

**University of California, Irvine
Statistics Seminar**

**Evaluating Community-Based Translational Interventions
Using Historical Controls: Propensity Score vs. Disease Risk
Score Approach**

**Luohua Jiang
Assistant Professor
Epidemiology
UC Irvine**

4 p.m., Thursday, November 12, 2020

Join via Zoom: <https://uci.zoom.us/j/99193076115>

Due to ethical and other considerations, many community-based translational projects of evidence-based interventions were designed as one-arm studies, using pretest-posttest design without a control group. For diabetes prevention projects based on the Diabetes Prevention Program (DPP) lifestyle curriculum, it is possible to evaluate the translational effectiveness of the intervention using historical control data from the DPP participants that are publicly available at NIDDK Central Repository. Inference based on historical controls could be subject to potential selection bias. We propose to use propensity scores and disease risk scores to adjust for this bias. Both propensity scores and disease risk scores can be used as data dimension reduction tools to summarize the information for a large number of covariates. Propensity scores have also been widely used to evaluate treatment effects for quasi-experimental or observational data. Yet, little is known about the performance of disease risk scores in those kinds of situations. We applied both methods to the data from the Special Diabetes Program for Indians Diabetes Prevention (SDPI-DP) demonstration project, a translational project of the DPP lifestyle intervention among American Indian and Alaska Native communities. The results using both methods will be compared and the advantages and disadvantages of each approach will be discussed.