Statistical and Epidemiologic Methods in HIV/AIDS Research
April 11-13, 2007

April 11, 2007 5:00pm Pre-meeting Registration and Welcome

April 12, 2007
(7:00-8:00am) Registration and Continental Breakfast

(8:00-8:15am) Welcoming Remarks (DAIDS)
Brief Meeting Overview

Session I Chair, Steve Self

Overview of Session. Stefano Bertozzi

1. Community Level Modeling Theme of this session is the interface between mathematical modeling and statistics in community-based studies. Topics include:
   - Martina Morris and Mark Handcock Defining models for the dynamics of infectious agents propagated within sexual networks and the integration of these models into study design and statistical inference.
   - Ira Longini
     Estimation of population and individual effects in community-based vaccine studies.
   - Laith Abu-Raddad HIV and malaria: When elephants flirt. The role of biological cofactors in HIV spread: Modeling the HIV and malaria interaction.

Q&A/Discussion/Discussant

Coffee Break (10:30-10:50am)

2. Genetic/genomic analyses in HIV Research

   - Mike Weale Mapping human genetic determinants of susceptibility and response to HIV infection.
   - Jian Huang General Methodology/Background Theory: Penalized Methods for Variable Selection and Estimation with High Dimensional Data
   - Tanmoy Bhattacharya Impact of phylogenetic relationships on the assessment of genetic associations.
   - Niko Beerenwinkel Viral Population Estimation using Pyrosequencing

Q&A/Discussion

Lunch (12:45 pm-1:45pm)
Plenary Speaker
Ross Prentice: Observational/Clinical Trial data: Lessons from WHI

(2:00pm) Session II Causal Inference
Chair, Victor DeGruttola

1. Mark Van der Laan Overview: Causal Inference Methods in AIDS Research:
   This presentation will provide an overview to some of the causal inference methods as applied to statistical problems in AIDS research, for example,
   - Relating HIV viral genotype to in-vitro phenotypic and clinical responses to treatment in an observational setting;
   - Statistical learning of realistic individualized treatment rules from observational data; and
   - Determining clinical strategies for switching treatment of HIV-infected patients on non-suppressive therapy.

2. Methodology
   - Jamie Robins Development of methods for estimating an optimal treatment strategy from observational and randomized trial data for developed and developing countries. These methods are applicable for determining when to start therapy and when to switch therapy among HIV infected subjects.

   - Dean Follmann Evaluation of surrogates using a potential outcomes framework, with application to immunological surrogate endpoints in a vaccine efficacy trial.

Discussion/ Panel

(4:30pm-6:30pm) Reception: POSTER SESSION
(7:30pm) Dinner

April 13, 2007

(7:30-8:30am) Continental Breakfast
(8:30-8:45am) Brief Remarks

Session III Observational Studies
Chair, Stephen Gange – Introduction

1.A. Donna Spiegelman
Pooling Data/Risk Prediction
- Insights on both pooling projects and HIV from both observational and trial perspectives
- Risk prediction models

1. B. Caroline Sabin

Pooling data from heterogeneous sources

- Issues with how to define common data elements and outcomes
- Aspects of design (e.g. minimal data criteria to participate?),
- Evaluation of data quality
- Heterogeneity across datasets/studies

Discussion

Break (10:45-11:00am)

2. Communicating Epidemiology Research

- Elena Losina Using Epidemiology data to inform policy
- Matthias Egger Standards in Epidemiology research and reporting

DISCUSSANT/DISCUSSION: Alvaro Munoz

(12:15-2:30pm) Lunch Session IV

Potential Round table discussions with box lunch.
Speaker/coordinator of discussion per table

1. Surveillance methods and inference from surveillance data to inform policy.
2. Epidemic Modeling with the goal of epidemic control.
3. International: Surveillance of HIV drug resistance;
4. Clinical Trials Monitoring involving factorial designs, stopping guidelines, repeated Confidence Intervals for curves.
5. Signal toxicity in randomized trials for adverse events and long term follow up of clinical trials using observational methods. Examples include chemokine antagonists, viral tropism, and Phase IV surveillance.
6. Statistical and epidemiology issues in the application of causal inference methods: Combining RCT and Observational data
7. Predictive Modeling: State of the art methods of developing predictive models with clinical utility.
8. Strategies for analyses with missing data
9. Multiple testing, multiple endpoints
10. Analytic issues with episodic, repeated exposures.
11. Analytic issues using and validating surrogate endpoints
12. Pediatric neurodevelopment, HIV pathogenesis/markers of progression in children
13. RCT in Prevention Research
14. When to start HAART: Study design(s) and analytic strategies to answer the Question.

Closing – wrap up of round tables and closing statements