Managing Inpatient Bed Capacity in Hospitals

Burhan Sandikci, Ph.D.

Abstract

Many hospitals (in particular, academic medical centers) in the United States experience elevated demand and strained inpatient bed supply. This imbalance between the supply and the demand, coupled with intrinsic problems in health care industry, is a major cause of financial struggles as well as a significant challenge to achieve research and education missions in academic medical centers. This talk is motivated by such struggles at the University of Chicago Medical Center (UCMC). To address adverse effects of limited capacity, UCMC started providing care by partitioning the bed capacity into specialized wings. Specialized wings not only provide advantages from focused care but also allow the protection of beds for high-utility care types. Each wing has a specific designation of the types of patients it can admit, and the number of beds it is allocated. A patient requesting hospital services can be admitted only if a bed is available in the appropriate wing. The fundamental trade-off included in wing formation decisions is between the advantages of pooling in large wings and the advantages of focused care in smaller wings. In this talk, I will present a model to help hospital administrators make wing formation decisions and a novel approach to solve the hard problem of forming wings. I will also share a number of managerial insights through numerical results based on data from UCMC as well as national databases.

Refreshments will be served in Daniels Hall room 428 from 11:00 a.m. to 11:30 a.m.
Burhan Sandikci, Ph.D.
Operations Management, Booth School of Business
University of Chicago

Biography

Burhan Sandikci is an Associate Professor of Operations Management at the University of Chicago’s Booth School of Business. He received his PhD in industrial engineering in 2008 from the University of Pittsburgh. His research interests span decision-making problems under uncertainty with particular focus on problems in medical decision-making and healthcare operations. His methodological interests include Markov decision processes (MDPs), partially observed MDPs, stochastic programming, and simulation. His research has been published in leading academic journals such as Operations Research, Management Science, and Mathematical Programming. His work has also been recognized at various levels by INFORMS Decision Analysis Society, INFORMS Bonder Scholarship, and IIE Pritsker Doctoral Dissertation Award.