Individualized Decision Analysis for Personalized Cancer Treatment

Jennifer Mason Lobo, PhD
Department of Public Health Sciences
University of Virginia

Abstract

Genomics-driven cancer medicine offers the potential for patients and providers to make personalized treatment decisions. Genomic tests provide individual estimates of the risk of cancer progression or recurrence. These individual estimates can then be used to inform choices for more or less aggressive therapies.

We present a decision analysis model to estimate the value of using a genomic classifier test to make treatment decisions, where the genomic classifier test estimates an individual's risk of cancer progression. We use Monte Carlo simulation to estimate life years, quality-adjusted life years, and cancer progression outcomes for a cohort of patients using these individual risk estimates. We illustrate this methodology using a prostate cancer genomic classifier that informs treatment decisions in the post-prostatectomy setting.

Refreshments will be served in Daniels Hall room 428
from 11:00 a.m. to 11:30 a.m.
Jennifer Mason Lobo, PhD
Department of Public Health Sciences
University of Virginia

Biography

Dr. Jennifer Mason Lobo is an Assistant Professor of Biomedical Informatics in the Department of Public Health Sciences in the School of Medicine at the University of Virginia. She received her Ph.D. in Industrial & Systems Engineering in 2012 from North Carolina State University (NCSU), her M.Sc. in Operations Research from NCSU in 2009, and her B.Sc. in Mathematics from the University of South Carolina in 2007. Her research interests include using mathematical models to describe the natural course of disease for patients with chronic conditions. Her current research involves optimizing treatment and screening decisions for patients with type 2 diabetes, prostate cancer, and renal cell carcinoma.