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Providing Better Healthcare Through Systems Engineering: Seminars and Discussions

Managing Virtual Appointments in Chronic Care

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Monday November 25 at 4:30PM in 1123 LBME

Virtual appointments between patients and healthcare providers can offer a cost-effective alternative to traditional office appointments for managing chronic conditions. Virtual appointments increase contact with the physician by either substituting or complementing office appointments, leading to improved health outcomes. The true value of virtual appointments cannot be realized until they are truly integrated with the office appointment systems. In this study, we introduce a capacity allocation model to study the use of virtual appointments in a chronic care setting. Specifically, we develop a finite horizon stochastic dynamic program to determine which patients to schedule for office and virtual appointments that maximizes aggregate health benefits across a cohort of patients. Optimal policy characterization for this problem is challenging. We find that under certain conditions, a myopic heuristic, where the sickest patients are scheduled for office appointments and the next sickest patients are scheduled for virtual appointments, is optimal. We show that the myopic heuristic performs well even in more general settings. Our findings further show that virtual appointments serve a dual purpose: they may reduce the number of office appointments and may trigger follow-up office appointments.

Dr. Armagan Bayram is an assistant professor in the Department of Industrial and Manufacturing Systems Engineering at University of Michigan – Dearborn. She worked as a postdoctoral fellow in the Department of Industrial Engineering and Management Sciences at Northwestern University. She received her Ph.D. in Management Science from the University of Massachusetts Amherst and M.S. and B.S. degrees in Industrial Engineering from Istanbul Technical University. Dr. Bayram's research interests include the development of stochastic models and solution methods for capacity and resource allocation problems. Of particular interest are stochastic optimization and dynamic programming models that involve nonprofit and healthcare applications.

1123 LBME is room 1123 in the Ann & Robert H. Lurie Biomedical Engineering Building (LBME). The street address is 1101 Beal Avenue. A map and directions are available at: http://www.bme.umich.edu/about/directions.php.

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For additional information and to be added to the weekly e-mail for the series, please contact genehkim@umich.edu.

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