



INFORMS UH Lecture Series

FALL 2009

Presents

Dr. Andrew Schaeffer

University of Pittsburgh

Title: Estimating the Patient's Price of Privacy in Liver Transplantation

10:00 am -11:00 am Friday, November 13, 2009

102 D, Eng. Building D2

Abstract

Patients with end-stage liver disease, such as hepatitis or cirrhosis, must join a waiting list to be eligible for a cadaveric liver. Due to privacy concerns, the composition of this waiting list is not publicly available. We consider the benefit of creating a more transparent waiting list, which we term the patient's price of privacy. We estimate this benefit by modeling the liver accept/reject decision under a transparent waiting list as a Markov decision process in which the state includes an explicit measure of the patient's rank in the waiting list. We provide conditions under which there exist structured optimal solutions, such as monotone value functions and control-limit policies. We conduct numerical studies based on clinical data, which indicate that the price of privacy is typically on the order of 5% of the optimal expected survival. Finally, we describe a liver accept/reject model in which the patient's position on the waiting list is partially observed. Our numerical studies indicate that solving the resulting partially observed Markov decision

Dr. Schaeffer's Biography

Andrew Schaefer is an Associate Professor of Industrial Engineering and Wellington C. Carl Fellow at the University of Pittsburgh. He received his PhD in Industrial and Systems Engineering from Georgia Tech in 2000. His primary research interest is the application of stochastic optimization techniques to disease treatment problems. He has active research interests in the contexts of end-stage liver disease, sepsis, HIV, diabetes, flu shot design and kidney exchanges. His methodological interests include stochastic programming, mixed-integer programming, and Markov decision processes.

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If you have any questions regarding this event, please contact Dr. Gino Lim at 713-743-4194 or at ginolim@uh.edu.