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FEEDING HIV-EXPOSED INFANTS

Kenya Infant Feeding Assessment

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**Kiersten Israel-Ballard, DrPH
Senior Program Officer, PATH**

Maternal and Child Health and Nutrition Global Program

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Study goal

- To assess HIV-infected mothers' and their infants' experiences during the time they stopped breastfeeding.

Balancing the risks

- Mother-to-child transmission (MTCT) of HIV
 - 40% of MTCT can occur via prolonged breastfeeding up to 24 months
- Breastfeeding is considered a pillar of child survival
 - provides optimal nutrition for first 6-12 months
 - is associated with significantly decreased infant morbidity and mortality



WHO recommendations

- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is **acceptable, feasible, affordable, sustainable and safe** (AFASS) for them and their infants before that time.
- If replacement feeding is still not AFASS at 6 months, breastfeeding should continue with complementary feeding, until a nutritionally adequate and safe diet without breast milk can be provided.
 - Gradually eliminate breastfeeding sessions over several weeks

Cessation of breastfeeding: a time of high risk

- Lack of continued breast milk may negatively impact infant health
- Lack of immune protection and introduction of antigens
- Increased risk of malnutrition, stunting, diarrhea, serious gastroenteritis
- Increase in breast milk viral load during weaning
- Too much time on the when not the *how* to stop breastfeeding



Photo: Mike Wang, PATH

Assessment of infant feeding among HIV-infected mothers

- Objectives

- (1) to assess the clinic-based counseling practices regarding HIV and infant feeding

- (2) to describe the infant feeding practices and infant health of HIV-exposed infants during the time they were stopping breastfeeding

- (3) to identify the experiences of HIV-infected mothers during the weaning period



Study design

- Descriptive study to collect formative research data
- May-Sept 2008
- Kenya
 - Eastern Province
 - Food insecure
 - HIV prev 4.1
 - Western Province
 - Food secure
 - HIV prev 5.1

Methodology

- Post-counseling exit interviews
 - n=80 (50 Eastern; 30 Western)
 - Inclusion criteria: HIV infected and pregnant or having an infant <12 mos of age



Photo: Wendy Stone, PATH

- Direct observations of counseling sessions
 - n=22 (9 Eastern; 13 Western)
 - Inclusion criteria: HIV infected and pregnant or having an infant <12 mos of age

Methodology

- Cross sectional survey – in-depth interviews
 - n=285 (137 Eastern; 148 Western)
 - PMTCT clinics, comprehensive care centers, and postnatal wards
 - Inclusion criteria: HIV infected, having an infant <18 mos of age, and having stopped breastfeeding between 1 week to 6 mos prior
- Content
 - Weaning period
 - liquids and foods fed during this period
 - costs and availability
 - infant illness
 - breast health
 - general challenges
 - 24-hour dietary recall to capture current infant feeding practices and challenges
 - Infant weight and mid-upper arm circumference (MUAC)

Methodology

- Stakeholder interviews with nutritionists and nursing officers
 - n=11 district and provincial nutritionists and nursing officers
 - informally interviewed to gather perceptions and attitudes towards weaning issues in the context of HIV
- Approved by PATH Research Ethics Committee and the Kenya Medical Research Institute National Ethical Review Committee

Results: Exit interviews

- 71% indicated that infant feeding practices were discussed
 - 69.2% of ANC mothers told about EBF
 - 61.5% with 6-mo old infants told about addition of other milks
- Complementary feeding discussed with 36% at ANC, with 69% who had infants 6 mos of age
 - Quantity and frequency rarely discussed
- Majority of counseling provided by nurses
- ~6% included visit with a nutritionist
- Individual counseling rare in Western Province

Results: Exit interviews

- How to stop breastfeeding discussed with 42%
 - Infant age
 - Replacement feeding
 - Time period
 - Disclosure and stigma
- 82.5% had weight of mother or infant taken
 - Only 24.4% had child welfare card examined or used
- Proper hygiene discussed with 40%

Results: Exit interviews

- Manual expression to relieve engorgement discussed with 24%
 - BFHI criteria include teaching expression of breast milk to maintain lactation during periods of separation
- Unequal emphasis of risks
 - 70% discussed risks of HIV transmission
 - 40% discussed risks from replacement foods

Results: Counseling observations

- All ANC counseling included EBF discussion
- Majority discussed how to stop breastfeeding
- 29% mentioned manual expression of breast milk
- 67% of postnatal counselors discussed complementary foods
 - Few mentioned frequency and quantity
- 83% of infants were weighed
 - ~50% of these indicated on child welfare card
- Unequal emphasis of risks
 - Risk of replacement feeding during ANC
 - Risk of HIV transmission from breastfeeding during postnatal

AFASS topics discussed at ANC

AFASS topics	Percentage of counselors who discussed the topic (n = 13)
Water supply	23.1
Refrigerator	7.7
Costs of formula/replacement milks	15.4
Availability of formula/replacement milks	23.1
Family support	38.5
Hygiene	61.5
Stigma from not breastfeeding	30.8

Characteristics	Eastern Province (n = 137)	Western Province (n = 148)
Maternal age (years) mean (SD)	30.1 (5.3)	29.8 (5.5)
Level of education – n (%)		
<i>None</i>	6 (4.4)	9 (6.1)
<i>Some primary / Completed primary</i>	99 (72.3)	99 (66.9)
<i>Post-primary</i>	32 (23.3)	40 (27.0)
Parity (mean) (SD)	3.4 (1.7)	3.9 (2.3)
Water source – n (%)		
<i>No water source specified</i>	26 (18.9)	22 (14.9)
<i>River, dam, or open pond</i>	53 (38.7)	68 (46.0)
<i>Community water system</i>	17 (12.4)	25 (16.9)
<i>Piped water in compound</i>	8 (5.8)	17 (11.5)
<i>Borehole</i>	16 (11.7)	9 (6.1)
<i>Rain water / well</i>	10 (7.3)	6 (4.0)
<i>Tap in house / bottled water</i>	7 (5.1)	1 (0.7)
Infant age (months) mean (SD)	8.7 (4.3)	9.0 (4.8)
Infant age when stopped breastfeeding (weeks) mean (SD)	19.5 (12.6)	17.7 (10.8)
Estimated number of days since infant stopped breastfeeding (SD)	144.0 (96.1)	165.3 (121.1)
SD: standard deviation		

Results: Survey

- 84% had planned to breastfeed
 - Planned mean duration of 8.8 mos; actual duration 4.6 mos
 - Most planned exclusively initially ~3.3 mos
 - 12.6% had planned cow's milk from birth
- 70% received advice on stopping breastfeeding
- Mean of 6.2 days needed to stop breastfeeding
- >3 attempts often needed

Problems experienced by mothers while attempting to stop breastfeeding

Problem	Percentage
Difficulty in stopping breastfeeding	
Not very difficult	31.23
Less difficult	21.05
More difficult	18.95
Very difficult	28.77
Number of problems experienced while stopping breastfeeding*	
0	6.32
1	16.14
2	24.91
≥ 3	52.63
*Infant fussy, mother ill, infant ill, disapproval from family/community, no food for infant, breast pain, infection, mastitis, cracked/bleeding nipples, fever.	

Results: Survey

- Liquids and solids fed during weaning
 - Meat most difficult to obtain
 - Most foods and liquids considered expensive
 - Higher % reported feeding variety of liquids (exception was milk) and solids in Western than Eastern (e.g. meat: 3.0% Eastern; 27.7% Western)
 - 90% fed milk of some kind during weaning
- Liquids and solids fed 24 hours prior to interview
 - 67% fed any kind of animal milk

Infant morbidities experienced during and after weaning

Morbidities during and after stopping breastfeeding	Percentage of respondents	
	Eastern Province (n = 137)	Western Province (n = 148)
Respiratory illness	13.9	20.9
Diarrhea	43.8	42.6
Dehydration symptoms	14.6	16.2
Fever	43.1	65.5
Refused to eat	21.9	22.3
Malnutrition symptoms	7.3	14.2

Mid-upper arm circumference and weight-for-age z-scores <-2

	% MUAC z-score <-2	% weight-for-age z-score <-2
Western Province	13.4	21.6
Eastern Province	8.4	16.2

Qualitative responses

- Challenges during weaning
 - How to get enough food and money for feeding baby (35%)
 - Breast pain, baby's health, stigma, baby unhappy, refusing food, HIV status, weight loss
- Challenges since weaning
 - How to get enough food and money for feeding baby (55%)
- 50% said they would stop breastfeeding in a different way

*“The baby looked too small to stop breastfeeding
but I felt I had no other option.”*

“Sometimes we sleep hungry and the baby takes black tea.”

“I have transport issues going to look for milk.”

Multivariate regression

Variables retained in model	β^*	Odds Ratio [†]	95% Confidence Interval	p value
WFA z-score (continuous)				
<i>Model 1</i>				
Eastern Province	-0.513		-0.887, -0.139	0.007
Infant age at interview	-0.175		-0.221, -0.129	<0.001
Infant ill or weight loss	-0.632		-1.120, -0.143	0.011
<i>Model 2</i>				
Infant age at weaning	-0.032		-0.051, -0.014	0.001
Weaning difficulty	0.187		0.011, 0.364	0.038
Infant ill or weight loss	-0.858		-1.378, -0.338	0.001
WFA z-score <-2 (dichotomous)				
Infant age at interview		1.203	1.113, 1.300	<0.001
Infant ill or weight loss		2.438	1.122, 5.300	0.024
MUAC-for-age z-score (continuous)				
Infant ill or weight loss	-0.460		-0.915, -0.005	0.048
Lack of baby food	-0.497		-0.973, -0.021	0.041
Age at cessation of breastfeeding				
Weaning difficulty	1.350		0.183, 2.516	0.024

Multivariate regression

Variables retained in model	Odds Ratio†	95% Confidence Interval	ρ value
Respiratory problems			
Mother illness during weaning	2.277	1.202, 4.311	0.012
Fed meat or eggs 24 hrs prior	2.358	1.132, 4.910	0.022
Diarrhea			
Infant age at interview	1.105	1.047, 1.167	<0.001
Infant ill or weight loss	3.241	1.608, 6.534	0.001
Dehydration symptoms			
Infant age at interview	1.076	1.008, 1.148	0.027
Fever			
Eastern Province	0.390	0.240, 0.638	<0.001
Infant age at interview	1.072	1.013, 1.135	0.016
Mother employed	0.614	0.377, 0.999	0.050
≥3 visits to health clinic			
Infant age at interview	1.090	1.022, 1.163	0.008
Number of weaning problems	1.303	1.071, 1.584	0.008
≥3 visits to hospital			
Infant age at interview	1.097	1.011, 1.190	0.026

Results: Stakeholder interviews

- Most pressing challenge for HIV-exposed infants
 - Poverty
 - Lack of nutrition training among health care staff
- Previous message not to breastfeed was slow to change
- Primary factor in a mother's infant feeding choice was the counseling she received
 - Too often reflected the biases of the counselor

Results: Stakeholder interviews

- Systems challenges to improving counseling
 - High staff workload, which limits time available for counseling
 - Clinical aspects of PMTCT prioritized, not infant nutrition
 - Nurses have inadequate nutrition knowledge even after PMTCT training
- Missed opportunities
 - Health talks for clients
 - Developing capacity at the community level
- Future directions
 - **Focus on sustainable agricultural techniques**
 - Promote male involvement in the infant feeding process

Conclusions

- Counseling not providing adequate infant feeding information
- AFASS assessments not comprehensive
- Challenges exist for HIV-infected mothers during weaning
 - Physical and psychosocial
 - Cost of quality foods and replacement milks
- Problems during weaning can impact infant nutritional status, growth, and morbidity
 - HIV-exposed especially vulnerable to growth faltering

Recommendations

- Increase level of PMTCT infant nutrition education
- Improve effectiveness of PMTCT counseling visits
- Ensure comprehensive AFASS assessments
- Provide IEC materials
- Promote manual expression as a BFHI criteria
- Educate health care workers on heat treatment of breast milk
- Provide infant feeding education at the community level
- Provide physical and psychosocial support to mothers during the weaning period
- Revise current child welfare cards for rapid identification of HIV-exposed infants

Next steps: IYCN activities in Western Province

- Training additional facility-based counselors on infant feeding
- Integrating infant feeding support into on-going community-based HIV activities
- Printing IEC materials for dissemination in facilities and communities
- Facilitating provincial advocacy meeting with ministry and facility staff
- Piloting the integration of PMTCT content into men's groups



Photo: PATH

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