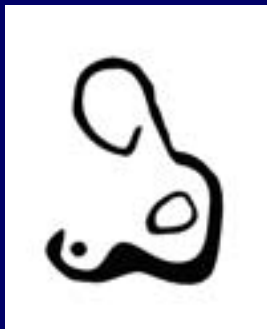




# HIV transmission and mortality associated with exclusive breastfeeding: Implications for counselling HIV-infected women

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# Acknowledgements

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# Infant feeding counselling



**UNICEF/WHO/UNAIDS recommendations (2000)** on infant feeding choices recommend that:

- When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended
  - Otherwise, exclusive breastfeeding is recommended during the first months of life
- The recommendation to EBF was based on the benefits EBF offers with respect to preventing diarrhoea and other morbidity and not because any preventive effect it may have on HIV transmission

# Infant feeding counselling



**UNICEF/WHO/UNAIDS recommendations (2000)** on infant feeding choices recommend that:

- When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended
- Otherwise, exclusive breastfeeding is recommended during the first months of life
- HIV-infected women should be given '*specific guidance in selecting the option most likely to be suitable for their situation*' i.e. promote informed and free choice of infant feeding methods for HIV-infected mothers

Assumes accuracy of information and that women can enforce their 'choice

# Vertical Transmission Study



- September 2001 and September 2004
- 2722 mothers and infants followed-up
  - 1372 HIV infected + 1345 HIV uninfected (5 indeterm.)
- Rural/peri-urban - 81.2%; Urban – 18.7%
- Counselling antenatally (x4) on infant feeding options
- Supported postnatally in their choice
- Visited weekly to collect feeding and morbidity data
- Blood samples collected monthly to determine HIV status



# Analyses

- Standard WHO definitions of EBF and RF
- Cumulative EBF rates determined using daily records of feeding practices based on 6-9 day recall period
  - Previous studies have reported infant feeding practices based on past 24 hours / 6 week or 3 month recall intervals
- Infants were excluded from the analysis if there were more than five days of missing infant feeding data in any 30 day period



# Feeding practices

- Of the 1372 HIV infected women
  - 1132 (82.5%) initiated EBF,
  - 109 (7.9%) replacement fed, and
  - 35 (2.5%) a mixture of breast milk and other fluids/feeds
  
- 114 women initiated EBF and later left the study
  - 45 subsequently moved,
  - 35 withdrew,
  - 34 were lost-to-follow-up,

*~ 80% were still EBF at the time of last contact*
  
- Complete feeding data on 1276 women

# Initial infant feeding practices and household / immunological characteristics

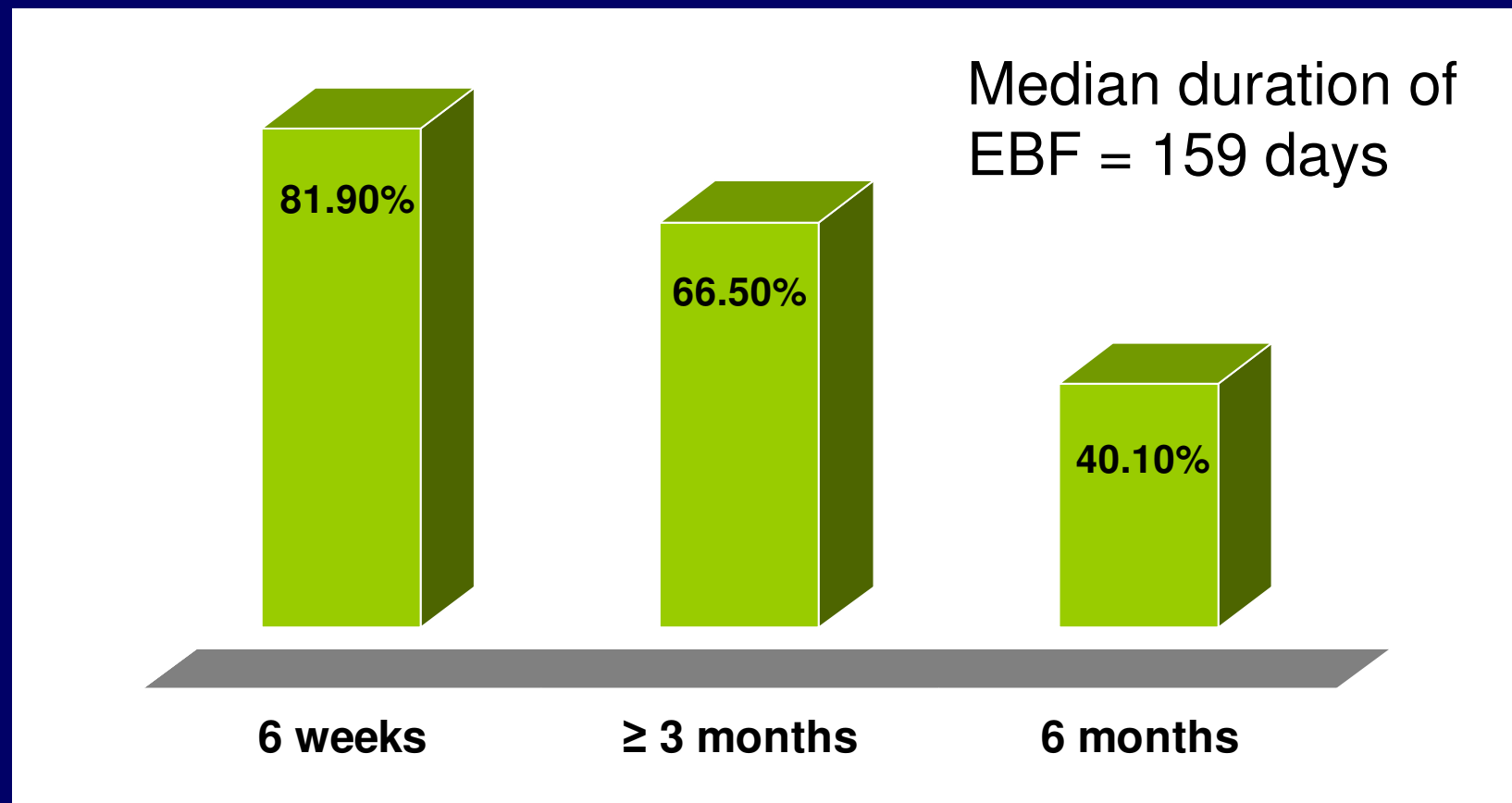


- Significantly more likely to EBF if using river water or if no toilet available
- Significantly more likely to RF if piped water available or if flush/chemical toilet available or if mother herself is main income provider
- House material (brick vs. other) and gender of infant were not associated with different feeding preferences
- Significantly more likely to EBF if CD4 count  $>500$  and more likely to RF from birth if CD4 count  $<200$

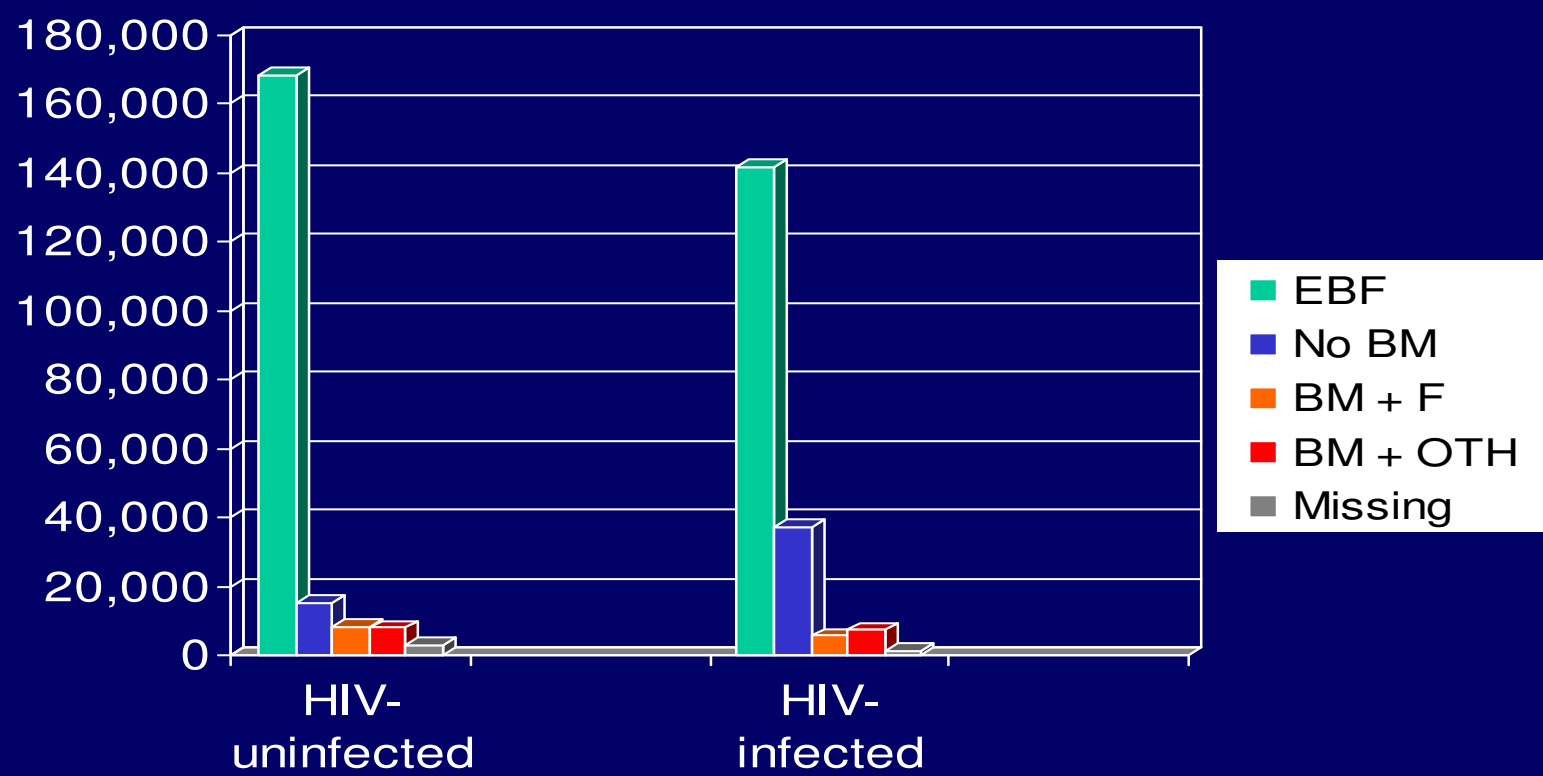




# Duration of cumulative EBF in those with HIV test result (n=1037)



# Feeding modes per total days of follow-up





# HIV point prevalence - all

## 4-8 weeks

- $150 / 998 = \underline{15.03\%}$  (95% CI 12.86-17.40%)

## 20-26 weeks

- $208 / 962 = \underline{21.62\%}$  (95% CI 19.06-24.36%)



# HIV point prevalence - EBF

## 4-8 weeks

- $114 / 760 = \underline{15.00\%}$  (95% CI 12.54-17.73%)

## 20-26 weeks

- $80 / 497 = \underline{16.10\%}$  (95% CI 12.97-19.63%)

# Estimated KM cumulative HIV transmission risk



**Amongst EBF infants, HIV negative at, or after 4 weeks**

After 1 month EBF exposure	1.06%
After 2 months EBF exposure	2.20%
After 3 months EBF exposure	2.74%
After 4 months EBF exposure	3.34%
After 5 months EBF exposure	4.04%

**Estimated risk per 100 child years of EBF exposure = 10.72  
(0.89 per month EBF exposure)**

# HIV transmission risk while exclusively breastfeeding (n=1034)



Variable	N	HR	p	CI	Adj HR	p	CI
<b>Maternal Age</b>							
< 20 yr	162	1.0					
20-<30	634	1.94	<b>0.010</b>	<b>1.17-3.23</b>	<b>1.88</b>	<b>0.016</b>	<b>1.13-3.14</b>
30+	234	1.42	0.239	0.79-2.54	1.25	0.466	0.69-2.25
Missing	4	3.21	0.258	0.43-24.10	2.23	0.437	0.29-17.1
<b>Maternal CD4</b>							
> 500 cells	412	1.0			1.0		
200-500 cells	463	2.43	<b>&lt; 0.001</b>	<b>1.66- 3.55</b>	<b>2.44</b>	<b>&lt;0.001</b>	<b>1.67- 3.58</b>
< 200 cells	106	3.90	<b>&lt; 0.001</b>	<b>2.43- 6.26</b>	<b>3.79</b>	<b>&lt;0.001</b>	<b>2.35- 6.12</b>
Missing	53	2.72	0.003	1.42- 5.22	3.04	0.001	1.58- 5.86
<b>Birth weight</b>							
Over 3500 gm	229	1.0			1.0		
2500-3500 gm	649	1.12	0.584	0.75-1.65	1.07	0.748	0.72-1.59
Below 2500gm	108	2.10	0.004	1.27-3.48	1.81	0.026	1.07-3.06
Missing	48	1.63	0.164	0.82-3.21	1.10	0.803	0.51-2.36



# Infant infections by feeding mode

	<b>HR</b>	<b>p</b>	<b>95% CI</b>
EBF	1.0		
BM + fluid/food	1.56	0.308	0.66-3.69
BM + solids	10.87	0.018	1.51-78.00
BM+FF (@12wks)	1.82	0.057	0.98-3.36
EBF	1.0		
MBF pre-3/12	1.54	0.011	1.10-2.15
MBF post-3/12	1.53	0.021	1.07-2.20

# Survival in the first 6 months of life



- 94 deaths amongst 1034 infants started on EBF
- 73 of these children were HIV-infected
- Overall HIV-free survival was 75.41% at 6 months (i.e. 223 deaths or infections amongst 1037 infants)
  
- 8 deaths amongst 101 infants on RF from birth
- Deaths occurred in first 3 months of life

## Cumulative mortality according to initial infant feeding type

Feeding type	N	1m	2m	3m	4m	5m	6m
<b>EBF</b>	1037	1.92%	3.69%	6.12%	8.02%	9.07%	10.1%
<b>RF</b>	101	4.22%	9.90%	15.12%	-	-	-





# Summary

- HIV infected and uninfected women were effectively supported to EBF by lay counsellors
- The risk of postnatal transmission by 6 months of age in exclusively breastfed infants who were negative at 4-8 weeks or age was 4.04%
- HIV transmission was ~11 times more likely with BM and solids and ~2 times more likely with MBF (BM and FF)
- RF was associated with an increased mortality compared with EBF (15.12% vs. 6.13% at 3m)
- Maternal CD4 counts < 200 associated with:
  - Increased overall transmission (x2)
  - Increased EBF transmission (x4)
  - Increased mortality of infants (data not shown)



# Implications for counselling

- Policy and budgets can confidently be revised in order to promote and support exclusive breastfeeding as a child survival intervention
  - it can be achieved
  - less risk of transmission in HIV infected women than for mixed feeding.
- Counsellors need to be updated on the daily/ monthly risks of HIV transmission associated with EBF for 6 months so as to represent these accurately
- Counsellors need to be similarly briefed on the risks of non-breastfeeding with respect to infant survival
- The policy on free provision of formula milk within clinics for the purposes of PMTCT should be reviewed



# Poster session details

- Tuesday 15<sup>th</sup> August 2006:
  - TUPE0342 – WHO/UNICEF Infant Feeding Policy for HIV-positive women: How feasible is it?
  - TUPE0344 – Infant feeding counselling for HIV-infected women: appropriateness of choice and practice
  - Poster Exhibition Area Level 800, South Building of Metro Toronto Convention Centre