HIV Infection in Pregnancy

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RHR/STI

Session outline

- Effect of pregnancy on HIV infection
- Effect of HIV on pregnancy
- Effect of maternal HIV on pregnancy outcome
- Prevention interventions for MTCT

The burden of HIV in pregnancy

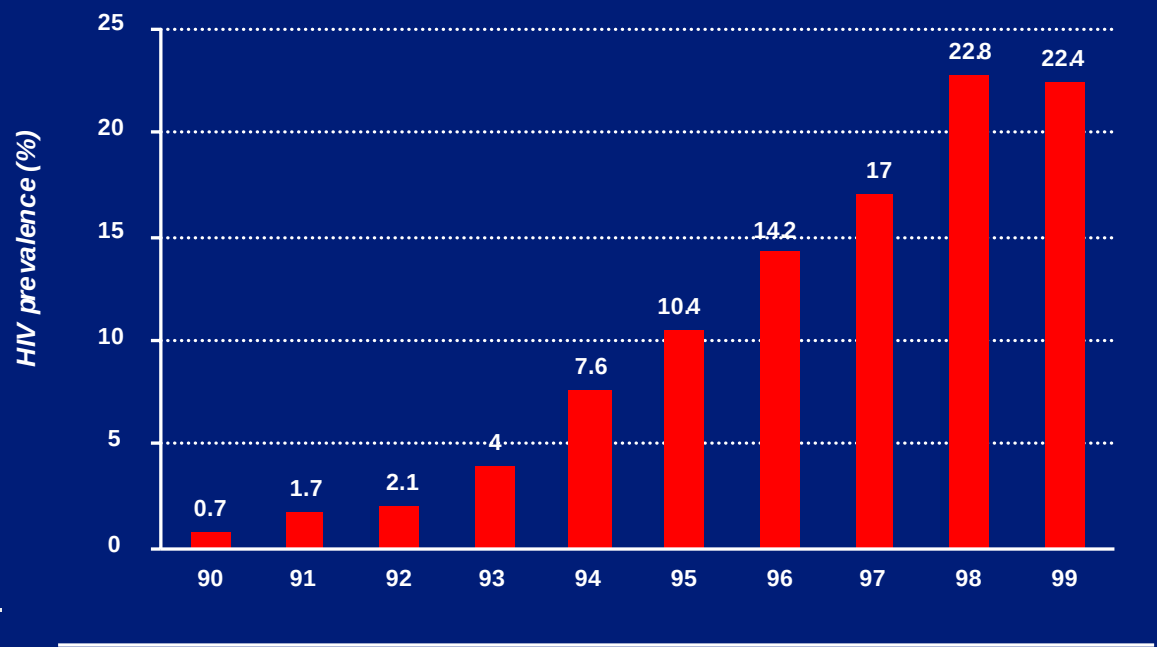
- **People living with HIV/AIDS globally (2004)…….40 million**
- **Pregnant women living with HIV/AIDS……1 million**
- **New HIV infections in 2004……..5 million**
- **Newborn infected each day…… c. 1600**

Effect of pregnancy on HIV

- **HIV-positive women do not seem to have a worse prognosis from HIV on account of becoming pregnant**
- **Short-course treatments to prevent infection of a newborn are not the best choice for the mother's health**
- **Medications taken only during labour and delivery may precipitate resistance to future treatment options for the mother**
- **Combination therapies are the standard treatment**

Burden of HIV in pregnancy

HIV prevalence among pregnant women in South Africa, 1990 to 1999



UNAIDS

00001-E-13- 27 June2000

Source: *Department of Health, South Africa*

World Health Organization

Consequences on Pregnancy

Complications of pregnancy and delivery found among HIV positive (mainly symptomatic) women compared to HIV negative women: 1990-99

- **More frequent and severe reproductive tract infections**
- **More severe and more frequent blood loss, sepsis and delayed wound healing after caesarean section, and induced abortion**
- **Lower fertility rate ratios**
- **Insufficient weight gain in pregnancy**

Complications of pregnancy and delivery found among HIV positive (mainly symptomatic) women compared to HIV negative women: 1990-99

- **Higher rates of ectopic pregnancy**
- **Greater risk of post-partum haemorrhage and post-partum sepsis**
- **More frequent and severe anaemia and malaria, and possibly tuberculosis.**
- **Complications of AIDS-related conditions, such as bacterial pneumonia**

Consequences on The Newborn

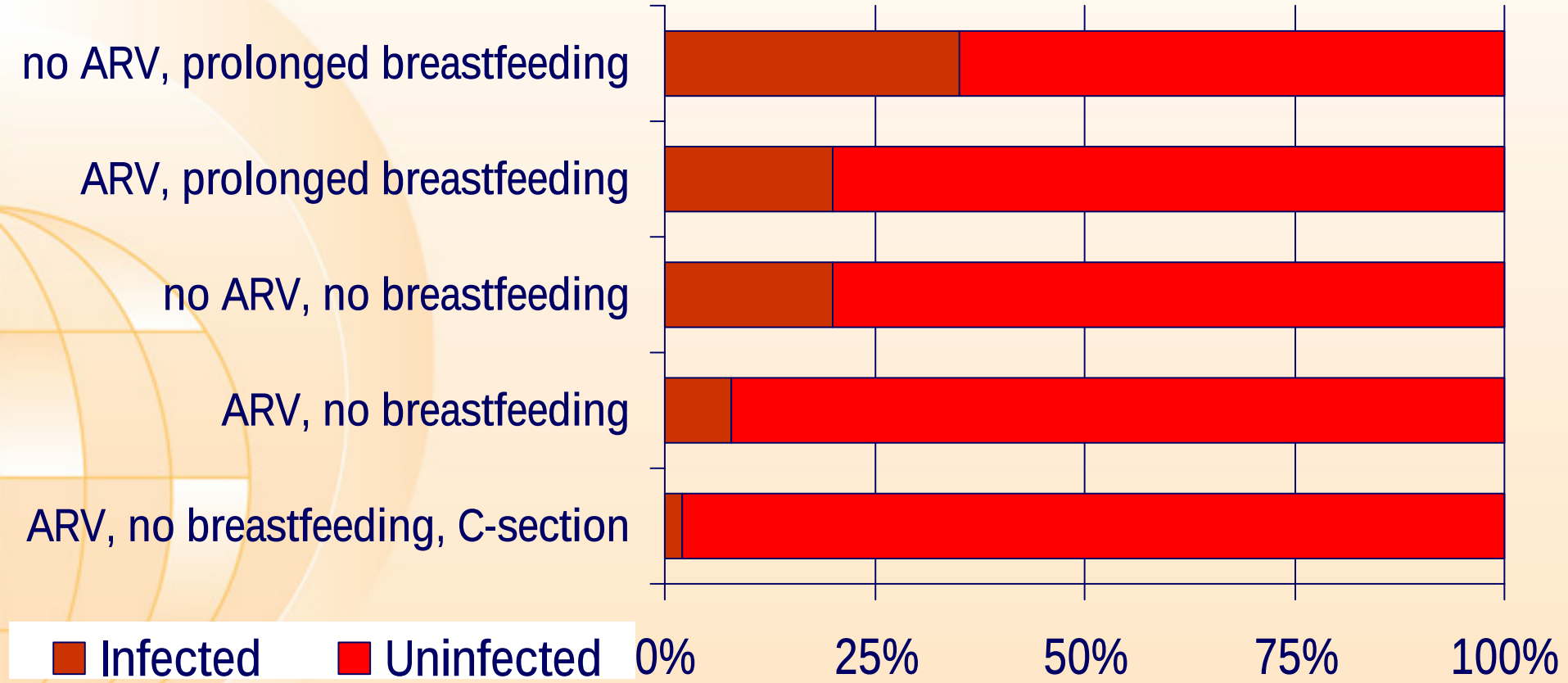
Consequences on Pregnancy

Transmissible Infections	Possible Outcome						
	Spontaneous abortion	Ectopic pregnancy	Anaemia	Premature rupture of membranes	Prematurity & Low birthweight	Stillbirth	Post-partum infection
Malaria	✓		✓		✓	✓	
TB						✓	
Syphilis	✓				✓	✓	
HIV/AIDS			✓		✓	✓	
Gonorrhea / Chlamydia				✓	✓		✓
Bacterial vaginosis				✓	✓		

Consequences on the newborn

Transmissible Infections	Transmission & Possible Effects for the Infant
Malaria	➢ Congenital malaria
Tuberculosis	➢ Rarely congenital tuberculosis ➢ Transmitted during breast feeding
Syphilis	➢ Congenital syphilis (in approx. 1/3 of cases). Can result in infant death or long-term illness ➢ Transmitted during pregnancy
HIV/AIDS	➢ Transmission can occur during pregnancy, delivery, and through breastfeeding in up to 30-40% of infected mothers ➢ Paediatric AIDS. Causes long-term illness and death. Half of infected infants die within their first 36 months.
Gonorrhea	➢ Opthalmia neonatorum. Can result in blindness ➢ Infection occurs during delivery through birth canal ➢ Ocular prophylaxis (eye-drops given to newborn within one hour of birth) can prevent Ophthalmia neonatorum
Chlamydia	➢ Ophthalmia neonatorum ➢ Neonatal pneumonia
Hepatitis B	➢ Possible transmission during pregnancy
Herpes simplex virus	➢ Congenital herpes. Affects nervous system and can cause death ➢ Transmitted during pregnancy and through exposure during delivery

The variable risk of MTCT of HIV (with and without preventive interventions



Prevention of MTCT through antiretrovirals

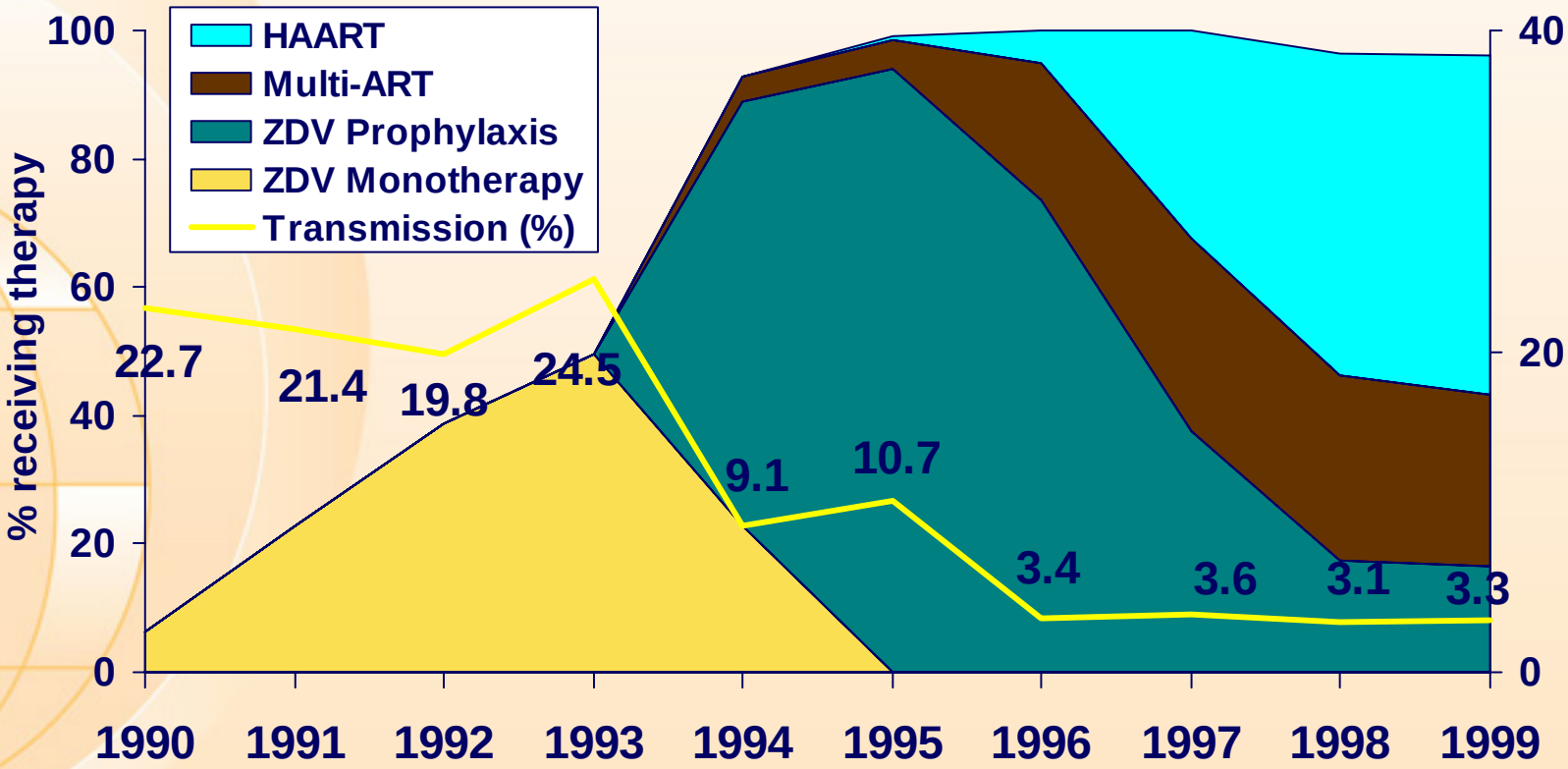
World Health Organization
Reproductive Health and Research
hrp
UNDP • UNFPA • WHO • World Bank
Special Programme of Research, Development and Research Training in Human Reproduction

Prevention of MTCT through antiretrovirals

Mechanisms of action:

- Maternal component
  - Reduce viral load in mother's blood, genital fluids (and milk) during pregnancy, delivery (and breastfeeding)
- Infant regimen:
  - Acts as a post-exposure prophylaxis (viral particles transmitted during birth are eliminated

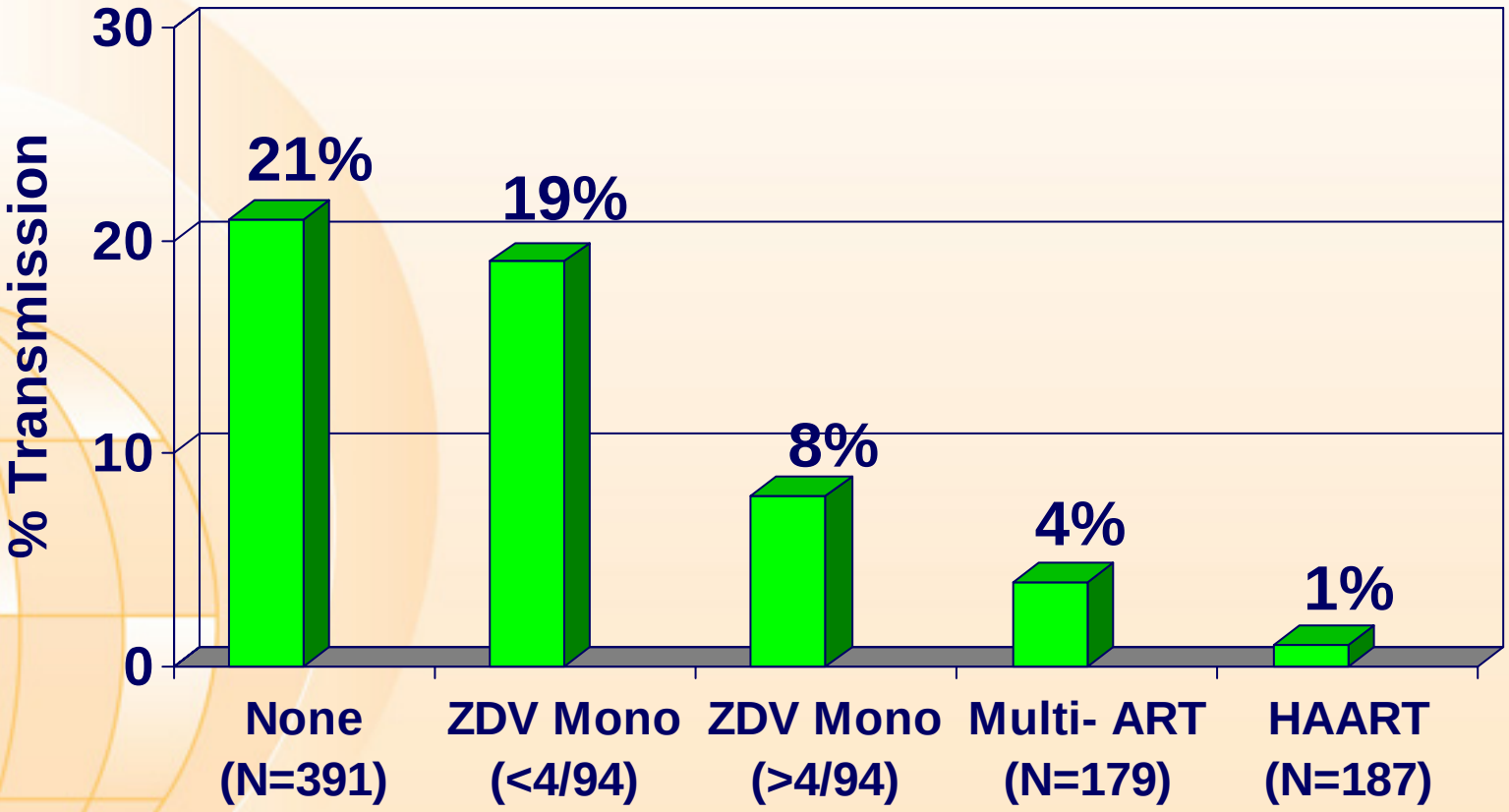
ARV Use and HIV Transmission
(WITS, USA)



Source: Blattner, Durban 2000, LbOr4

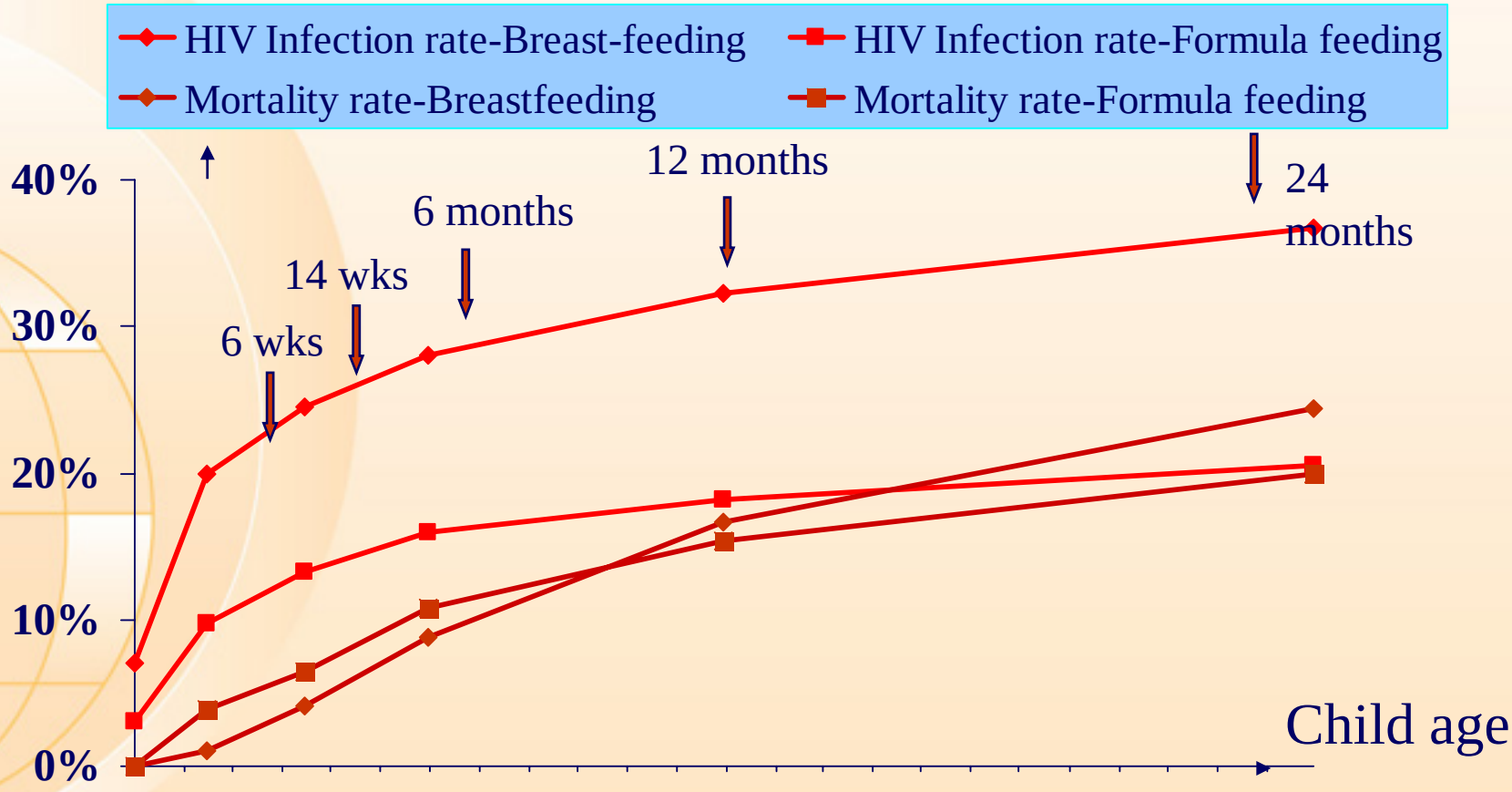
Antenatal Antiretroviral Treatment and Perinatal Transmission in WITS, 1990-1999

Blattner W. XIII AIDS Conf, July 2000, Durban S Africa (LBOr4)



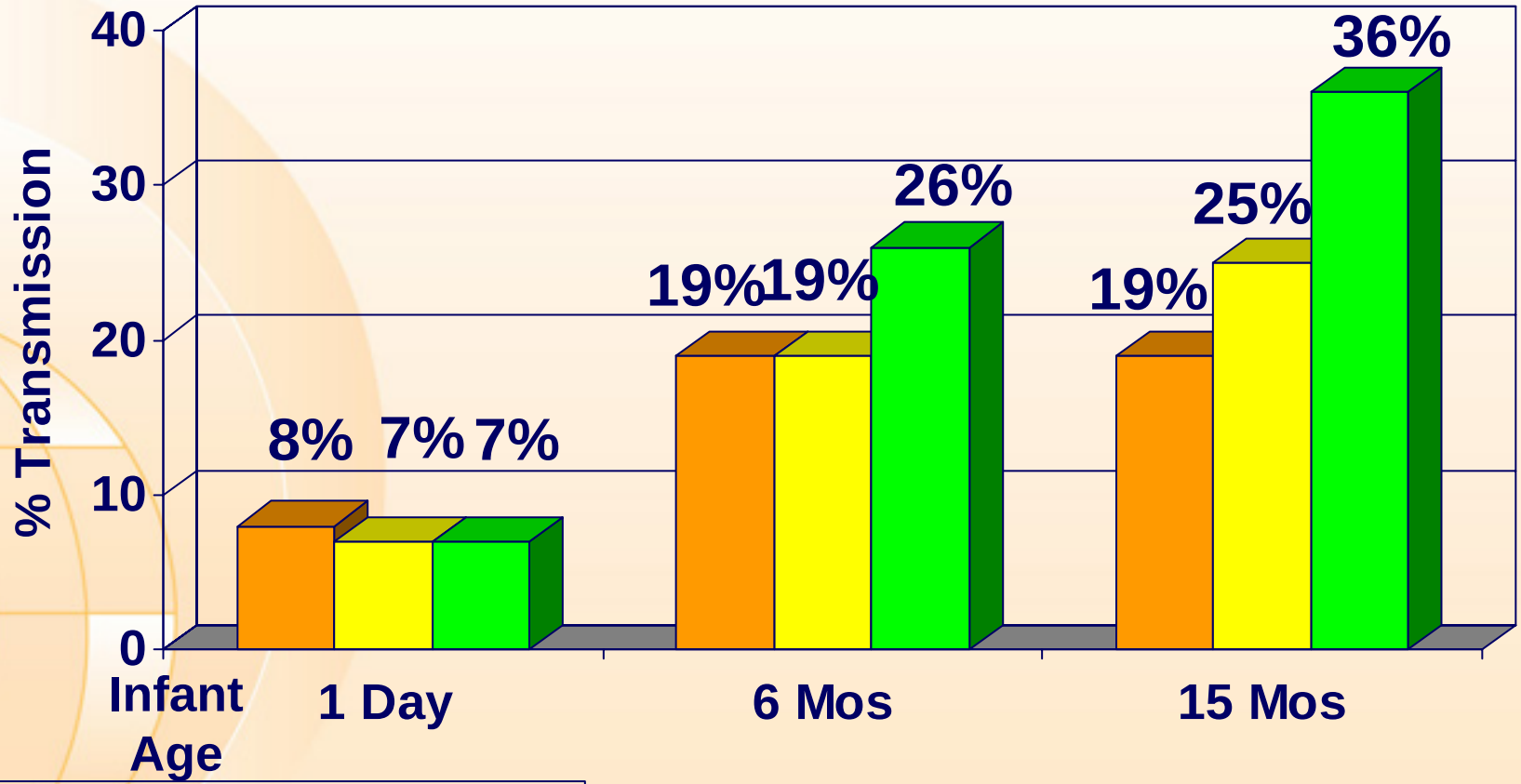
Type ARV vs None p value:	ZDV Mono (<4/94) (N=206)	ZDV Mono (>4/94) (N=529)	Multi- ART (N=179)	HAART (N=187)
	0.76	<0.01	<0.01	<0.01

Balancing the risks of breastfeeding and formula feeding



Source: Nduati et al. JAMA 2000

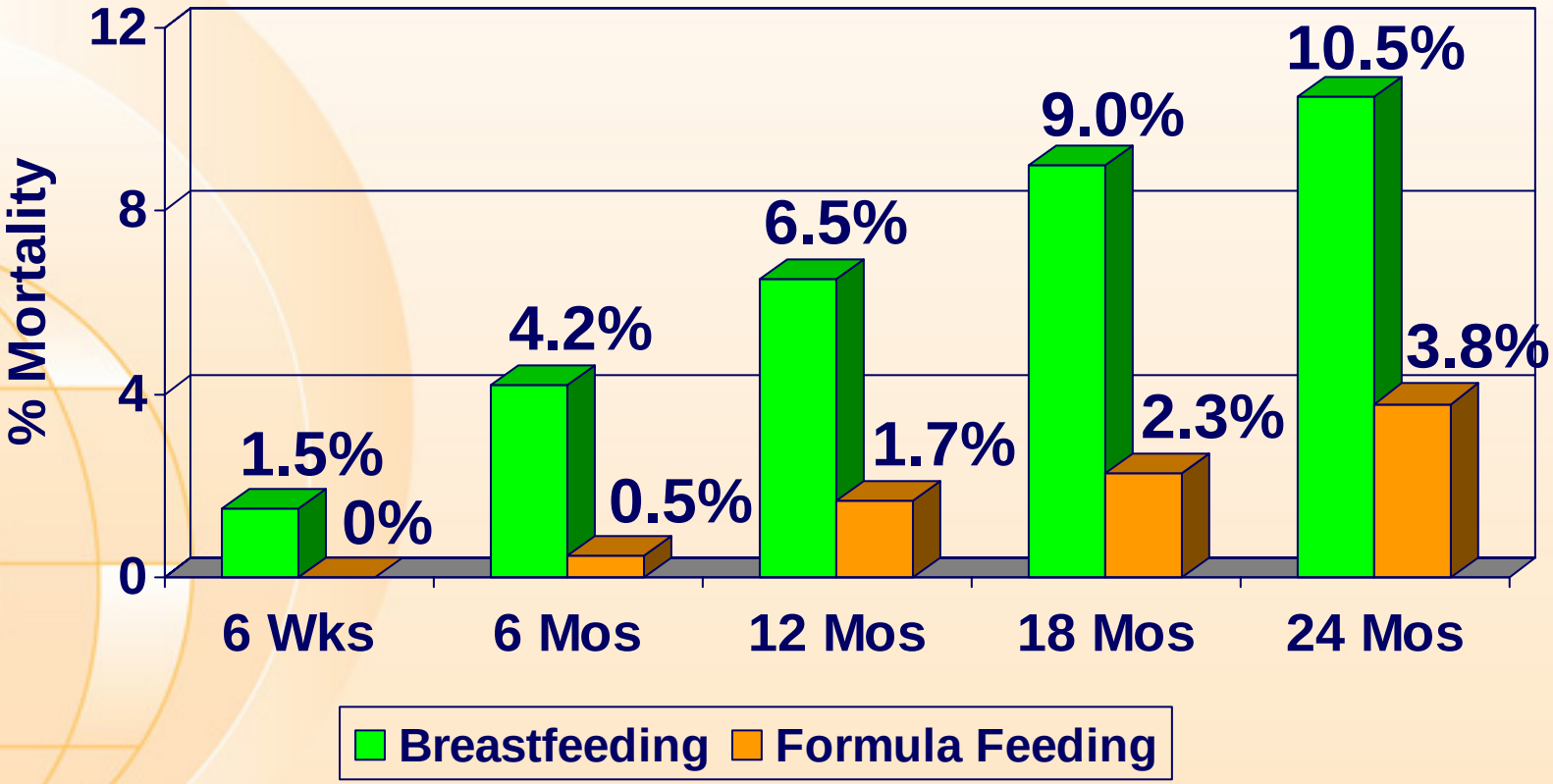
Method of Infant Feeding and HIV Transmission in Breastfeeding Children *Coutsoudis A. XIII AIDS Conf, July 2000, Durban S Africa (LbOr6)*



At 6 months:
Exclusive vs Mixed: 0.6 (0.3-1.0)
Exclusive vs Never: 1.2 (0.6-2.2)

Mortality in Breast- and Formula-Feeding HIV-Infected Women, Kenya

Nduati R. XIII AIDS Conf, July 2000, Durban S Africa (WeOrC495)



RR Death (Breast vs Formula): 3.2 (95% CI 1.3-8.1%), p=0.01

New HIV infections and cumulative MTCT transmission rates by age and treatment group > 500 CD4

Age	ZDV (N = 16 / 177) HIV Transm. Rate	Placebo (N = 38 / 179) HIV Transm. Rate (No.)	% Efficacy	95% CI
2 weeks	6.0	14.7	59%	12 - 81
6 weeks	7.7	19.3	60%	27 - 78
3 mos.	8.4	19.3	57%	23 - 76
6 mos.	8.8	19.2	54%	18 - 74
12 mos.	9.1	20.9	56%	24 - 75
18 mos.				
24 mos.	9.1	22.0	59%*	28 - 76

* risk difference at 24 months = 12.7% (5.1 - 20.3%)

New HIV infections and cumulative MTCT transmission rates by age and treatment group < 500 CD4

Age	ZDV (N = 50 / 137) HIV Transm. Rate	Placebo (N = 55 / 136) HIV Transm. Rate (No.)	% Efficacy	95% CI
2 weeks	20.1	26.1	23%	-27 - 53
6 weeks	25.6	32.0	20%	-18 - 46
3 mos.	27.5	34.3	20%	-17 - 45
6 mos.	29.3	35.3	17%	-19 - 42
12 mos.	38.5	38.0	-1%	-39 - 26
18 mos.				
24 mos.	39.6	41.3	4%*	-30 - 29

* risk difference at 24 months = 2.4% (-9.9 - 14.8%)

END