
Review of modelling outputs

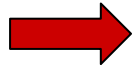
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Develop a model....

- ➔ To predict outcomes
- ➔ To forecast needs
- ➔ To adapt decision making to country setting
- ➔ To target interventions
- ➔ To monitor and evaluate
- ➔ To...



Sources



Spectrum software by

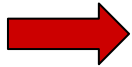


UNAIDS
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

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Estimating the number of vertically HIV-infected children eligible for antiretroviral treatment in resource-limited settings

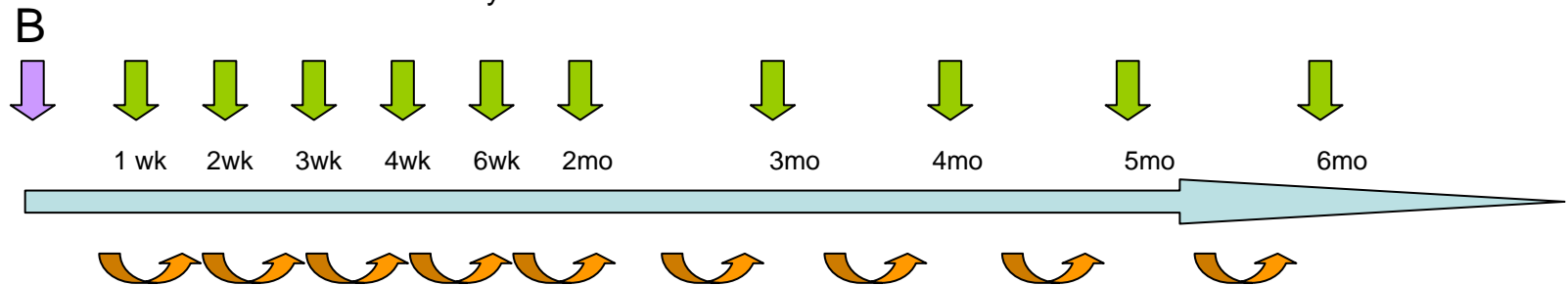
Kirsty Little,¹ Marie-Louise Newell,^{1*} Chewe Luo,² Ngashi Ngongo,² Mario Cortina Borja¹
and Peter McDermott³

Assumptions

- ✓ ANC HIV prevalence is a proxy for HIV prevalence in pregnant women.
 - ✓ Birth mortality is the same in children born to HIV infected and uninfected mothers.
 - ✓ Time specific SE and SP from published literature
 - ✓ Transmission rate at birth is 0.1 for SD NVP and 0.2 for no PMTCT at all.
 - ✓ Breastfeeding risk transmission 0.00028/day
-

Formula

Variables: Population
Birth rate
ANC HIV prevalence
PMTCT coverage
Breastfeeding practice
Test Sensitivity



Newly infected

All the newly infected will be detected at a each time period according Birth-specificity.

All the other infected will be detected at each time period with a certain SE related to their time of infection

(i.e. infected at week 1 will be detected at week 2 according 1week-sensitivity, at week 3 according 2week-sensitivity...and so on)

Nigeria

Diagnosis of HIV infection in infants

Population

140.000.000

Birth rate

3.5%

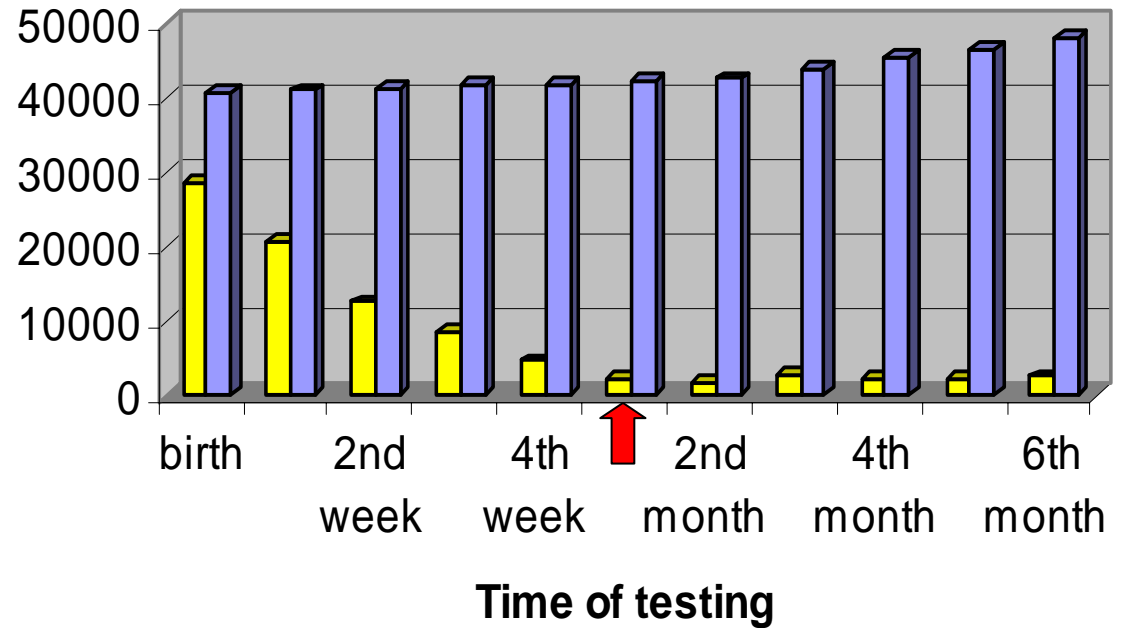
ANC HIV prevalence

4.4 %

PMTCT coverage

11 %

Children



➔ 215600 HIV exposed

■ Missed diagnosis ■ Infected

India

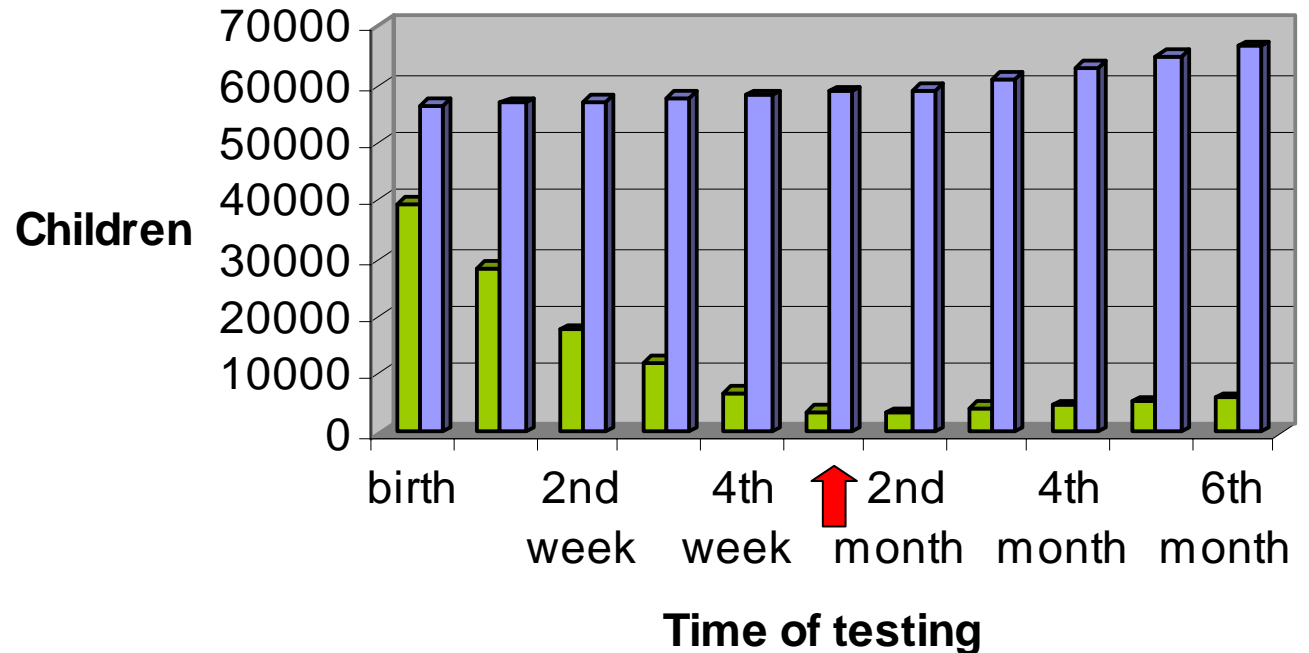
Diagnosis of HIV infection in Infants

Population 2005
1.121.914.000

Birth rate
2.65%

ANC HIV prevalence
1% (2005)

PMTCT coverage
9.95%



➔ 297.307 HIV exposed

■ Missed diagnosis ■ Infected

Malawi

Diagnosis of HIV infection in infants

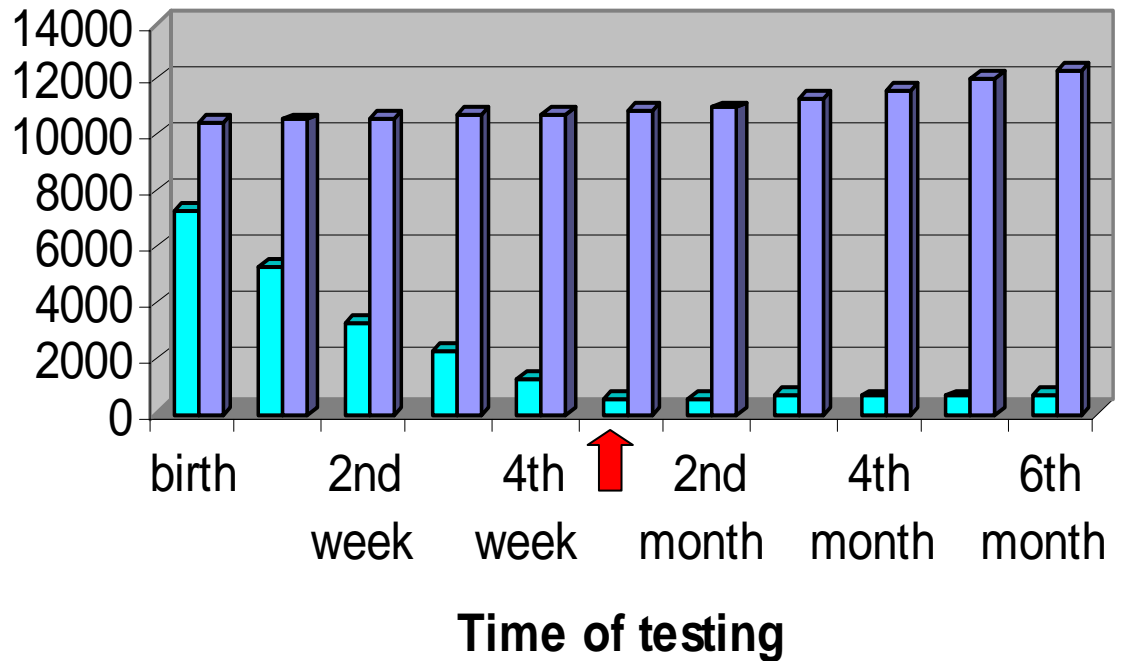
Population 2007
12.884.000

Birth rate
3.4%

ANC HIV prevalence
12.60% (survey 2007)

PMTCT coverage
11%

Children



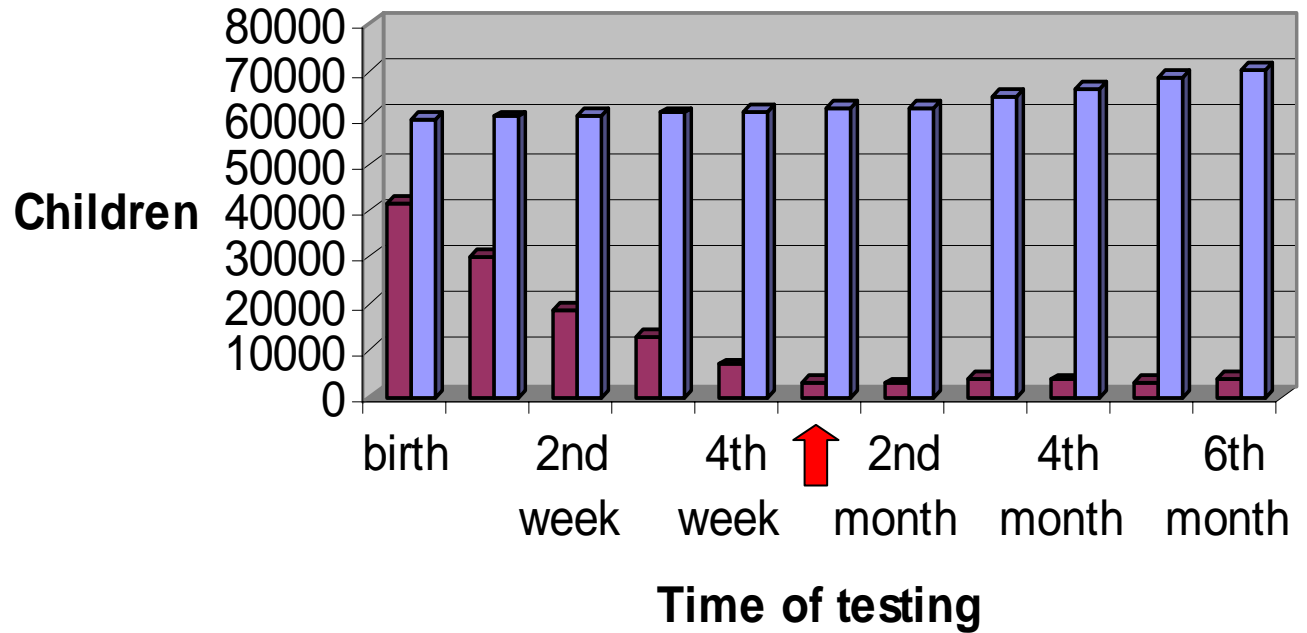
➔ 55195 HIV exposed

■ Missed diagnosis ■ Infected

South Africa

Diagnosis of HIV infection in infants

Population 2004
47.432.000
Birth rate
2.38 %
ANC HIV prevalence
27.90% (2004)
PMTCT coverage
11 %



➔ 314958 HIV exposed

Missed diagnosis Infected

Mortality

South Africa	tot infected BF	missed diagnosis in BF%	Deaths	Cumulative Deaths	Alive To be treated (because detected)
birth	59527	0.70	0		41668
1st week	60012	0.50	180	180	30020
2nd week	60497	0.30	0	180	18404
3rd week	60980	0.20	486	666	12528
4th week	61463	0.11	2910	3576	6430
6th week	61944	0.05	0	3576	3131
2nd month	62425	0.04	4200	7776	2421
3rd month	64445	0.05	4380	12156	3149
4th month	66450	0.05	2860	15016	2721
5th month	68438	0.05	2140	17156	2560
6th month	70410	0.05	1900	19056	2730

Is 6 weeks the optimal time to perform virological test in order to maximize diagnosis and minimize mortality?

Thank you

Acknowledgements:

DE Bourne, LL Brody, ML Thompson, MF Cotton, B Draper ,R Laubscher ,MF Abdullah , JE Myers
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