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HIV seroconversion during pregnancy at routine antenatal care clinics in Botswana

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Background

- HIV acquisition risk is elevated during pregnancy.
- Existing estimates of maternal HIV incidence in HIV high-burden settings rely on costly research studies that may not be representative of the general population of pregnant women.
- In Botswana, adult HIV prevalence is 20% and antenatal care (ANC) attendance among pregnant women is high (97%) with universal HIV testing within ANC since 2014. To date, maternal HIV incidence has not been measured in Botswana.

Objective: To use programmatic data from routine ANC HIV testing to measure HIV incidence during pregnancy in Botswana

Methods

HIV testing support

- In 2015, I-TECH began working with the Botswana Ministry of Health and Wellness (MOHW) to strengthen implementation of routine HIV testing, including 139 facilities with ANC services.

Programmatic data collection

- To monitor real-time programmatic implementation, I-TECH expanded an existing health information system for electronic surveillance of individuals accessing HIV testing services.
- Information on individuals' age, gender, citizenship, and testing modality (e.g., clinic location, index testing, etc.) was captured.

Analysis

- Inclusion criteria: Women ≥15 years who tested for HIV at ANC clinics from January 2018 to September 2019.
- Exclusion criteria: Women who tested HIV-positive prior to their first identified ANC visit or indeterminate/missing HIV test result.
- We report the proportion of women with previously undiagnosed HIV infection that was detected at their first observed ANC visit.
- Among women who tested HIV-negative at their first observed ANC visit and had a repeat HIV test at a subsequent visit, we measure the frequency of HIV seroconversion during ANC.
- We report the overall number of individuals who tested HIV-positive and initiated ART at ANC.
- We use bi-variable logistic regression models to measure if age, citizenship, or location of the ANC clinic (i.e., urban vs. rural) were associated with testing HIV-positive or initiating ART.

Electronic data from Botswana's national HIV testing program was successful in **measuring** maternal **HIV incidence** within routine ANC.

Results, p1

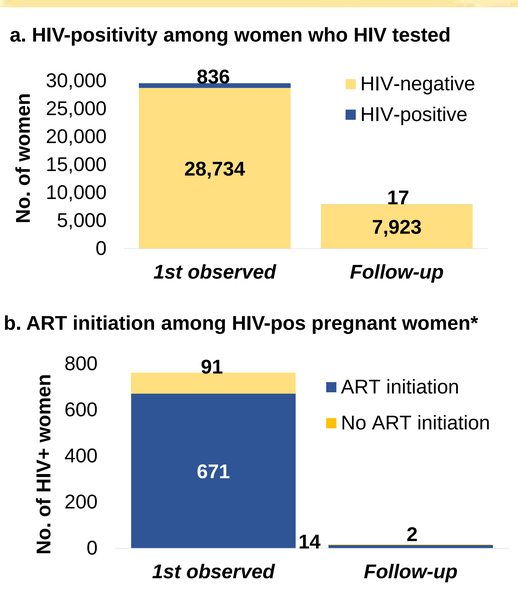


Fig. 1. HIV testing outcomes and ART initiation among pregnant women attending ANC in Botswana
**some missing data on ART initiation among HIV-pos women*

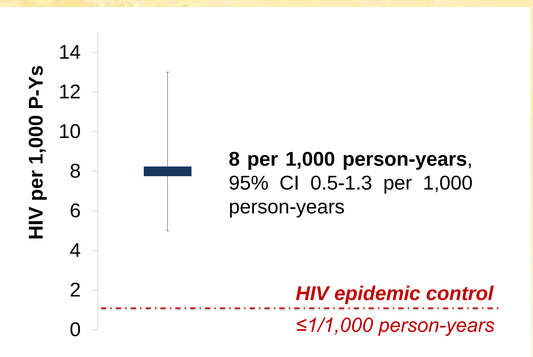


Fig. 2. Real-world maternal HIV incidence
Median time to HIV re-testing: 92 days (IQR 70-11)

Results, p2

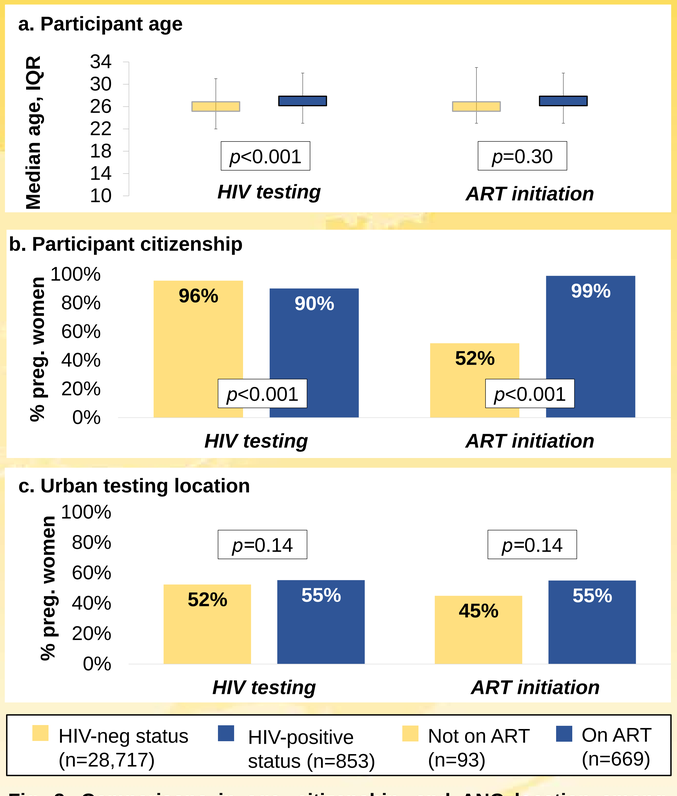


Fig. 3. Comparisons in age, citizenship, and ANC location among women with different HIV diagnoses and ART initiation statuses

Discussion

- In Botswana, real-world HIV incidence among pregnant women at ANC remains above levels of HIV epidemic control (**Fig. 2**).
- This study shows how HIV programmatic data can answer timely population-level epidemiological questions and inform ongoing implementation of HIV prevention and treatment programs.

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