



THE DEPARTMENT OF EPIDEMIOLOGY, BIOSTATISTICS AND OCCUPATIONAL HEALTH, - SEMINAR SERIES IS A SELF-APPROVED GROUP LEARNING ACTIVITY (SECTION 1) AS DEFINED BY THE MAINTENANCE OF CERTIFICATION PROGRAM OF THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

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Measuring Progress Towards Increased HIV Status Awareness in Sub-Saharan Africa: A New Model for Survey and HIV Program Data

MONDAY, 14 JANUARY 2019 / 4:00 pm – 5:00 pm

McIntyre Medical Building; Martin Room 504

3655 Promenade Sir William Osler

ALL ARE WELCOME

ABSTRACT:

Objective: HIV testing services (HTS) are a crucial component of national HIV responses. Testing is the entry point to accessing life-saving HIV treatment and care. Recognizing the critical role of HTS, the Joint United Nations Programme on HIV/AIDS (UNAIDS) launched the 90-90-90 targets such that by 2020, 90% of people living with HIV (PLHIV) are aware of their status, 90% of diagnosed PLHIV receive ART, and 90% of those on treatment have a suppressed viral load. Countries will need to regularly monitor progress on these three indicators. Estimating the size of the undiagnosed population (i.e., the “first 90”), however, is difficult.

Methods: We describe a new mathematical model to estimate HIV status awareness over time in sub-Saharan Africa that triangulates and combines population-based surveys and HTS program data. The proposed model is fully consistent with, and takes as inputs, existing model estimates used by UNAIDS for HIV prevalence, incidence, and ART cover-

age. It enables estimation of HIV testing and diagnosis rates over time by age, sex, and previous HIV testing history, and outputs estimates for awareness of HIV status.

Results: Model validation through in-sample comparisons suggest that it can accurately reproduce longitudinal sex-specific trends in HIV testing. Out-of-sample predictions of the fraction of individuals ever tested for HIV over a 5-to-6-year time horizon are also in good agreement with empirical survey estimates for PLHIV.

Conclusion: HIV status awareness is a key indicator to monitor progress, identify bottlenecks, and implement effective HIV responses to sustainably achieve high population-level viral load suppression. The proposed model can help countries track progress towards their “first 90”.

OBJECTIVES

1. To review how current UNAIDS estimates of HIV status awareness are obtained;

2. To understand how different data sources can be triangulated and combined using mathematical modeling;
3. To recognize the strengths and limitations of such mechanistic models.

BIO:

Mathieu Maheu-Giroux is an assistant professor in the Department of Epidemiology and Biostatistics at McGill University. His research spans the areas of infectious disease modeling, epidemiology and measurements, and impact evaluations. He received a Bachelor's degree in Biology from the Université de Montréal (BSc'03) and Master's degrees from McGill University in both Landscape Ecology (MSc'05) and Epidemiology (MSc'09). He then completed his doctoral training in Global Health and Population as a Fulbright Scholar at Harvard University (ScD'15) and postdoctoral training in mathematical modeling as a CIHR Bisby Fellow at Imperial College London. He is currently a FRQS Junior 1 Research Scholar.