Using statistics to guide response to the HIV epidemic

High Impact Medicine

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Outline

1. Background on small-area estimation of HIV indicators
2. Estimating HIV risk group proportions
3. Is this something you might want to work on?

1. Background on small-area estimation of HIV indicators

2. Estimating HIV risk group proportions

Background

- In sub-Saharan Africa, adolescent girls and young women (AGYW) aged 15-29 are 28% of the population but 44% of new infections
- This disparity is because of:
  1. Younger age at first sex
  2. Age patterns of sexual mixing
  3. Structural vulnerabilities and power imbalances
  4. Increased susceptibility to HIV infection

Figure 1: Tweet from UNAIDS

Prevention packages

- There are some prevention options ("core package") cheap enough they should be provided to all AGYW
- Other options ("intensified interventions") are more costly, and there are insufficient resources to offer to all AGYW

$\Longrightarrow$ How to prioritise interventions to have the greatest impact?

Stratified prevention

- Global AIDS strategy 2021-2026 proposed stratifying HIV prevention for AGYW based on
  1. Population-level HIV incidence
  2. Individual-level sexual risk behaviour
- These are the two most proximal drivers of sexual transmission

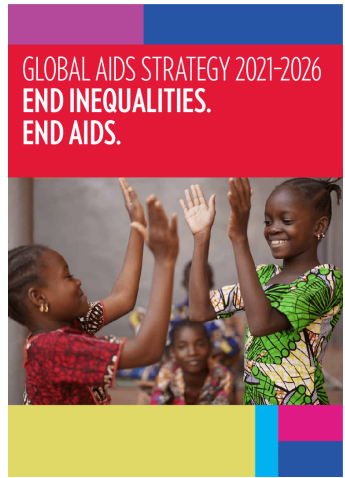

Figure 2: Global AIDS strategy

3. Is this something you might want to work on?

About me

- Maths undergraduate $\rightarrow$ statistics masters $\rightarrow$ statistics PhD
- Interested in impactful applications of statistics
- Limited domain knowledge in any given area! Need to collaborate!

Many skills are required

- Mathematics and statistics
- Computer science and software engineering
- Epidemiology and public health
- Health economics and behavioural science
- Implementation science
- ...

Thanks for listening!

- More information about me on my website athowes.github.io
- Feel free to get in contact if I can be useful at ath19@ic.ac.uk
- My PhD is supervised by Seth Flaxman and Jeff Eaton, and the risk group work is in collaboration with Imperial's HIV Inference Group and UNAIDS

MRC Centre for Global Infectious Disease Analysis

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