

Mother and Child Dyad Issues: Breastfeeding and Child Survival

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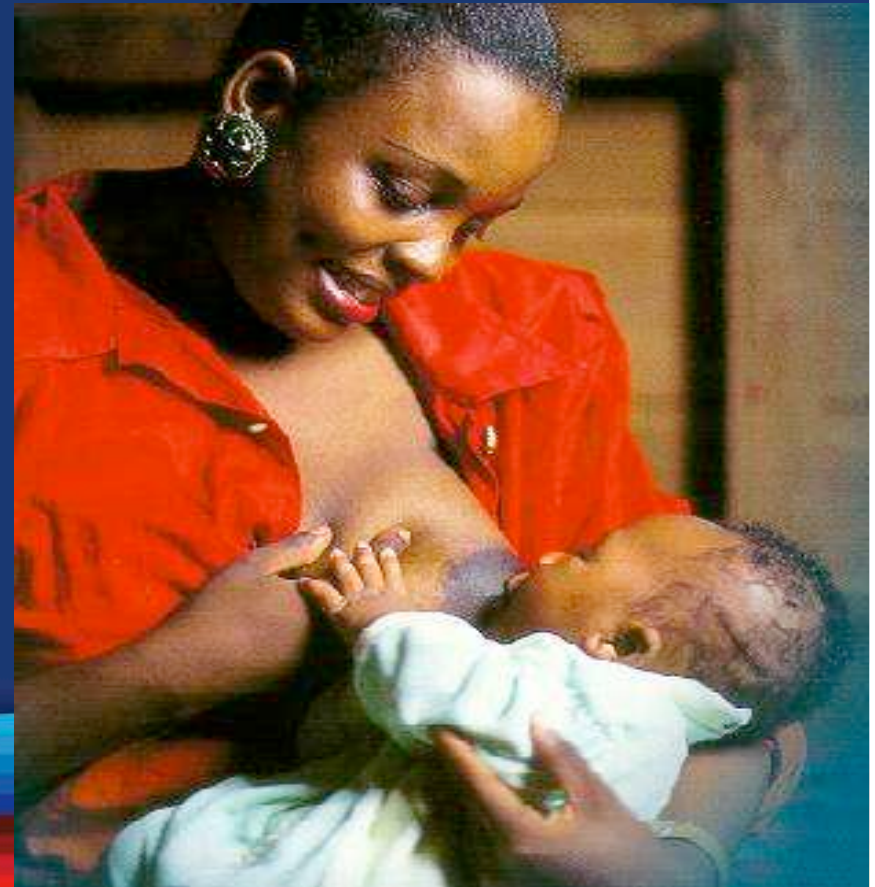


What do we know?

- HIV can be transmitted through breastfeeding
- Initial response by the international community was to propose a policy of “no breastfeeding” by HIV infected women.



This policy of “no breastfeeding” ignored the importance of breastfeeding as an integral part of a woman’s motherhood as well as the social context



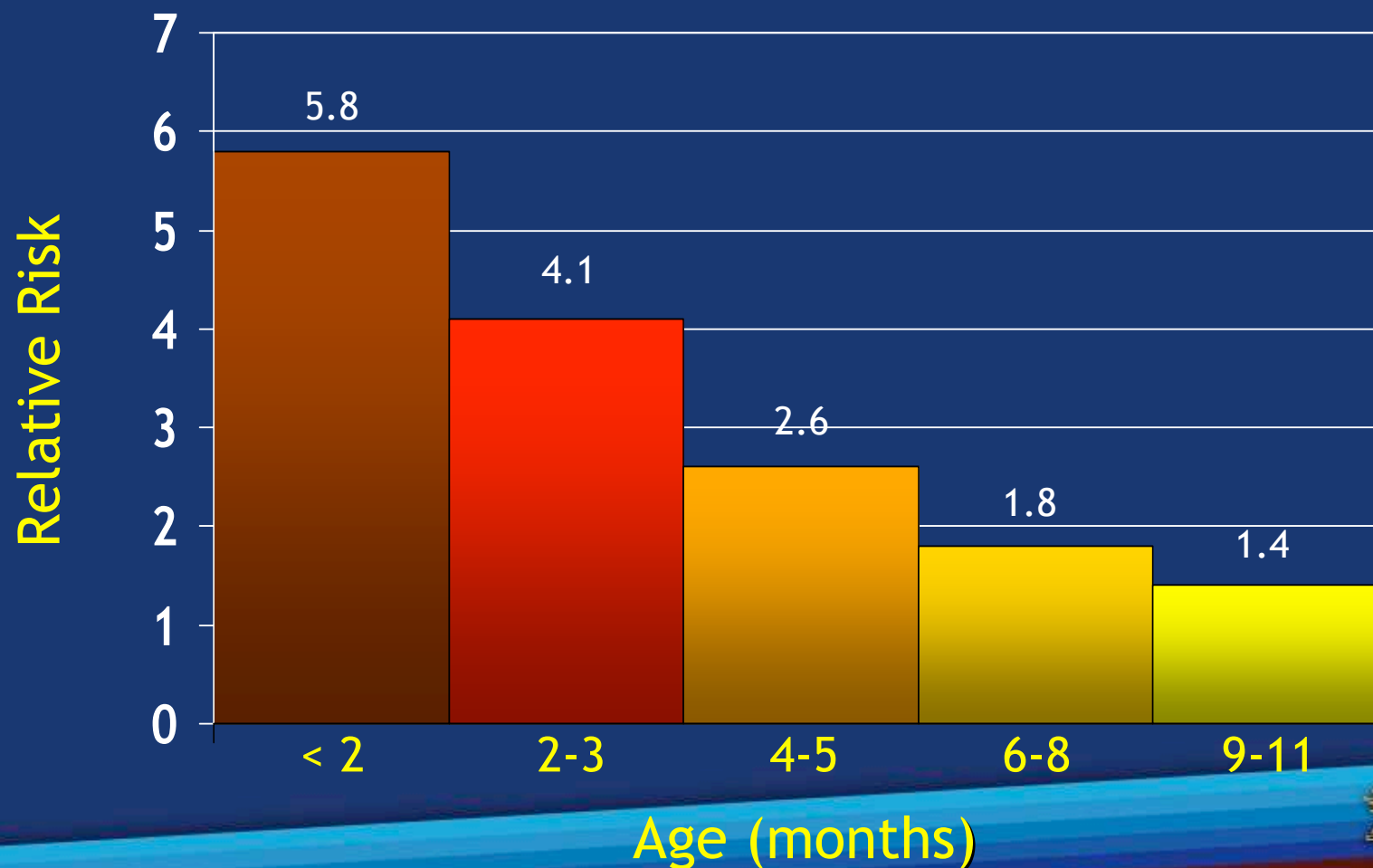
The policy of “no breastfeeding” also ignored child survival issues

“Use my picture
if it will help,
“I don’t want
other people to
make the same
mistake”.



Relative risk of infectious disease mortality in non-breastfed infants

Infants under 2 months not breastfed 6x more likely die of diarrhoea & pneumonia



WHO, Lancet 2000



Under-5 deaths prevented by universal coverage with individual interventions

Preventive intervention	Est. under 5 deaths prevented	
	No. of deaths	% of all deaths
Breastfeeding	1,301,000	13%
Complementary feeding	587,000	6%
Zinc	459,000	5%
Clean delivery	411,000	4%
Hib vaccine	403,000	4%
Water, sanitation, hygiene	326,000	3%
Antenatal steroids	264,000	3%
Newborn temperature management	227,000	2%
Vitamin A	225,000	2%
Tetanus toxoid	161,000	2%
Nevirapine and replacement feeding	150,000	2%
Measles vaccine	103,000	1%

Jones G et al, Lancet 2003

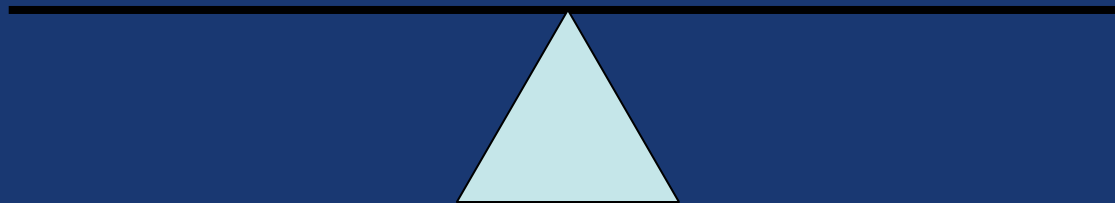


Dilemma in infant feeding

HIV transmission
Breastfeeding



Increased illness and
death from infectious
diseases
Formula feeding



Breast feeding?
Formula milk?

Implications of Formula Feeding

- **FINANCIAL COST** (\$72-120 x 6 months)
(50% of National programme Costs in SA)
- **HOUSEHOLD COST** (Fuel, clean utensils,
Sterilising liquid, preparation)
- **SOCIAL COST** (“Spill-over’ to HIV-women;
±90% of HIV+ women
unaware of status)
- **FAMILY COST** (Dangers of disclosure)



Implications of Formula Feeding Cont.

- **COMPLIANCE** (breastfeeding in public – so non-exclusive breastfeeding)
- **INFANT COST** (Morbidity, mortality, neurological deficits, allergy, less bonding)
- **MATERNAL COST** (emotional, psychological, cancer)



Key problem with formula feeding is access to safe water

More than **1.1 billion people** do not have proper access to **clean water** worldwide and **2.6 billion** do not have adequate access to **sanitation**.

Human Development Report 2006



According to the Human Development Report, the world is facing a water crisis and sub-Saharan Africa is bearing the brunt of the problem, with diarrhoea, due to a lack of clean water, killing five times more children than HIV/AIDS and curtailing economic growth.

Human Development Report 2006 – pages 6; 23





Nongazi Sopose, with her son, Bathandwa (4 months), at the graveside of his twin sister Siule, who died of diarrhoeal disease after the Barkly East water system collapsed.

Picture: Nigel Louw, Daily Dispatch

- Recent evidence has shown that although formula feeds (provided free of cost to infants), do indeed prevent postnatal HIV transmission it comes at a cost of excess deaths in uninfected infants due to increased risk for diarrhoea and pneumonia.
- In view of the lack of net benefit in promoting formula feeding for HIV infected women the international guidelines on infant feeding by HIV infected women have now been changed



NEW UNAIDS/UNICEF/WHO GUIDELINES

- HIV infected women should exclusively breastfeed their infants for the first 6 months unless all the AFASS* criteria are in place for safe replacement feeding.
- * see next slide



AFASS

Acceptable: no family or community discrimination against women who formula feed – mother has disclosed her status to her partner and family/household

Feasible:

The mother (or family) has adequate time, knowledge, skills, resources, and support to correctly mix formula or milk and feed the infant. Clean safe water is readily available.

Affordable:

The mother and family, can pay the cost of replacement feeding without harming the health and nutrition of the family – must have an EXTRA R400 per month for formula, bottles, fuel, transport to get to clinic when infant is ill. This money should not be infringe on family funds normally set aside for necessities such food, clothing, school fees etc.

Sustainable:

Availability of a continuous supply of all ingredients needed for safe replacement feeding for up to one year of age or longer.

Safe:

Replacement foods are correctly and hygienically prepared and stored, and fed preferably by cup. Diarrhoea and pneumonia are not important causes of infant death in the community, the IMR is above 25/1000

Are there other ways in which we can diminish HIV transmission and yet preserve breastfeeding?

- 1. Promoting and supporting women to practise “Exclusive Breastfeeding” in the first 6 months

we now have firm clinical evidence that exclusive breastfeeding in the first 6 months reduces risk of HIV transmission 2- 4 fold



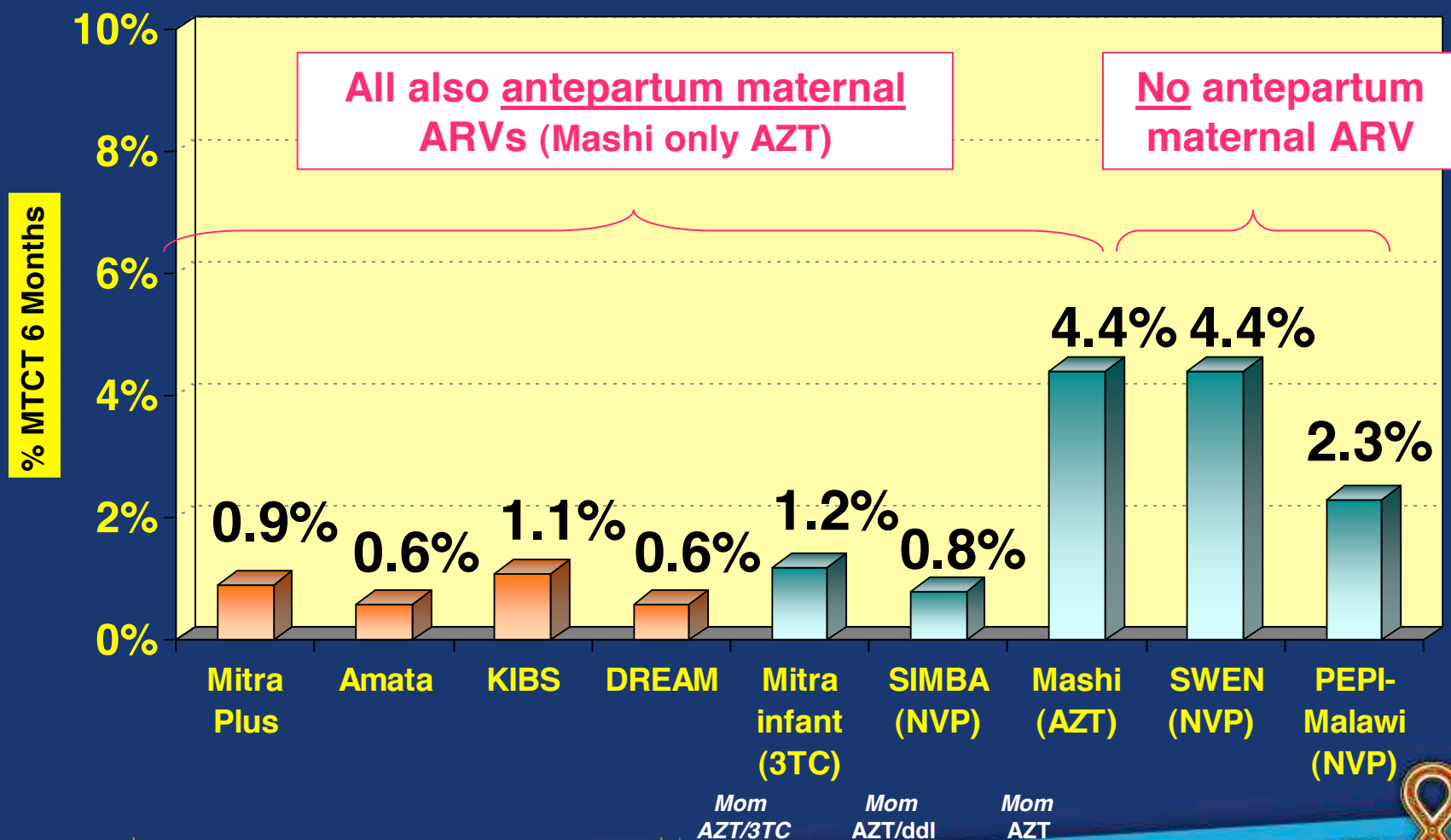
Are there other ways in which we can diminish
HIV transmission and yet preserve
breastfeeding?

2. HAART* to mother or ARV prophylaxis to infant

- See slide 31 for further definitions



HAART & ARV Prophylaxis to mum or baby: Postnatal HIV Transmission at 6 months of age



AIDS 2008
XVII INTERNATIONAL AIDS CONFERENCE
Mexico City, 3-8 August

Are there other ways in which we can diminish
HIV transmission and yet preserve
breastfeeding?

3. Heat treatment of expressed breastmilk



Recent research on pasteurising/flash heating breastmilk to reduce breastfeeding transmission



Practical, home based methods to heat-treat expressed breast milk (HTEBM)

Flash heating – based on flash pasteurisation method– higher temperature for shorter time more protective of nutrients

Israel-Ballard K et al. J AIDS, 2005



Can Heat Treatment Destroy HIV?

UC pilot study of lab-spiked samples suggests that both Pretoria Pasteurization and Flash Heating destroy cell-free HIV in human milk, but Flash Heating is more reliable

Israel-Ballard K. et al, JAIDS 2005

Heat treatment also destroyed cell-free HIV in naturally infected breastmilk samples

Israel-Ballard et al, JAIDS 2007; 45: 318-23)



Is it safe to store HTEBM- Impact on antimicrobial properties?

- Flash heating eliminates bacteria (in spiked samples) and also prevents any new bacterial growth for up to 8 hours.
- Therefore ideal for disadvantaged communities without refrigeration

Israel-Ballard K. et al, J Trop Paediatrics, Dec 2006



What happens to vitamins and immunological properties?

- Using HIV spiked samples
 - No substantial change in milk concentration of vitamin A, ascorbic acid, thiamine, riboflavin, pyrodixine, B12, or folate.
 - Lactoferrin and lysozyme were somewhat reduced, but still present in reasonable amounts

Israel-Ballard K. et al, JAIDS 2005



What happens to vitamins and immunological properties?

- Similar protection of immunological properties found in naturally HIV infected breastmilk after flash heating.

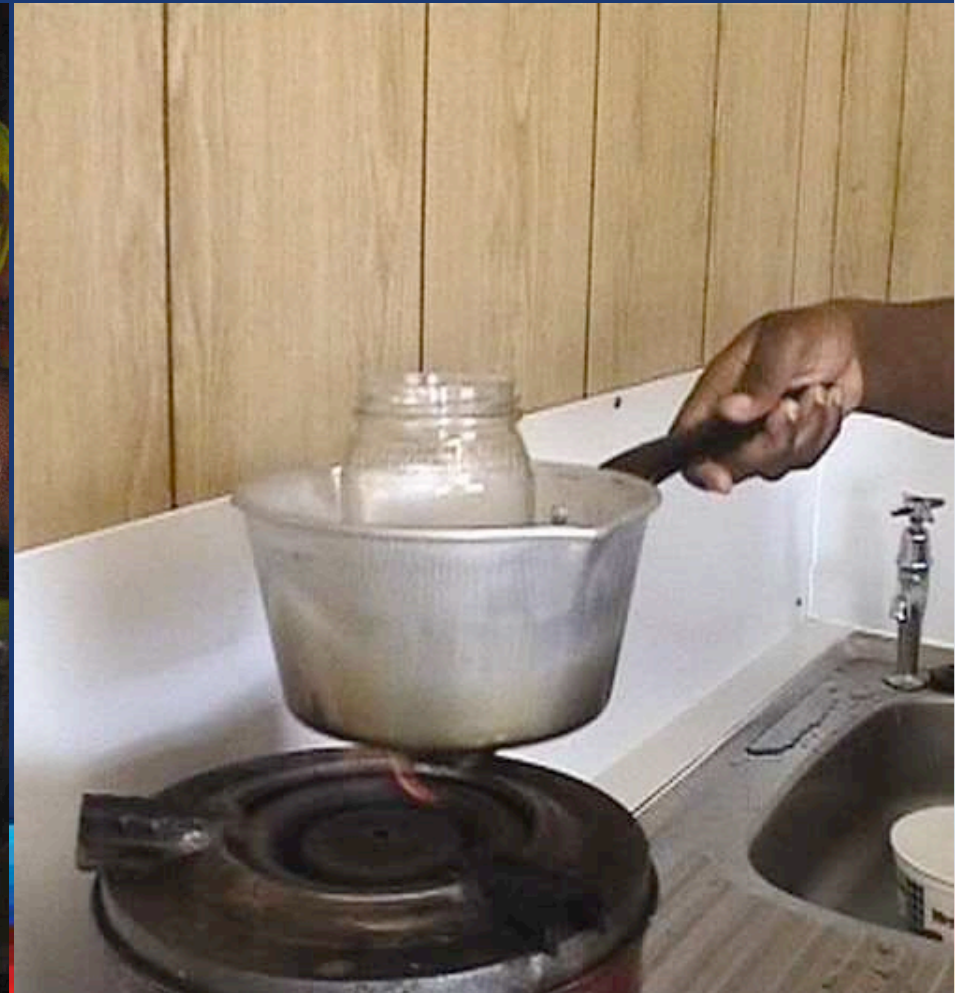
Israel-Ballard K. et al, in press JAIDS 2008



Flash heating method: approximately (50-120ml) breastmilk is expressed into a clean 450ml glass jar



Flash heating: jar of EBM (50-120ml) is placed in a 1 litre aluminium pot with water level 2 fingers above the milk, and water is brought to the boil - any heat source is suitable



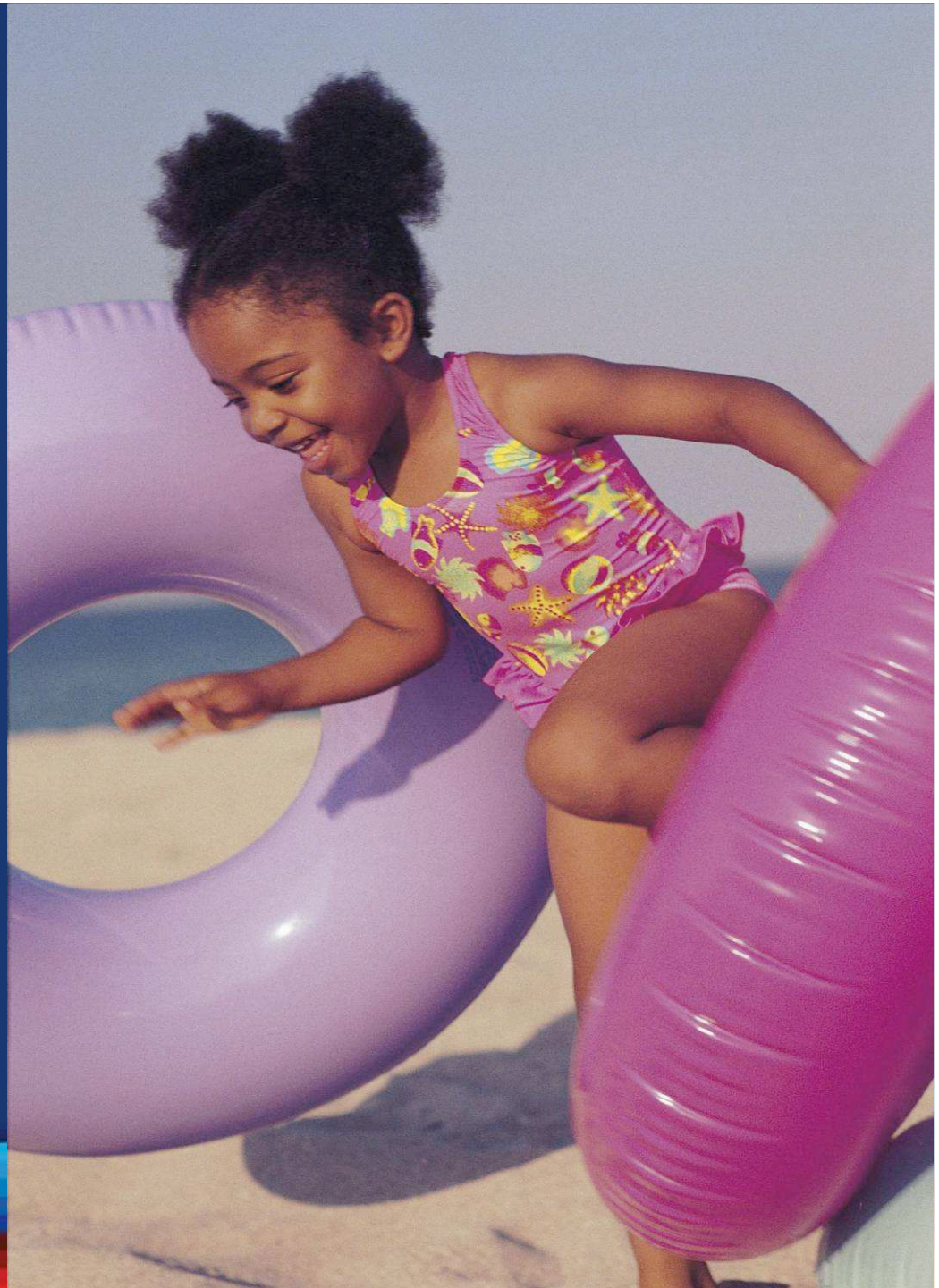
Ready when water has reached a rolling boil



Once HTEBM is cooled it is poured into a cup and fed to the infant



For the sake of future generations of mothers and children we must continue investigation until we have workable solutions that take into account the social contexts as well as the health of the mother, child and the community



GLOSSARY

- AFASS: see slide 15
- HAART: Highly Active Anti Retroviral Therapy - refers to the use of treatment for AIDS with at least 3 drugs
- ARV: Anti RetroViral Treatment - refers to any antiretroviral drug eg nevirapine. Can be 1 or more
- HTEBM: Heat Treated Expressed Breast Milk
- UC: University of California

