Gabriel Zayas-Caban
"Optimal Control of an Emergency Room Triage and Treatment Process"

Monday September 22, 2014, 4:30-6:30PM in 1123 LBME

Patient care in many healthcare systems consists of two phases of service: assessment (or triage) and treatment. It is sometimes the case that these phases are carried out by the same medical providers. We consider the question of how to prioritize the work by the medical providers to balance initial delays for care with the need to discharge patients in a timely fashion. To address this question, we present a multi-server two-stage tandem queueing model for a hospital emergency department (ED) triage and treat-ment process. We assume that all patients first receive service (i.e. triage) from the first station. After completing this service some patients leave the system for some other part of the ED. The remaining patients are served or await service from the second station where they may abandon before receiving treatment. We use a Markov decision process formulation and sample path arguments to determine the optimal dynamic policy for the medical service provider.

Gabriel Zayas-Caban is a PhD student at the Center for Applied Mathematics at Cornell who is working with CHEPS in the summer of 2014. He has been awarded the 2013 Zellman Warhaft Commitment to Diversity Graduate Student Award from Cornell's Diversity Program in Engineering; Cornell/Sloan Fel-lowship, 2011-2014; and National Defense Science and Engineering Graduate Fellowship, 2008-2011. Recent research projects include "Emergency Medical Service Allocation in response to Large Scale Events" and "Optimal Control of an Emergency Room Triage and Treatment Process."

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