

The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

**Patient Prioritization in Emergency Department Triage Systems:
An Empirical Study of Canadian Triage and Acuity Scale (CTAS)**

by

Dr Eric PARK
Assistant Professor
School of Business
The University of Hong Kong

Date: 14 October 2016 (Friday)
Time: 10:30am - 11:30am
Venue: R402, Shirley Chan Building
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Emergency departments (EDs) typically use a triage system to classify patients into priority levels. However, most triage systems do not specify how exactly to route patients within the assigned triage levels, hence, decision makers in EDs often have to use their own discretion to route patients. Also, how patient waiting is perceived and accounted for in ED operations is not clearly understood. In this paper, we identify the ED patient waiting cost structure perceived by the ED patient-routing decision maker, based on patient ED visit data, and derive policy implications and make suggestions for improving triage systems.

We analyze the patient routing behaviors of ED decision makers in four EDs in the metro Vancouver, British Columbia area. They all use the Canadian Triage and Acuity Scale (CTAS), which has a wait time-related target service level objective. We propose a general discrete choice framework, consistent with queueing literature, as a tool to analyze prioritization behaviors in multi-class queues under mild assumptions. We find that the decision makers in all four EDs 1) apply a delay-dependent (dynamic) prioritization across different triage levels; 2) have a perceived marginal ED patient waiting cost that is best fit by a piece-wise linear concave function in wait time; 3) generally follow, in the same triage level, the first-come first-served (FCFS) principle, but their adherence to the principle decreases for patients who wait past a certain threshold; and 4) do not use patient-complexity as a major criterion in prioritization decisions.

Bio:

Eric Park is an assistant professor in the Innovation and Information Management Area at the School of Business, University of Hong Kong. He was a postdoctoral research fellow in the Operations and Logistics Division at the Sauder School of Business, University of British Columbia after graduating from the Kellogg School of Management, Northwestern University with a PhD in Operations Management. His research interest is healthcare operations in the context of public health policies. He uses empirical methods to understand why certain policies are ineffective and/or associated with unintended outcomes. He studies both micro level (hands-on operational) and macro level (system-wide strategic) policies and provides an operational perspective to health policy designs. He has a MSE and BSE in mechanical engineering from the University of Michigan, Ann Arbor and Seoul National University respectively.

Please email to irene.lam@polyu.edu.hk for enquiries.

All are welcome!