NUTRITION IN HIV EXPOSED AND AFFECTED CHILDREN

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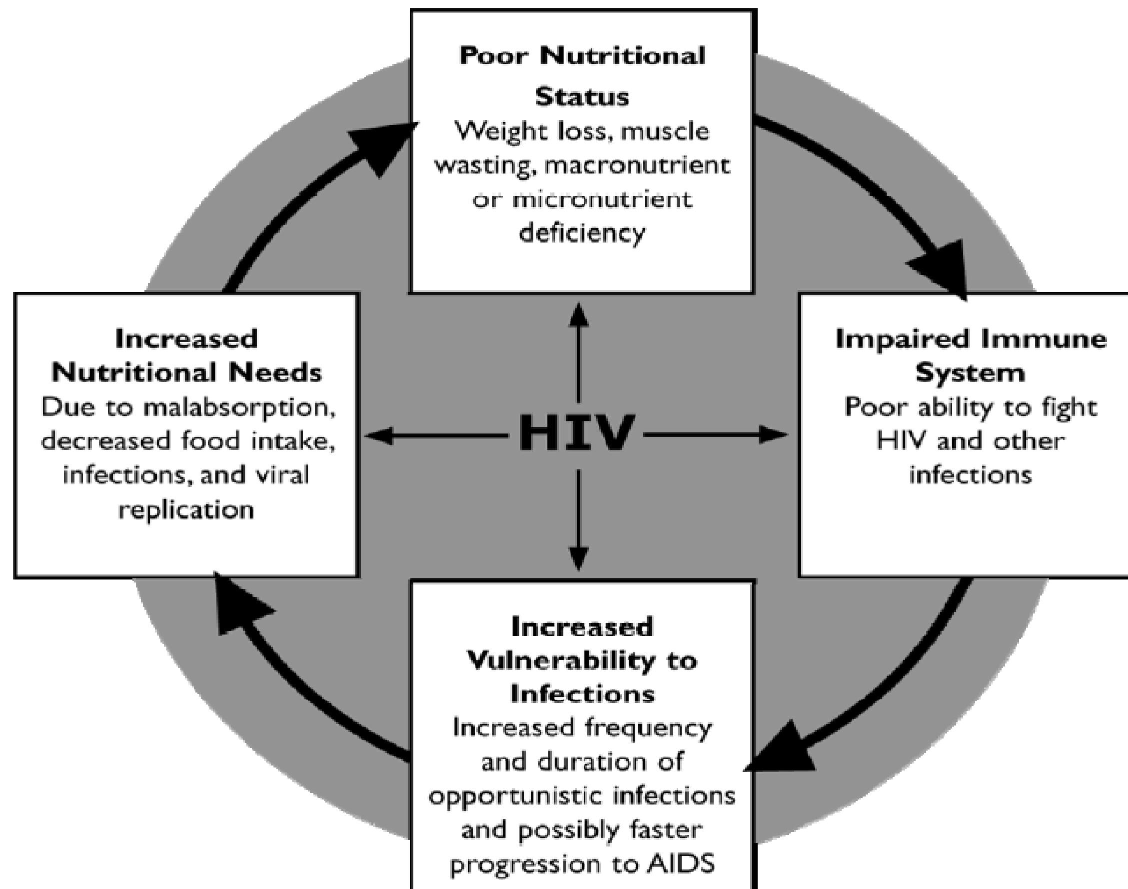
Definitions

- HIV exposed Children
  - Infants born to mothers infected with HIV, until HIV infection can be reliably excluded and the child is not exposed to HIV through breastfeeding
- HIV affected Children
  - HIV-positive
  - Lost one or both parents (orphan) who died of AIDS
  - Living in a household where one (or both) of the parent is HIV-positive

Inadequate nutrition and HIV
A Vicious Cycle



Source: Adapted from RCQHC and FANTA 2003a.

The Dilemma

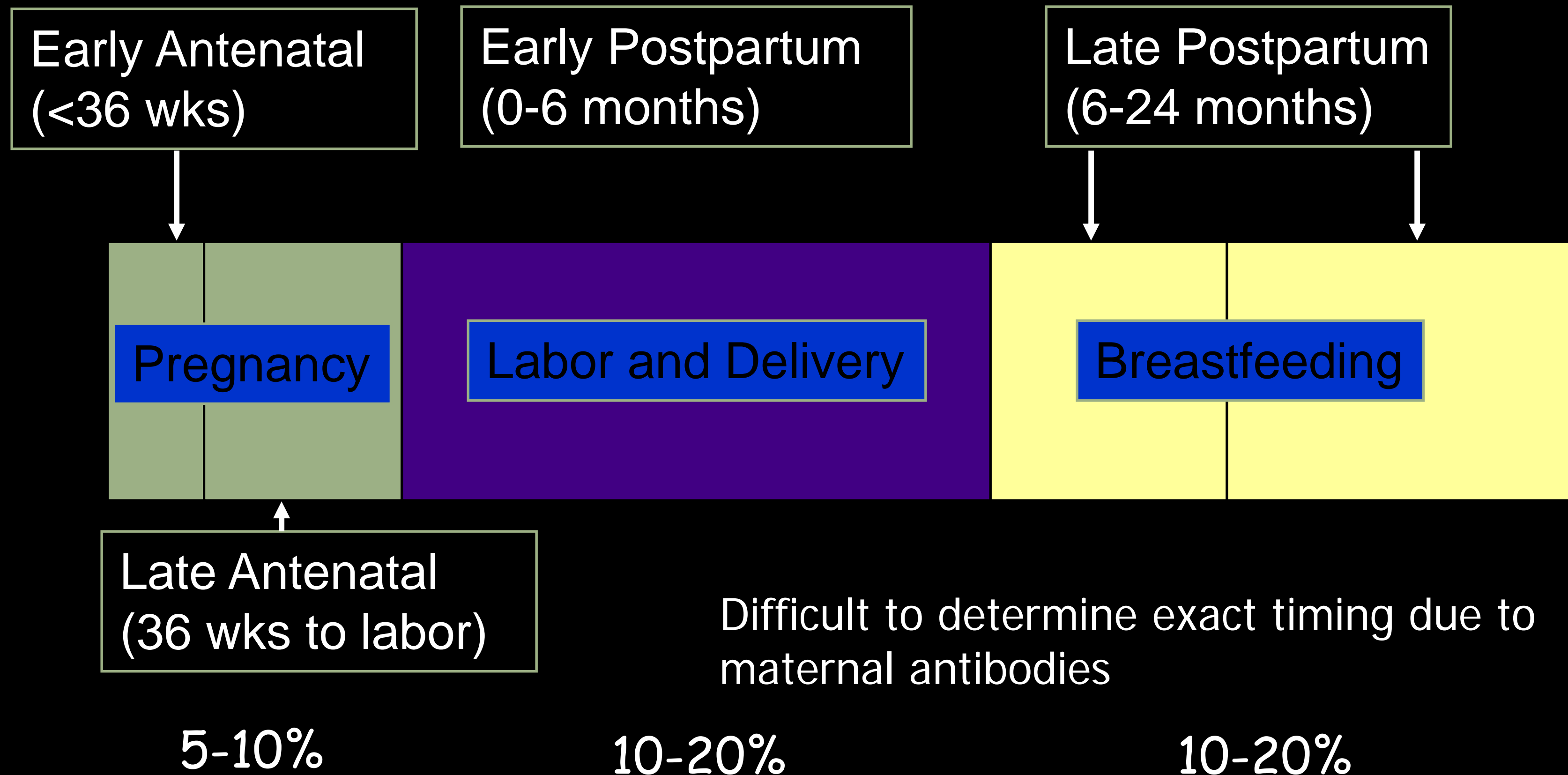
Increased risk of
HIV transmission
(However not all infected)

IF BREASTFEEDING

Increased risk of
Mortality
Infectious diseases
Malnutrition

IF NOT BREASTFEEDING

Timing of Mother-to-Child Transmission



Adapted from N Shaffer, CDC

Risk Factors For Vertical HIV Transmission

Mother

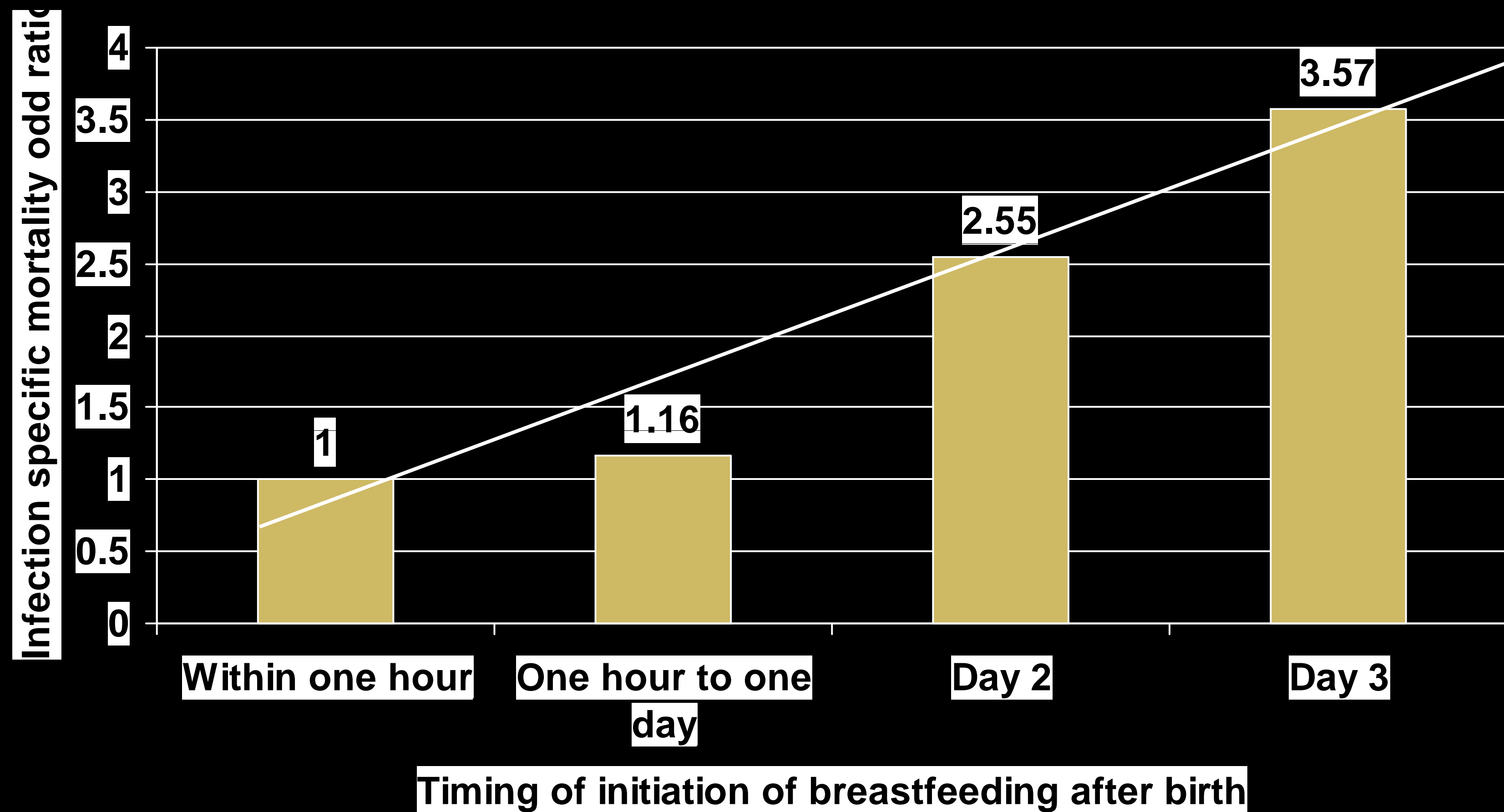
- Mode of delivery
- Immune/health status
- Plasma viral load
- New HIV infection
- Breast inflammation (mastitis, abscess, bleeding nipples)
- ART Status

Infant

- Feeding method
- Lesions in mouth, intestine
- Age (first months)
- ARV drugs status

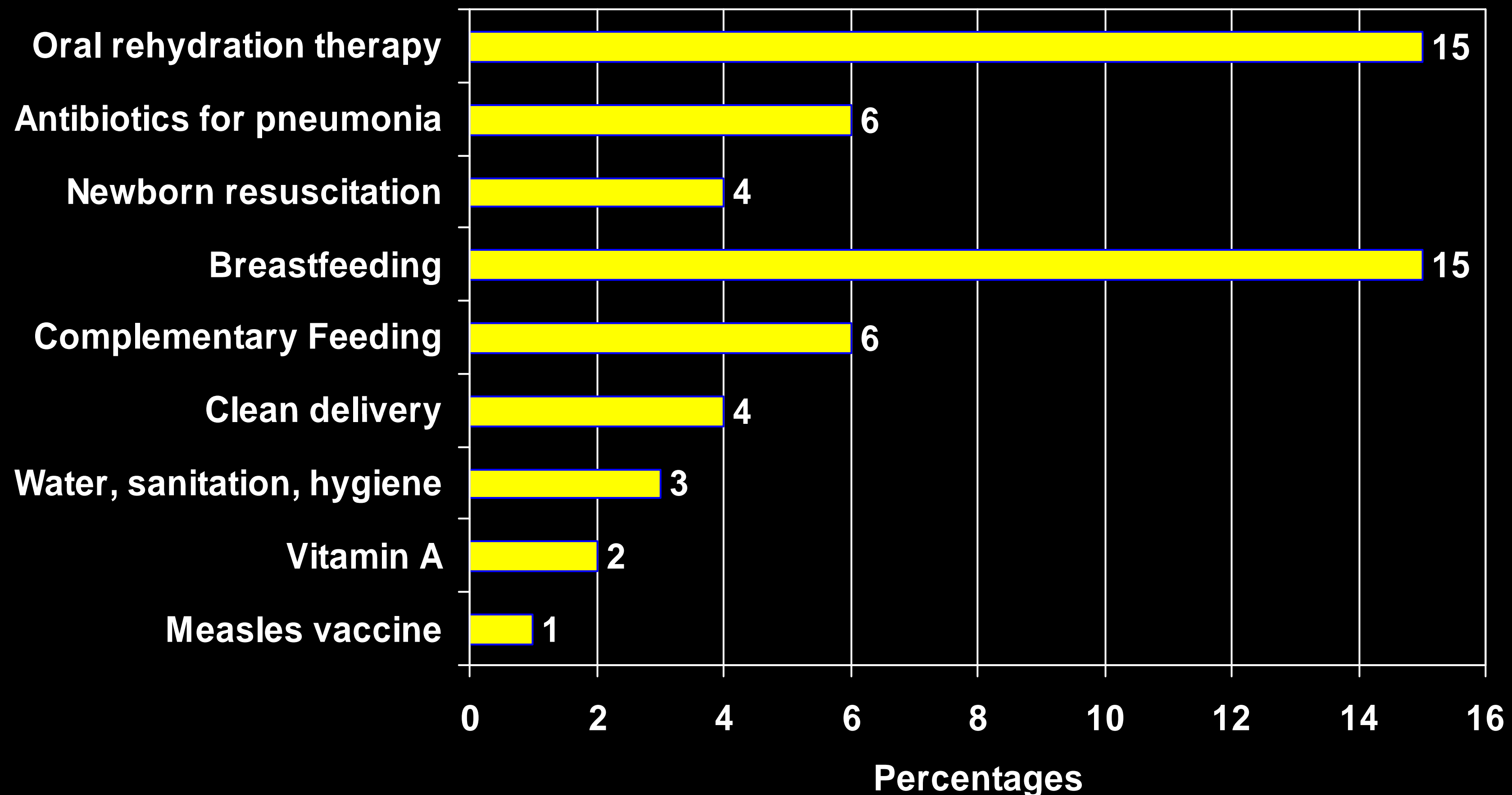
WHO, 1998; Bulterys et al, 2002; Newell et al, 2002

Neonatal Mortality Risk by early infant feeding practices



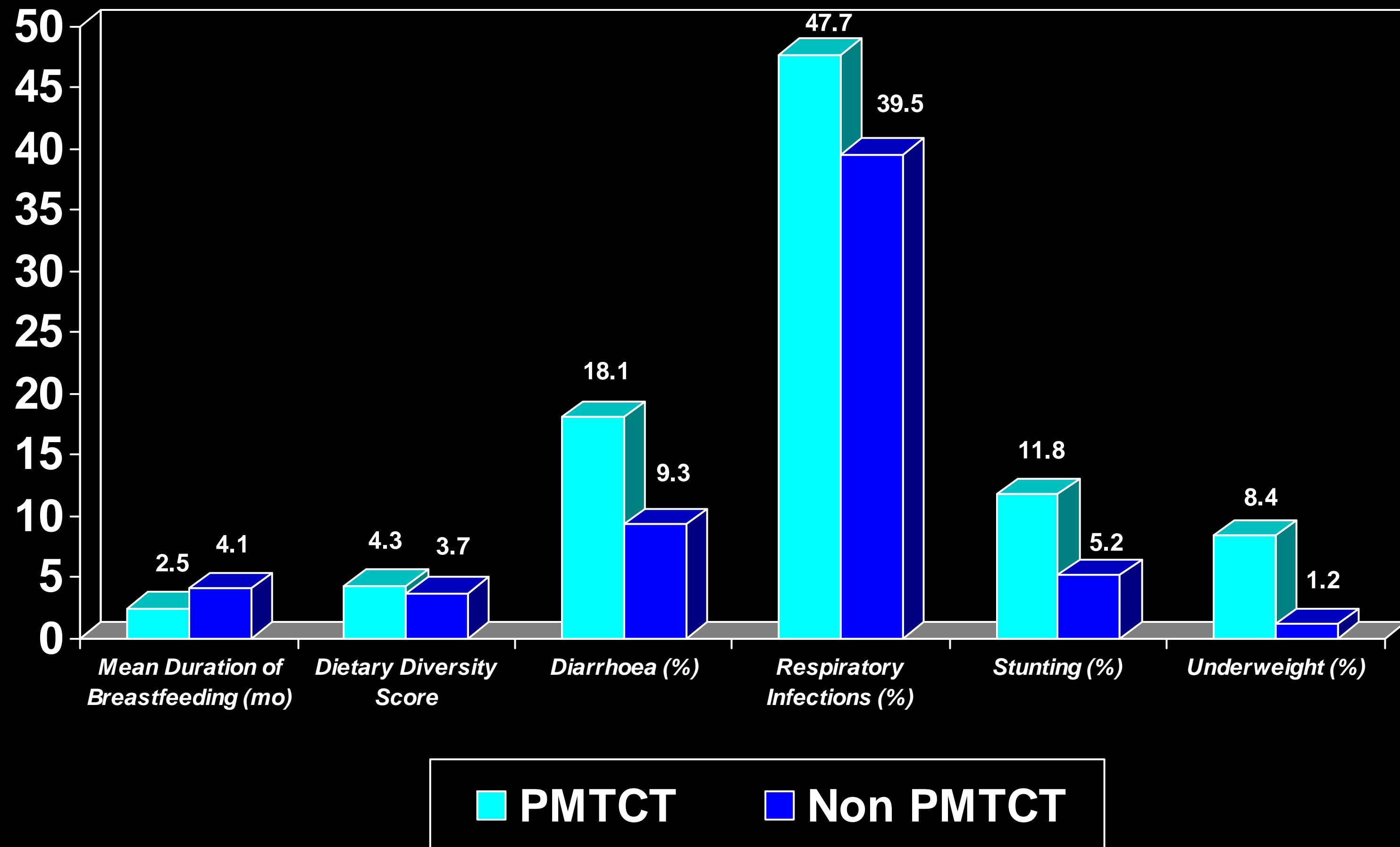
Source: Edmond KM et al. Am J Clin Nutr 2007. 86:1126-31

U-5 child deaths (%) saved by universlising key interventions in India



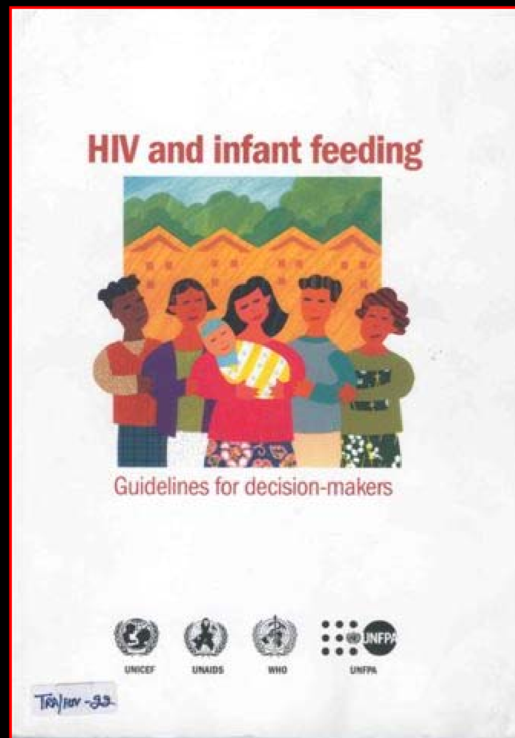
Lancet Child Survival Series,2003, Jones G et al. Indian J Pediatr 2006

IYCF Practices, Morbidity & Undernutrition



Source: Magezi SR, Kikafunda J and Whitehead R. Feeding and Nutritional Characteristics of Infants on PMTCT Programs. J Trop Pediatr. 2009; 55(1): p-32-35

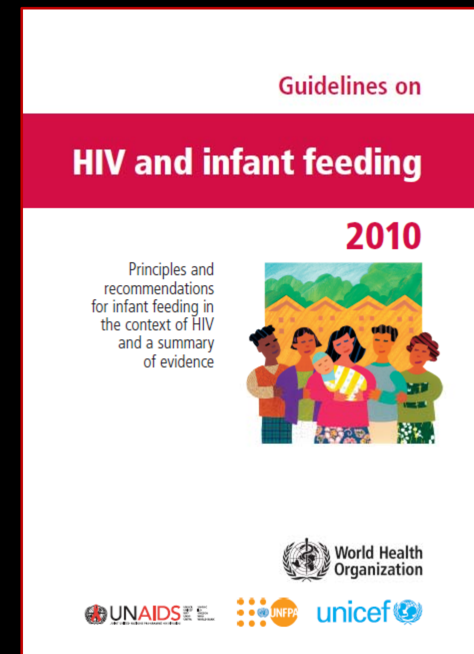
Balancing risks



2003

IATT consensus statement on prevention of HIV infections in pregnant women, mothers and their infants (WHO)

2006



2010

programmatic experience and research evidence

- ARV can significantly reduce the risk of transmission of HIV through breastfeeding
- Implications for
  - how women living with HIV might feed their infants
  - how health workers should counsel these mothers

Fundamental shift

- National authorities to decide which infant feeding practice will be primarily promoted and supported by MCH services
  - breastfeeding with an antiretroviral intervention to reduce transmission or
  - avoidance of all breastfeeding

Mothers HIV-infected
infants are HIV uninfected or of unknown HIV status

- Lifelong antiretroviral therapy or antiretroviral prophylaxis interventions to reduce HIV transmission through breastfeeding
- Exclusively breastfeeding for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life
- Breastfeeding should be stopped gradually over a month

Safer Breastfeeding

- Provide ART/ARV to mother and infant
- Avoid re-infection with HIV during pregnancy and breastfeeding
- Practice exclusive breastfeeding for the first 6 months
- Treat oral thrush and sores in child's mouth immediately
- Promptly manage breast conditions like mastitis, sore-nipple and abscess

Probability of HIV infection or death – infants HIV uninfected at birth

Infant Feeding scenario #	Mothers fulfil eligibility criteria and on ART			Mothers do not fulfil eligibility criteria for ART. Infant NVP prophylaxis or maternal triple ARV prophylaxis			Probability of infant HIV infection or death if eligibility criteria for maternal ART	
	Feeding practice			Feeding practice			CD4 <200	CD4 <350
	0–6m	6–12m	12–18m	0–6m	6–12m	12–18m		
1	RF	RF	RF	EBF	CBF	CBF	0.103	0.100
2	RF	RF	RF	EBF	CBF	RF	0.101	0.097
3	RF	RF	RF	EBF	RF	RF	0.107	0.101
4	RF	RF	RF	RF	RF	RF	0.141	0.141
5	EBF	CBF	CBF	EBF	CBF	CBF	0.095	0.099
6	EBF	CBF	RF	EBF	CBF	RF	0.091	0.094
7	EBF	RF	RF	EBF	RF	RF	0.097	0.099
8	EBF	CBF	RF	RF	RF	RF	0.128	0.137

HIV positive infants

- **Exclusive breastfeeding in the first 6 months**
  - **Replacement feeding only if all the 6 criteria for replacement feeding are met**
- **Complementary feeding after 6 months**
- **Continued breastfeeding for 2 years**
- **ART after EID**

After 6 months

- 10-20 per cent extra calories.
- About 60-185 kcals/day for infant aged 6-11 months
- 105-315 kcals/day for infant aged 12-23 months
- Provide 4-5 meals of nutritious foods with additional nutrient rich snacks 1-2 times a day
- Adding oil or sugar to the food preparation increases the energy density
- After illness, offer food more often

Additional requirements for HIV-infected children (6- 11 months)

	Asymptomatic with adequate growth (10% additional energy)	**Symptomatic with no weight loss (20 -30% additional energy)**	**Severely malnourished (50 – 100% additional energy)**
Total Calories	690 kcal/day	750- 810 kcal/day	150-200 kcal/kg/day
Additional Calories*	60 kcal/day	120 -185 kcal/day	Based on actual weight
Examples of ways to increase energy intake	Add 1 tsp of edible oil and 1-2 tsp of sugar to porridge in addition to normal diet	Add 2 tsp of edible oil and 1-2 tsp of sugar to porridge. Aim to add 2 times daily.	Therapeutic feeding as per guidelines**

Additional requirements for HIV-infected children (12- 23 months)

	Asymptomatic with adequate growth (10% additional energy)	**Symptomatic with no weight loss (20 -30% additional energy)**	**Severely malnourished (50 – 100% additional energy)**
Total Calories	1140 kcal/day	1245- 1350 kcal/day	150-200 kcal/kg/day
Additional Calories*	105 kcal/day	210- 315 kcal/day	Based on actual weight
Ways to increase energy intake	Add 2 tsp of edible oil and 1-2tsp sugar to porridge.	Extra cup of full cream milk with 1 - 2 tsf sugar or 1 bowl of khichri with 1-2 tsf oil	Therapeutic feeding as per guidelines**

Adapted from WHO, 2009

Appropriate Complementary Feeding

- Timely: Additional food introduced when need for energy and nutrients exceeds that provided by BF
- Adequate: Should provide sufficient energy, protein, and micronutrients
- Properly Fed: Active feeding method and proper frequency according to age
- Safe: Should be hygienically prepared, stored and fed

Active Feeding

- Feed infants directly & assist older toddlers eat; be sensitive to hunger & satiety cues
- Feed patiently; encourage, but don't force
- If child refuses, experiment with different food combinations, tastes, textures
- Minimize distractions during meals
- Talk to child during feeding; maintain eye contact

HIV-infected older children
(2-14 years)

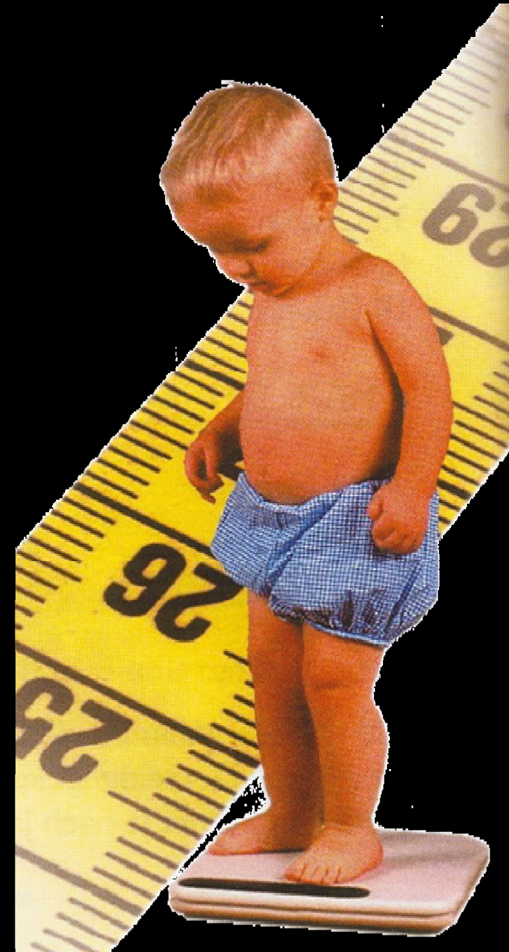
- Family food
- balanced diet
- five to six meals a day
- Variety of foods
  - **Energy giving foods,** rich in carbohydrates and fats
  - **Body building foods,** rich in protein
  - **Protective foods,** rich in minerals and vitamins

Amounts of foods to offer

Age	**Texture**	**Frequency**	**Amount of each meal**
6 months	Soft porridge, well mashed vegetable, meat fruit	2 times per day plus frequent breastfeeds	2-3 tablespoonfuls
7-8 months (200 kcal/d)	**Mashed foods**	3 times per day plus frequent breastfeeds	Increasing gradually to more than 3/4 of katori (150ml)
9-11 months (300 kcal/d)	Finely **chopped** or mashed foods, and foods that baby can pick up	3 meals plus 1 snack between meals plus breastfeeds	a full katori (200ml)
12-24 months (550 kcal/d)	Family foods, **chopped or mashed** if necessary	3 meals plus 2 snacks between meals plus breastfeeds	more than katori (250ml)

Ensure Adequacy

- Growth Monitoring: Measure weight and length periodically and interpret by plotting in growth curves.
- Investigate causes of poor growth: Dietary history; evaluate for any illness.
- Counsel mother/caregivers on growth, feeding and caring practices



Growth Monitoring

Weight-for-age GIRLS

Birth to 5 years (z-scores)

Weight (kg)

30
28
26
24
22
20
18
16
14
12
10
8
6
4
2

3
2
0
-2
-3

1
2
3

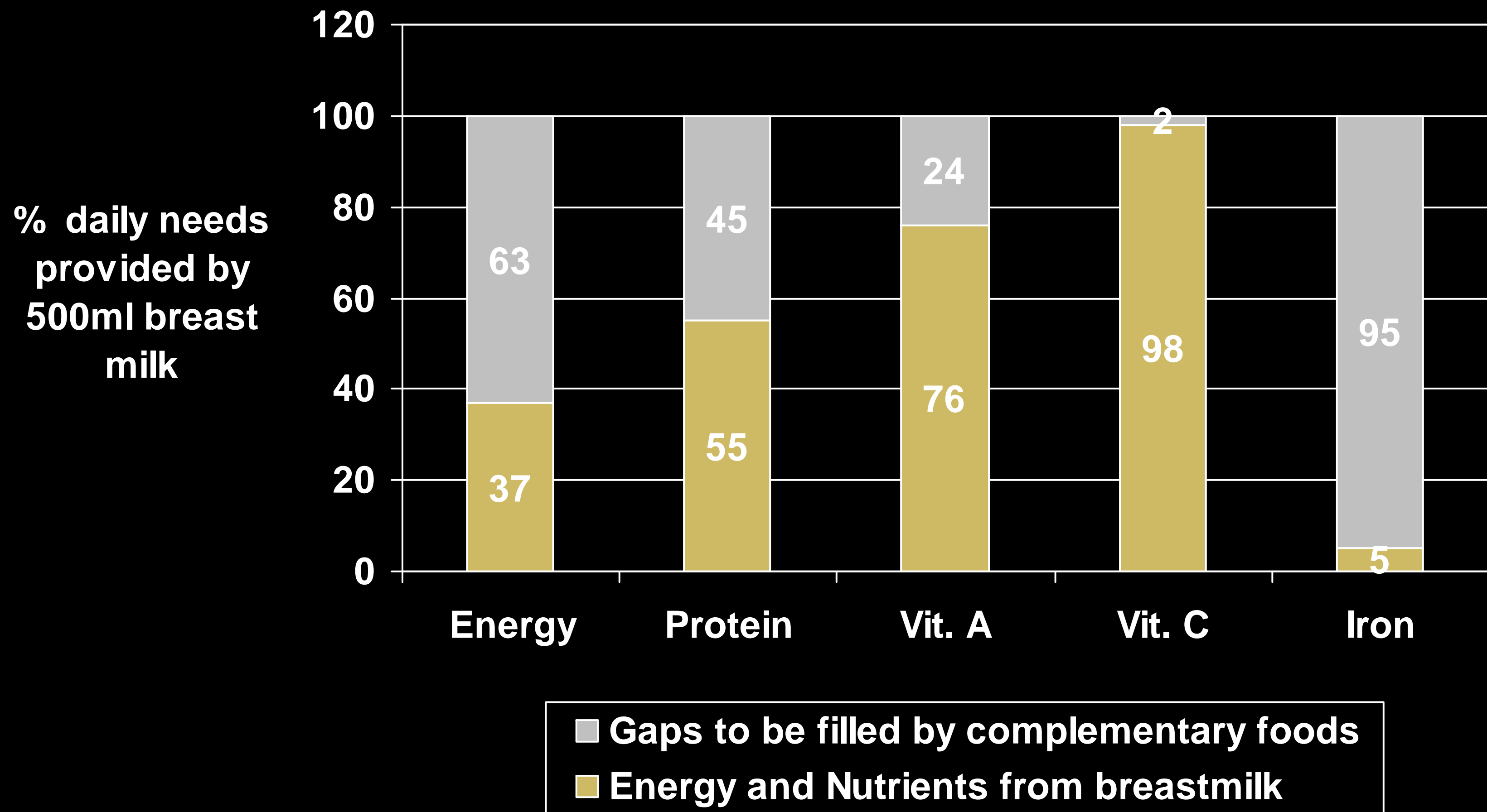
Months
2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10 2 4 6 8 10

Birth
1 year
2 years
3 years
4 years
5 years

Age (completed months and years)

WHO Child Growth Standards

Importance of continued breastfeeding for 2 years and beyond



Conclusions

- Appropriate nutrition is key to achieve HIV free survival
- HIV free survival may be achieved by Optimal IYCF practices along with ART/ARV
- Effective monitoring of nutritional status and appropriate action in HIV positive infant is crucial

Thanks !!!