

Colin White Memorial Lecture

The Right Treatment for the Right Patient at the Right Time: Precision Medicine Through Treatment Regimes, SMARTs, and Statistics

**Marie Davidian, PhD
J. Stuart Hunter Distinguished Professor
Department of Statistics
North Carolina State University**

ABSTRACT

Clinicians have long recognized that patients are different, and thus the best treatment decisions must take into account of individual patient characteristics. The focus of precision medicine is to tailor treatment decisions to individual patient characteristics in an evidence-based way, providing clinicians with principled decision support. In the treatment of chronic diseases and disorders such as cancer or depression, a series of treatment decisions must be made at milestones and events in the disease/disorder process and in response to the evolving condition of the patient. From this perspective, the goal of the clinician, and thus of precision medicine, is to these sequential decisions in an evidence-based way so as to lead to the most beneficial expected outcome for the patient.

An extensive body of statistical and other quantitative research exists on the development of data-based, optimal, tailored decision strategies (treatment regimes) and a clinical trial design suited to this purpose, the sequential, multiple assignment randomized trial (SMART).

This talk will present an overview of how these methods work and provide a fundamental framework for precision medicine. Ongoing studies will be discussed.

Livestream Link: <https://yale.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=d009dc75-b82a-4d5d-a210-aaca00fddac3>

**12:00 Noon, Tuesday, October 1, 2019
47 College Street, Room 106B
11:45 AM - Lunch served outside Room 106B**

