

**The Sixth Annual
Janet L. Norwood Award
For Outstanding Achievement by a Woman
in the Statistical Sciences**

Dr. Marie Davidian

Wednesday, September 12, 2007

9:30 AM

Alys Stephens Center
Reynolds-Kirschbaum Recital Hall
1200 Tenth Avenue South
Birmingham AL

Seminar Topic:

Toward Individualizing Treatment to the Patient: An Introduction to Dynamic Treatment Regimes

Seminar Abstract:

Treatment of patients with chronic diseases or disorders in clinical practice involves a series of decisions made over time. Providers periodically adjust, change, modify, or discontinue therapies based on the patient's observed progress, side effects, compliance, and so on, with the goal of "individualizing" treatment to the patient in order to provide the best care. Often, the decisions are based on provider experience and judgment.

A "dynamic treatment regime," also referred to as an "adaptive treatment strategy," is a set of formal "rules" that dictate how to make decisions on treatment of a patient over time. Each rule corresponds to a decision point at which a decision is to be made on changing, modifying, augmenting, stopping, or starting treatment, and takes as input information on the patient up to that point. Based on this information, the rule outputs the next treatment action. Thus, dynamic treatment regimes are algorithms that allow sequential treatment decisions to be "individualized" through a principled, evidenced-based set of rules that attempt to operationalize and systematize the way clinicians manage patients in practice.

In this talk, we introduce the notion of a dynamic treatment regime and use the setting of evaluation of sequential courses of cancer therapy to demonstrate how statistical inference may be made on the effects of different regimes based on suitable clinical trials. We then discuss the issues and challenges involved in developing dynamic treatment regimes. An ongoing project involving the development of structured treatment interruption strategies for management of patients acutely infected with HIV-1 is discussed.

This talk reviews joint work with H.T. Banks, Jared Lunceford, Susan Murphy, Eric Rosenberg, Anastasios Tsiatis, and many others.