

NYSPI Biostatistics Seminar Series¹

Predictive Modeling in Public Health and Clinical Studies

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3:30-4:30pm, New PI 6th Floor Multipurpose Room (6602)

Abstract

Predictive modeling is the extension of explanatory models that answer questions about potential outcomes under real or hypothetical scenarios. Depending on the objective, predictive models can use methods from biostatistics and/or mathematical modeling. Complexity of human behavior often requires using advanced and fast developing methods such as agent-based models. Predictive models are getting more popular in clinical and public health studies and are the methodological focus of my research.

I will illustrate the methodology and application of predictive modeling with three examples from my research. In one project we have developed an extension of random forest methodology to personalize assignment of alcohol patients to the most successful treatment. In another study we have developed an agent-based model that forecasted the risk of acquiring HIV from sexual and injecting behavior. The third project explores the dynamics of heroin use in the context of resilient drug market. We developed a formal model from narrative ethnographic research and showed how street brokers affect the resilience of heroin market. The model also allows one to provide a link between the social environment and the dynamics of individual drug dependence.

Biographical Note

Dr. Bobashev is a Senior Research Statistician at RTI International. He received his MS. in physics from the Department of Physics and Mechanics, St.-Petersburg Technical University (1989), a Ph.D. degree in Biomathematics from the Department of Statistics at North Carolina State University (1997) and had a postdoctoral training at the Departments of Mental Hygiene and Biostatistics, Johns Hopkins University.

Dr. Bobashev has over fifteen years of experience in mathematical/simulation modeling and

¹ The PI Biostatistics Seminar Series is held on Tuesdays at New York State Psychiatric Institute. If you are interested in receiving regular announcements for our seminars in the future, or if you need further information, please contact Jina James (jamesji@nyspi.columbia.edu, (212) 543-5589).

applied biostatistical methods. Currently he is a Principal Investigator on 4 NIH grants (jointly with Dr. Hoffer from Case Western University), on an R01 from NIDA, a PI (jointly with Dr. Garbutt) on an RC4 grant from NIAAA on treatment effectiveness for naltrexone treatment, a PI on a R03 grant on predicting alcohol consumption trajectories and a PI on R21 on systems modeling of drug recovery process. Since 2001 he has have served as project director on contracts with numerous government and pharmaceutical industry as well as a co-investigator on NIH grants.

In addition to his primary duties at RTI, he is a nonresident fellow at Brookings Institution, nonresident fellow at John Hopkins Center for Advanced Modeling, member of Industrial Advisory Board at the Institute for Advanced Analytics at North Carolina State University, and an adjunct Associate Professor at the Department of Biostatistics at the University of North Carolina.