Course Title: Uganda Advanced Statistical Methods in Epidemiology

Course Title: 27ᵗʰ June – 8ᵗʰ July 2016

Venue: Uganda Virus Research Institute (UVRI), Entebbe

Course Organisers: Rebecca Nsubuga and Jonathan Levin (University of the Witwatersrand)

This is a two week course designed to build on the Ugandan Intensive Epidemiology and Statistics Course (UIESC) and aims to enable participants to understand, apply and interpret a range of more advanced techniques for the design and analysis of epidemiological studies.

The course is suitable for potential epidemiologists and biostatisticians and current researchers including clinicians, laboratory workers and social scientists, and is open to colleagues from the MRC/UVRI Unit and partner institutions. Prospective participants should have undertaken previous short courses or training up to the level of the UIESC.

By the end of the course, participants should be able to:

1. Select, apply and interpret the results of regression models for the analysis of case- control and cohort studies using Stata.
2. Plan a strategy of analysis for an epidemiological data set using appropriate methods.
3. Appreciate the effects of correlated data that arise due to clustering or repeated measures, on epidemiological analysis and understand the use of statistical methods which take such clustering into account.
4. Interpret and criticize the statistical methodology presented in published epidemiological papers.

Course Overview: The course will cover the following topics:

Revision of epidemiological and statistical concepts: measures of disease and effect, stratified analyses, regression models including logistic regression and the concept of likelihood.

Case-Control Studies: regression methods for case-control studies including unconditional and conditional logistic regression. Advanced design issues in case-control studies.

Cohort Studies and Survival Analysis: regression methods for cohort studies. Poisson regression and Cox regression. Time dependent variables. Further issues in the analysis of cohort studies.

Analysis of clustered and longitudinal data: multilevel models (linear mixed models and GLMMs) for analyzing clustered and longitudinal data. Design and analysis of cluster randomized trials.

Sessions:

Session 1: Measures of disease and effect
Session 2: Crude and stratified rate ratios
Session 3: Regression models for Quantitative Data
Session 4: Logistic regression I – effect of a single exposure
Session 5: Logistic Regression 2 – models with more than one variable
Session 6: Logistic Regression 3 – interaction
Session 7: Case Control Studies – logic, analysis, interpretation and matching
Session 8: Regression Analysis of Case Control Studies
Session 9: Strategies of Analysis
Session 10: Introduction to Group Exercise
Session 11: Revision of classical survival analysis
Session 12: Stratifying on time for cohort studies
Session 13: Likelihood I
Session 14: Poisson Regression for cohort studies
Session 15: Likelihood II
Session 16: Cox Regression for Cohort Studies
Session 17: Analysis of Correlated data 1
Session 18: Further Issues in the analysis of Cohort Studies
Session 19: Analysis of Correlated data 2
Session 20: Presentations from Group Exercise

Applicants must:

1. Be actively involved in research in a research organization

2. Have covered statistical and epidemiological methods roughly to the level of the UIESC; and so should be familiar with the basic principles of design and analysis of epidemiological studies and basic methods of statistical analysis of epidemiological studies including methods for dealing with confounding using stratification and also have some familiarity with regression analysis.

3. Have basic knowledge and skills in the use of the statistical package Stata, i.e. be able to write Stata do-files, understand Stata log-files and be conversant with simple Stata commands.

4. Have discussed the appropriateness of the course with their supervisor.

Application procedure and Course Fees:

Applicants should submit a completed application form and a letter of support from their supervisor, stating why the course is important for the work of the organization by email to the MRC Training Coordinator on this address: florence.amuge@mrcuganda.org

The application deadline is Monday 16th May 2016.

The cost of the course will be 500 USD. The course fee covers tuition, training materials, teas and lunches, but does not include accommodation. Participants should indicate on the application form whether they require accommodation and guidance on possible accommodation options will be provided.