Spatial Spline Models for Estimation of Age-specific HIV Prevalence

Matthew Austin, Harvard University
Victor DeGruttola*, Harvard University

Abstract

The goal of this work is development of methods to make inferences on spatial and temporal variation in age specific HIV prevalence using data from antenatal clinics (ANCs) and other surveillance databases. Such data are useful to track the HIV epidemic in many areas of the world, and also to monitor the impact of initiation of HIV prevention strategies in different settings. Because it will not be possible to conduct randomized studies of combinations of HIV prevention strategies in most regions that could benefit from such interventions, it is essential to make use of existing methods of HIV surveillance to monitor the impact of prevention efforts. Challenges in using these data arise from the need to extend spline estimation methods to accommodate spatial correlation and to find appropriate ways to model such correlation. Spatial models of sexual networks can aid in suggesting such structures. Our methods are illustrated using data from Antenatal Clinics in Botswana.

* Presenting author