EPE338: USING ROUTINELY COLLECTED BLOOD DONATION DATA FOR EXPANDED HIV AND SYPHILIS SURVEILLANCE IN BLANTYRE DISTRICT, MALAWI

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Background

- WHO recommends all blood donations be screened for transfusion transmissible infections.
- However, these data are not incorporated into national surveillance systems in Malawi.
- We set out to use **routinely collected data from blood donors in Blantyre district, Malawi**, an area of high HIV and syphilis prevalence, to explore current HIV and syphilis prevalence and identify recent sero-conversions among repeat donors.
- We think these data are an **underutilised source of information** with great potential to contribute to TTI surveillance data sources and subsequent understanding of local variations in HIV disease burden over time.
- Therefore, through this analysis we aim to highlight the feasibility of using blood screening data to improve for HIV and syphilis surveillance.

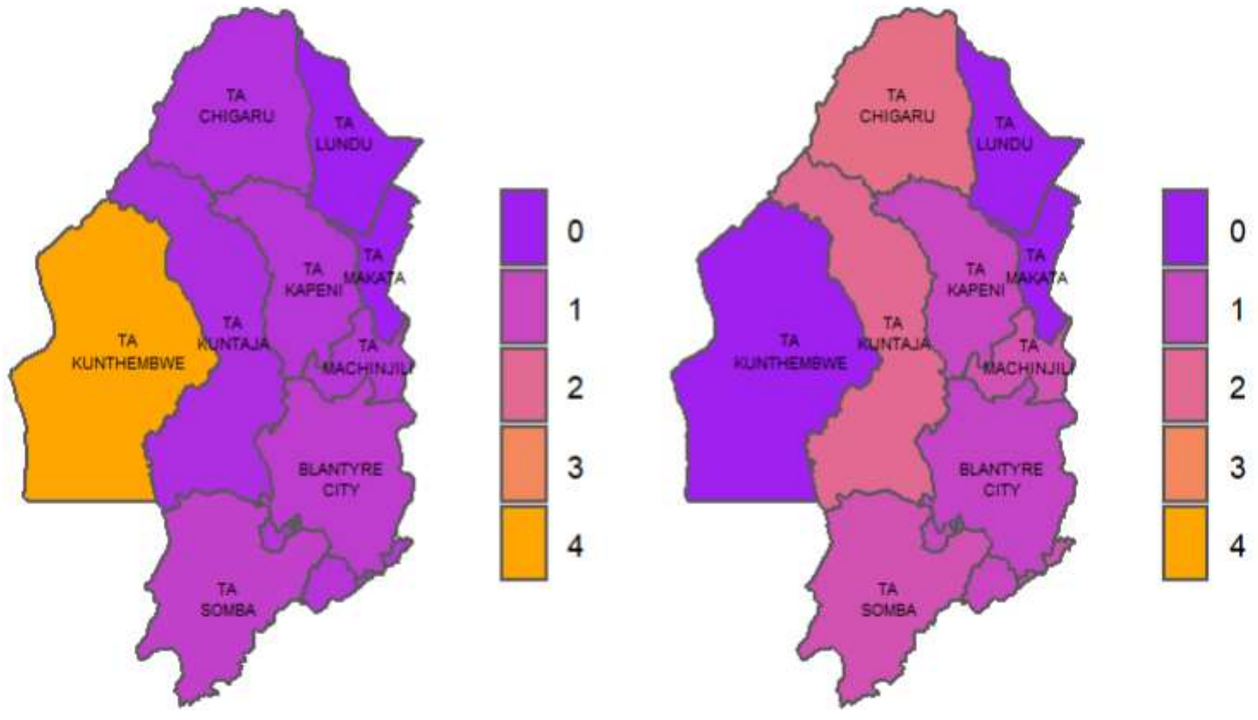
Methods

- We conducted a **retrospective cohort analysis of blood donation data collected in Blantyre** district by the Malawi Blood Transfusion Service (MBTS) between October 1st 2015 and May 31st 2021.
- All blood donations were routinely screened for WHO-prioritized transfusion-transmissible infections (TTI), including HIV and syphilis.
- We characterized donor demographics as well as screening outcomes, including identifying sero-conversions among repeat donors who previously tested negative.
- Logistic regression was used to model the impact of individual level covariates on the probability of sero-conversion.
- We used geographic information system tools to map the prevalence of both HIV and syphilis in Blantyre (Figure 1)

Results

- A total of **23,280 donations from 5,051 donors** were recorded, with 7 donors (0.1%) donating a maximum of 24 times.
- The majority of donors were male (4,294; 85%) and students (3264; 64.6%) at the time of their first donation.
- Of those screened for HIV and syphilis, 104 (2.1%, 104/5,051) and 206 (4.1%, 206/5,051) tested positive respectively.
- Among repeat donors who previously tested negative, **74 HIV sero-conversions** and **165 syphilis sero-conversions** were identified over the study period, indicating an **HIV incidence rate of 5.89 (4.69, 7.40) per 1,000 person-years** and a **syphilis incidence rate of 13.25 (11.37, 15.43) per 1,000 person-years**.
- Compared to men, female donors had a significant lower risk of any TTI seroconversion (Adjusted RR: 0.66; 0.46, 0.96), and also for both HIV and syphilis in univariate analysis but this significance disappeared when adjusting for other donor covariates such as age, occupation and marital status.
- We noted **differences in geographical distribution of prevalence of HIV and syphilis (Figure 1).**

Figure 1: Prevalence of HIV and Syphilis in Blantyre District



Conclusions

- Routinely collected data from national blood donation services may be used to enhance existing population-level disease surveillance systems, particularly in high prevalence areas.
- While blood donors are generally considered a low-risk population for HIV and syphilis, we were able to identify and characterize blood donor populations at increased risk of sero-conversion over the study period.
- This information will provide **insight into priority prevention areas in Blantyre district** and **help to inform targeted interventions for improved prevention, testing and treatment**.

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