Tuesday, February 24, 3:30PM-5:00PM
Concurrent Breakout Session D

Statistical Approaches to Rare Outcomes
Moderator: Russ Kirby, University of South Florida, Tampa, FL

Richard Charnigo, University of Kentucky, Lexington, KY

This breakout session will develop knowledge and skills for analyzing data sets with few events. Such data sets are sometimes described as having "small numerators". Data sets with few events present analytical challenges because the usual normal-theory methods (e.g., the Z test for comparing two proportions) cannot be applied. The breakout session will begin by familiarizing participants with alternative methods based on probability modeling with Poisson and Binomial distributions; practical skills will be emphasized over theory. Included will be techniques for constructing confidence intervals and performing hypothesis tests for an event rate or a ratio of event rates. The workshop will then proceed to alternative methods based on aggregation. The advantages and disadvantages of these two approaches will be enumerated. The workshop will conclude with a discussion of confidentiality issues as they pertain to rare events.

All of the methods introduced in the breakout session will be illustrated with real birth defects data. Participants will be given access to a website that they can visit at any later date. The website will include the presenter's script, sample Excel files and SAS code that provide templates for data analysis, and ancillary lecture notes with additional examples, theoretical details, and an annotated reference list.