

A population-based estimate of documented completion of early infant diagnosis in Mashonaland East Province, Zimbabwe

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BACKGROUND

- HIV prevalence among women attending antenatal care (ANC) in Zimbabwe is 15.9%.¹
- In the absence of timely Early Infant Diagnosis (EID) and antiretroviral therapy (ART) initiation:
 - 1/3 of infants living with HIV die before their 1st birthday
 - 1/2 die before the age of two.²
- Multiple, paper-based registers document health services received by HIV positive pregnant women and their exposed-infants in Zimbabwe.
- Summarizing individual completeness of service uptake can only be achieved by manual tracing of individuals between registers.
- Outcomes of HIV positive women in the PMTCT program, including the proportion of mother-baby pairs who uptake timely EID are not routinely reported.

OBJECTIVE

- To establish the proportion of individual HIV infected mother-HIV exposed baby pairs with documented uptake of EID within 3 months of birth.

METHODS

From September to November 2014, we conducted a population-based survey in which individual HIV infected mother-baby pairs were followed through registers to better understand probability and determinants of completing EID.

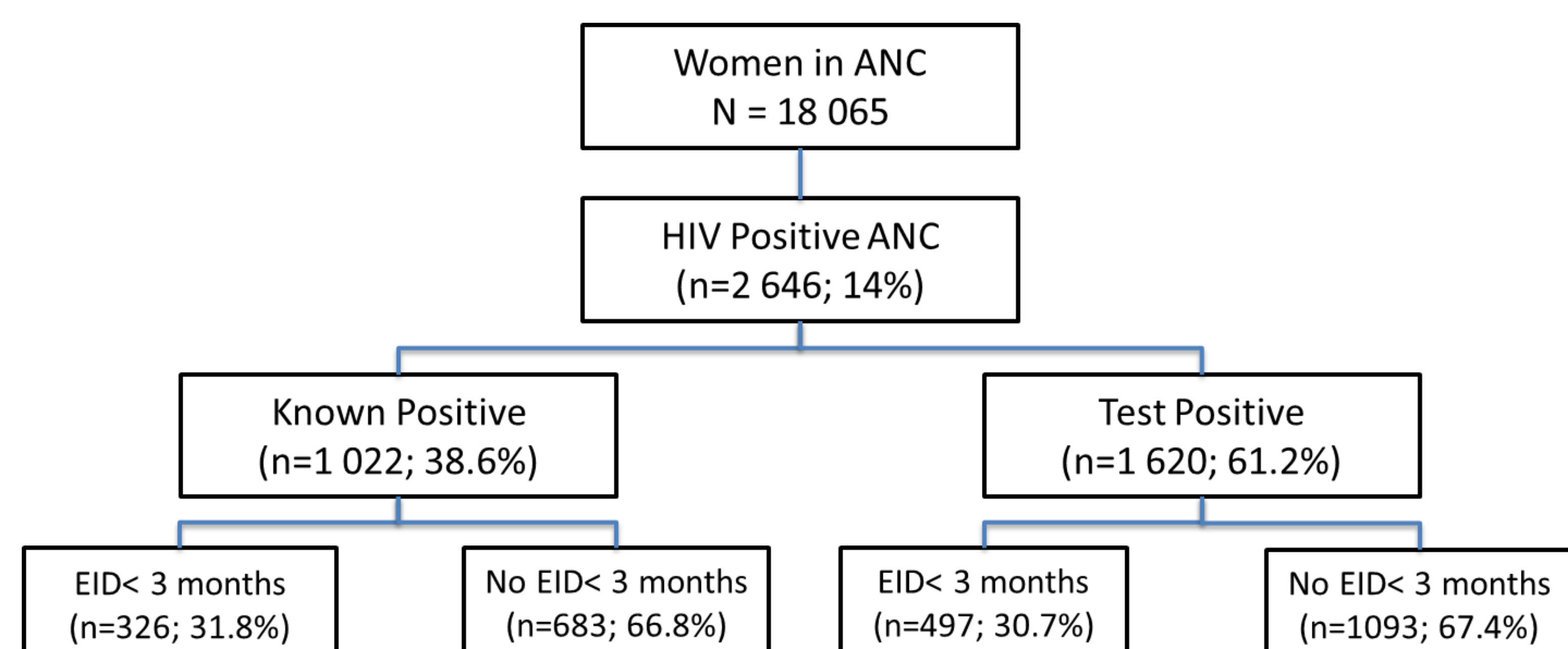
- We selected 45/193 health sites in Mashonaland East Province using a modified probability proportional to size schema based upon number of HIV positive women accessing ANC at each facility over the previous year.
- Outcomes of all HIV positive mothers enrolled in ANC at the sampled clinics from 26-Apr-12 to 30-May-13 were manually traced through 4 separate facility registers to determine documented uptake of EID for their HIV-exposed infant within three months of birth.
- We estimated the probability of EID completion in Mashonaland East Province using weights inverse to the probability of selection into the sample.
- Influence of routinely collected facility and individual factors on documented completion of EID was analyzed using Poisson regression with robust standard errors to estimate risk ratios using Stata v.13.

RESULTS

Population of women attending ANC

- Of 44 facilities sampled, we identified 2 651 HIV positive women among a population of 18 065 attending ANC (14.7%).
- 38.6% of HIV positive women presented to ANC with known HIV positive status. There was no significant difference in documented EID by HIV-exposed infants among women who entered ANC known positive vs. those who tested positive in ANC (Figure 1).

Figure 1. Proportion of known and test HIV positive in ANC with documented EID for exposed infants < 3 months of age



Documented uptake of EID

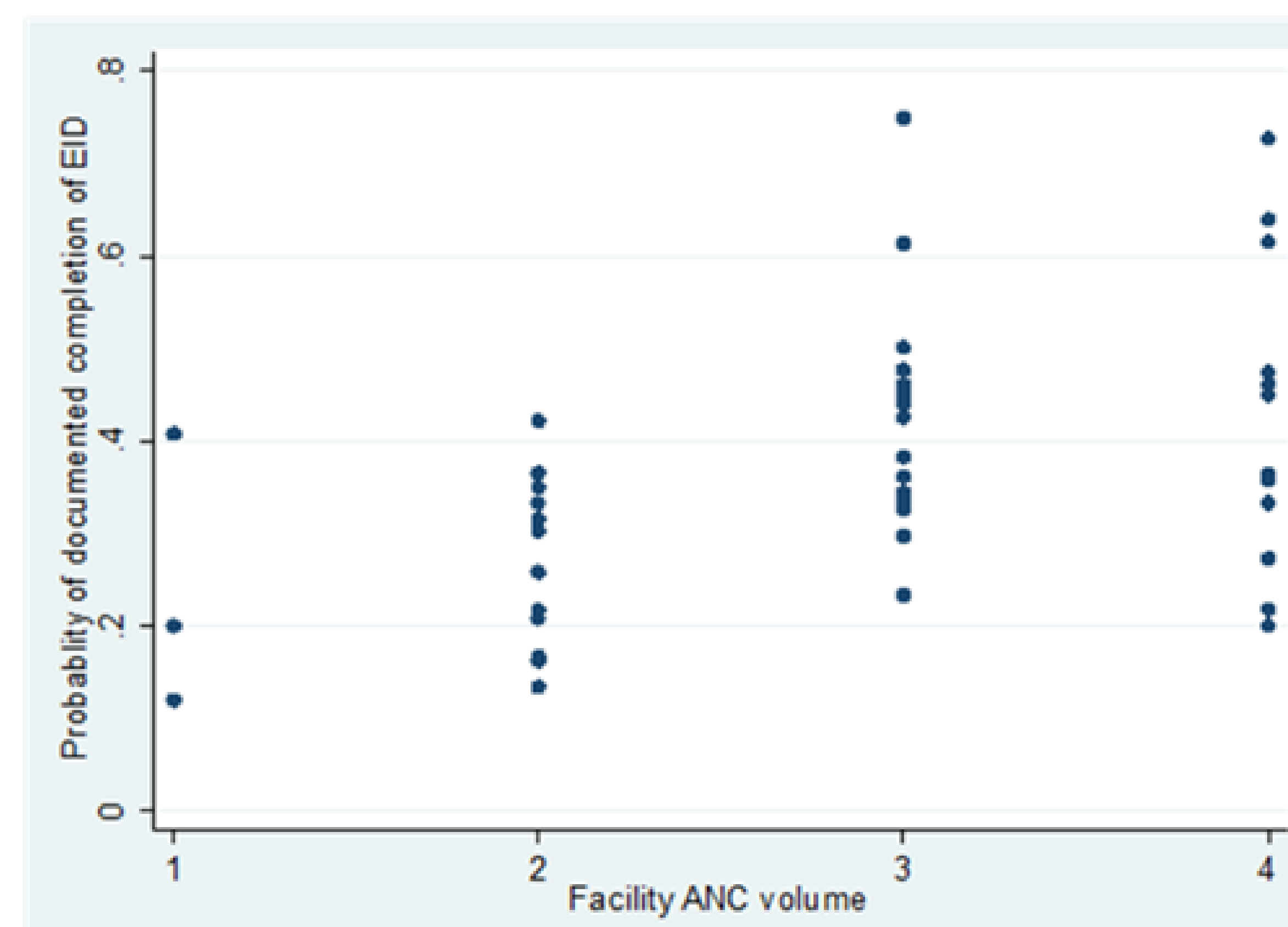
- Overall, 31.4% (n=831) of HIV-exposed infants had documented uptake of EID within three months.
- Among the 1 820 HIV positive women with no documented EID for their infants, 1 640 (90.1%) had locator information available to enable attempts at defaulter tracing.

RESULTS continued

EID by ANC site volume

- Average EID completion varied across ANC site volume (p< 0.01), but variability within groupings by site size was large and varied by more than 2-fold. (Figure 2)

Figure 2. Proportion documented EID among HIV positive women in ANC by site volume



Volume categories women in ANC April 2012-May 2013:
1 = 1001-1500; 2 = 501-1000; 3 = 201-500; 4 = 0-200

Factors associated with EID completion

- After adjustment, the following factors were significantly associated with EID completion:
 - Gestational age at presentation (Risk Ratio[RR]: 0.97 per two weeks; 95%CI:0.95-0.99; p< 0.01),
 - Later calendar time of ANC presentation (RR: 1.04 per 30 days; 95%CI:1.02-1.06, p< 0.01) and
 - Smaller site volume (Table 1)

Table 1. Documented EID Completion

Variable	Risk Ratio	p-value	95% CI
ANC Volume			
High: 1001-1500 (referent)	1	-	-
Med-High: 501 - 100	1.23	0.05	(1.00, 1.52)
Med-Low: 201 - 500	1.78	> 0.0001	(1.45, 2.19)
Low: 0 - 200	1.85	> 0.0001	(1.44, 2.38)

Poisson regression showing association of site ANC volume on the probability of documented EID completion. Association is adjusted for gestational age at presentation and calendar time.

CONCLUSIONS

- We observed low documented uptake for timely EID among a population-based sample of HIV positive women in ANC.
- Higher volume facilities demonstrated lower probability of documented EID completion.
- Dramatic variability within groupings by size indicate need for additional studies to understand facility characteristics related to size as well as local operational factors unrelated to size influencing retention of mother-baby pairs in services along the PMTCT cascade.
- The absence of documentation of EID is, however, not definitive evidence that EID was not completed – women may have completed EID at a different facility but it is not known how frequently this happens.
- Future research should seek to trace and document outcomes among mother-baby pairs with no documented uptake of timely EID to identify 'silent transfers' and determine true rates of loss to follow up.
- Ministry of Health and Child Care should be supported to rapidly expand electronic patient monitoring systems (EPMS) that enable efficient identification of defaulters and accurate determination of final status of individual HIV positive mothers and their infants in Zimbabwe's PMTCT program.

REFERENCES

¹Zimbabwe Ministry of Health and Child Care. National Survey of HIV and Syphilis Prevalence among Women attending Antenatal Clinics in Zimbabwe 2012. Harare: MOHCC; 2013.

²WHO/UNAIDS/UNICEF (2011) 'Global HIV/AIDS Response: Epidemic update and health sector progress towards Universal Access 2011).