COMPUTING POINT ESTIMATES AND 95% CONFIDENCE INTERVALS FOR POSITIVE/NEGATIVE SCREENING RESPONSES IN ENVIRONMENTAL EXPOSURE ASSESSMENT

Jimmy T. Efird

Center for Health Disparities Research and Department of Public Health, Brody School of Medicine, 600 Moye Blvd., Greenville, North Carolina, USA

Abstract: In evaluating the utility of a screening method, it may be desirable to compute the increased and decreased odds of having a positive test given the environmental response of a patient. Using general linear model methods, this paper demonstrated how to determine 95% confidence intervals for the true positive response rate divided by the false positive response rate as well as the false negative response rate divided by the true negative response rate. The corresponding conditional post-response probabilities are then computed given the pre-response probabilities. The resulting values are presented visually as a straight line connecting the patient’s prior probabilities and likelihood ratio responses.

Key words: Environmental screening, conditional probabilities, likelihood ratio responses