



# Improvements in all cause mortality across Europe 2002-2007 and regional differences in incidence of deaths from AIDS and non-AIDS

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# Introduction

- Previous studies have documented improvements in survival after introduction of cART<sup>1-3</sup>
- Uptake of cART in Eastern Europe remains low<sup>4</sup> and trends in mortality in Eastern Europe not well described
- cART regimens have improved over time<sup>5</sup> and fewer patients live with low CD4 counts
- Increasing trend of mortality from non-AIDS associated causes<sup>6</sup>

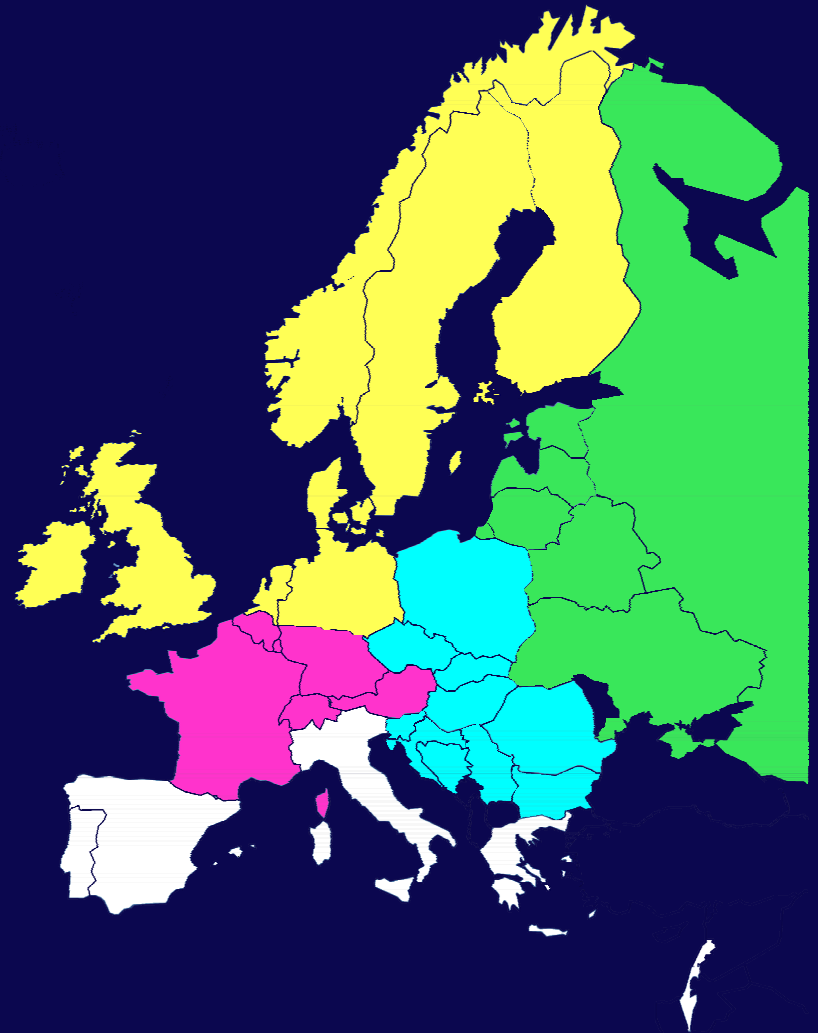
<sup>1</sup>Mocroft et al, Lancet 1998;352:1725. <sup>2</sup>Mocroft et al, Lancet 2003;362:22. <sup>3</sup>Egger et al et al, BMJ 1997;315:1194. <sup>4</sup>Towards Universal Access; UNAIDS 2009. <sup>5</sup>Lampe et al, Arch Int Med 2006;166:521. <sup>6</sup>Lewden et al, JAIDS 2008; 48:590.

# Aims

- Determine changes in mortality 2002 – 2007
  - AIDS mortality
  - Non AIDS mortality
- Compare regions of Europe

# The EuroSIDA study

- Longitudinal cohort study initiated in 1994 of 16599 HIV-infected patients from 103 centres in 35 countries across Europe, Israel and Argentina
- Study collects wide range of clinical and demographic data (see [www.cphiv.dk](http://www.cphiv.dk)).



# Methods

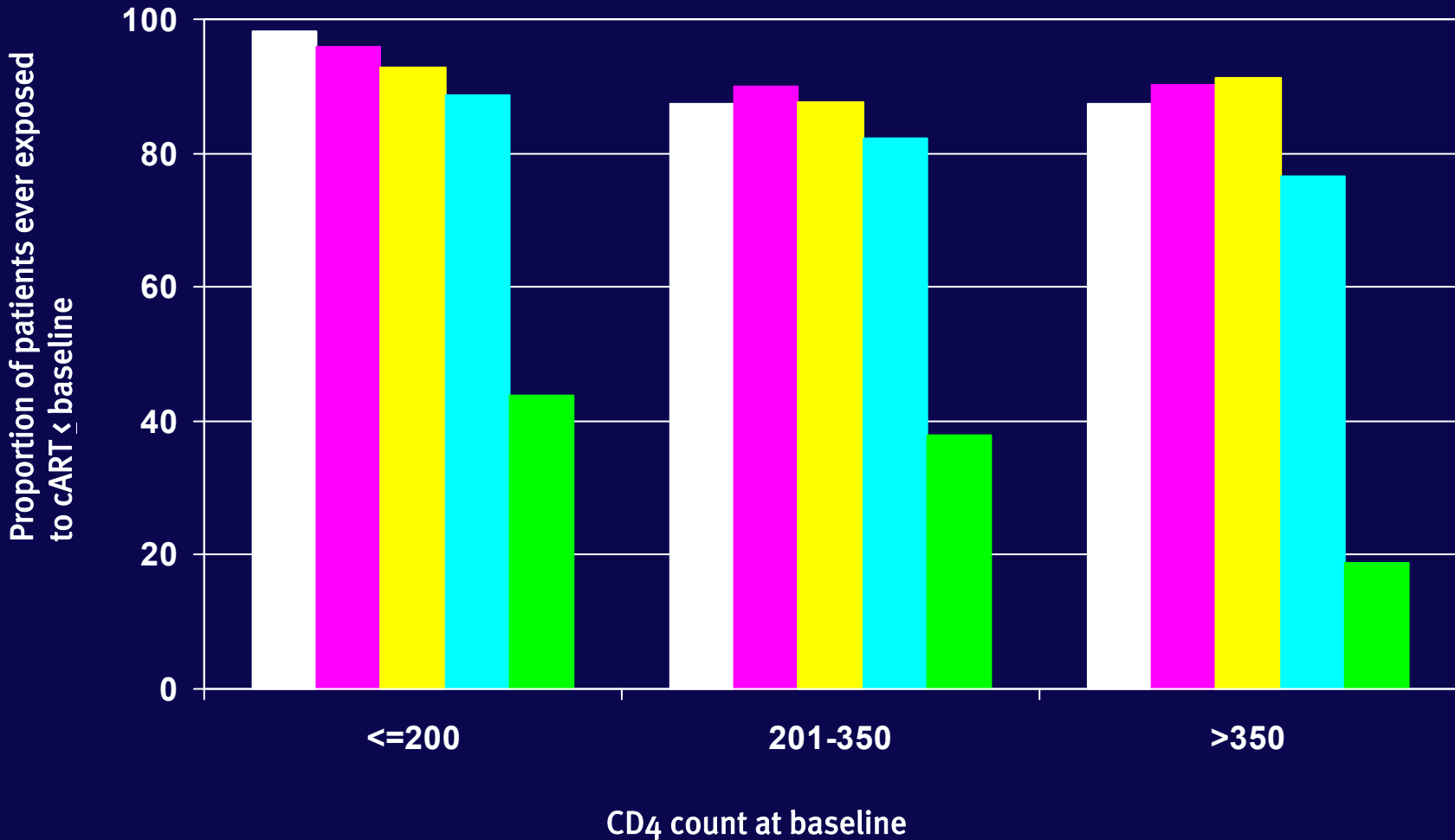
- Patients with prospective follow-up after 1 January 2002
- Baseline – later of 1 January 2002 or recruitment to study
- Follow-up censored on 1 January 2008
- Incidence rates of AIDS and non-AIDS mortality
- Poisson regression to investigate trends over time and differences between regions

# Characteristics of 10799 patients

	South	C West	North	C East	East
<i>N (%)</i>	<i>3258 (30)</i>	<i>2613 (24)</i>	<i>2552 (24)</i>	<i>1201 (11)</i>	<i>1169 (11)</i>
Male	72	77	82	71	61
White	93	70	85	96	99
IDU	29	14	11	29	52
AIDS	28	34	34	24	18
VL < 500	62	70	73	65	28
<i>Median</i>					
CD4 nadir	183	150	130	161	339
CD4	437	432	410	371	420
Age	40	42	43	35	29
Baseline	Jan 02	Jan 02	Jan 02	Jan 02	June 05

# Initiation of cART at or before baseline

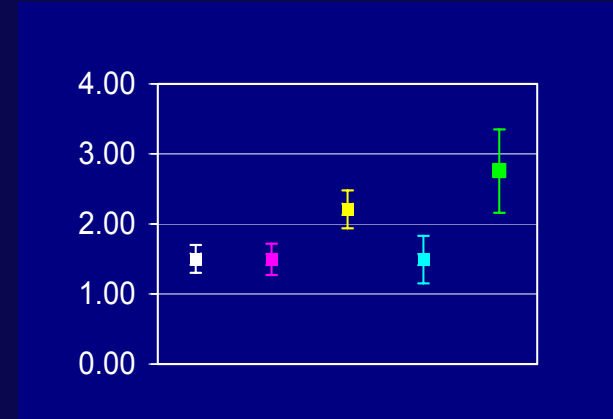
■ South / Argentina ■ Central West ■ North ■ Central East ■ East



# Summary of Events

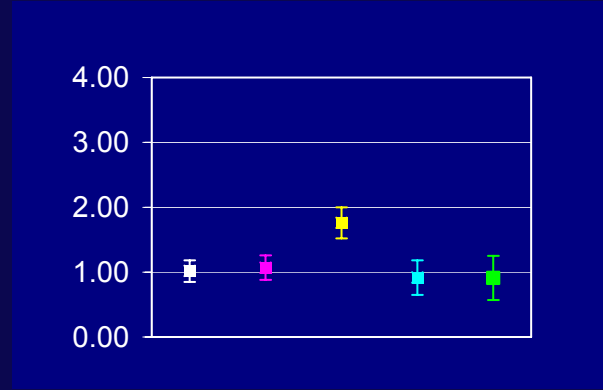
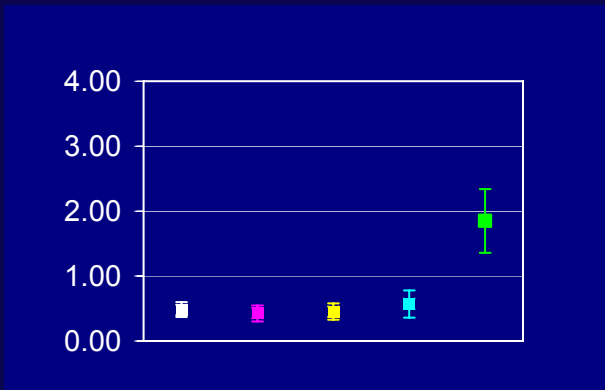
South C West North C East East

789 deaths  
44671 PYFU  
IR 1.77 (1.64 – 1.89)



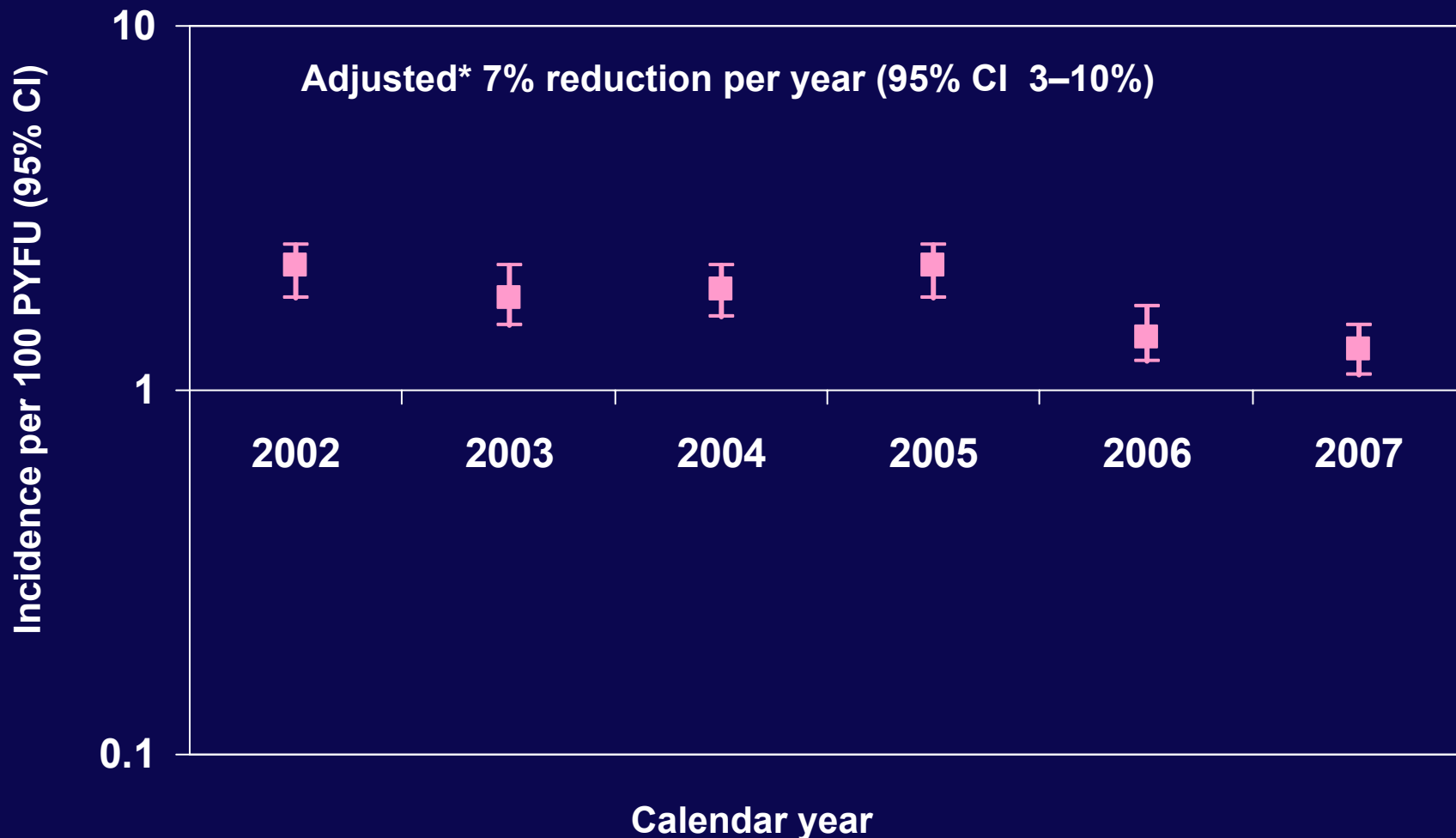
251 AIDS deaths  
IR 0.56 (0.49 – 0.63)

538 non-AIDS deaths  
IR 1.20 (1.10 – 1.31)





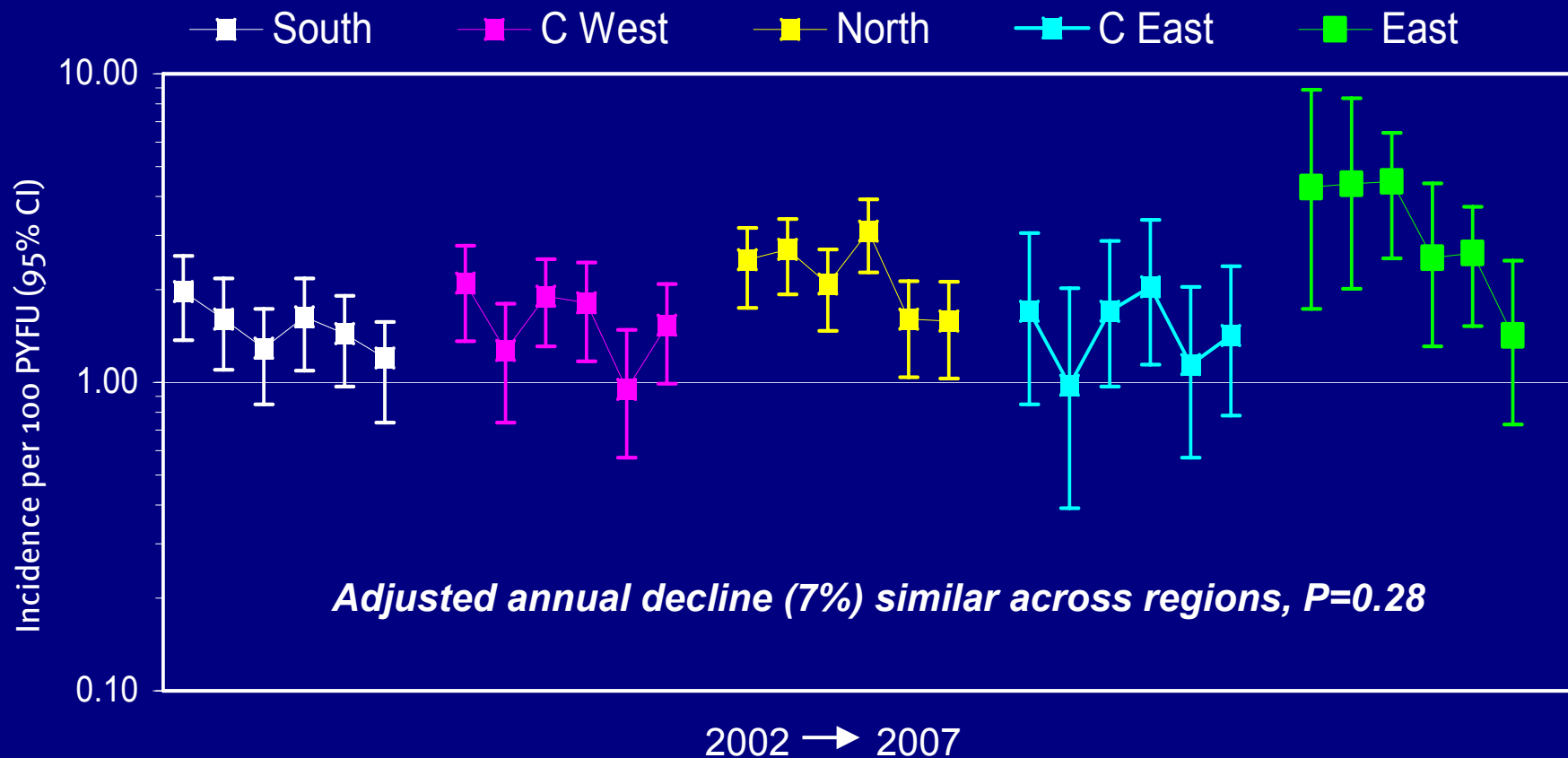
# All cause mortality 2002-2007



Deaths 137 125 151 147 120 109

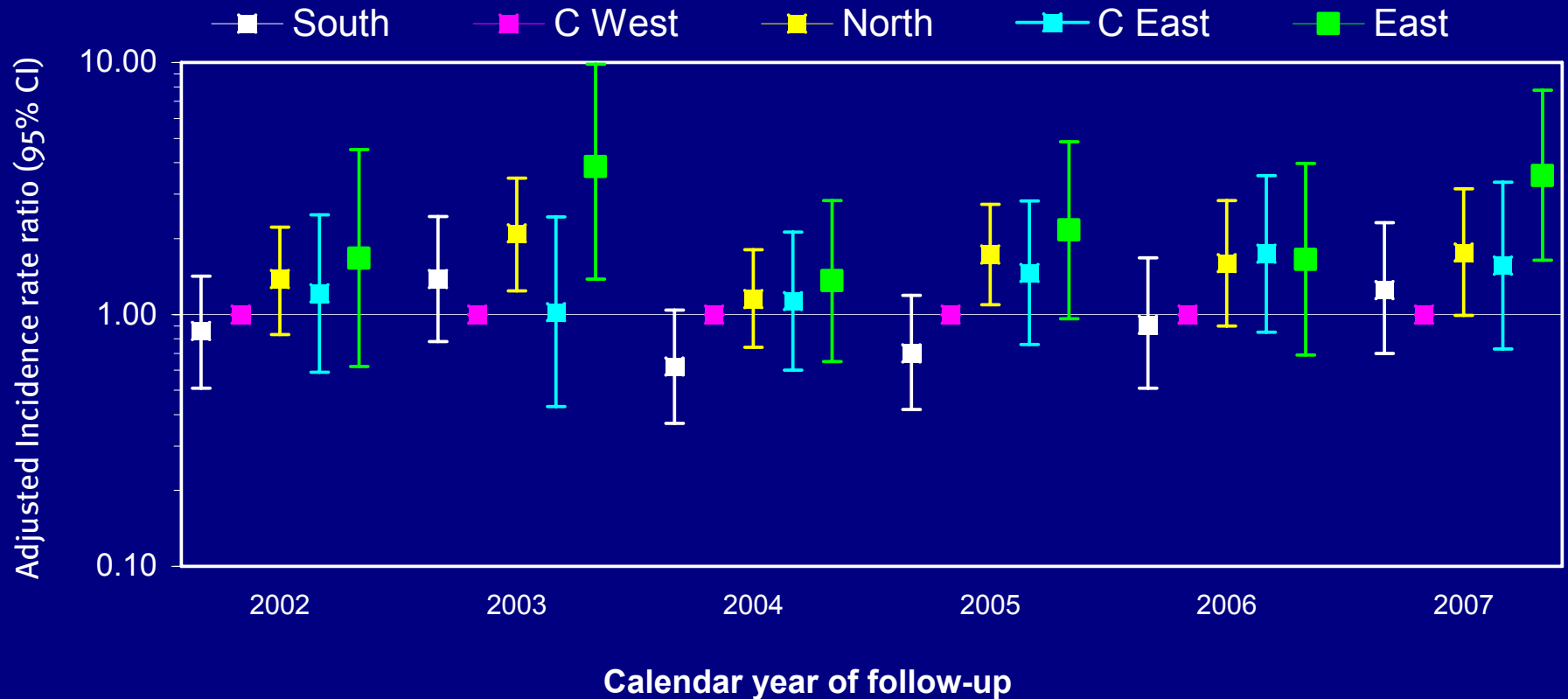
Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

# All cause mortality 2002-2007 Stratified by region



# All cause mortality 2002-2007

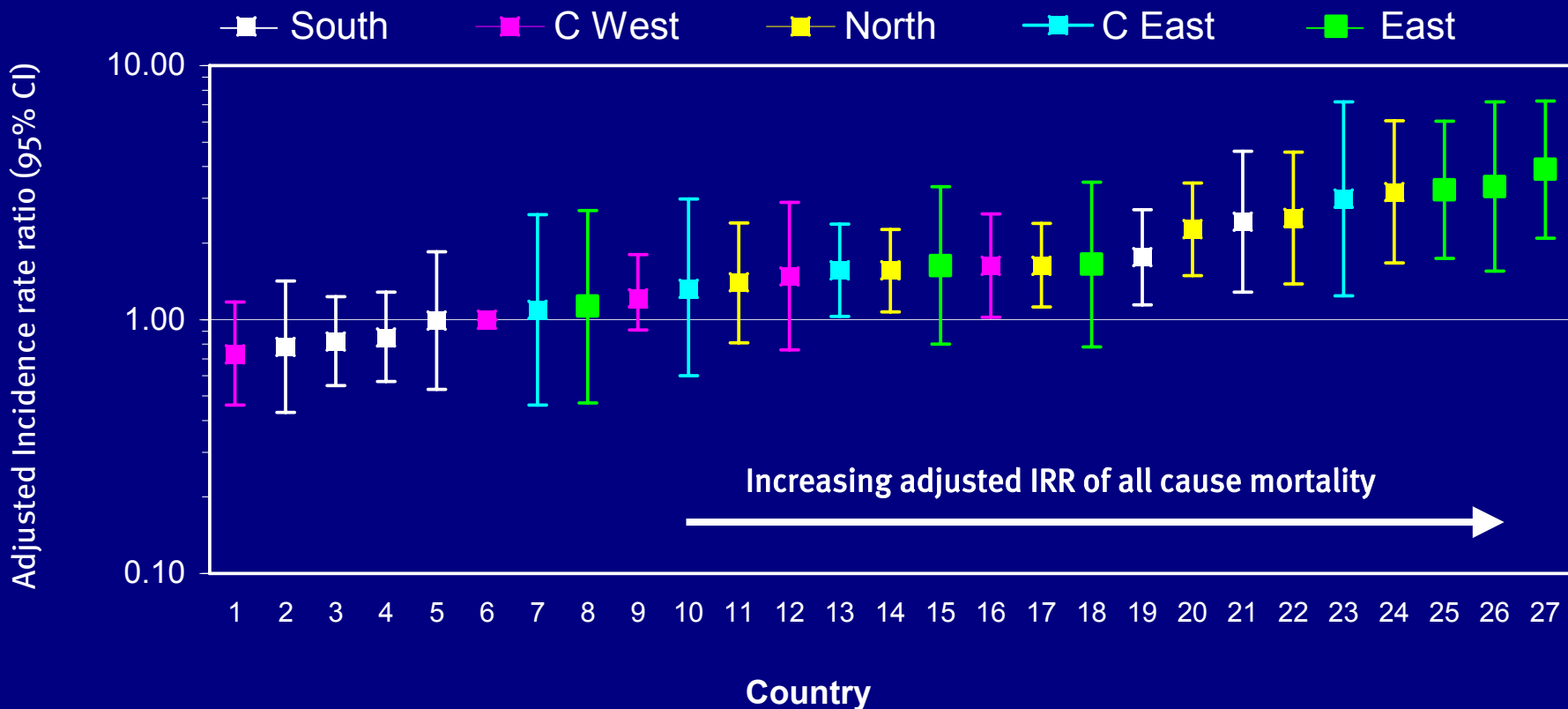
## Stratified by region



Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

# All cause mortality 2002-2007

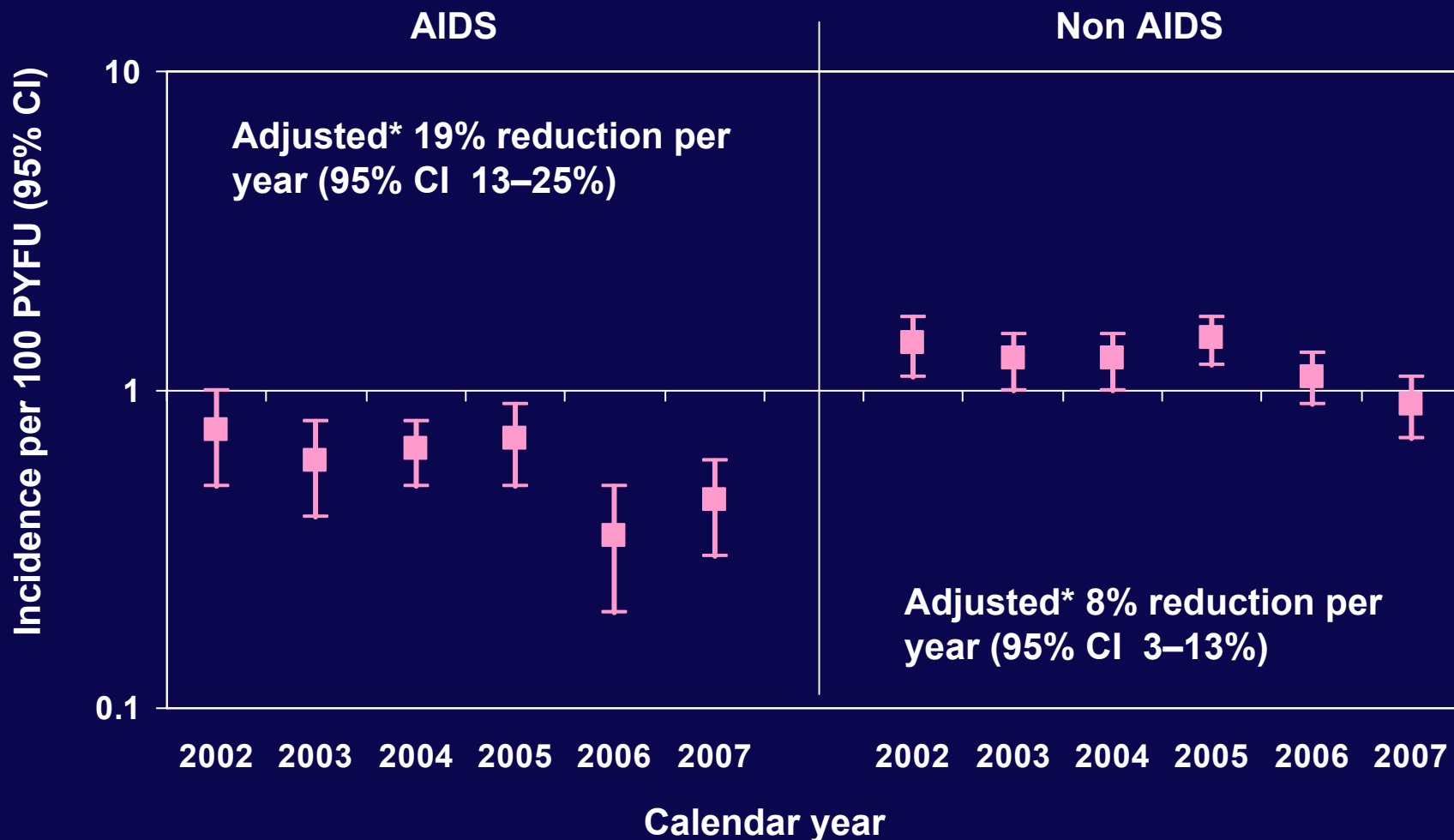
## Stratified by country



Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

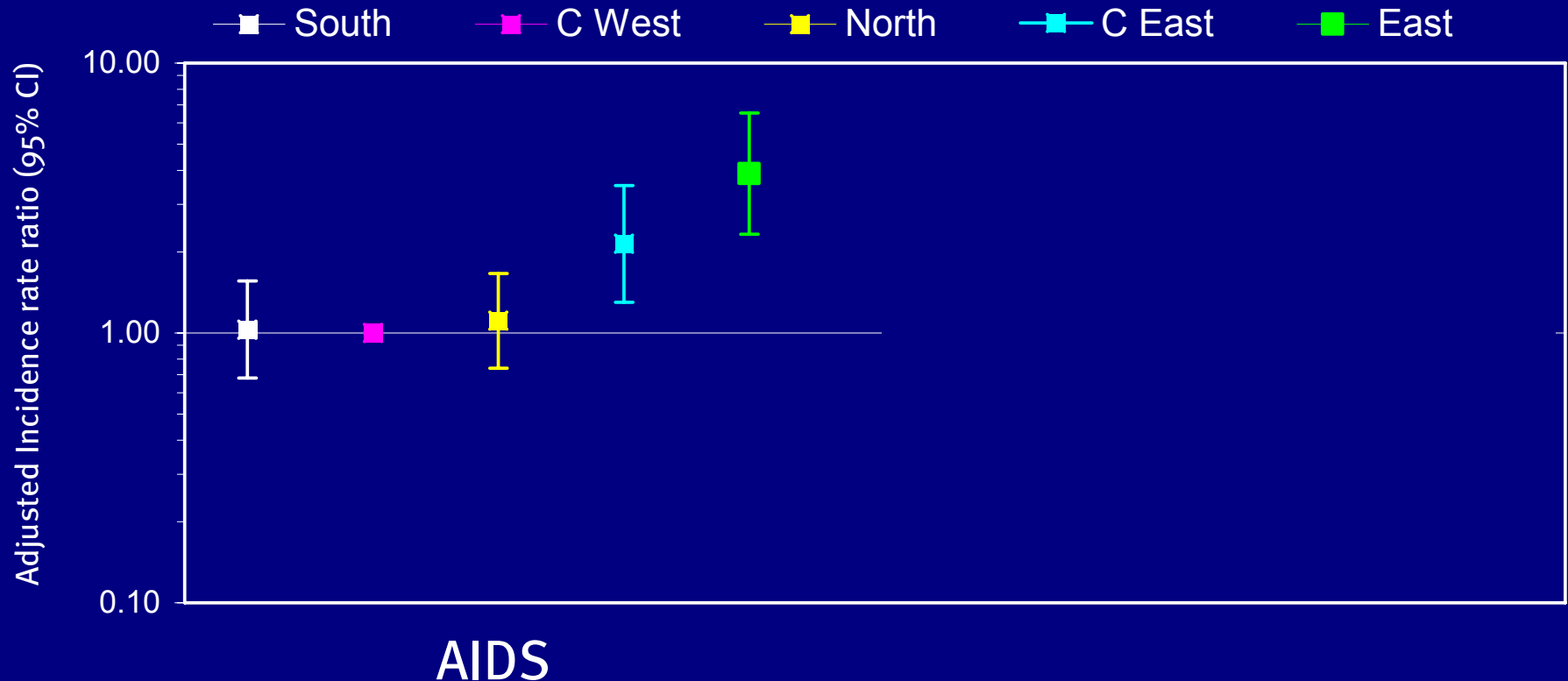
# Mortality 2002-2007

## Stratified by cause of death



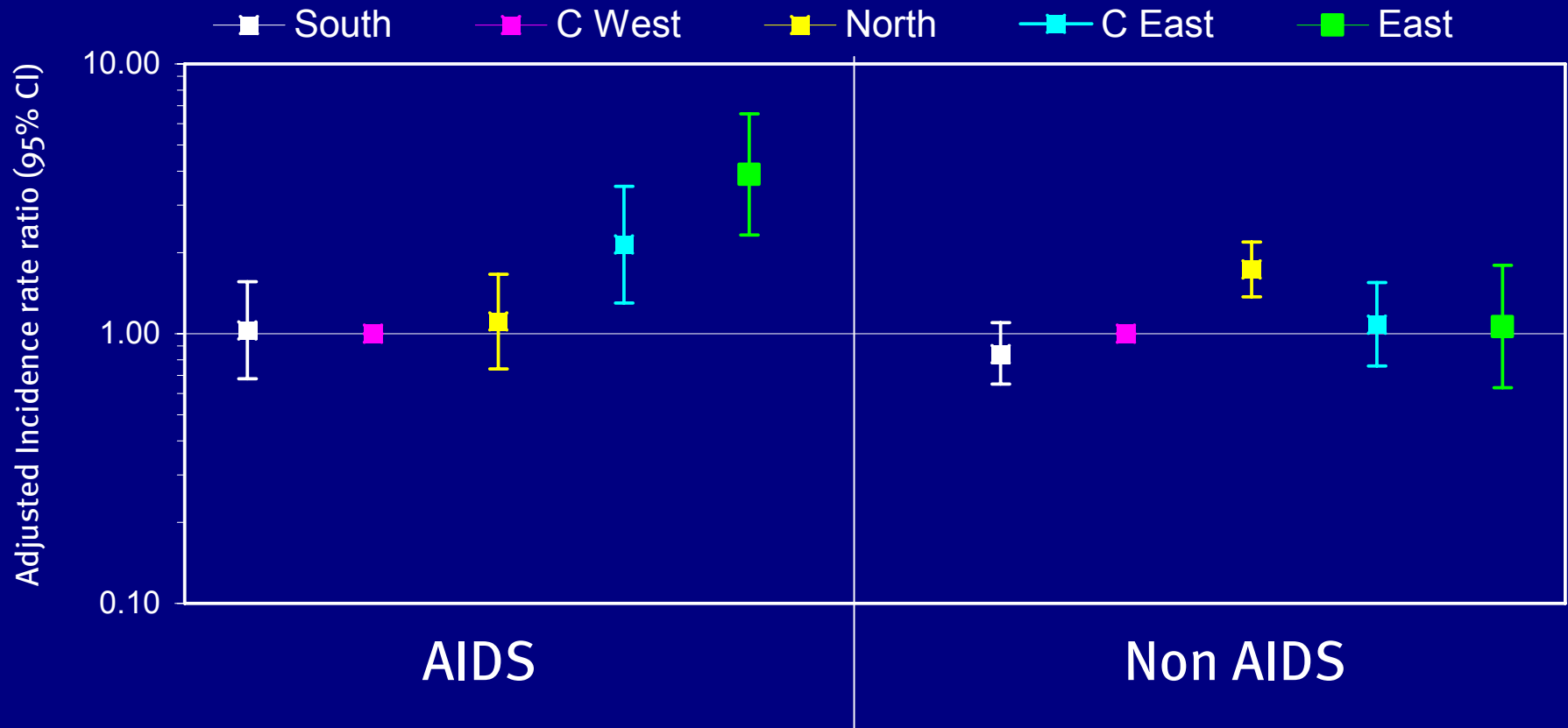
Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

# Mortality 2002-2007 Stratified by cause of death



Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

# Mortality 2002-2007 Stratified by cause of death



Adjusted for gender, ethnic origin, HIV exposure group, age, CD4 nadir, hepatitis B and C status\*, AIDS diagnosis\*, CD4\* and viral load\*, starting any antiretrovirals\*, starting cART\* and anaemia\* (\*time-updated).

# Summary

- Significant decrease in all-cause mortality since 2002 in all regions of Europe
- Considerable variability between countries within regions and between regions
- AIDS remains significant contributor to mortality in central East and Eastern Europe
- Deaths from non-AIDS particularly prevalent in northern Europe



# Discussion

- Concern that regional differences in AIDS mortality persist; low use of cART in Eastern Europe remains of concern
  - Health care indexes will be used to try and further explain increased AIDS mortality in Central East and Eastern Europe compared to other regions
- Further analysis of non-AIDS mortality required
  - Why is the rate higher in North?
  - Are health care indexes useful for non-AIDS mortality

# The EuroSIDA Study Group

The multi-centre study group of EuroSIDA (national coordinators in parenthesis).

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