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Statistical Methods for Outbreak Detection

Unusual clusters of disease must be detected rapidly for effective public health interventions to be introduced. Over the past couple of decades there has been a surge in interest in statistical methods for the early detection of infectious disease outbreaks. The growth in interest has given rise to much new methodological work, ranging across the spectrum of statistical methods. The talk gives a review of the statistical approaches that have been proposed. Particular attention is given to scan statistics which can be used to detect and evaluate clusters of disease cases in either a purely temporal, purely spatial or space–time setting. Applications to real surveillance data are provided to illustrate the methods.