Hanga Galfalvy, Ph.D.

Columbia University

Evaluation of Prognostic Models For Suicide Attempt

ABSTRACT: Prognostic models for suicide attempt are statistical models that predict patient outcome from patient and disease characteristics, to inform medical treatment for the individual patients or to create risk groups. These models need to be evaluated on measures related to prediction, including discrimination (the ability to rank patients in order of observed risk) and calibration (agreement of predicted probabilities and observed frequencies of events). In this talk, I am going to discuss the feasibility of accurate predictions of future suicide attempt given the theoretical complexity of the underlying risk function, and give an example where models of suicide attempt, of different complexity and built for a different timeframe, are evaluated and compared against each other. The conclusion is that there are many models of similar predictive accuracy, which leaves room for other considerations (theoretical, clinical and practical) in refining the list of optimal models.

Scientific Program

11:00-11:45	**Susan Murphy, Ph.D.** **Dynamic Treatment Regimes,STAR*D & Voting**
11:45-12:00	**Discussion**
12:00- 1:30	**Lunch and Poster Session**
1:30- 2:05	**Sanghan Lee, Ph.D.** **Detecting active voxels considering the delay effect in task-based fMRI studies**
2:05- 2:20	**Discussion**
2:20- 2:55	**Ralitza Gueorguieva, Ph.D.** **Joint modeling of longitudinal measurements and interval-censored competing risk data**
2:55- 3:10	**Discussion**
3:10- 3:40	**Refreshment Break**
3:40- 4:15	**Hanga Galfalvy, Ph.D.** **Evaluation of Prognostic Models For Suicide Attempt**
4:15- 4:30	**Discussion**
4:30-	**Closing**

Directions (See accompanying map)

General: 415 Curie Blvd is in the University of Pennsylvania School of Medicine complex. It is approachable from University Ave. Curie Ave is the first light after veering left from 38th St on to University Ave. From University Ave, turn left on Curie Blvd and pass under a walkway bridge through a 4 way stop sign intersection. The Clinical Research Bldg (CRB) will be the first building on the right after the intersection. Enter at the entrance. The conference desk and auditorium will be on the left.

From 30th St Station: Take a cab to 38th St and proceed to the CRB as directed above.

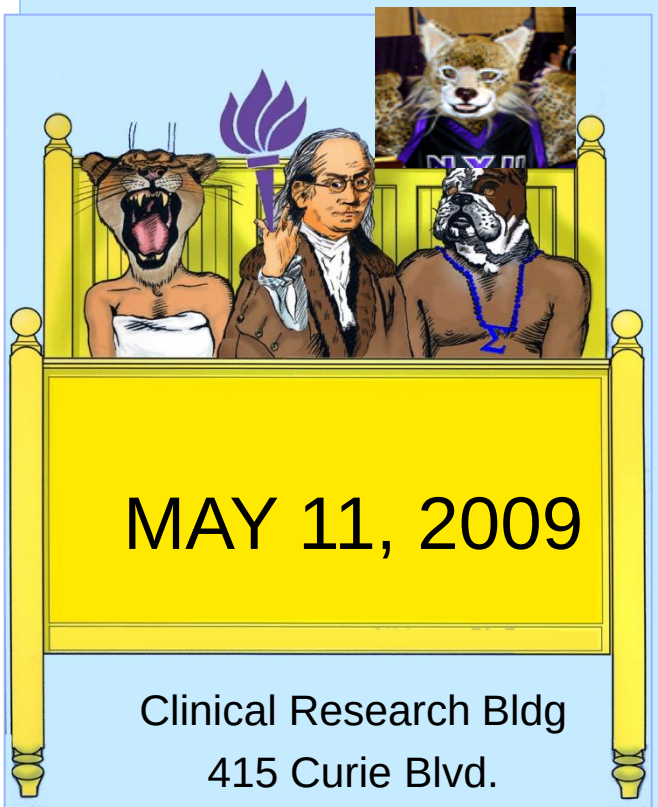
From Parking Garage at 38th and Walnut St: Turn left at 38th and Walnut Streets. Walk on the left side of 38th St, through an intersection (Wawa Store on the left), and then stay to the left as 38th St turns into University Ave (traffic lights). At the next intersection with a traffic light after veering left on to University Ave., turn left on to Curie Ave and follow above directions.

INFO: Tom Ten Have (215-868-1337)

The 11th Annual

SYMPOSIUM on *STATISTICS in PSYCHIATRY*

Hosted by the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania



MAY 11, 2009

Clinical Research Bldg
415 Curie Blvd.
Philadelphia, PA 19104

Susan Murphy, Ph.D.

University of Michigan

Dynamic Treatment Regimes, STAR*D & Voting

ABSTRACT: In clinical decision making, treatment decisions are adapted to the patient and then ynamically readapted according to patient needs and progress. Dynamic treatment regimes operationalize this sequential, clinical, decision making and thus permit us to use data to improve decision making. One method, originating in computer science, that is particularly useful in using data to construct dynamic treatment regimes is Q-Learning. Q-Learning is a generalization of regression for use in constructing dynamic treatment regimes. We illustrate the use of Q-Learning using the clinical trial, STAR*D (Sequenced Treatment Alternatives to Relieve Depression). In STAR*D each individual was rerandomized to new treatments each time the individual failed to respond to treatment. We introduce voting to provide a measure of confidence in these types of exploratory data analyses.

Sanghan Lee, Ph.D.

New York University

Detecting active voxels considering the delay effect in task-based fMRI studies

ABSTRACT: fMRI is widely used to study brain activity during different tasks. For some time now researchers have been aware of a temporal delays of blood-oxygen-level dependent (BOLD) signal in response to a stimulus. We use lagged-correlation to identify voxels that are active during the stimulus in order to take into account this temporal delay. Because the null distribution of the lagged-correlations is unknown, we use a nonparametric approach to calculate the p-value associated with each voxel. We permute input signal and compute lagged-correlation at each permutation. The pool of these lagged-correlations from input permutations is considered as the reference distribution. It turns out, the observed null distribution of z-transformed lagged-correlation is away from the theoretical null distribution, Normal with mean 0 and variance of 1. For this reason, we apply recent Efron's conditional FDR to judge the significance of voxel activation. Efron's conditional FDR also takes into account the dependency among the test statistics, which is a reasonable assumption in brain image data analysis.

Ralitza Gueorguieva, Ph.D.

Yale University

Joint modeling of longitudinal measurements and interval-censored competing risk data

ABSTRACT: Methods for joint estimation of longitudinal data and dropout have received much attention in recent years. However, all dropout is often treated the same while in reality it can occur for variety of reasons and information on dropout cause is often collected by investigators. Utilizing this information is likely to improve inferences and to provide better understanding of the association between cause-specific dropout and the outcome process. We propose a model that includes a linear mixed model component for the repeated measures outcome, parametric competing risks models for the cause-specific dropouts and builds in the association between the longitudinal series and the competing risks via shared random effects. Our model easily deals with interval censoring and allows for selection of best-fitting parametric model for each dropout reason. Furthermore, PROC NLMIXED is used for estimation and hence no complicated programming is required. We illustrate the model on data from the CATIE study in schizophrenia and investigate its performance via simulations.

.