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Biostatistics Seminars
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Cluster-Randomised Test Negative Designs: Inference and Application to Vector Trials to Eliminate Dengue

Wednesday, October 14, 2020 - 3:30 pm – 4:30 pm - Zoom Link:
https://mcgill.zoom.us/j/86209677761?pwd=bGFidEduWnVSclJVV05NZFBmV3J3UT09

Abstract:
The successful introduction of the intracellular bacterium *Wolbachia* into *Aedes aegypti* mosquitoes enables a practical approach for dengue prevention through release of *Wolbachia*-infected mosquitoes. *Wolbachia* reduces dengue virus replication in the mosquito and, once established in the mosquito population, it is possible that this will provide a long-term and sustainable approach to reducing or eliminating dengue transmission. A critical next step is to assess the efficacy of *Wolbachia* deployments in reducing dengue virus transmission in the field. I will describe and discuss the statistical design of a large-scale cluster randomised test-negative parallel arm study to measure the efficacy of such interventions. Comparison of permutation inferential approaches to model based methods will be described. Extensions to allow for individual covariates, and alternate designs such as the stepped wedge approach, may also be briefly introduced. There are also interesting questions regarding interrupted time-series methods associated with analysing pilot site data. Final results of the trial have now been announced.

Bio:
Nicholas P. Jewell is currently Chair of Biostatistics & Epidemiology at the London School of Hygiene & Tropical Medicine, after a long career at the University of California, Berkeley, where he retains an appointment as Professor of the Graduate School. He works on the statistical design and analysis of studies regarding the spread and control of infectious diseases, in addition to other statistical issues associated with epidemiology and human rights. He is a member of the National Academy of Medicine, and a Fellow of the Royal Statistical Society, the American Statistical Association, the American Association for the Advancement of Science, the International Statistical Institute, and the Institute for Mathematical Statistics.
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