Incident HIV infection among pregnant women in Botswana has decreased over time

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Aamirah Mussa[1,2], Gloria K. Mayondi[1], Modiegi Diseko[1], Judith Mabuta[1], Mompati Mmalane[1], Joseph Makhema[1], Shahin Lockman[1,3,4], Jeffrey W. Imai-Eaton[4,5], Sikhulile Moyo[1,4], Chelsea Morroni[1,6], Rebecca Zash[1,7], Roger Shapiro[1,5]

[1]Botswana Harvard Health Partnership, Gaborone, Botswana; [2]Usher Institute, The University of Edinburgh, Edinburgh, UK; [3]Brigham and Women's Hospital, Brigham and Women's Hospital, Boston, USA; [4]Harvard T.H. Chan School of Public Health, Boston, USA; [5]MRC Centre for Global Infectious Disease Analysis, School of Public Health, Imperial College London, London, UK; [6]Centre for Reproductive Health and Centre for Global Health, The University of Edinburgh, Edinburgh, UK; [7]Beth Israel Deaconess Medical Center, Boston, USA

BACKGROUND

- Women who acquire HIV during pregnancy are at increased risk for vertical HIV transmission
- The Tsepamo Study captures data on ~70% of all deliveries in Botswana and includes HIV testing dates and results during antenatal care
- We assessed whether HIV incidence among pregnant women in Botswana is declining by comparing data collected 2017-2021 and 2022-2024

METHODS

- Data collected from women who gave birth at 16 public maternity wards
- HIV seroconversion was defined as having an initial negative/indeterminate HIV test in pregnancy followed by a positive test during the same pregnancy or at delivery
- Seroconversion date was approximated as the mid-point between the last negative or indeterminate test and first positive HIV test
- Univariable logistic regression was used to identify factors associated with incident HIV during pregnancy

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Aamirah Mussa, MPH | Email: amussa@bhp.org.bw

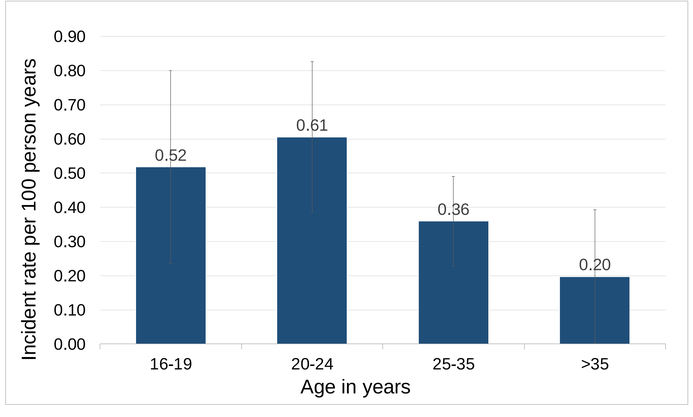
RESULTS

- Of 106,619 women who delivered between May 2017 to August 2021 with an initial negative/indeterminate HIV test, 86,282 (81%) had ≥2 test dates in the same pregnancy, with 223 seroconversions (0.26%)
- Of 51,013 women who delivered between September 2022 and September 2024 with an initial negative/indeterminate HIV test, 45,110 (88%) had ≥2 test dates in the same pregnancy, with 75 seroconversions (0.17%).

Table 1. Incidence rate and number of seroconversions in 2017-2021 vs 2022-2024

	May 2017 – August 2021 (n=82,282)	Sept 2022 – Sept 2024
Number of seroconversions per 1000 pregnancies	**2.58 (0.26%)**	**1.67 (0.17%)**
Incidence rate per 100 person-years (95% CI)	**0.69 (0.60–0.78)**	**0.43 (0.33-0.53)**

Figure 1. Incidence rate by age, 45,110 women with initial negative test in pregnancy and at least 1 subsequent test in same pregnancy (deliveries Sept 2022–Sept 2024)



- The incidence rate (IR) declined by **38%** between these periods (Table 1)
- Seroconversion was highest among the 20–24-year age group (IR: 0.61/100 person-years) but occurred across all age groups and in all geographic regions (Fig 1 and 2)
- **Risk factors for seroconversion (unadjusted analysis): age 20-24, being unmarried, not having salaried/self-employment, and having less than a tertiary level of education (Table 2)**

Table 2. Factors associated with incident HIV during pregnancy among women who delivered between (Sept 2022 – Sept 2024)

	Unadjusted odds ratio (95% CI)
Age (vs >35)	
11-19	2.24 (0.76-7.17)
20-24	**3.09 (1.08-8.78)**
25-35	1.90 (0.67-5.41)
Marital status (vs married)	
Single	**4.32 (1.06-17.6)**
Occupation (vs employed)	
Unemployed/housewife/student	**1.91 (1.11-3.29)**
Education (vs tertiary/equivalent)	
Secondary or below	**2.16 (1.11-4.20)**
Area/community (vs rural)	
Urban	1.05 (0.64 – 1.70)
Region (vs Western district)	
Southern/Southeast district	0.78 (0.49 – 1.26)
North-west district	0.76 (0.34 – 1.70)
Nationality (vs Motswana)	
Non-Motswana	0.75 (0.24 – 2.40)
Gravida (vs multigravida)	
Primigravida	1.18 (0.75 – 1.87)
Parity (vs nulliparous)	
Primiparous	0.95 (0.56 – 1.63)
Multiparous	0.76 (0.43 – 1.34)

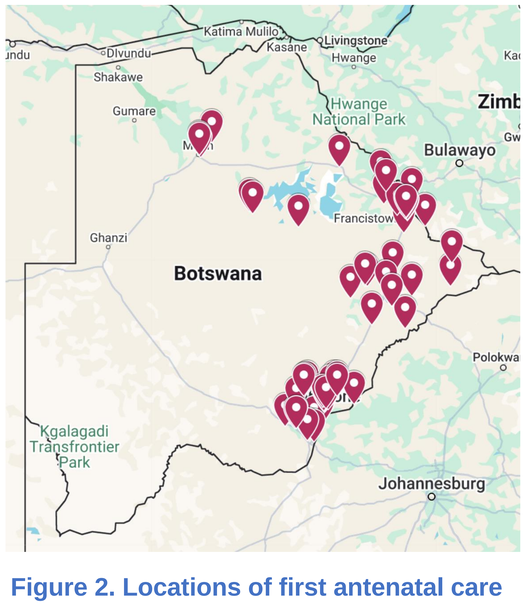


Figure 2. Locations of first antenatal care registration for pregnant women who seroconverted (Sept 2022- Sept 2024)

CONCLUSIONS

- **The seroconversion rate during pregnancy declined by 38% between 2017-2021 and 2022-2024**
- **HIV incidence remains high among younger women**
- **Long-acting injectable PrEP, which can prevent both maternal and subsequent infant infection, could strengthen HIV prevention efforts in this critical population**
- **This analysis provides evidence on whom to prioritize given limited supply of injectable PrEP**

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