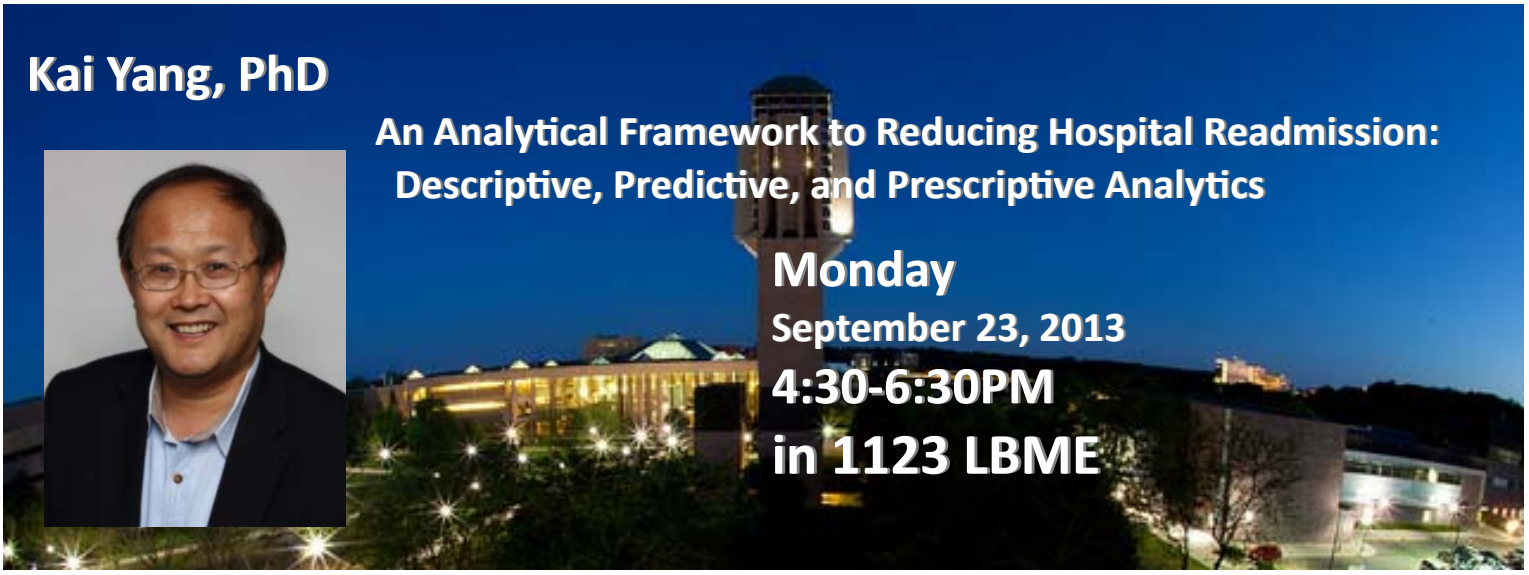

Hospital readmission is disruptive to patients and costly to healthcare systems. About one in five Medicare fee-for-service beneficiaries, totaling over 2.3 million patients, are re-hospitalized within 30 days after discharging, incurring an annual cost of $17 billion, which constitutes near 20% of Medicare's total payment. However it is reported by the Medicare Payment Advisory Commission that about 75% of such readmissions can and should be avoided because they are the results of a fragmented healthcare system that leaves discharged patients with preventable flaws such as hospital□acquired infections and other complications, poor planning for follow□up care transitions, inadequate communication of discharge instructions, and failure to reconcile and coordinate medications. Variations in rate of readmission by medical facility and by geographic region also indicate that some hospitals perform better than others at containing readmission rates. In addition, effective October 2012, as directed by Patient Protection and Affordable Care Act (PPACA), the Centers for Medicare and Medicaid Services (CMS) started to cut hospitals' reimbursement funds that have excess readmission rates for their heart failure, myocardial infarction, and pneumonia patients. Hence, reducing unnecessary rehospitalization through care transition programs has attracted policymakers and health organizations as a way to simultaneously improve quality of care and reduce costs. Yet, there is a lack of analytical tools that help understand the care transition dynamics at various patients' health episodes and effectively provide predictions of readmission risks of different patient groups and hospital operation units by using diverse data from electronic health records. This presentation will outline a multifaceted analytics framework that enables medical decision makers to characterize and reduce avoidable readmissions, and to explore the effects of different patient risk factors on its health outcomes. The proposed methods and tools are evaluated using a wide range of electronic health records from four hospitals of the Veterans Health Administration system in Michigan.

Dr. Kai Yang is the Director of Healthcare System Engineering Group of Wayne State University since 2009, and a Professor in the Department of Industrial and System Engineering, Wayne State University. Dr Yang is also an academic faculty advisor of VA Center of Applied Systems Engineering. His areas of research include statistical methods in quality and reliability and healthcare system engineering. Dr. Yang obtained both his MS and PhD degrees from the University of Michigan.

Since 2009, Dr Yang successfully secured many new research projects funded by NSF and America's largest healthcare system, US Veteran Health administration, and successfully leverages his statistical and quality engineering expertise into healthcare data analytics. Dr Yang's team developed several innovative models for predicting patients no show rate, preventable readmission risk, and estimating clinical workload portfolio for patient centered medical home models. Dr Yang's other healthcare research areas include surgery operation management, mobile health, and workflow management. Dr Yang is an associate editor of IIE Transactions of healthcare department, Dr Yang is also an organizing committee member of INFORMS healthcare conference 2013, and cluster chair on healthcare data analytics. He won the best paper award in IERC quality and reliability track in 2009 and was a finalist in INFORMS Pierskalla healthcare application Award in 2010.

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