Poster #790

Targeted HIV Screening at Birth Can Identify the Majority of *In Utero* Transmissions

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BACKGROUND

- Botswana tests for *in utero* and *intrapartum* mother-to-child HIV transmission (MTCT) by infant HIV PCR at age 6 weeks
- Limitations of this strategy include early mortality, loss-to-follow-up, and delayed treatment initiation for infected infants
- In 2015, Botswana-Harvard Partnership launched the Early Infant Treatment (EIT) study to identify HIV-infected infants at birth and offer immediate antiretroviral therapy

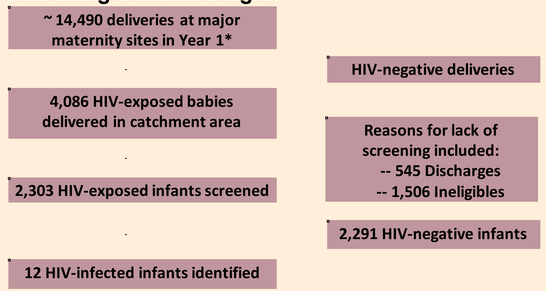
OBJECTIVE: Evaluate risk factors for *in utero* MTCT identifiable at delivery to determine the feasibility of targeted birth testing for infants at high-risk of HIV infection

METHODS

- Data evaluated from the first year of the EIT Study
- The EIT Study screened HIV-exposed infants at 5 hospital maternity wards and surrounding clinics in the Gaborone and Francistown regions of Botswana
- **EIT Inclusion Criteria:** Mother ≥ 18 years of age, gestational age at birth ≥ 35 weeks, birth weight ≥ 2000 grams, age < 96 hours, and eligible for antiretroviral treatment (ART) through the Botswana government program
- Consenting mothers were assessed for MTCT risk factors by their obstetric card or verbally
- Infants underwent heel stick and 3-5 dried blood spots were collected for testing by Roche Cobas Amliprep/Cobas Taqman HIV-1 qualitative PCR

RESULTS

Screening Consort Diagram



*Princess Marina Hospital, Scottish Livingstone Hospital, Nyangabgwe Hospital, Selebi Phikwe, adjusted for opening dates

369 (16%) of 2,303 infants considered "high risk"

In utero MTCT by Identified Risk Factors at Birth

	HIV positive infants with risk factor / Number screened with risk factor[§]
Any Risk Factor	12 / 369 (3.25%)
Less than 8 weeks maternal ART in pregnancy	9/157
Maternal CD4 known to be <250 at last test	1*/69
HIV RNA > 400 copies/ml at last test	3/6
Poor ART adherence reported in pregnancy	1*/16
Lack of infant post-exposure prophylaxis	0/12
No maternal zidovudine during labor	0/81
Other[Φ]	0/30
Unspecified	0/32

[§]403 total risk factors were identified among 369 infants with at least one risk factor
*Reported in addition to less than 8 weeks of maternal ART in pregnancy
[Φ]Other included last known CD4 between 250-350 cells/mm^3, birth before arrival at hospital, premature rupture of membranes, genital warts, or no antenatal care visits in pregnancy

Maternal Characteristics for HIV-Positive Infants

Baby	Maternal Age	High-Risk at Screening?	High-Risk Reason	ARVs prior to Pregnancy (ever)	ARV Regimen during Pregnancy	Adherence concerns during Pregnancy? [§]	Maternal CD4	Maternal VL
A	28.7	Yes	Less than 8 weeks maternal ART in pregnancy, poor ART adherence in pregnancy.	No	Atripla	Yes*	804	9,436
B	20.6	Yes	Detectable maternal viral load at last test	Yes	Truvuda, Kaletra	Yes	264	23,912
C	22.8	Yes	Less than 8 weeks maternal ART in pregnancy	Yes	Atripla	No	336	67
D	21.4	Yes	Detectable maternal viral load at last test	Yes	Atripla	No	184	125,093
E	29.2	Yes	Less than 8 weeks maternal ART in pregnancy, maternal CD4<250 in pregnancy.	No	Atripla	No	258	355
F	23	Yes	Less than 8 weeks maternal ART in pregnancy	No	None	NA	650	81,982
G	28.5	Yes	Less than 8 weeks maternal ART in pregnancy	No	None	NA	199	25,666
H	32.2	Yes	Detectable maternal viral load at last test	Yes	Atripla	No	177	54,974
I	30.4	Yes	Less than 8 weeks maternal ART in pregnancy	No	Atripla	No	791	1,389
J	26.5	Yes	Less than 8 weeks maternal ART in pregnancy	No	Atripla	No	626	2,467
K	29.9	Yes	Less than 8 weeks maternal ART in pregnancy	No	None	NA	227	2,349
L	27.4	Yes	Less than 8 weeks maternal ART in pregnancy	No	None	NA	Unknown	Unknown
Mean	**26.7**						**410.55**	**29,790**
Median	**27.95**						**264**	**9,436**

[§]Identified at enrollment
*Stopped after 2 weeks (more than 1 month prior to delivery) of ARV due to side effect

HIV-Positive Infant Characteristics

Baby	Child Baseline CD4	Child Baseline VL	AZT/NVP at Birth?	Age at first AZT/NVP dose (Hours)	Age at First Positive Test (Hours)
A	5,159	1,661	Yes*	114.5	18.5
B	1,995	17,244	Yes	25.3	13.6
C	1,854	1,636	Yes	21.3	25.5
D	1,021	1,111,950	Yes	7.0	15.9
E	1,556	1,375	Yes	2.4	9.8
F	1,748	>10,000,000	Yes	29.9	6.6
G	1,634	<40	Yes	0	39.2
H	1,950	60,247	Yes	3.5	19.9
I	1,671	3,145	Yes	4.2	40.1
J	2,616	1,005	Yes	1.6	44.8
K	2,177	272	Yes	23.0	36.5
L	---	---	---	---	---
Mean	**2,126**	**1,018,052**	**NA**	**21.2**	**24.6**
Median	**1,854**	**1,661**	**NA**	**7.0**	**19.9**

*4 days after delivery

CONCLUSIONS

- ***In utero* MTCT occurred only among infants identified as high risk at delivery, using information available from the mother or her obstetric record**
- **Targeting high risk infants will identify the large majority of *in utero* HIV transmissions**

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