

The Impact of HIV in Africa: Unmet Reproductive Health Needs of HIV Infected Women in Malawi

**Taha E. Taha MD PhD
Professor, Infectious Diseases Program
Department of Epidemiology
Johns Hopkins University
Bloomberg School of Public Health
Baltimore, MD, USA**

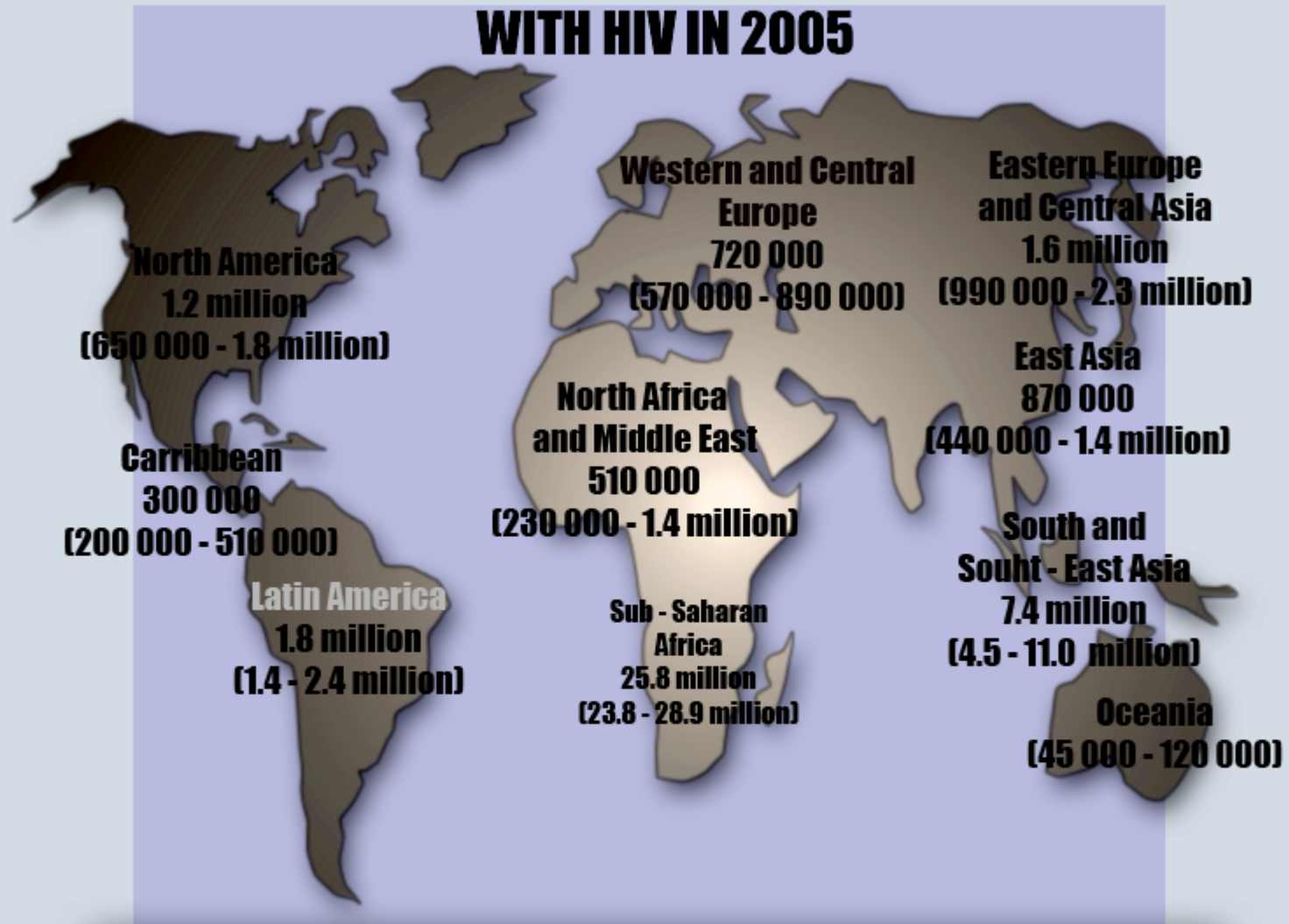
Outline

- **Review data from several observational and intervention studies conducted in Blantyre, Malawi and summarize the impact of HIV on the health of women and children.**
- **Examine unmet reproductive health needs and challenges to satisfy the needs of women and children in settings where HIV prevalence is high.**

Background

- **Several prevention programs are either effective or have the potential in reducing transmission or acquisition of HIV: treatment of STIs, antiretroviral therapy, condom use, microbicides, HIV vaccines, etc.**
- **However, family planning approaches, and especially prevention of unintended pregnancies to reduce the impact of HIV are not usually included in HIV prevention programs. Integrating family planning services into MTCT prevention services could have major benefits.**

ADULTS AND CHILDREN ESTIMATED TO BE LIVING, WITH HIV IN 2005



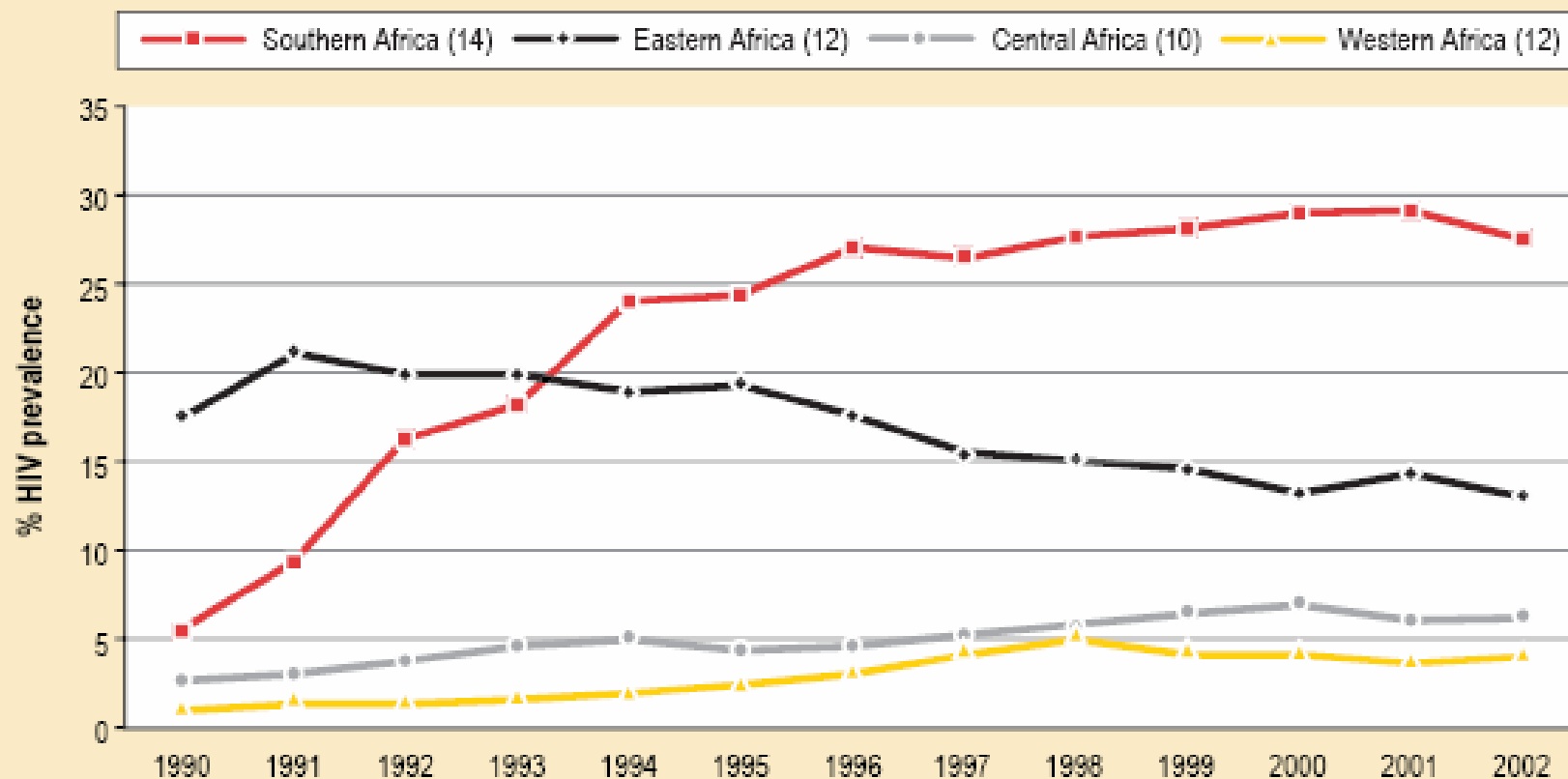
Total : 40.3 (36.7 -45.3) million

SUB-SAHARAN AFRICA

HIV and AIDS statistics and features, in 2003 and 2005

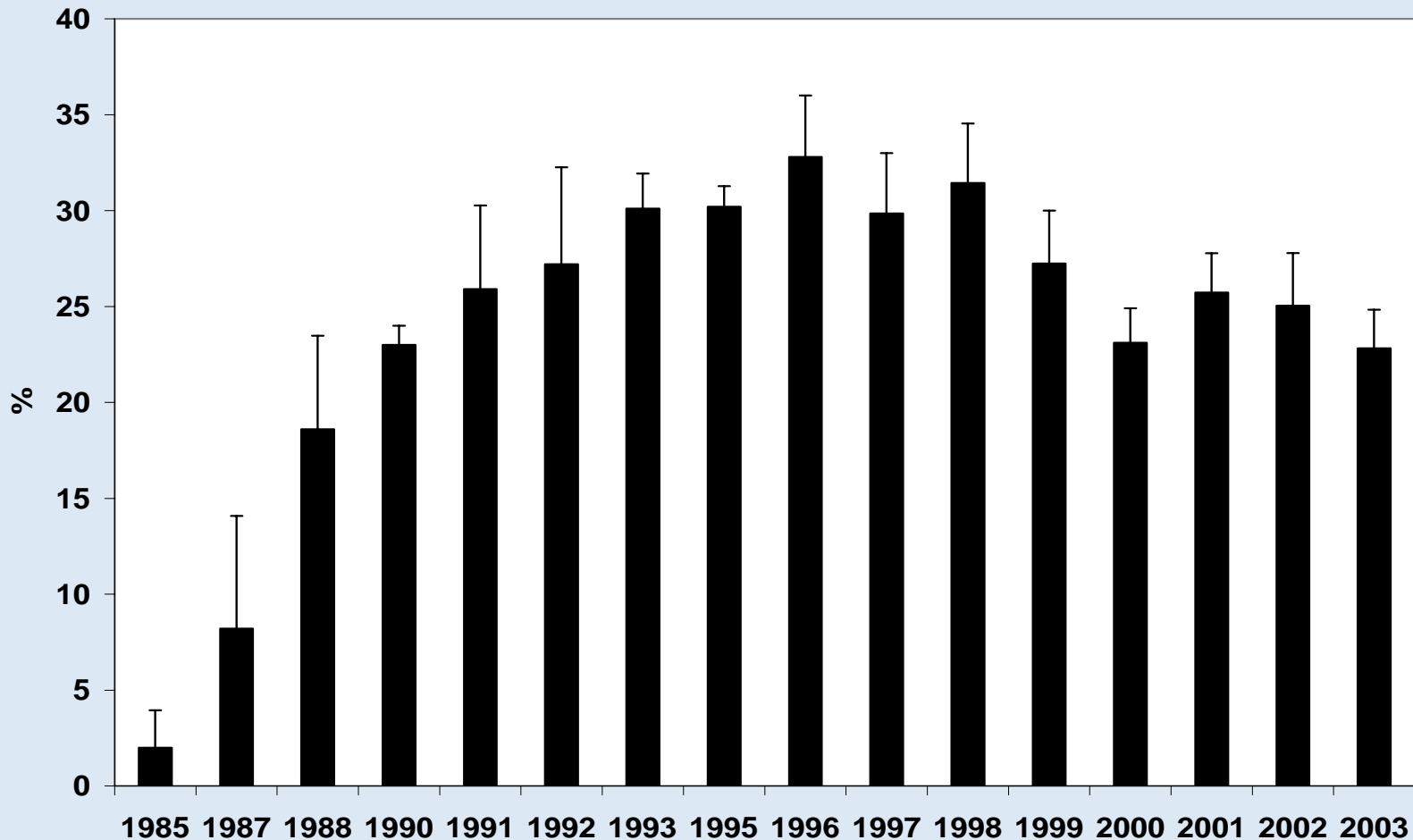
| | Adults and children living with HIV | Number of women living with HIV | Adults and children newly infected with HIV | Adult prevalence (%) ^a | Adult and child deaths due to AIDS |
|------|-------------------------------------|-------------------------------------|---|-----------------------------------|------------------------------------|
| 2005 | 25.8 million [23.8–28.9 million] | 13.5 million [12.5–15.1 million] | 3.2 million [2.8–3.9 million] | 7.2 [6.6–8.0] | 2.4 million [2.1–2.7 million] |
| 2003 | 24.9 million [23.0–27.9 million] | 13.1 million [12.1–14.6 million] | 3.0 million [2.7–3.7 million] | 7.3 [6.7–8.1] | 2.1 million [1.9–2.4 million] |

Median HIV prevalence (%) in antenatal clinics in urban areas, by subregion, in sub-Saharan Africa, 1990–2002

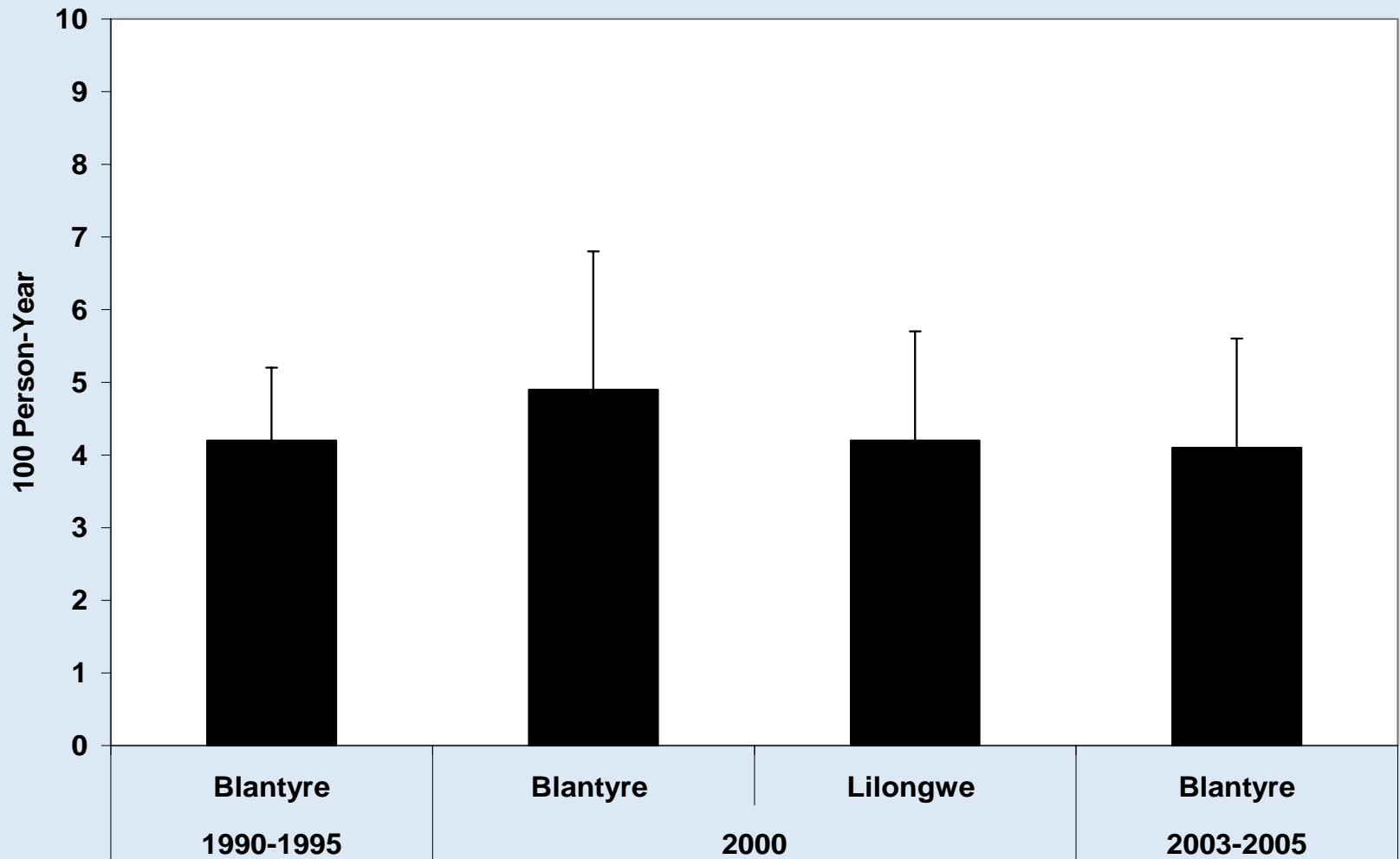


Source: Adapted from WHO AFRO 2003 Report

HIV-1 Prevalence among Antenatal & Intrapartum Women, Blantyre, Malawi



HIV-1 Incidence among Antenatal & Postnatal Women in Malawi



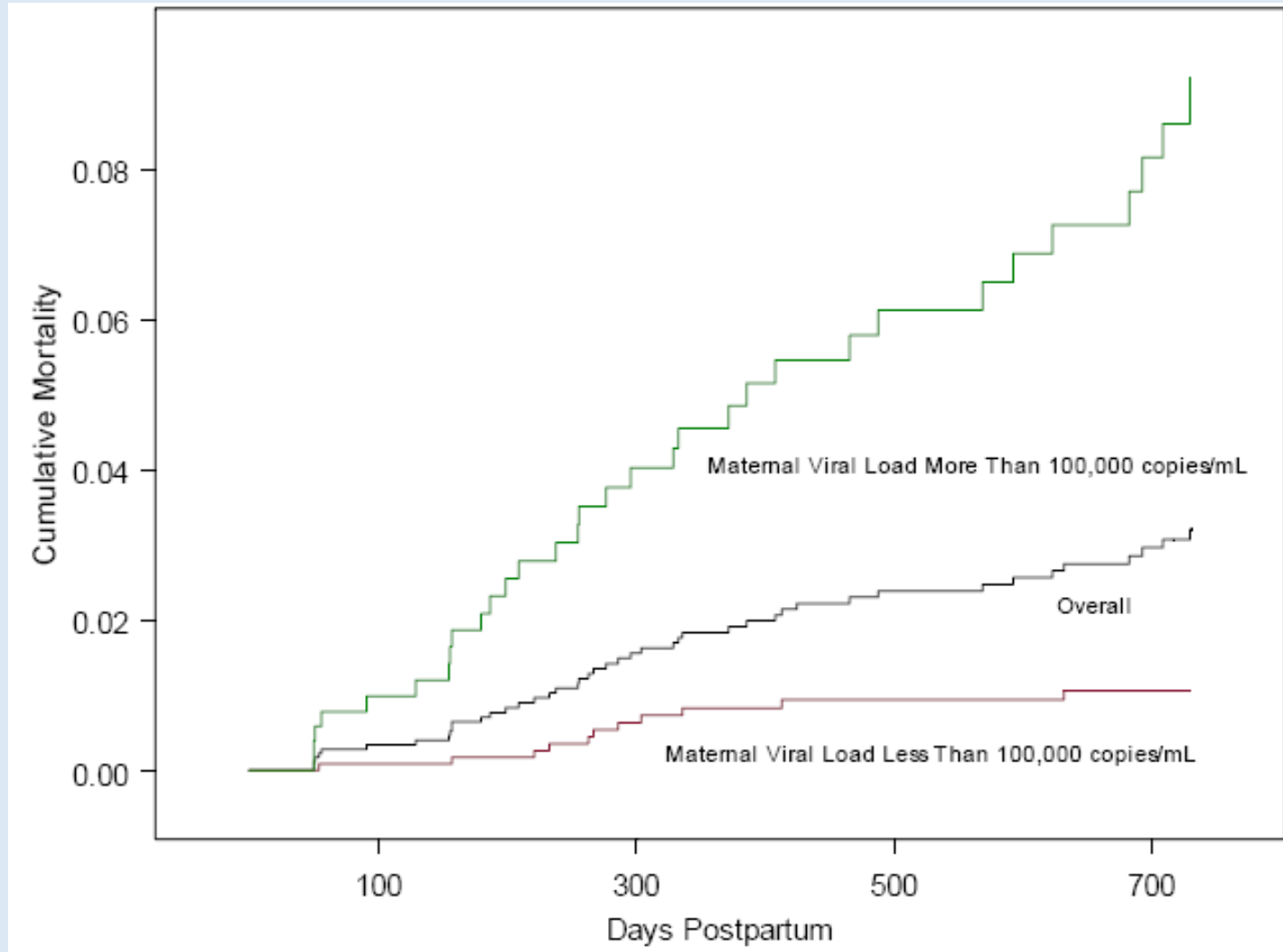
The Impact of HIV Infection on the Health of Women and Children

- **In Malawi, both maternal mortality and infant mortality are high. The DHS overall national estimate in 2000 of maternal mortality ratio was 1,120 per 100,000 live births and under-five child mortality was 189 per 1000 live births.**
- **HIV infection is assumed to substantially contribute to these high mortality levels.**

The Impact of HIV Infection in Malawi: Maternal Mortality

- **In a longitudinal MTCT prevention study (NVAZ STUDY) of HIV infected mothers, the estimated overall two year cumulative maternal mortality was 3,200/100,000 and the cumulative child mortality was 195/1000.**

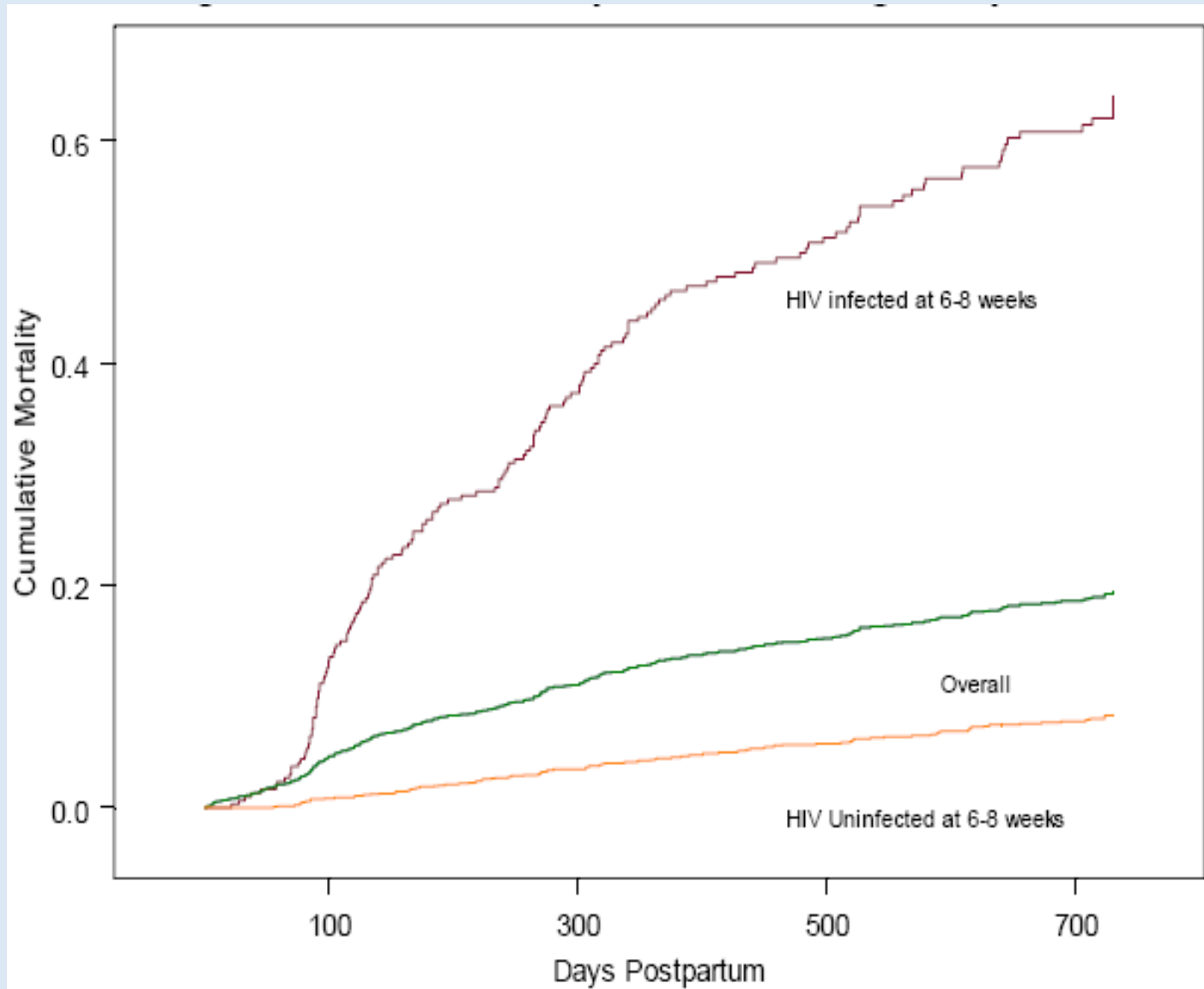
Cumulative Mortality among HIV Infected Women, Malawi



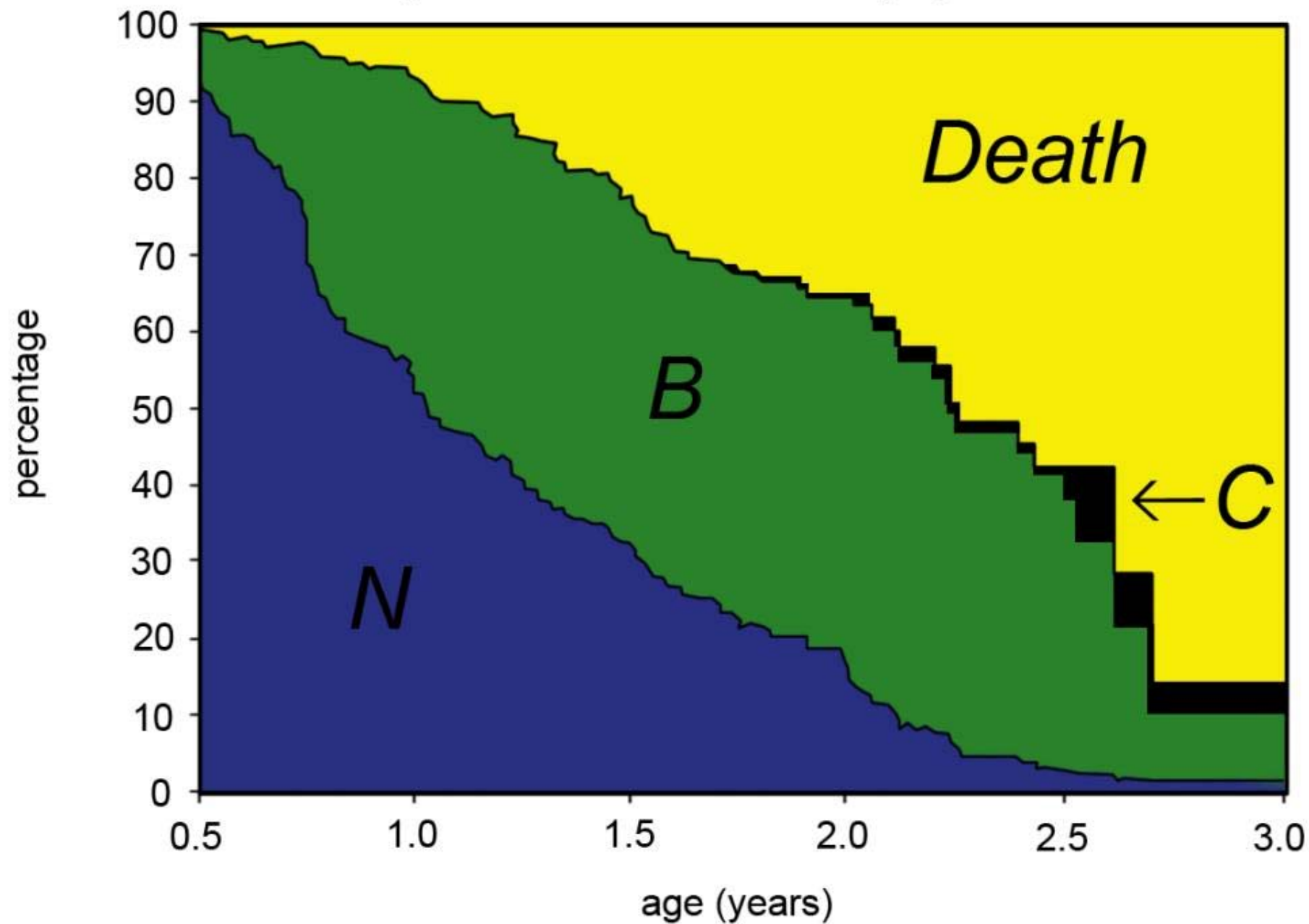
Infant/Child Mortality in Malawi

- In the NVAZ study (2000-03), the overall cumulative mortality at 12 and 24 months were 132/1000 and 195 /1000, respectively.
- Among HIV infected children mortality was several-folds higher than in HIV uninfected children and progression of HIV disease was rapid: ~89% of HIV infected children die by 3 years in Malawi.

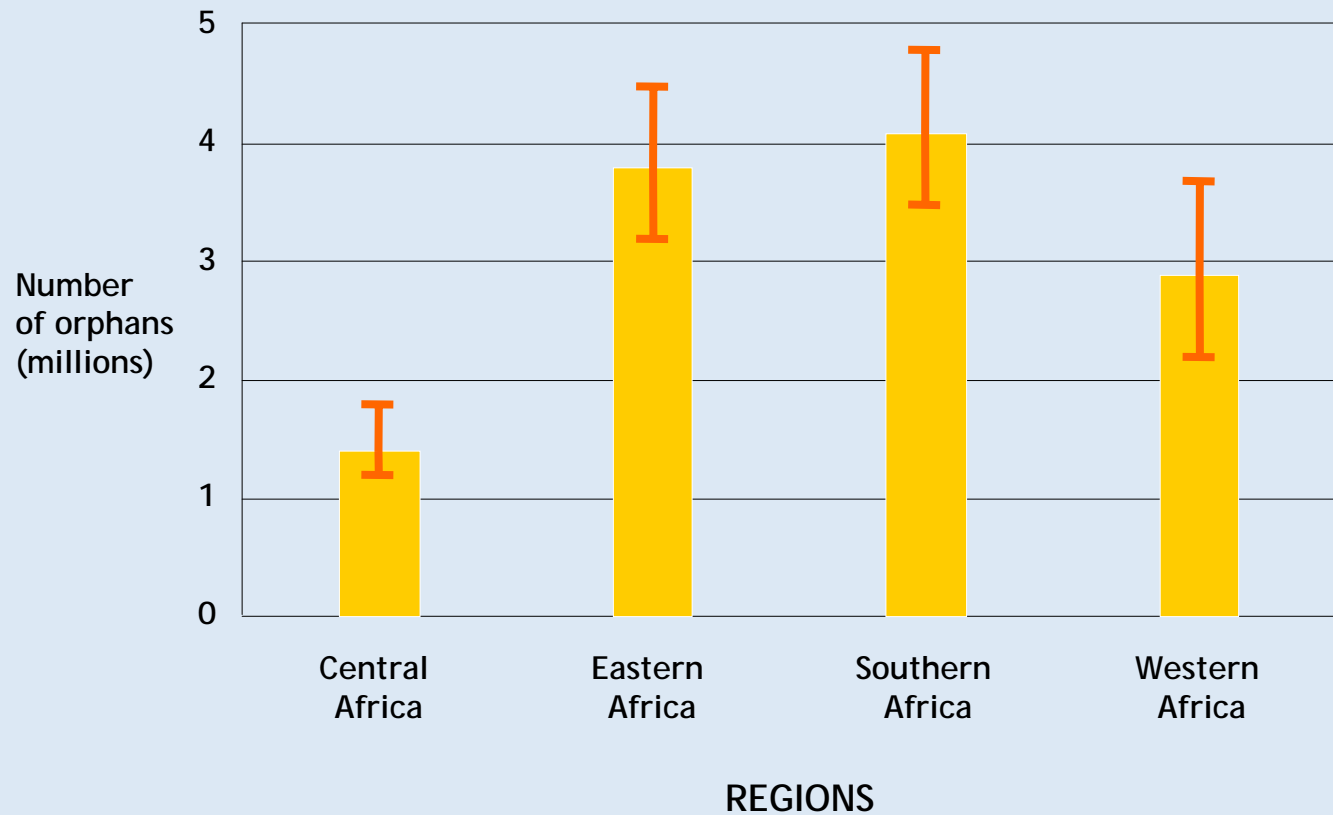
Infant/Child Mortality, Malawi



Cumulative mortality and clinical classification by age in infected children



Orphans per Region, Sub-Saharan Africa, End 2003



Source: UNAIDS, 2004

2004 Report on the Global AIDS Epidemic (Fig 15)

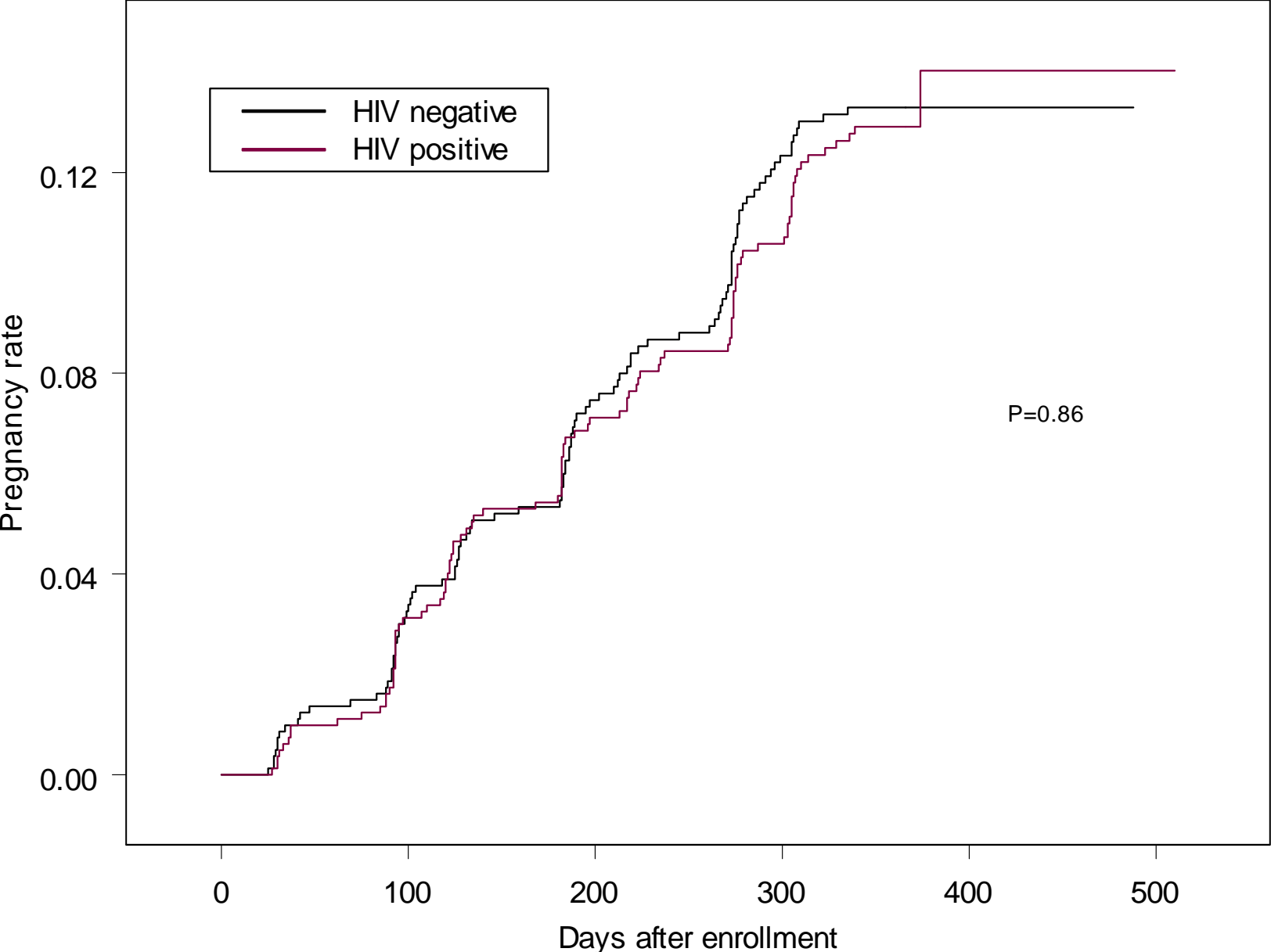
Fertility Intentions and Unmet Needs, Malawi

- **In the METRO Study in Blantyre, Malawi, we enrolled 1683 women (842 HIV uninfected and 841 HIV infected) who were not pregnant at time of screening and followed them for one year with visits every 3 months to determine their fertility intentions at baseline and over time.**

Pregnancy Rates by HIV Status

| | # Pregnancies at Visit 1.0 | # pregnancies at 6 months | # pregnancies at 12 months | Incidence Per 100 PY | P-Value |
|---------|----------------------------|---------------------------|----------------------------|----------------------|---------|
| Overall | 0 | 99 | 201 | 14.1 | 0.94 |
| HIV+ | 0 | 52 | 100 | 13.9 | |
| HIV- | 0 | 47 | 101 | 14.2 | |

Comparison of pregnancy rate between HIV infected and uninfected women, Metro Study, Malawi



Pregnancy Rates by Intention

| | | # Pregnancies at Visit 1.0 | # Pregnanc. at 6 months | # Pregnanc. at 12 months | Incidence Per 100 PY | P-Value |
|-------------|--|----------------------------------|-------------------------------|--------------------------------|----------------------------|------------------|
| HIV- | Wants pregnancy (at V 1.0) | 0 | 33 | 71 | 18.7 | <0.001 |
| | Doesn't want pregnancy (at V 1.0) | 0 | 11 | 24 | 7.6 | |
| HIV+ | Wants pregnancy (at V 1.0) | 0 | 18 | 39 | 22.0 | 0.001 |
| | Doesn't want pregnancy (at V 1.0) | 0 | 32 | 56 | 10.8 | |

Pregnancy Intentions Among HIV Infected: Longitudinal Results

| | Visit1.0 N % | Visit2.0 N % | Visit3.0 N % | Visit4.0 N % | Visit5.0 N % | P-value |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|------------------|
| Wants Pregnancy | 215 21.4 | 216 29.7 | 182 27.4 | 143 22.6 | 125 20.6 | <0.001 |
| Does not want pregnancy | 599 73.6 | 512 70.3 | 482 72.6 | 491 77.4 | 481 79.4 | <0.001 |
| FP use (non-condom: sexual active only) | 507 61.7 | 476 65.9 | 456 68.8 | 429 67.8 | 403 67.1 | 0.02 |
| Condom use (sexual active only) | 38 4.6 | 23 3.2 | 24 3.6 | 22 3.5 | 20 3.3 | 0.27 |

Pregnancy Intentions among HIV-Uninfected: Longitudinal Results

| | Visit1.0 | Visit2.0 | Visit3.0 | Visit4.0 | Visit5.0 | P-value |
|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-------------------|
| | N | N | N | N | N | |
| | % | % | % | % | % | |
| Wants pregnancy | 469 57.2 | 431 59.7 | 368 57.4 | 330 55.1 | 324 52.1 | 0.02 |
| Does not want pregnancy | 351 42.8 | 291 40.3 | 273 42.6 | 269 44.9 | 298 47.8 | 0.02 |
| FP use (non condom: sexual active only) | 618 76.6 | 559 79.9 | 490 79.4 | 453 77.4 | 431 71.5 | 0.03 |
| Condom use (sexual active only) | 18 2.2 | 4 0.6 | 2 0.3 | 4 0.7 | 1 0.2 | <0.0001 |

HIV infection and contraception use in Malawi

- As in many places in Africa, women do not know their HIV status in Malawi, and are not adequately counseled to make informed decisions about their reproductive options.
- Hormonal contraceptive use has increased but condom use (both male and female) remains low.

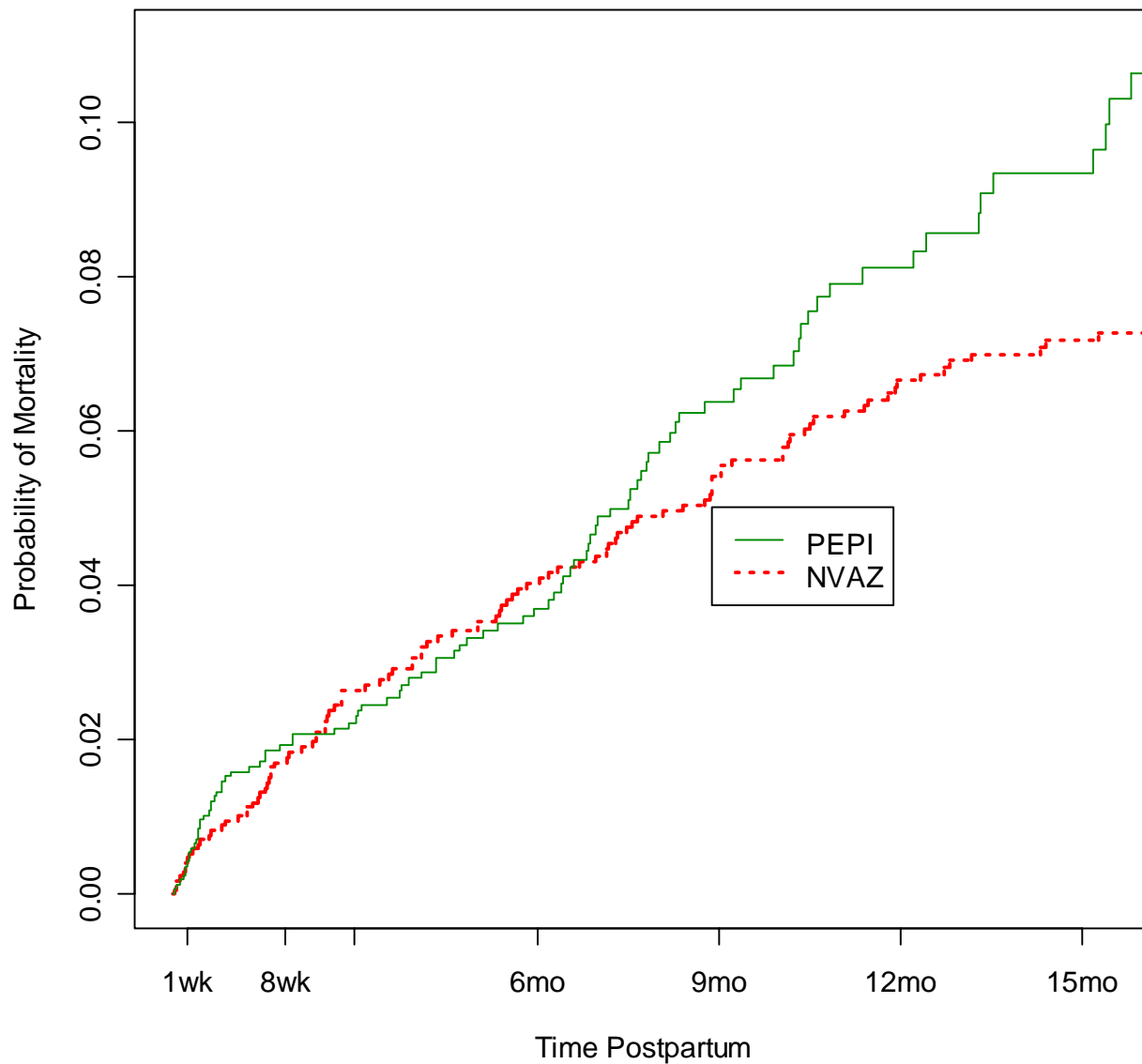
Effect of Breastfeeding

- **Breastfeeding, a natural method associated with lactational amenorrhea and delayed ovulation, is widely practiced in Malawi. HIV infected women (N=2000 HIV infected) practiced breastfeeding for a median of 18 months in the NVAZ study (2000-03).**
- **Breastfeeding patterns were not significantly associated with maternal mortality or morbidity after adjusting for maternal viral load and other covariates.**
- **Breastfeeding was significantly associated with reduced infant/child mortality (56% lower mortality for overall breastfeeding and 60% lower for exclusive breastfeeding). These protective effects were seen in both HIV uninfected and infected infants.**

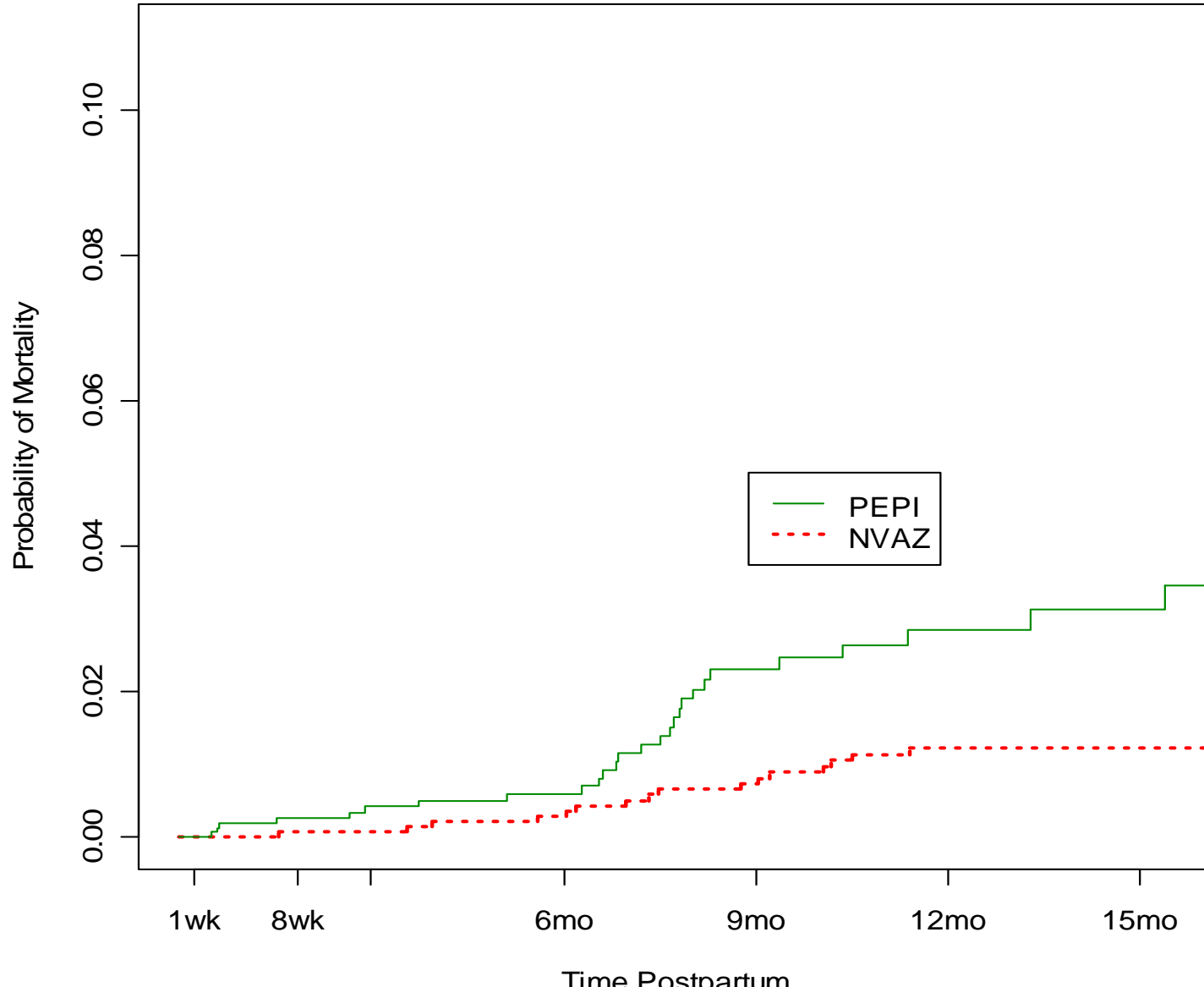
Effect of Breastfeeding

- **Breastfeeding, however, is a major mode of HIV transmission from an infected mother to her infant.**
- **In a prospective study of 1256 infants in Malawi the cumulative risk of late postnatal transmission (LPT) of HIV at 24 months was ~10% and weaning the infant by 6 months could have prevented >85% of LPT of HIV.**
- **Unfortunately, early weaning is associated with increased infant morbidity and mortality. Additionally, discontinuation of breastfeeding increases the risk of pregnancy in these women.**
- **This paradoxical situation is not clearly addressed in the current counseling programs.**

Kaplan-Meier Curves of Infant Mortality in PEPI (2004 to present) and NVAZ (2000-2003) Studies Among HIV Uninfected Infants, Malawi



Kaplan Meier Curves of Infant Gastroenteritis-Related Mortality in PEPI (2004 to present) and NVAZ (2000-2003) PEPI Studies Among HIV Uninfected Infants, Malawi



Conclusion

- **How to meet the reproductive needs of HIV infected women is unclear in the current HIV prevention programs.**
- **In addition to existing conventional prevention strategies, the introduction of antiretroviral treatment has increased the enthusiasm for better health and longer survival. It is unlikely that sexually active young women will be eligible for treatment.**
- **A balanced approach of multiple measures, including better counseling, is needed to meet the reproductive needs of HIV infected women.**

Acknowledgements

Co-Investigators

- Dr. Newton Kumwenda, Johns Hopkins Bloomberg School of Public Health
- Dr. George Kafulafula, College of Medicine, University of Malawi
- Chiwawa Nkhoma, JHU-MCOM Research Project, Blantyre, Malawi
- Shu Chen, Johns Hopkins Bloomberg School of Public Health
- Dr. Amy Tsui, Johns Hopkins Bloomberg School of Public Health

Funding

The Bill and Melinda Gates Institute for Population and Reproductive Health at Johns Hopkins Bloomberg School of Public Health provided support to conduct this study.