

# Completeness of maternal HIV testing and repeat testing in Cape Town, South Africa: A longitudinal analysis

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## Introduction

The virtual elimination of mother-to-child transmission of HIV cannot be achieved without complete maternal HIV testing.

In 2014, the Western Cape Province prevention of mother-to-child transmission (PMTCT) guidelines recommended a repeat maternal HIV test between 32-34 weeks gestation and at delivery, in addition to testing at “booking”, the first antenatal visit ideally before 20 weeks gestation.

There are few published longitudinal studies on the uptake of repeat maternal HIV testing programmes in sub-Saharan Africa. We sought to address this gap by investigating the implementation of and adherence to “booking” and repeat maternal HIV testing PMTCT guidelines up until delivery in Cape Town, South Africa.

## Methods

### Sample acquisition:

Single, longitudinal HIV testing records for 8558 women were extracted from an electronic PMTCT register that consolidated routine antenatal, PMTCT and delivery data from a primary healthcare Midwife Obstetrics Unit and its referral sites in Cape Town.

### Data analysis:

We conducted a retrospective analysis investigating the completeness (up to and including delivery) of maternal HIV testing according to the PMTCT testing guidelines (descriptive statistics), HIV prevalence and incidence (descriptive statistics), and predictors of complete testing (logistic regression), among women who delivered between July 2014 – December 2016.

## Results

### Findings

Of 3356 women eligible to receive tests at all 3 timepoints according to the guidelines, only 10% received all 3 tests.

Of 6860 women eligible for testing at delivery, 15% presented for delivery with no record of prior antenatal care or HIV testing, i.e. “unbooked”, of whom 45% were tested at delivery.

At delivery, HIV prevalence and incidence (from first test to delivery) was estimated to be 21% and 0.2% respectively.

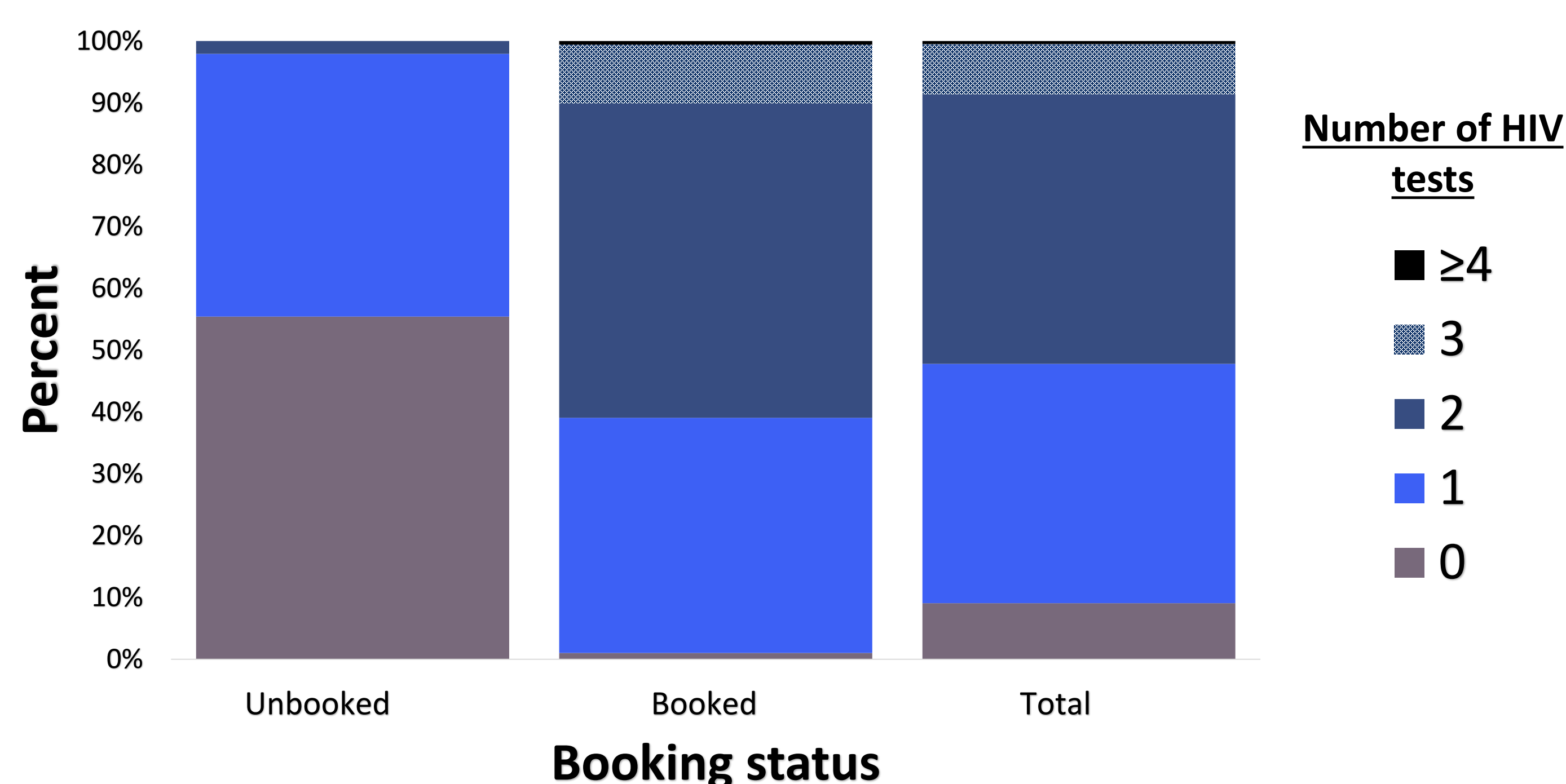
Women who enrolled in 2015/2016 (vs. 2014) were more likely to receive the 3 recommended tests (aOR 1.43; 95%CI 1.11–1.83) and to test at delivery (aOR 1.60; 95%CI 1.40–1.82).

### HIV testing completeness

**Table 1. HIV testing during pregnancy.** Only 43% of women not yet tested in current pregnancy received a test at delivery, of whom 1.5% were diagnosed HIV-positive.

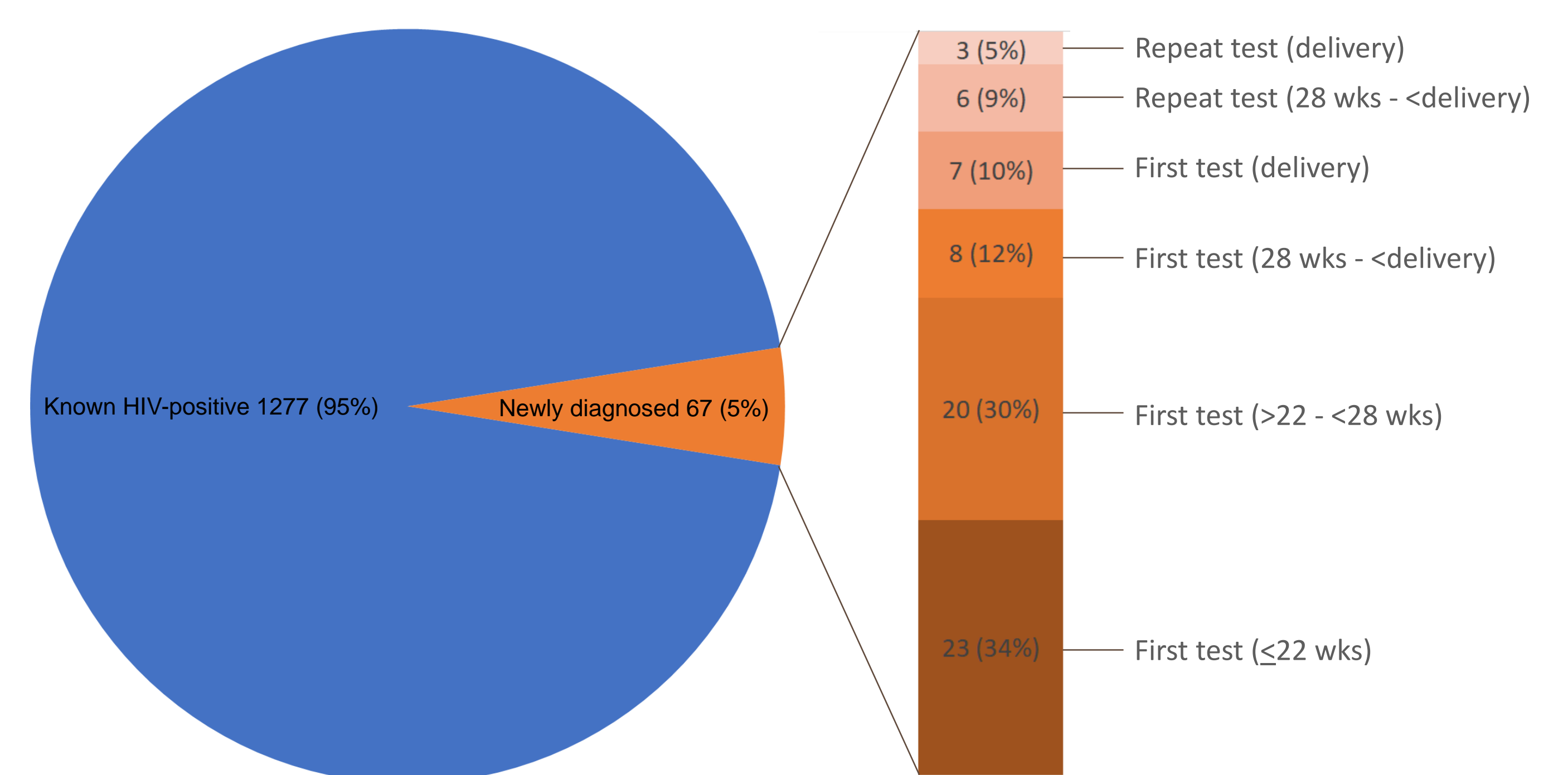
Testing point/window	Total women eligible for testing		Women not yet tested in current pregnancy			Women previously tested HIV-negative in current pregnancy		
	N	% tested	N	% tested	% positive	N	% tested	% positive
Booking	5894	98	5894	98	0.9	-	-	-
≤22 weeks	3408	99	3408	99	0.7	-	-	-
28 weeks – <delivery	5823	68	1319	94	0.7	4504	60	0.2
Delivery	6860	23	1105	43	1.5	5755	19	0.3

### HIV testing characteristics



**Figure 1. Number of HIV tests received, stratified by booking status.** 91% of women not known to be HIV-positive received ≥1 HIV test during pregnancy/delivery.

### HIV-positive diagnoses



**Figure 2. Diagnoses among HIV-positive women.** 95% of women were known HIV-positive before current pregnancy and 4% were diagnosed positive at their first visit.

## Conclusions

HIV testing completion at “booking” was high, but women tended to seek antenatal care late or not at all resulting in late initial testing and missed opportunities for early HIV diagnosis. Implementation of repeat HIV testing is poor, particularly at delivery.

A high proportion of women presented at delivery “unbooked” and remained untested. Targeted interventions to increase early antenatal booking and testing in this group of people should be a priority.

HIV incidence between first negative antenatal test and delivery is very low and further research is required to assess the most cost-effective and feasible frequency of HIV tests.

Overall, maternal HIV testing within the PMTCT programme in Cape Town has progressed post 2014 with improved completeness over time.

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