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Clinical Transmission Rates to National Programme Transmission: Issues to Consider and Data Gaps

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Overview

- Factors to Translate Efficacy to Effectiveness
- How models are addressing it
- Data Availability and Gaps for Better (National) Modelling
- Sensitivity Analysis (using Spectrum)
- Getting More Data – Practical and Feasible?

Efficacy to Effectiveness

Factors Associated with PMTCT Effectiveness on Transmission

- CD4 and appropriate regimen
- Duration of and Adherence to ARV regimen
- IF practice by age and BF duration

Affects Transmission.
If we had complete data, biologically, can predict transmission rate

But

Data not always readily available at the national level

Current Data Availability and Issues

Data Availability	Implied Assumption in Models
CD4: Not always assessed; Not necessarily linked to ARV regimen received; No data reported to the National Level	*Women receiving appropriate ARVs based on their CD4;Distribution of CD4 is similar to the study population where transmission rates are extrapolated fm*
ARV Regimen and Duration: "Dispensed" rather than uptake In low institutional delivery countries; Duration of ARV unknown	*100% Adherence of full regimen assumed in countries that report/ aggregate national indicators based on "dispense"*
Infant Feeding Practice and Duration: IF intention at birth; Data from latest population-based surveys	*Country distribution of infant feeding practice is the same over a few yrs and infant feeding practice among HIV+ and HIV- are the same*

For National Level Modelling

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How are models addressing effectiveness?

- CHAI
  - CD4: No adjustment. Assume CD4 characteristics of population transmission rate is derived from.
  - ARV: No adjustment. Assume full regimen received, as in guidelines or clinical trials
  - Infant Feeding: No adjustment. One infant feeding practice and duration, extrapolate predominant mode

- PEPFAR
  - CD4: No adjustment. Assum[illegible] f population transmission rate is deri[illegible] nsmission by CD4)
  - ARV: All eligible get[illegible] (Tracy). Assume full regimen receive[illegible]
  - Infant Feeding[illegible] by age and duration

No Data

- Spectrum
  - CD4:No adjustment. Assume CD4 characteristics of population transmission rate is derived from. (Future version can consider this)
  - ARV: No adjustment. Assume full regimen received, as in guidelines and clinical trials
  - Infant Feeding:Population-based survey data as default for infant feeding practice by age and median breastfeeding duration.

What's the Difference?

- CD4: If HIV+ pregnant women eligible for ART receives Option A, transmission likely to be higher.

If 40% expected to be eligible for ART, and only 10% received ART, 30% may have a higher transmission than expected.

- ARV:

Adherence-PEARL Study (sd-NVP): 51% in 4 countries (Cameroon, Côte d'Ivoire, South Africa, and Zambia) between June 2007-October 2008. Lusaka, Zambia in 2005: 68%.

Duration- <4 weeks vs > 4weeks?, duration of post-natal coverage

- Infant Feeding

-HIV+ vs HIV-: DHS analysis, interpret with caution (n<50 for HIV+), 84%HIV+ vs 77% HIV- breastfeeding a12-23 months. More HIV+ women than HIV- women not breastfeeding

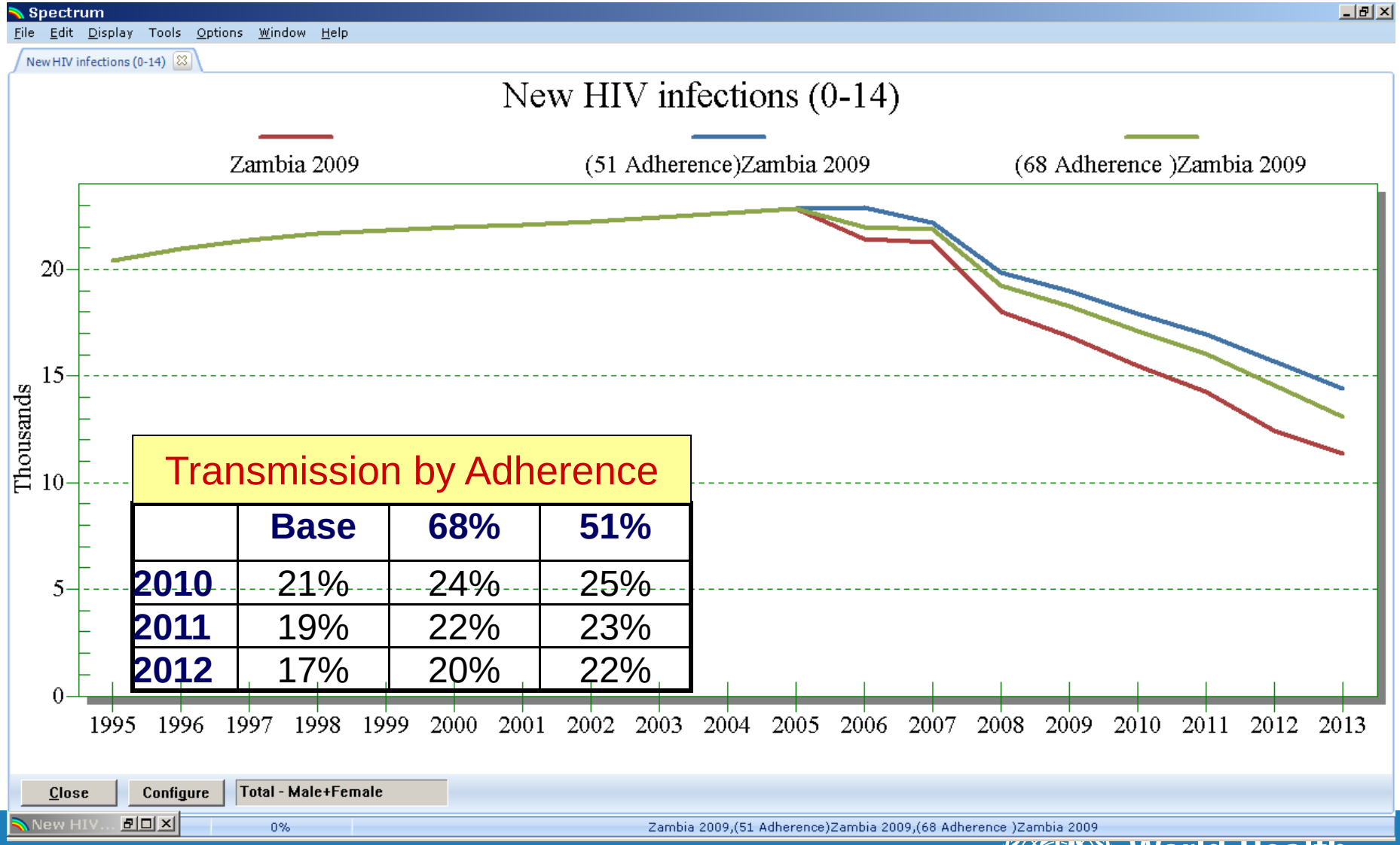
Change over time: Zambia DHS Data

- <2 months EBF: 86% (2007) vs 66% (2001-2); <6 months: 61%vs 40%
- Median BF: 20.6% (2007) vs 22.1%(2001-2)

Facility-level data:

- IF < 6 months (n=1,078) EBF=82%, MF=15%, RF=4%
- 87.3% agreement between health staff and exit-interview assessment

…Translated into Infections Averted and Transmission



Transmission by Adherence

	Base	68%	51%
2010	21%	24%	25%
2011	19%	22%	23%
2012	17%	20%	22%

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Next Steps for Consideration: Sensitivity Analysis

- Systematic sensitivity analysis when data input may be questionable.

Possible parameters:

-Account for adherence by reducing PMTCT input (of # women receiving ARV regimen)

-Account for CD4 distribution by adjusting transmission rates (once matrix is available); try regimen-CD4 categories (eligible receiving and not receiving)?

-Account for infant feeding practice, by including some different ranges, with and without ARVs

How variable is it? Weighing the cost and utility of additional data collection efforts.

Addressing Data Gaps

- **Adherence:** Implementation research on practical ways to monitor nationally representative trends on adherence; getting a handle of real uptake
- Through community health workers;
- Through post-natal ARV indicator to be collected at 3 months (an opportunity to collect retrospective data on ARV duration and adherence in settings with low health facility delivery?) ;
- Data extraction;
- Add uncertainty range on # receiving ARVs

- **CD4/Clinical stage:**
- Summarize default CD4 distribution observed in selected countries
- Extracting nationally-representative CD4 information; overtime
- Compare distribution of CD4 distribution at ANC vs all HIV+ women

- **Infant Feeding Practice**
- Nationally recommended indicator: Infant Feeding practice among HIV-exposed infants at DPT3 visit (14 233ks). Will be piloted in Lesotho nextF

- Some guidance to countries that may wish to model impact on transmission to begin with, and can look into maternal and child health survival as a next step.