Primary care, the backbone of the nation’s healthcare system, is “at a grave risk of collapse”. There exists a strong call for improving care delivery, which demands scientifically sound and efficient methods to capture the complexity of healthcare delivery systems. Meanwhile, with the rapid development in information technology, e-visit, which provides patient-physician communication through a secure portal, acts as a novel alternative to the traditional office visit. Understanding the impact of e-visits on patient access as well as provider workflow is the key to its successful implementation.

In this seminar, a novel stochastic model is introduced to characterize primary care provider’s operation and a convergent iterative method is proposed to address the complexity and dimensionality issues. In addition, a queueing framework to study e-visit in primary care is presented to investigate the design and scheduling options and provide managerial insights. Furthermore, other healthcare related research topics are sketched and future research directions are discussed.

Sponsored by the Dept. of Systems & Industrial Engineering
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