

Maria Mayorga, PhD



**Using Systems Engineering to Inform Public Health Policies: A Simulation Model to Assess the Impact of Insurance Expansion on Colorectal Cancer Screening**

**Monday September 24, 2018 4:30PM in 1123 LBME**

Recent health care reform debates have triggered substantial discussion on how best to improve access to insurance. Colorectal cancer (CRC) is an example of a largely preventable condition, if access to and use of healthcare is increased. Early and ongoing screening and intervention can identify and remove polyps before they become cancerous. We present the development of an individual-based discrete-event simulation model to estimate the impact of insurance expansion scenarios on CRC screening, incidence, mortality, and costs. A national repeated cross-sectional survey was used to estimate which individuals obtained insurance in North Carolina (NC) after the Affordable Care Act (ACA). The potential impact of expanding the state's Medicaid program is tested and compared to no insurance reform and the ACA without Medicaid expansion. The model integrates a census-based synthetic population, national data, claims based statistical models, and a natural history module in which simulated polyps and cancer progress.

A brief overview of other precision medicine related research projects in Health Systems Engineering at NC State are also presented.

**MARIA E. MAYORGA** is a Professor of Personalized Medicine in the Edward P. Fitts Department of Industrial and Systems Engineering at North Carolina State University. She received her M.S. and PhD degrees in Industrial Engineering and Operations Research from the University of California, Berkeley. Her research interests include predictive models in health care, health care operations management, emergency response, and humanitarian logistics. She has authored over 65 publications in archival journals and refereed proceedings. Her research has been supported by NIH and NSF, among others. She received the distinguished National Science Foundation CAREER Award for her work to incorporate patient choice into predictive models of health outcomes. She is a member of INFORMS and the Institute of Industrial & Systems Engineers, and serves on the editorial board for the journals Health Systems, IISE Transactions, IISE Transactions on Healthcare Systems Engineering, OMEGA and Service Science.

The seminar series "Providing Better Healthcare through Systems Engineering" is presented by the U-M Center for Healthcare Engineering and Patient Safety (CHEPS): Our mission is to improve the safety and quality of healthcare delivery through a multi-disciplinary, systems-engineering approach.

For additional information and to be added to the weekly e-mail for the series, please contact [genekim@umich.edu](mailto:genekim@umich.edu)