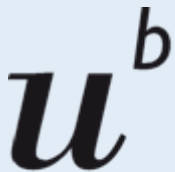


Outcomes of Antiretroviral Treatment in Resource Limited and Industrialized Countries

Matthias Egger MD

International epidemiological Databases to Evaluate AIDS (IeDEA)
ART Cohort Collaboration (ART-CC)
Swiss HIV Cohort Study (SHCS)

Universities of Bern and Cape Town
Switzerland and South Africa



Overview of talk

- Sources of information
- When do patients start ART?
- What regimens are used?
- What are the outcomes?
 - Loss to program
 - Virologic response
 - Opportunistic illnesses
 - All cause mortality
- Conclusions

Sources of information



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Antiretroviral Therapy (ART) Cohort Collaboration



- **France**
 - French Hospital Database on HIV (FHDH)
 - Aquitaine Cohort
- **Germany**
 - Frankfurt HIV Cohort
 - Köln / Bonn Cohort
- **Italy**
 - Italian Cohort of Antiretroviral-Naive Patients (ICONA)
- **Switzerland**
 - Swiss HIV Cohort Study
- **Netherlands**
 - AIDS Therapy Evaluation project Netherlands (ATHENA)
- **Spain**
 - PISCIS, Catalonia and Balearic islands
- **United Kingdom**
 - Royal Free Hospital Cohort, London
- **The Multicenter Study Group on EuroSIDA**
 - 29 European countries
- **Canada**
 - British Columbia Centre for Excellence in HIV (BCCfE-HIV)
 - South Alberta Clinic
- **USA**
 - Collaborations in HIV Outcomes Research US (CHORUS)
 - 1917 Clinic Cohort, University of Alabama, Birmingham
 - University of Washington HIV Cohort, Seattle
 - Veterans Aging Cohort Study (VACS), West Haven

www.art-cohort-collaboration.org

International epidemiological Databases to Evaluate AIDS



- 7 regional networks

- North America
- South America / Caribbean
- West Africa
- Central Africa
- East Africa
- Southern Africa
- Australia / Asia



- Resource limited countries networks

- ART-LINC Collaboration
- Kids-ART-LINC Collaboration
- Treat Asia HIV Observational Database (TAHOD)

www.iedea-hiv.org
www.art-linc.org
www.anecca.org
www.amfar.org

Large, public scale up programs in Sub-Saharan Africa

- Gugulethu township, Cape Town, RSA
- Khayelitsha township, Cape Town, RSA
- Centre de Prise en Charge de Recherche et de Formation (CEPREF), Abidjan, Côte d'Ivoire
- Lighthouse Clinic, Lilongwe, Malawi



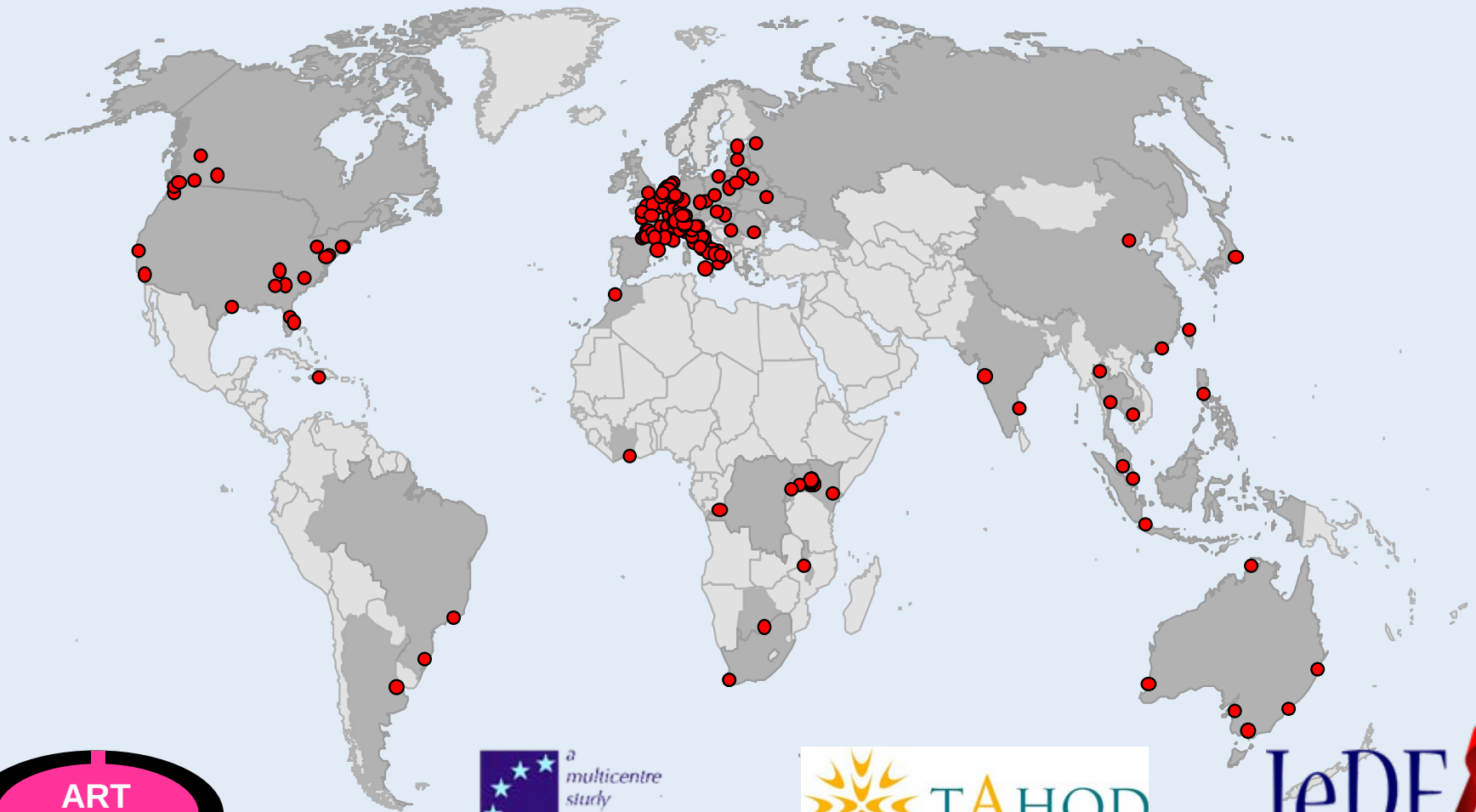
When do patients start antiretroviral treatment?



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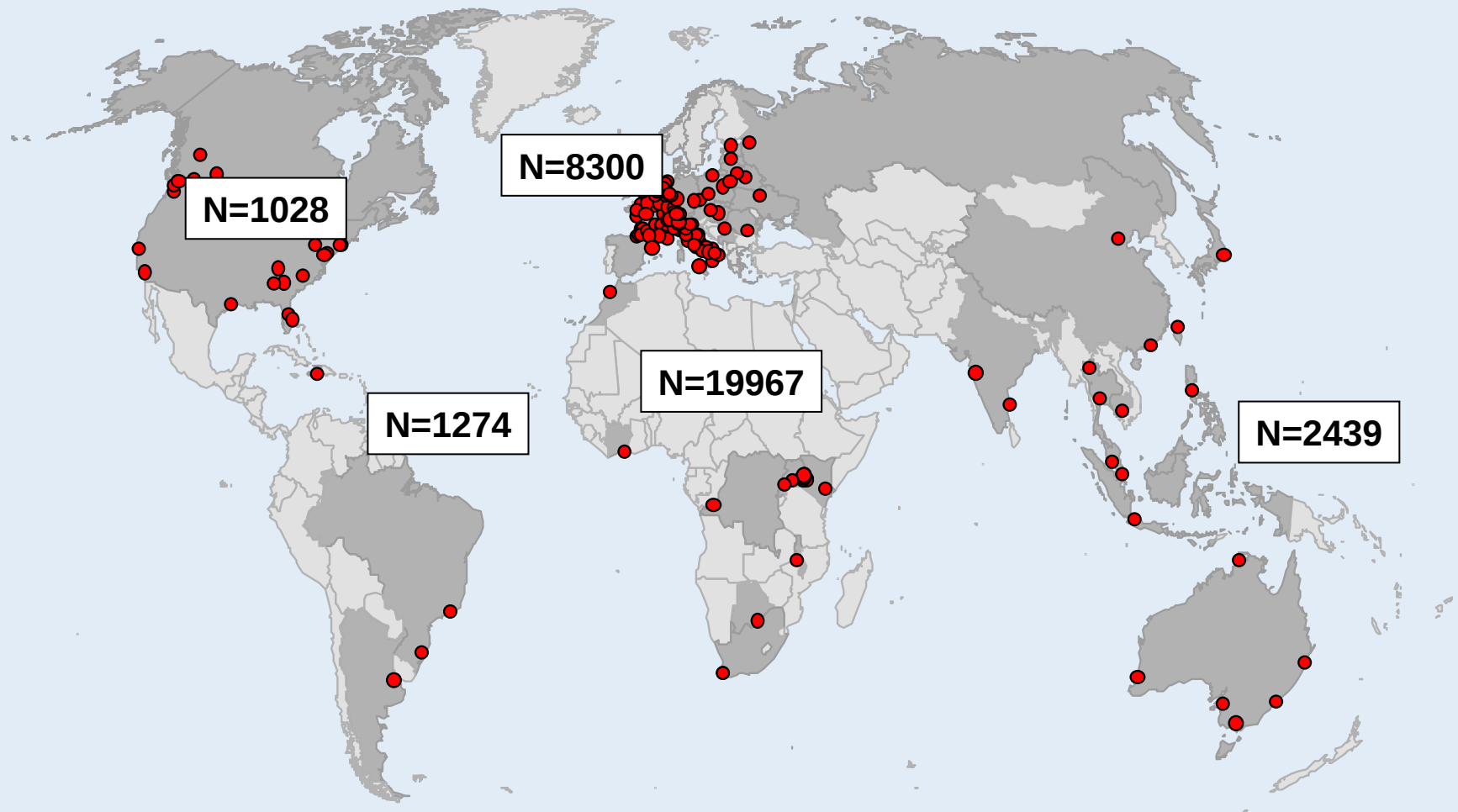
CD4 count at start of ART, 2003-2005

42 countries, 176 sites



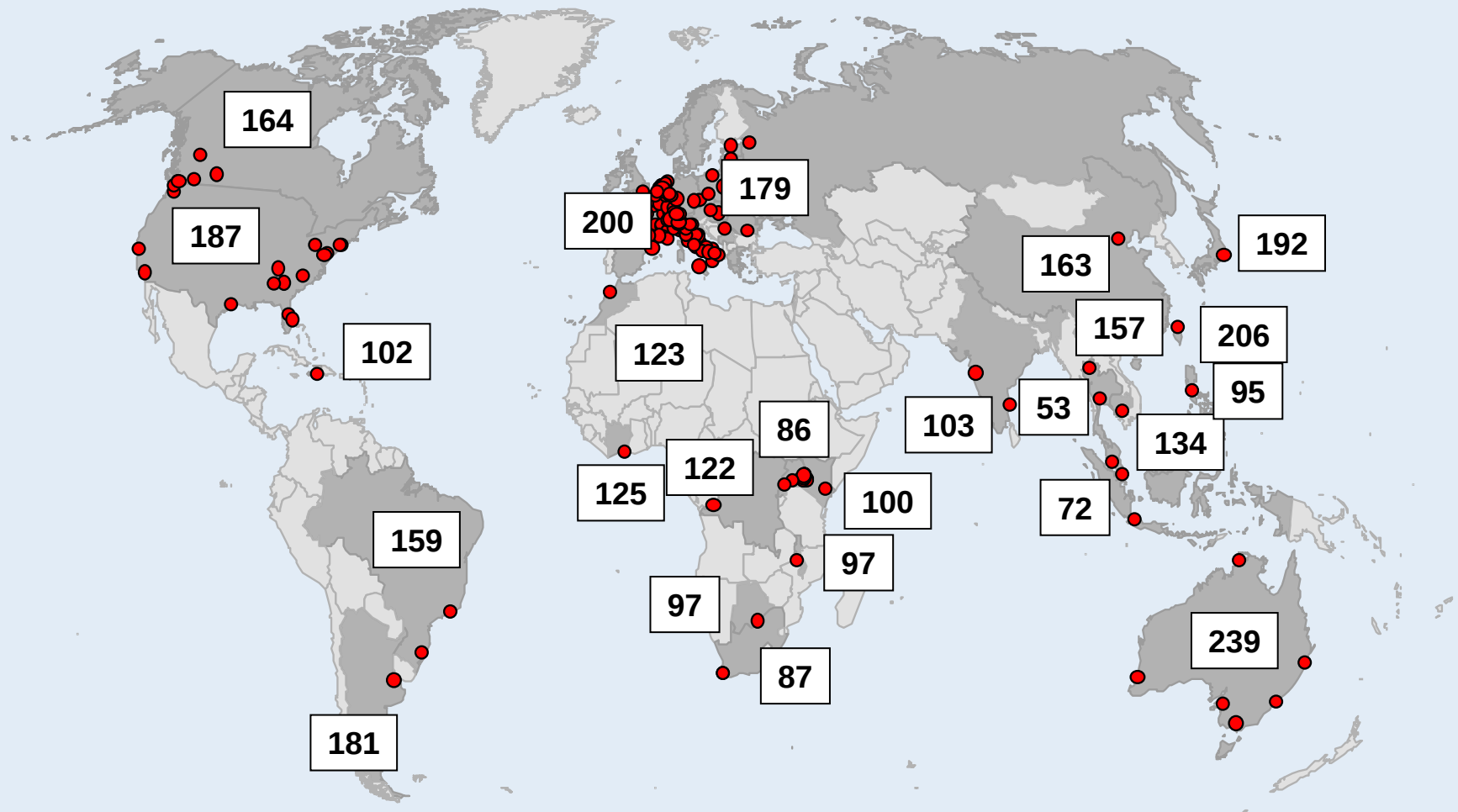
CD4 count at start of ART, 2003-2005

33,008 treatment-naïve patients



CD4 count at start of ART, 2003-2005

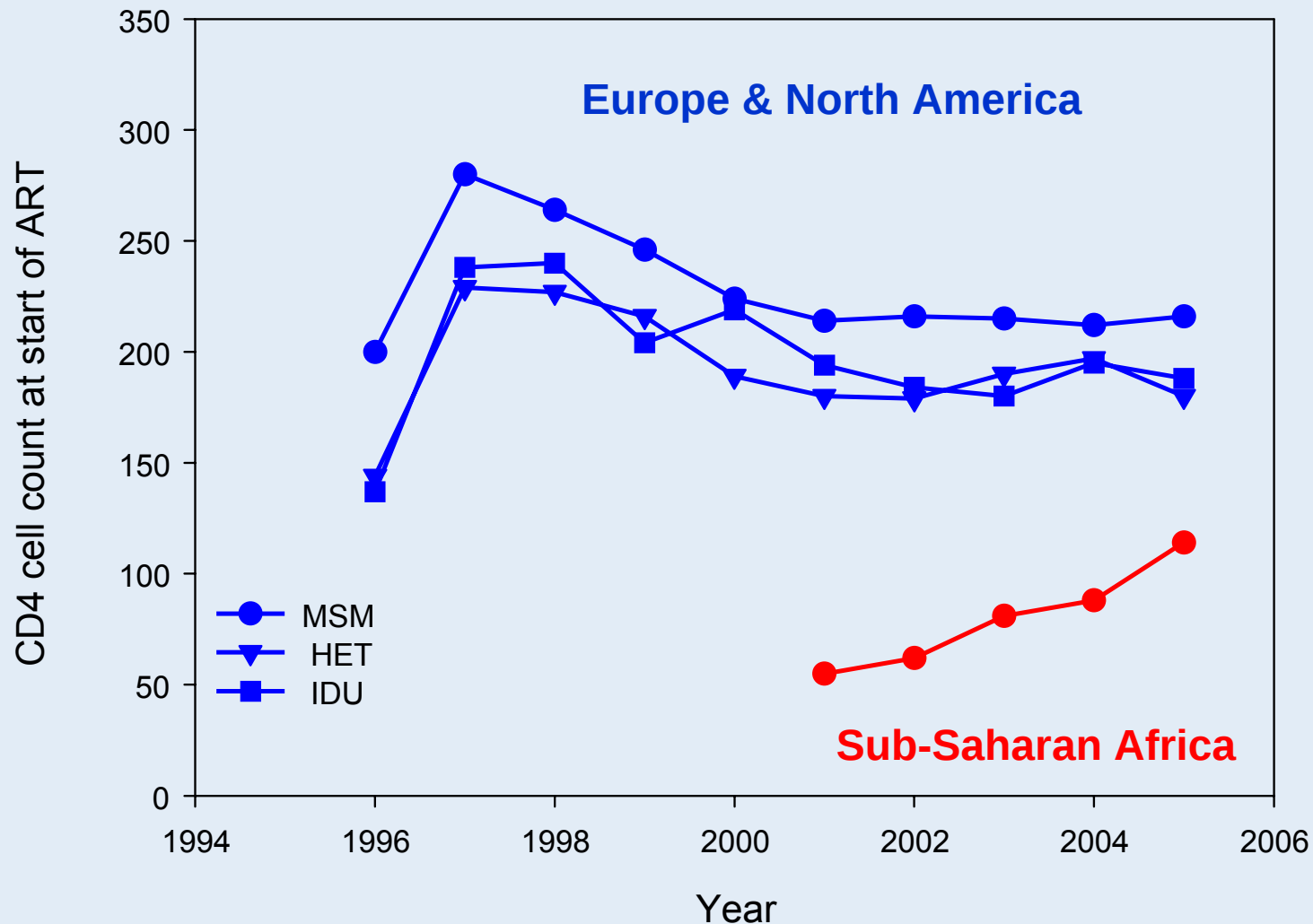
42 countries, 176 sites, 33,008 patients



Numbers are median CD4 counts

Median CD4 counts at start of ART

Trends over time



What treatment regimens are used?

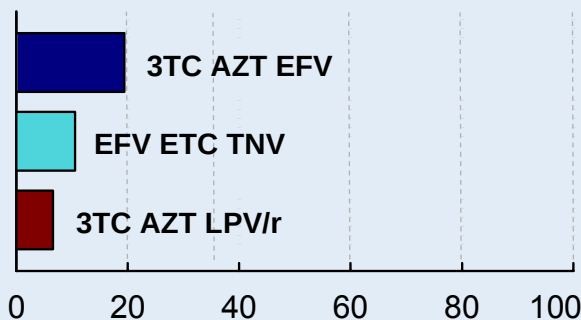


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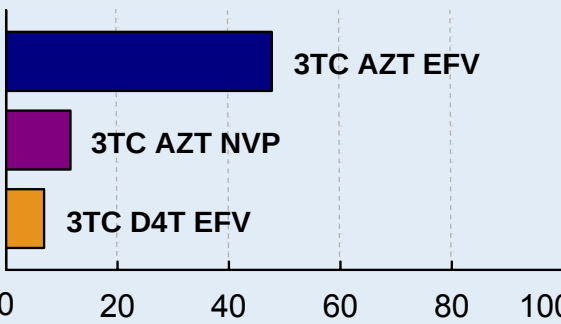
First line regimens, 2003-2005

3 most common regimens by region

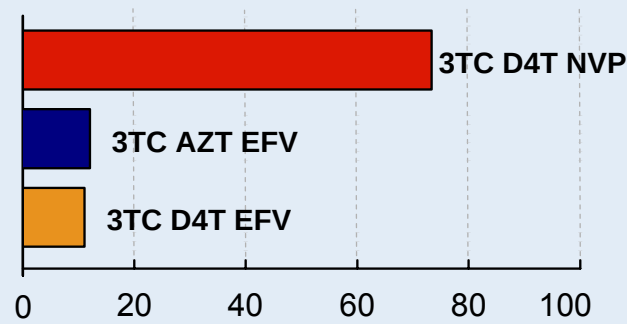
North America



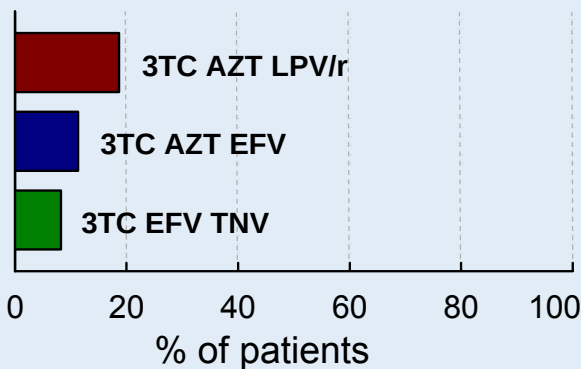
South America



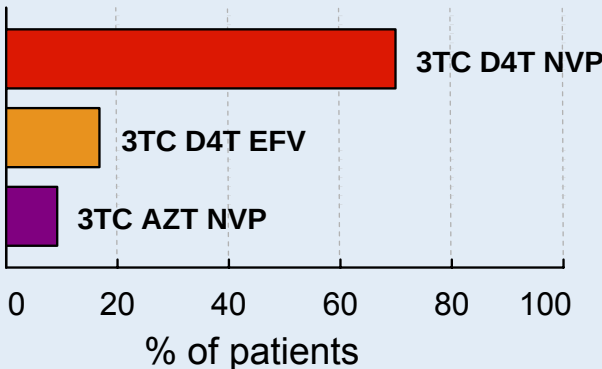
West, Central & East Africa



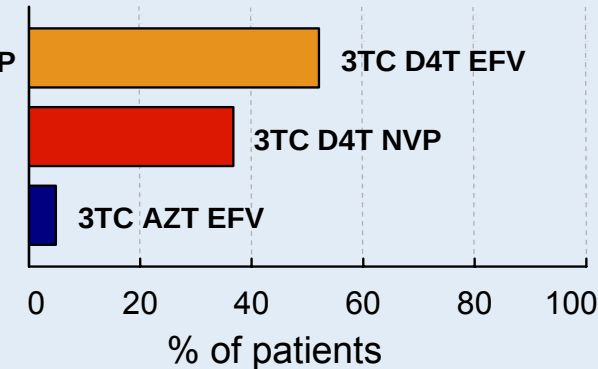
Western Europe



Asia



Southern Africa



First line regimens, 2003-2005

No. of regimens used to treat 90% of patients

North America

59

South America

11

West, Central & East Africa

3

Western Europe

47

Asia

3

Southern Africa

3

Loss to program



Loss to program

- 16 treatment programs in Africa, Asia and Latin America
 - 12 with active tracing of patients (home visits, telephone, reminder letters)
 - 4 with no tracing
- 5,575 adult patients starting ART
 - Median age 35 years, 46% women
 - Median baseline CD4 cell count 105 cells/ μ L

Loss to program

- No follow up after initial visit
 - 4% (0% to 9%)
- Loss to follow up during first 6 months
 - 17% (0% to 57%)

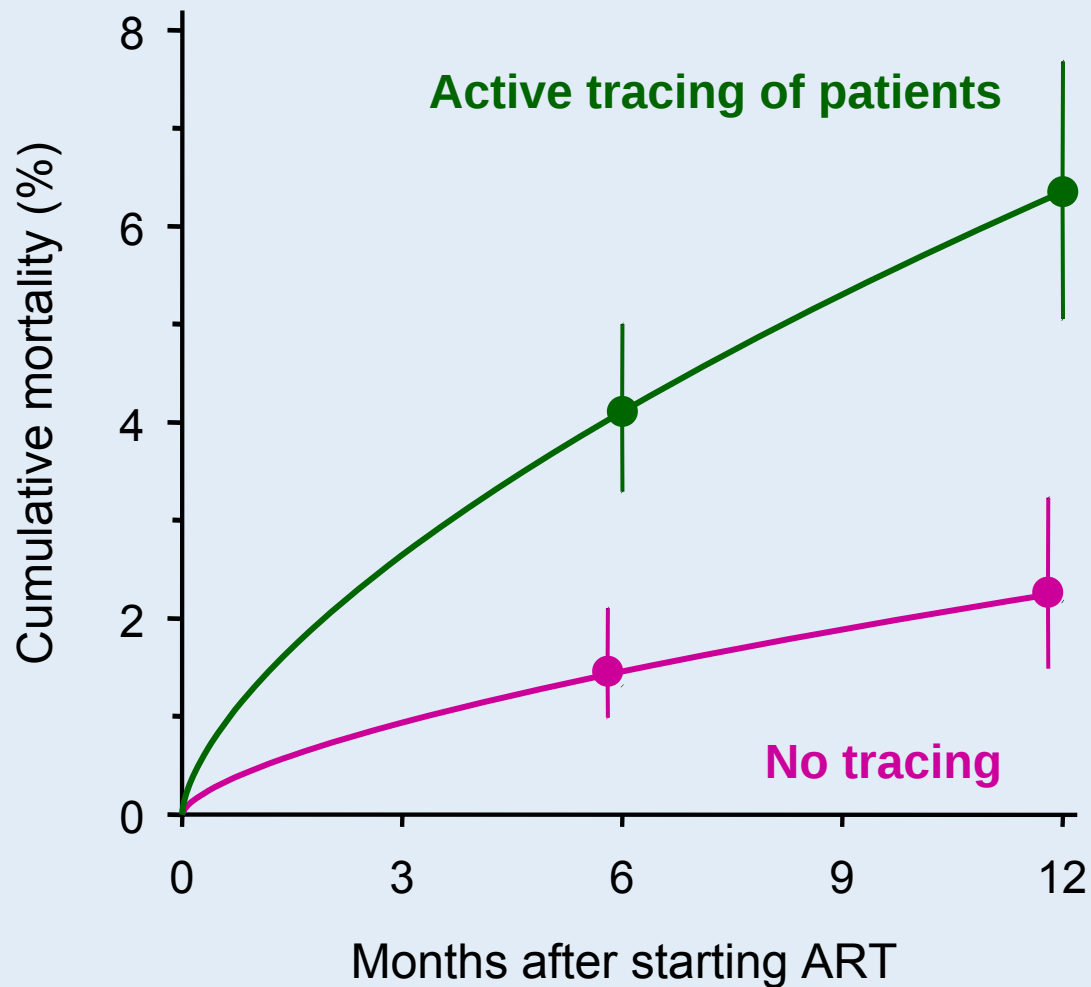
Loss to program

	<u>No follow up</u>	<u>Loss to follow up</u>
	Odds ratio (95% CI)	Hazard ratio (95% CI)
Calendar period		
≤ 2000	1	1
2001-2002	4.46 (1.26-15.7)	2.77 (1.69-4.55)
2003-2004	5.01 (1.27-19.8)	7.86 (4.71-13.1)

Loss to program

	<u>No follow up</u>	<u>Loss to follow up</u>
	Odds ratio (95% CI)	Hazard ratio (95% CI)
CD4 cell count (cells/ μ l)		
≥ 50	1	1
25-49	2.76 (1.69-4.52)	1.04 (0.82-1.31)
< 25	2.50 (1.43-4.37)	1.47 (1.23-1.75)

Tracing of patients and mortality



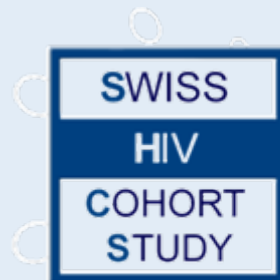
Virologic response



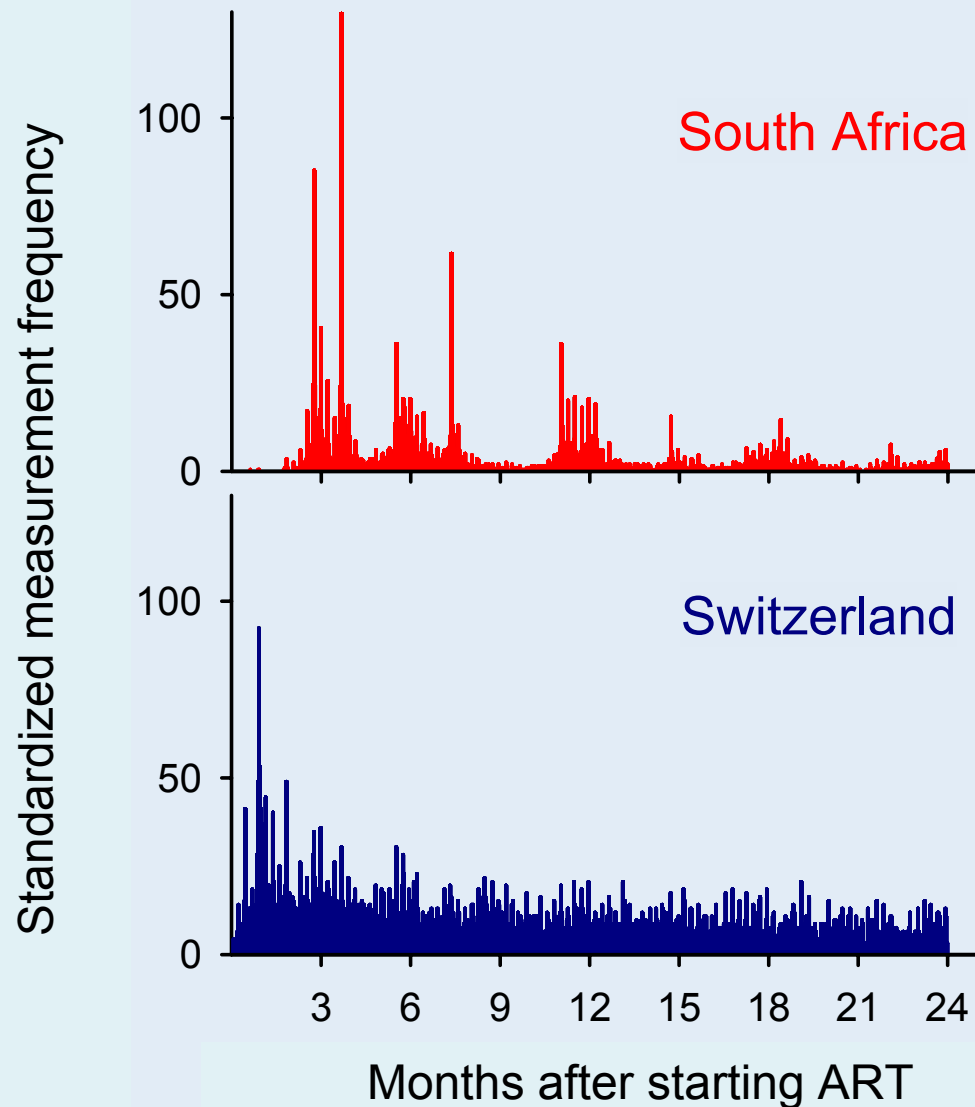
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Study population

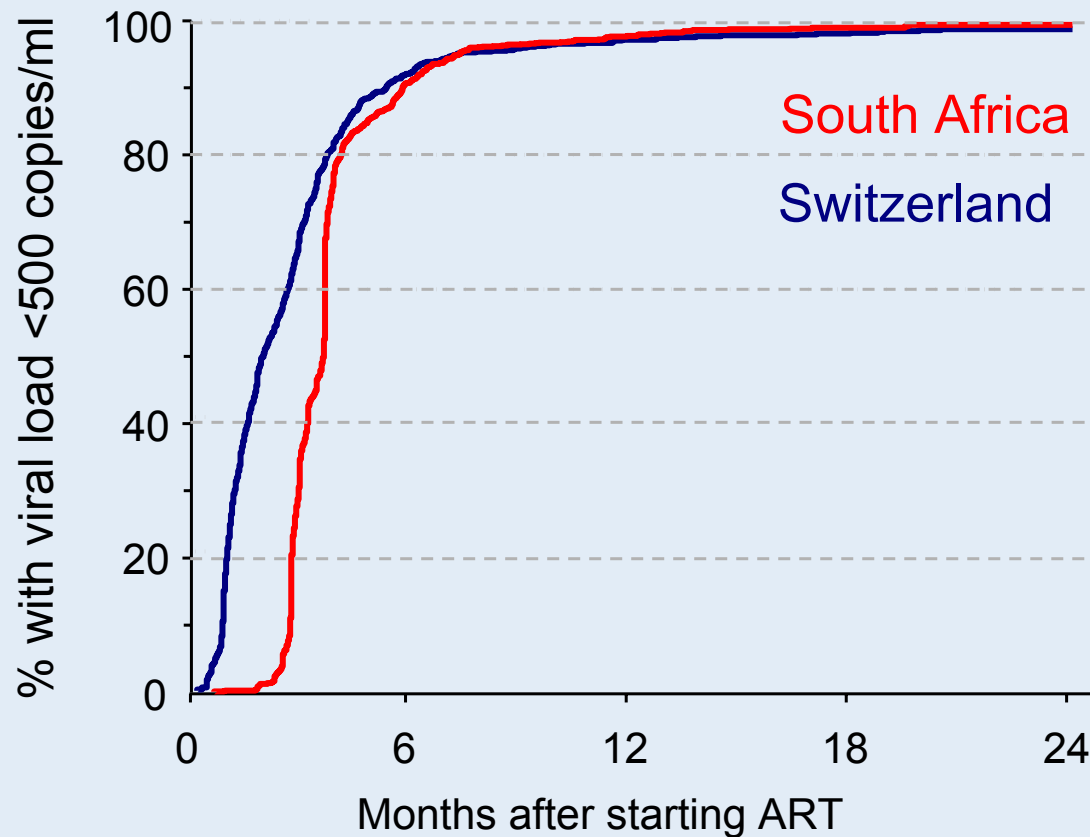
- 1856 patients from Gugulethu and Khayelitsha, Cape Town
 - Median CD4 count 81 cells/ μ L, median age 33 years, 70% women
- 967 patients from Swiss HIV Cohort
 - Median CD4 count 212 cells/ μ L, median age 38 years, 33% women



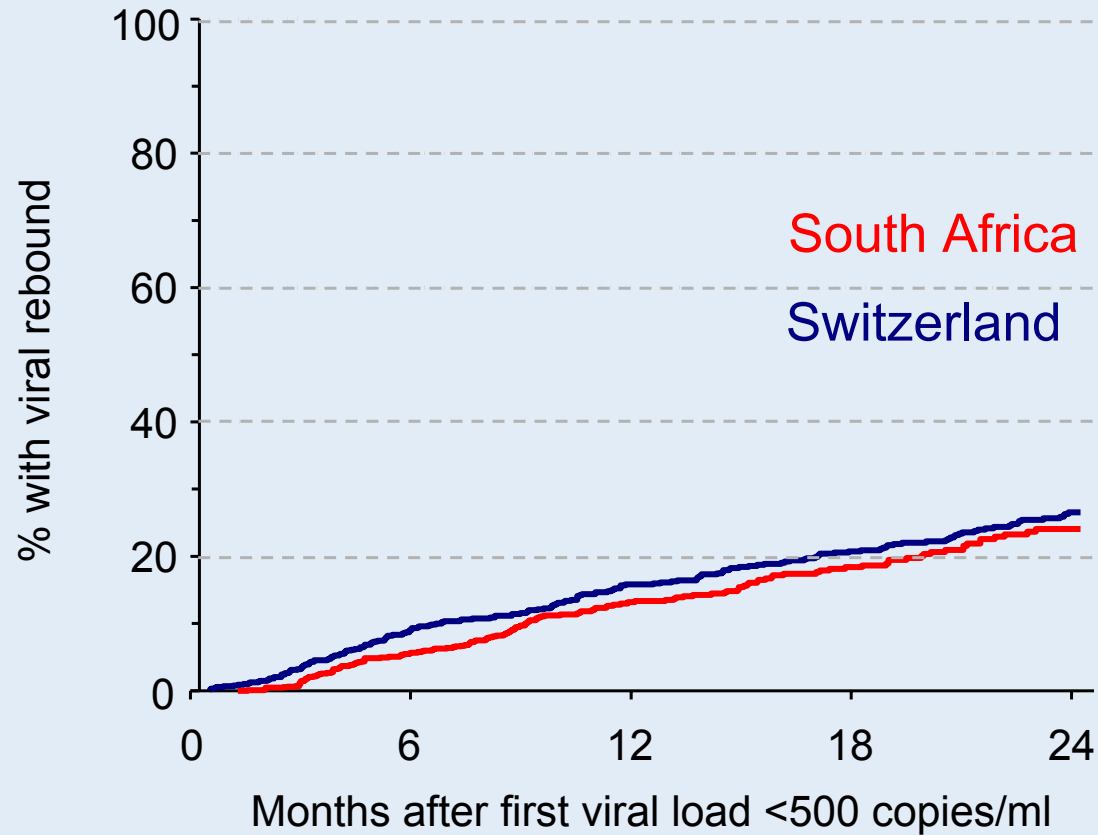
Frequency of viral load measurements



Initial virologic response (<500 copies/ml)

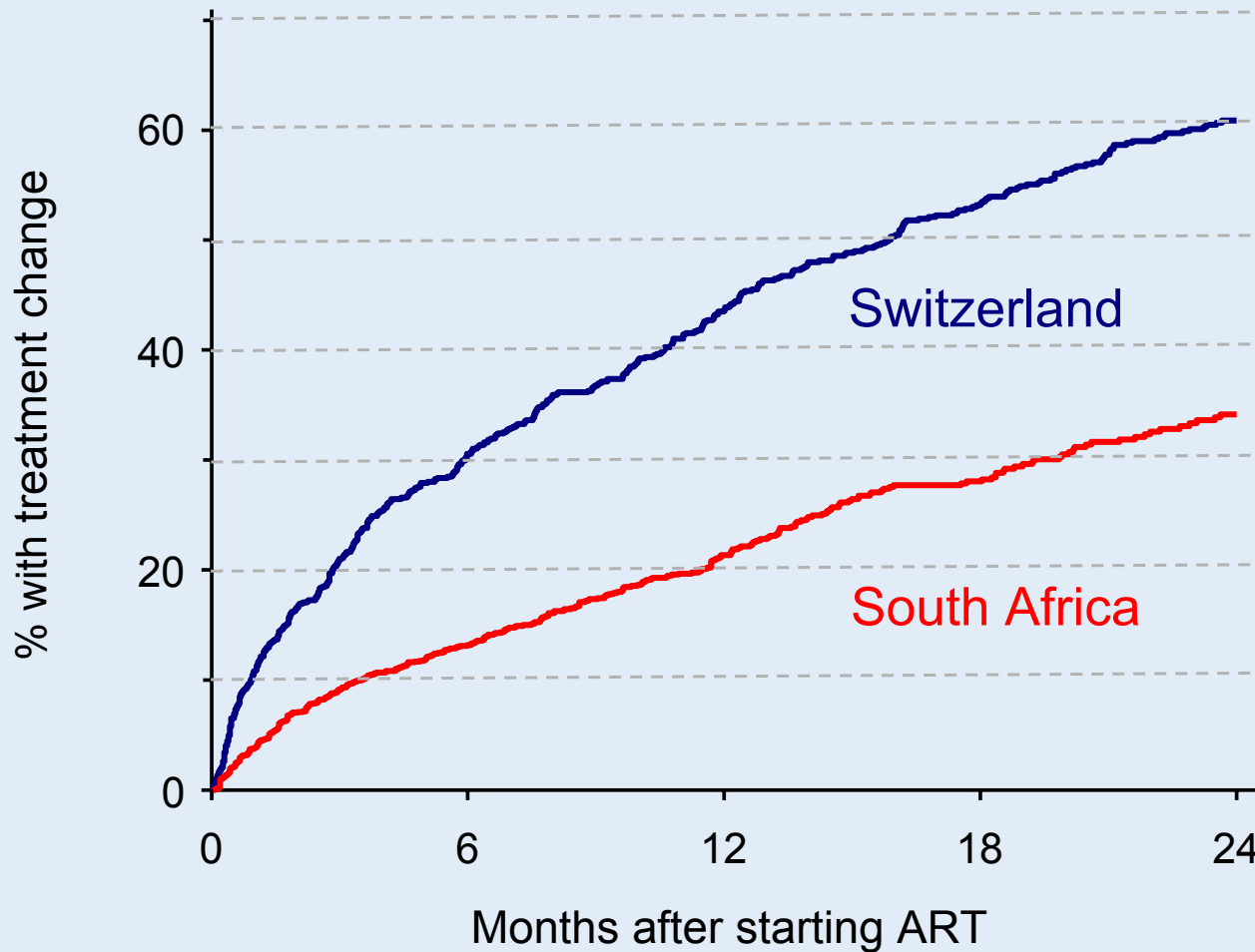


Viral rebound (≥ 500 copies/ml)



Treatment change

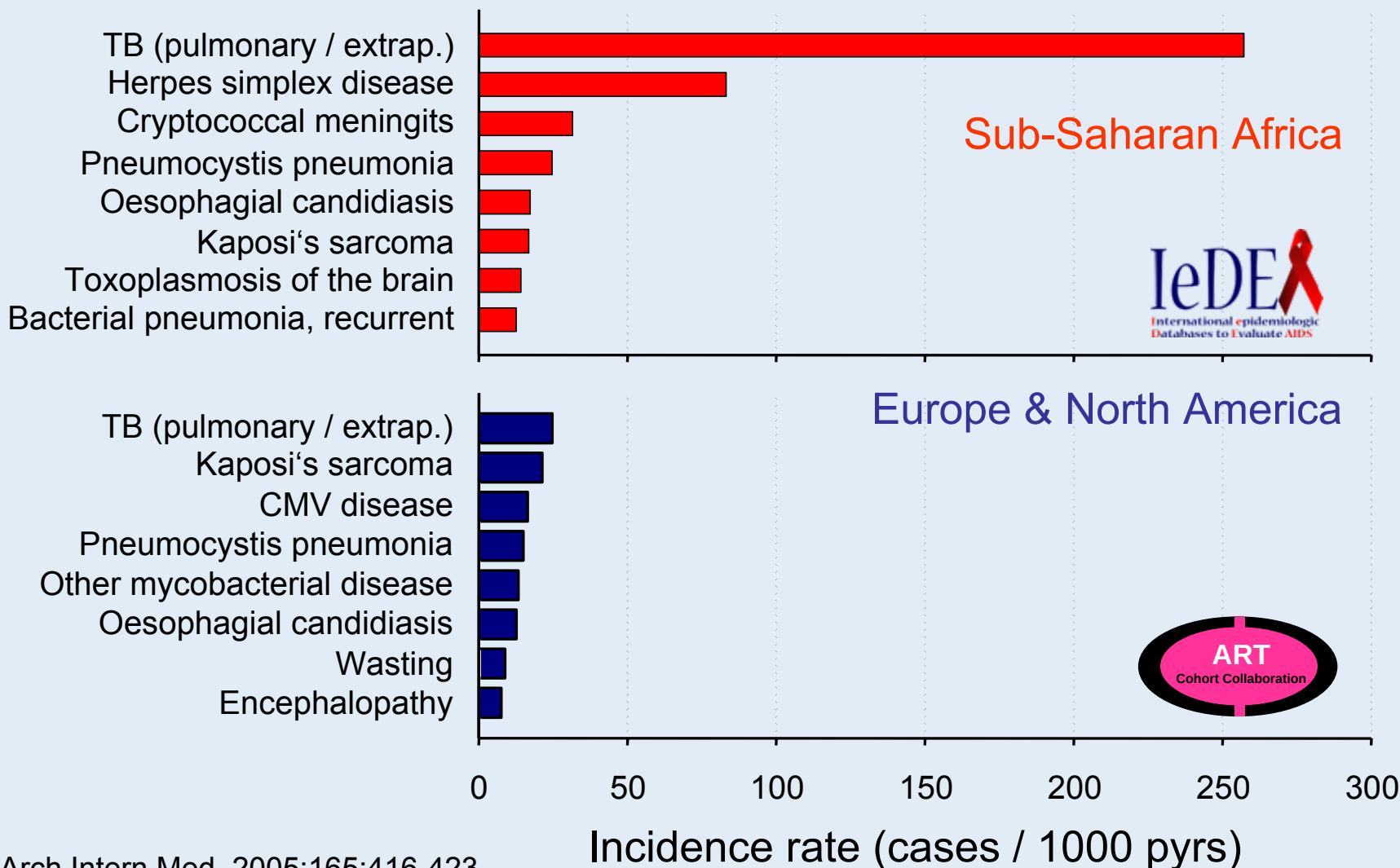
(any change, including switching, substitution)



Opportunistic illnesses



Most common OIs in first 3 months



Mortality



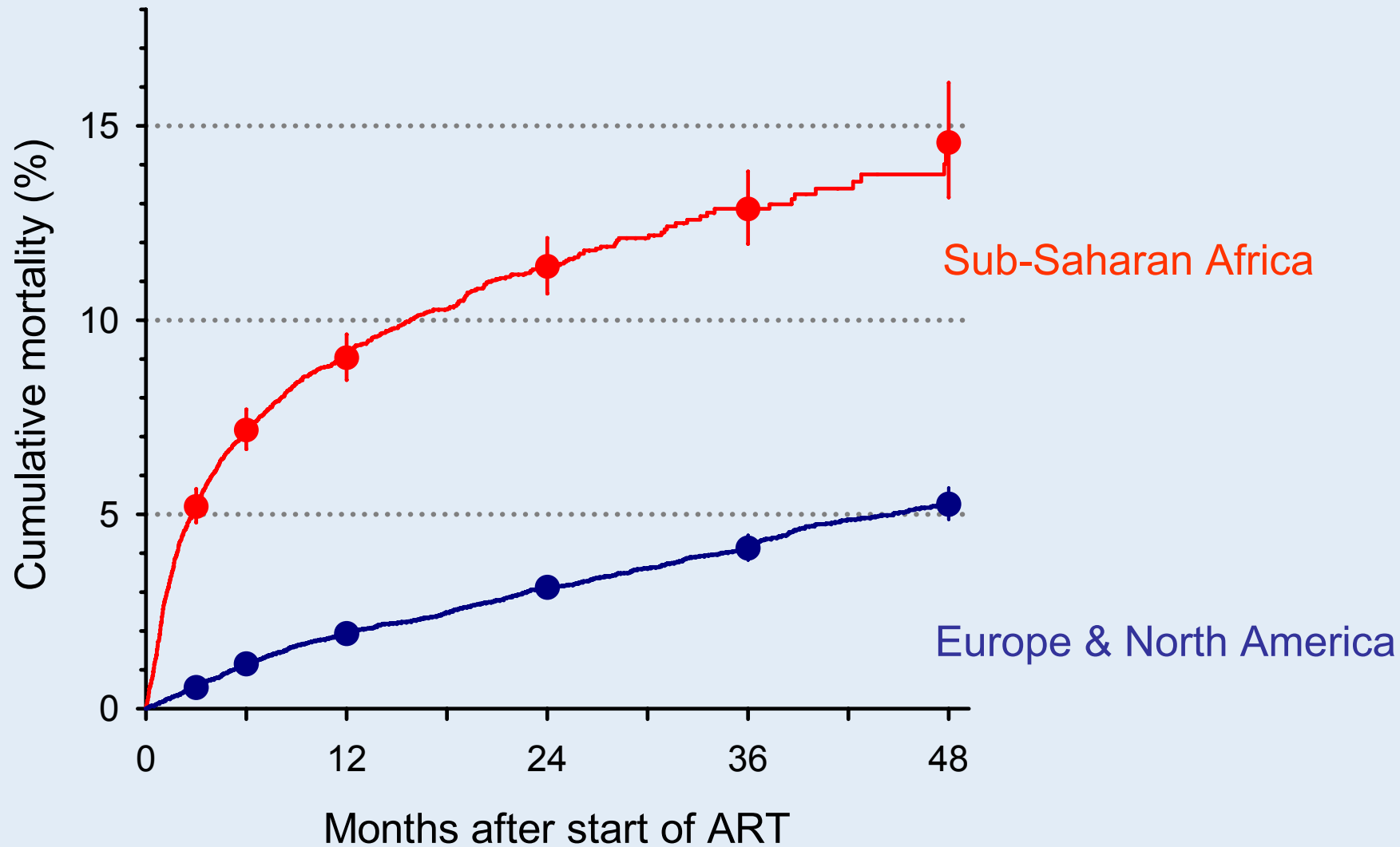
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Study population

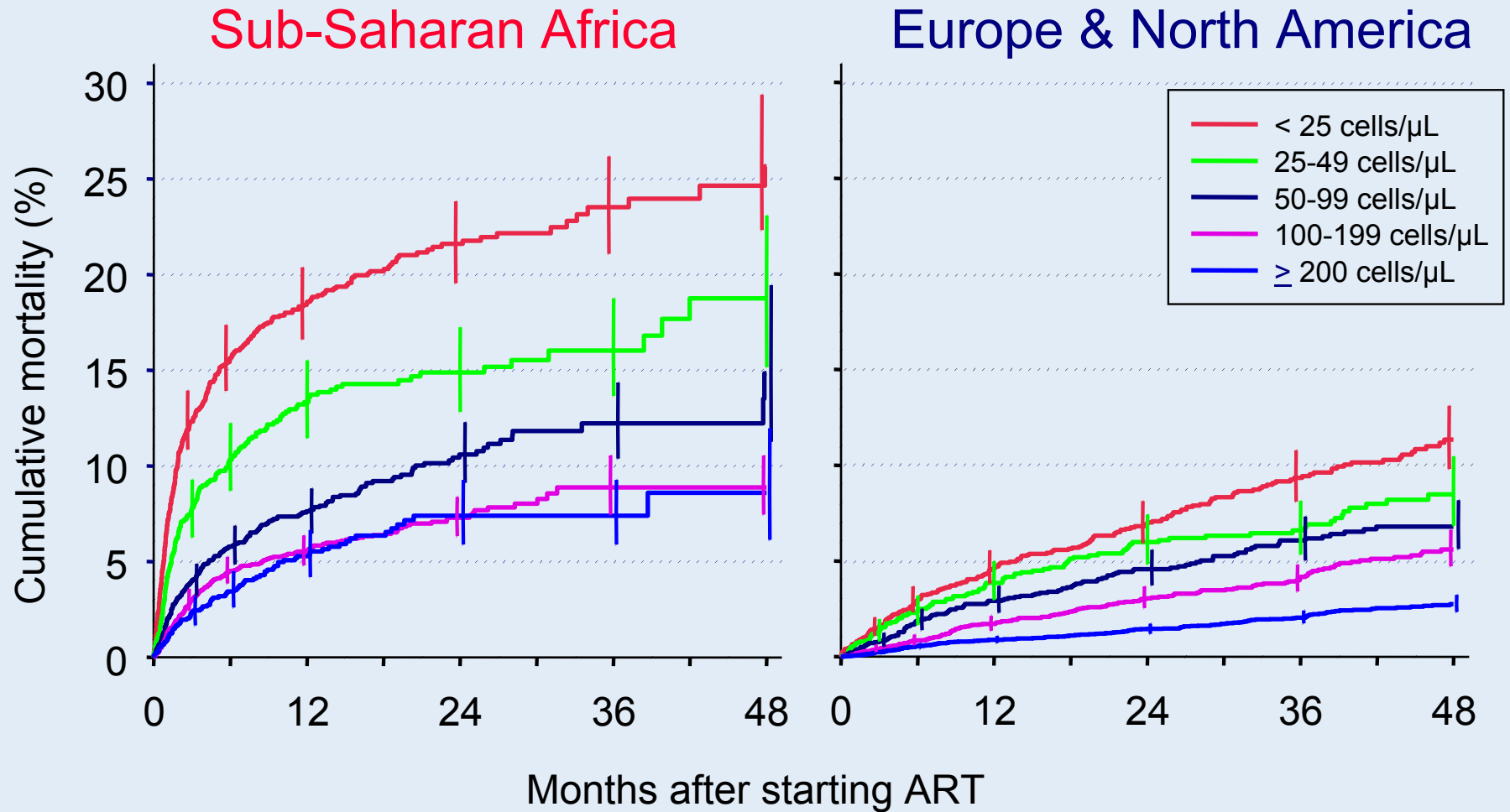
- Scale up programs in Sub-Saharan Africa
 - 11,231 patients
 - 777 deaths
 - 15,350 person years of follow up
 - Loss to follow up 13% over 2 years
- ART Cohort Collaboration
 - 38,050 patients
 - 2,026 deaths
 - 144,994 person years of follow up
 - Loss to follow up 6% over 2 years



Mortality over four years

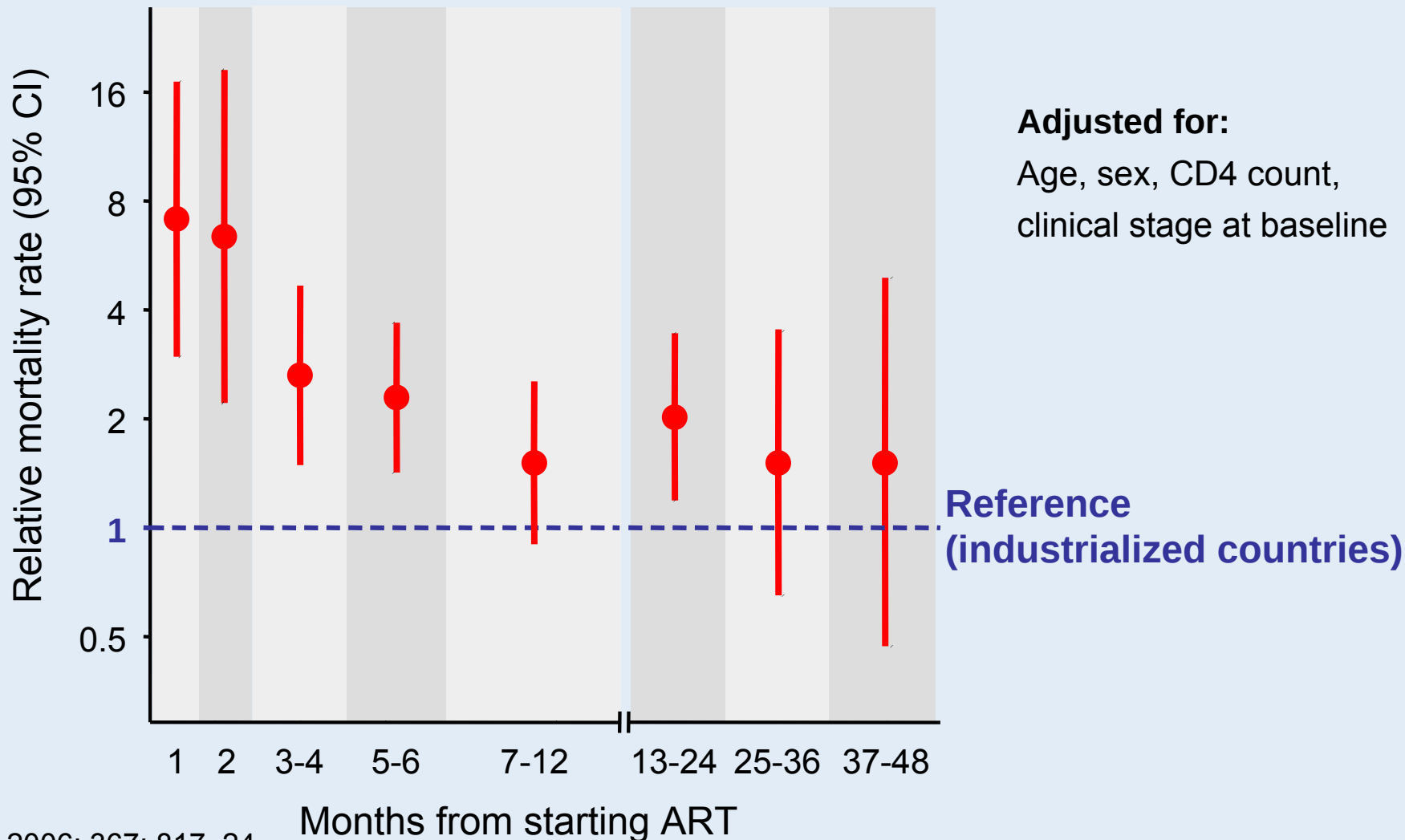


Mortality by baseline CD4 cell count

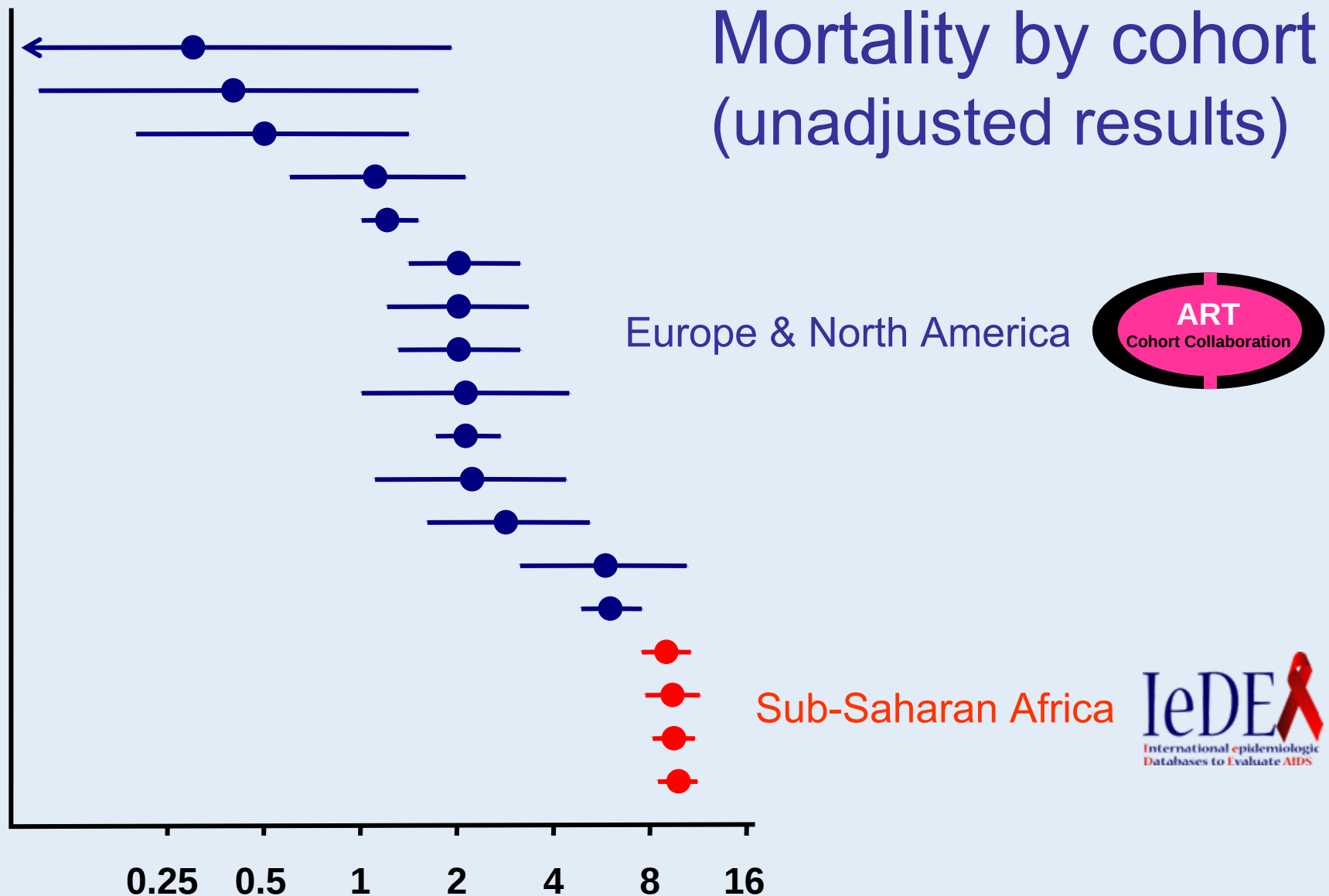


Relative mortality over time

Sub-Saharan Africa vs. industrialized countries

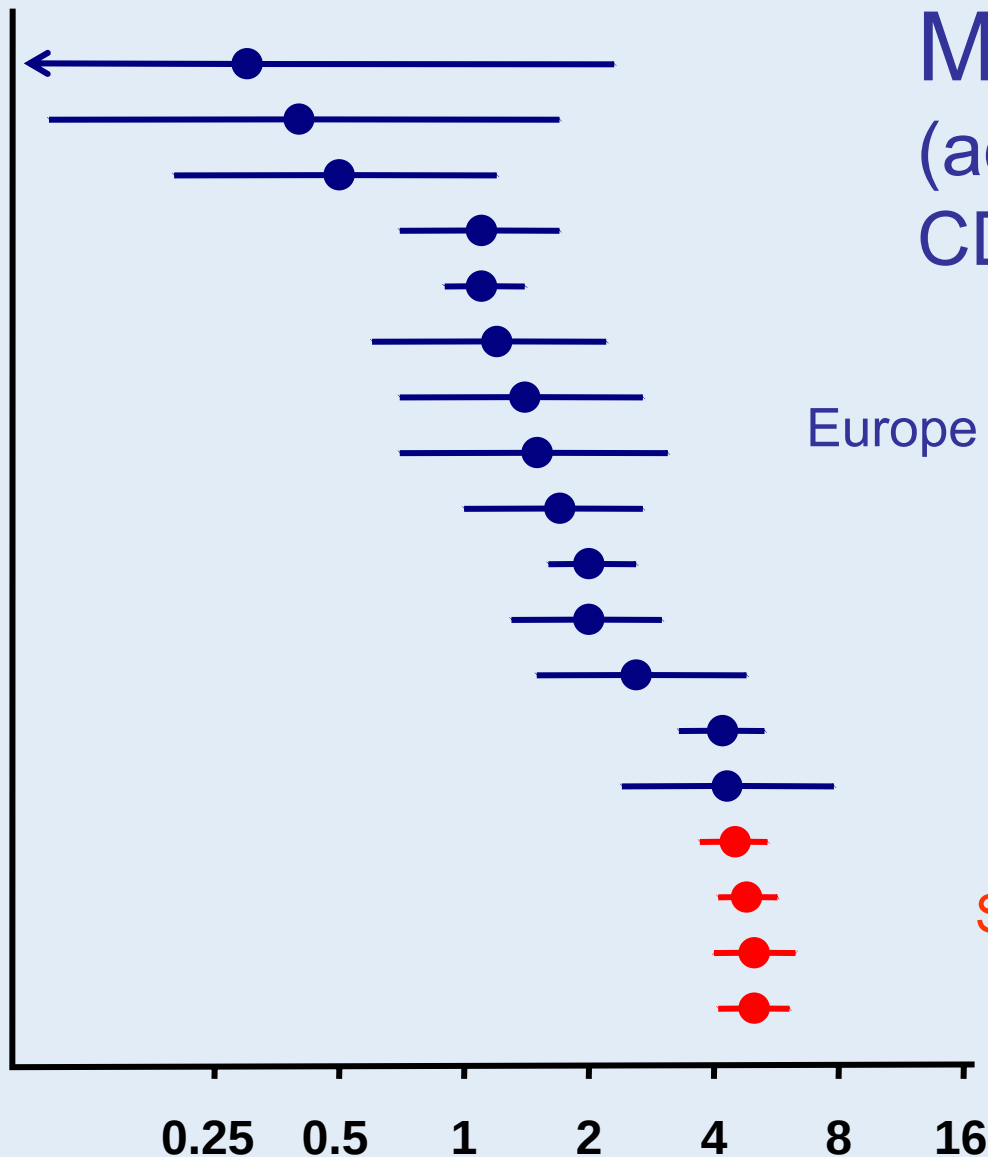


Mortality by cohort (unadjusted results)



Mortality in first year after ART initiation (%)

Mortality by cohort (adjusted for age, sex, CD4 count, year, stage)



Europe & North America



Sub-Saharan Africa



Mortality in first year after ART initiation (%)

Conclusions



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- Most patients in resource-limited and many patients in industrialized countries start ART late or very late
- In industrialized settings many different first-line regimens are used and changes are frequent
- Few regimens are used in resource limited settings and changes are less frequent
- Virologic and immunologic responses are very similar

- In some resource-limited settings substantial proportions of patients are lost to the program early on
- TB is the most frequent complication in patients starting ART
- Mortality is substantially higher in resource-limited settings, particularly in the first months of ART
- Taking into account differences in prognostic factors, mortality in programs in sub-Saharan Africa is comparable to that observed in industrialized settings

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Thank you



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