e., a medical procedure that is scheduled in advance of its performance because it does not involve an acute medical emergency. For each surgical day allocated to them by the hospital, surgeons select which patients to assign and in what order the corresponding surgeries will be performed. We track both health outcomes (whether there is a complication) and the length-of-stay (LOS) of patients who undergo elective surgery and determine how these measures are affected by the order in which surgeons operate. More specifically, by analyzing a large data set of 29,169 surgeries performed by 111 surgeons from 2005 to 2015 in a major hospital network, we determine how the scheduling and sequencing of elective surgeries by surgeons impacts the rate of surgical complications and patient LOS. We find that surgeries following those that experienced a complication were more likely to experience a complication and these patients were also more likely to be admitted to the hospital for a longer duration. The increased complication risk and LOS was not affected by scheduling greater slack time between surgeries for rest, recovery, and reflection, nor was the phenomenon localized to a few problematic individuals. However, we do find support for the notion that scheduling surgeries that require different techniques does mitigate these risks. Our results illustrate how operational decision-making can affect clinical outcomes. It also has implications for the theory and practice on how best to schedule complex, knowledge intensive work and how best to provide administrative support.