The incidence of serious non-AIDS bacterial infections in the EuroSIDA cohort

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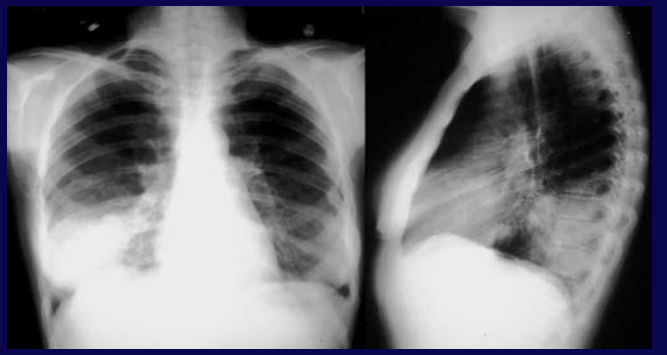
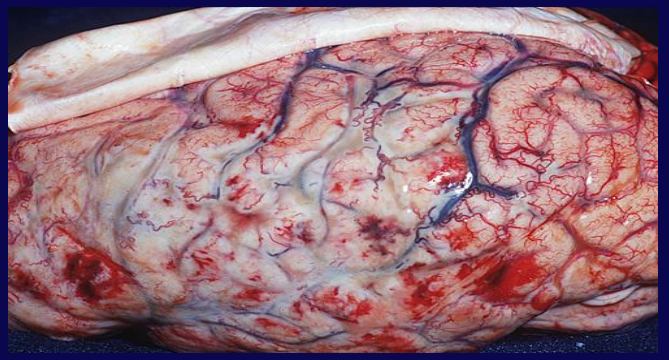
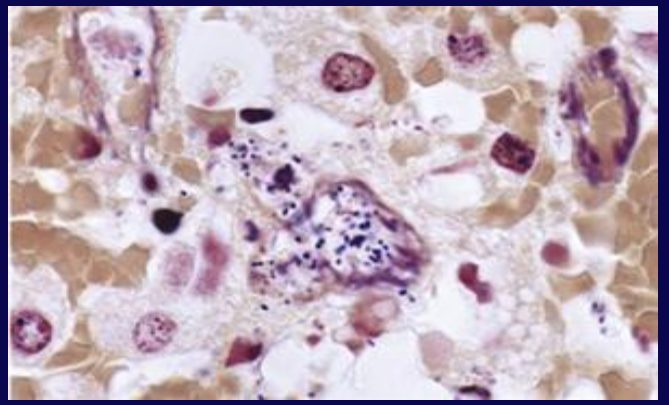
Background

- Risk of pneumonia in the cART era remains 6-8 fold higher among persons with HIV than those without HIV[1,2]

- Similar trends have also been reported for bacterial meningitis and invasive pneumococcal disease[3,4]







[1]Kohil et al. Clin Infect Dis 2006, [2]Soogard et al. Clin Infect Dis 2008, [3]Domingo et al. Journal Acquired Immunodeficiency Syndrome 2009, [4]Grau et al. Arch Intl Med 2005

Background

- There is an association between increasing risk of certain non-AIDS defining conditions and decreasing CD4+ count counts[5,6]
- By restoring CD4+ cell counts, cART reduces the risk of some non-AIDS defining diseases
- It has also been suggested that cART may have a protective effect against certain non-AIDS infections that is independent of CD4+ cell count[2]

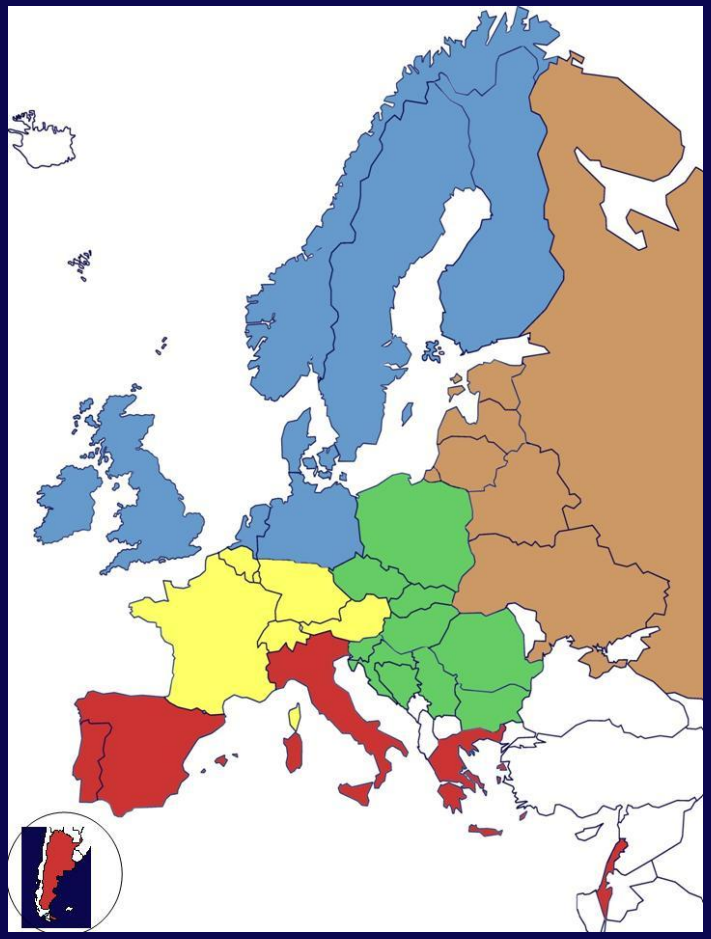
[5]Weber et al Arch Int Med 2006, [6]Grulich et al Lancet 2007

Aim

- Estimate incidence rates of serious non-AIDS bacterial infections requiring hospitalization across Europe
- Explore potential risk factors
- Determine the influence of cART on risk of infection at various levels of immune competence defined by CD4+ cell count.

EuroSIDA

EuroSIDA is a large prospective cohort with 16597 patients from 33 European countries, Israel and Argentina.



EuroSIDA

- From September 2006 onwards data has been routinely collected on serious non-AIDS infections requiring hospitalization

Methods

- Inclusion criteria
  - Patients under follow-up after 1 September 2006
  - CD4+ count available at enrolment
- Follow up
  - Patients were followed until their first diagnosis of a non-AIDS bacterial infection or their last visit
- Statistical methods
  - Incidence rate calculated per 1000 PYFU
  - Poisson regression used to investigate factors associated with diagnosis
  - Variables that could change over time were included as time-updated covariates

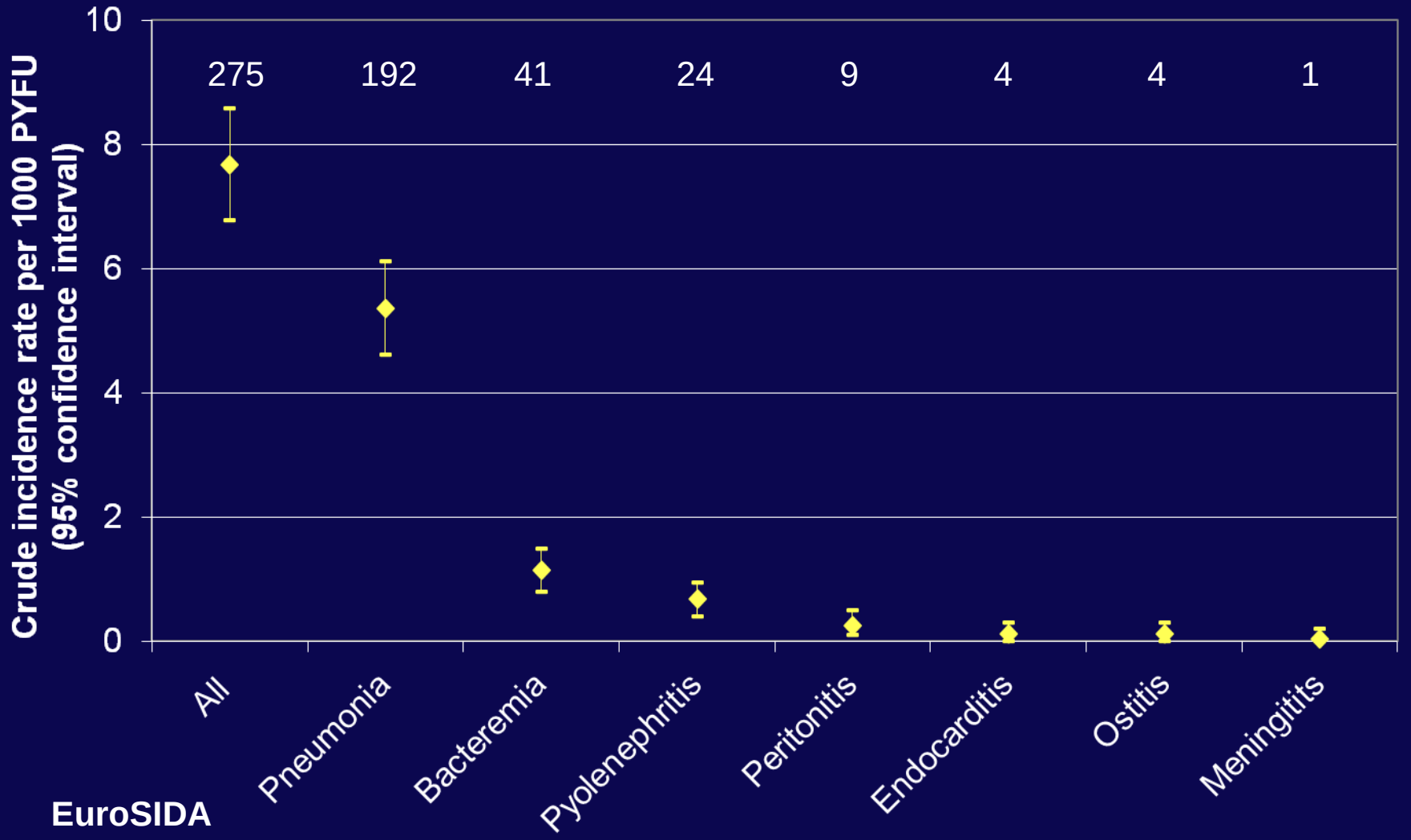
Baseline characteristics

All Patient (N,%)		**10851**	**100**
Gender (N,%)	Male	7857	72.4
Ethnic origin (N,%)	White	9562	88.1
Age (median, IQR)		42	35-49
HIV exposure Group (N,%)	Homosexual	4210	38.8
	IDU	2346	21.6
	Heterosexual	3461	31.9
Region of Europe (N,%)	South	2517	23.2
	West Central	2484	22.9
	North	2369	21.8
	East Central	1489	13.7
	East	1546	14.3
	Argentina	446	4.1
Prior AIDS diagnosis (N,%)		3130	28.9
On cART (N,%)		9110	84.0
CD4 count (median, IQR) cells/mm^3		458	413-641

Baseline was 1/1/2006 or enrolment into EuroSIDA if enrolled after this date

Results

- 10,851 HIV patients
- 275 events occurred during 35,839 PYFU



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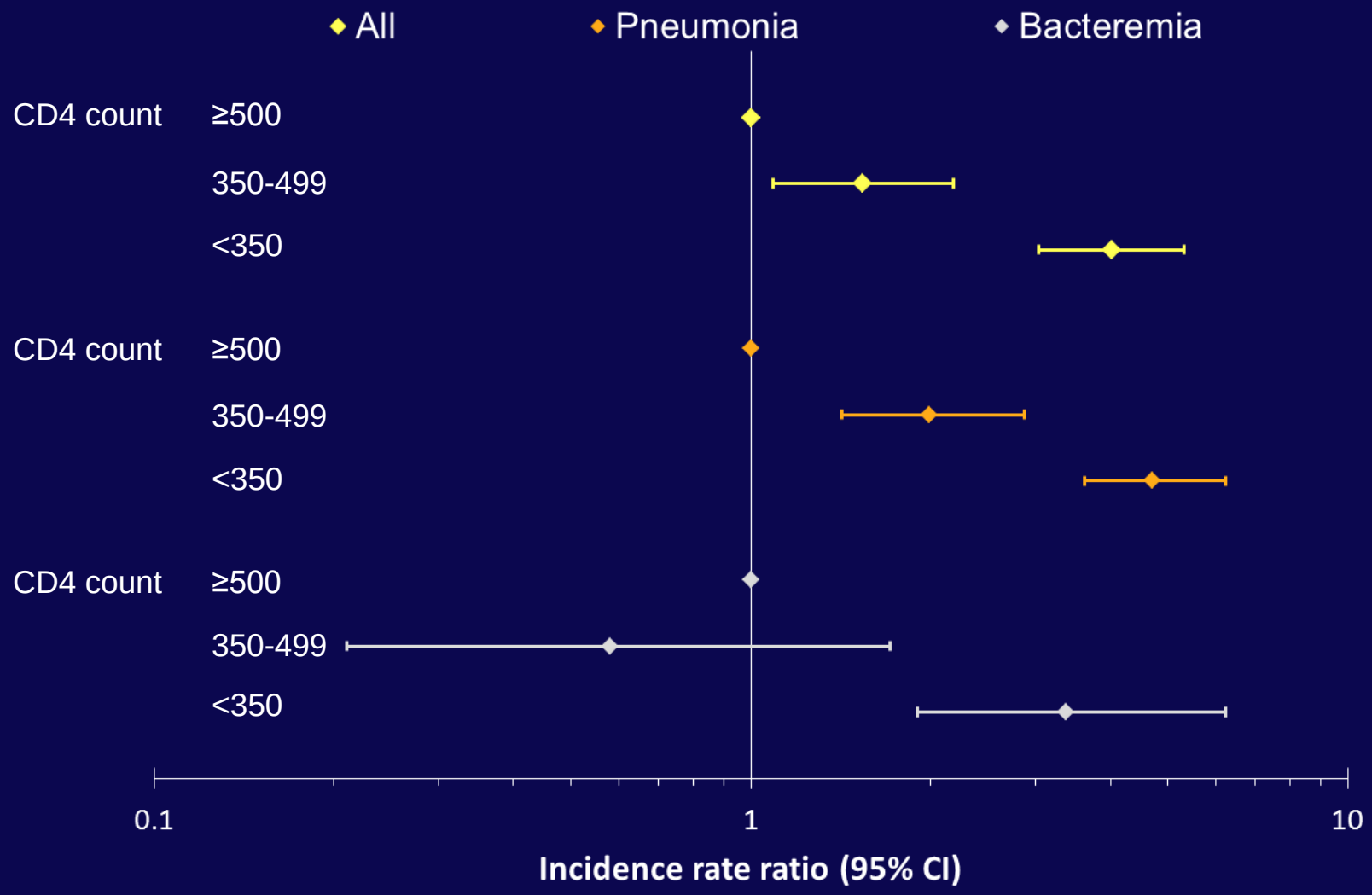
Crude incidence rate ratio by CD4 count strata



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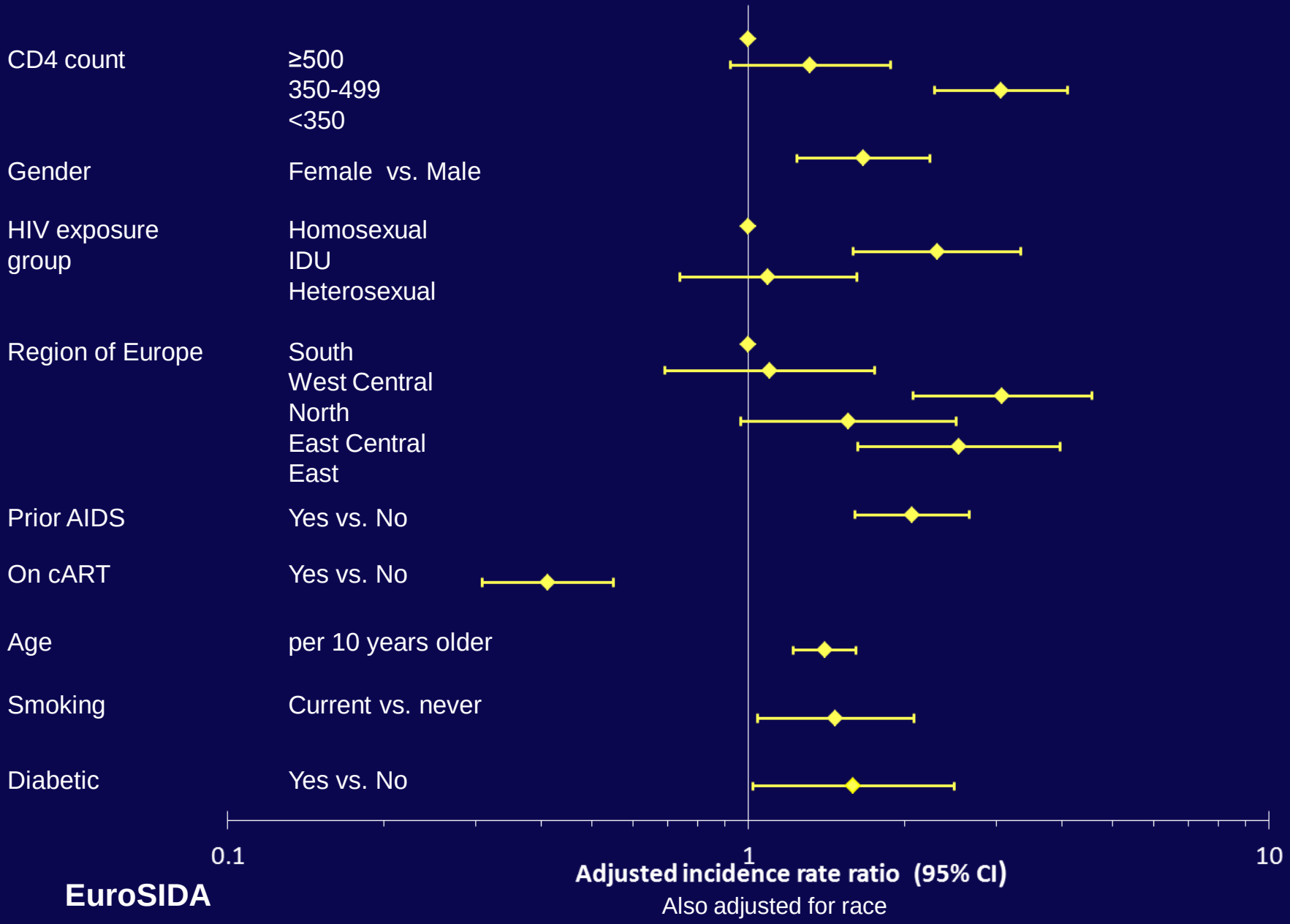
All events (n=275)



Also adjusted for race

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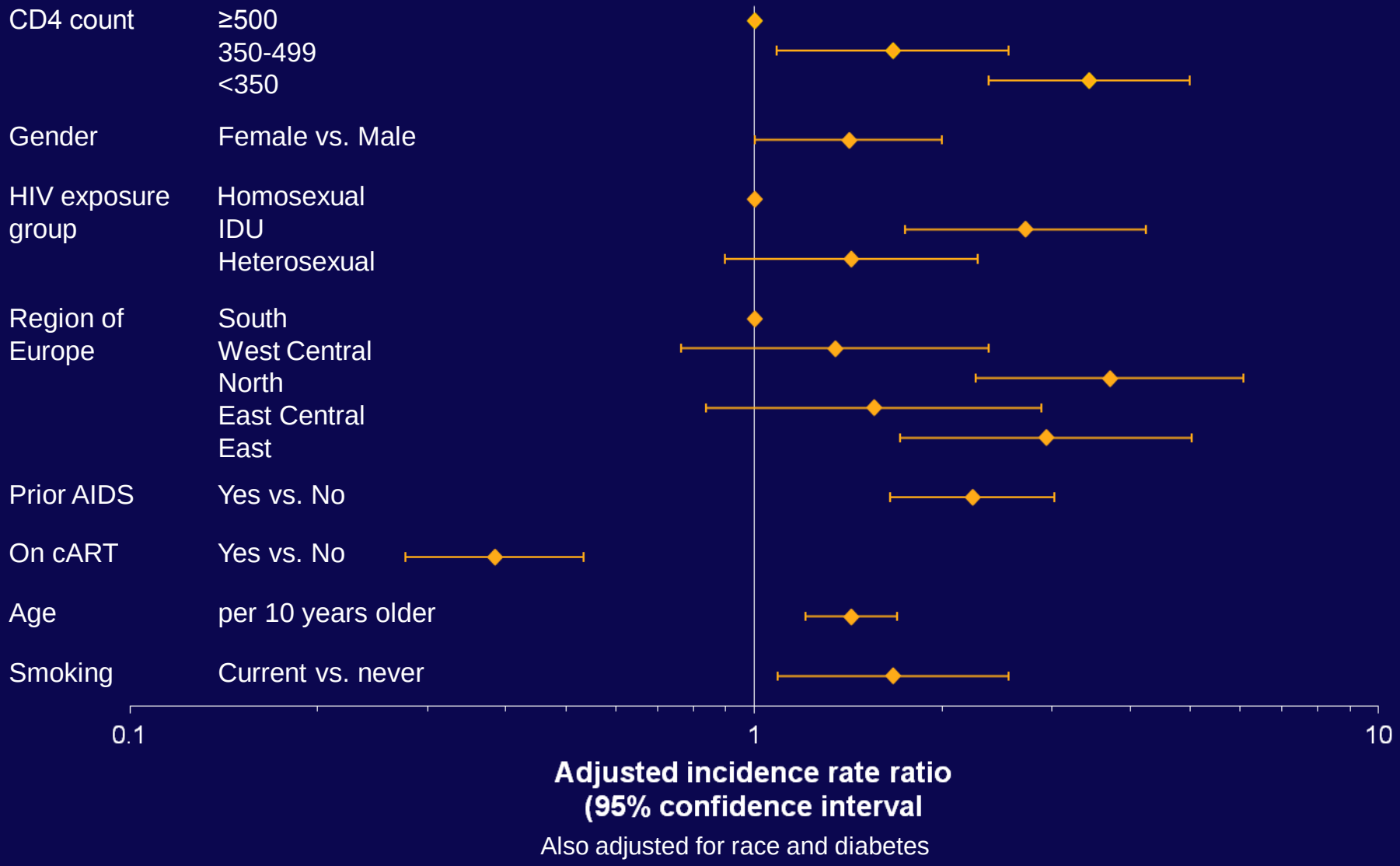
Pneumonia (n=192)



Also adjusted for race and diabetes

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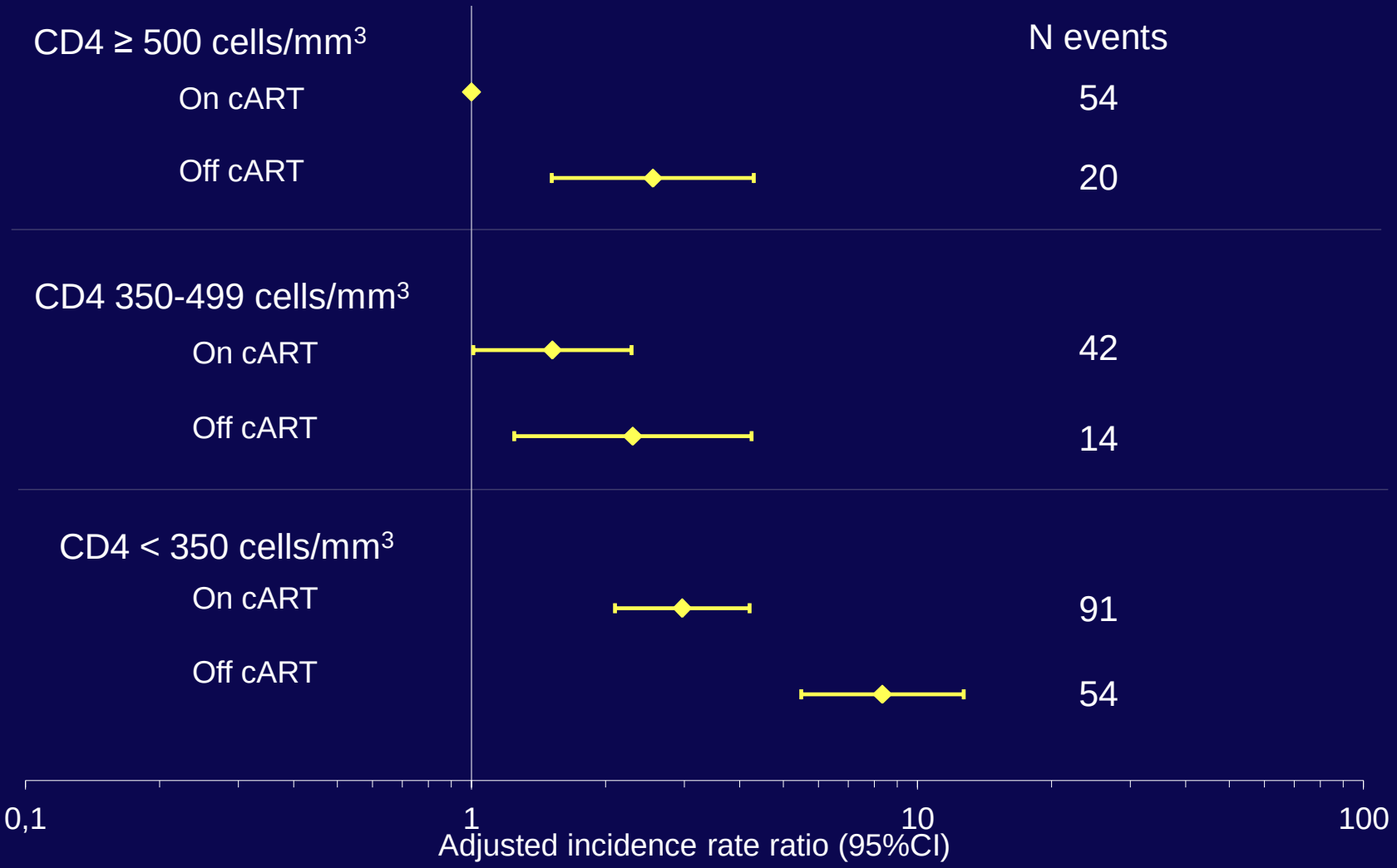
Adjusted incidence rate ratio by current CD4 count and use of cART



*Also adjusted for gender, HIV exposure group, region, prior AIDS, age, smoking, diabetes, and race

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Limitations

- Data collection
- Not all infections analysed separately
- Unable to control for influenza/pneumococcal vaccination
- Outcome after diagnosis
- Unmeasured confounding

Conclusions

- Non-AIDS bacterial infections remain a significant cause of morbidity
- The risk of bacterial infection was lowest in persons on cART with high CD4+ cell counts
- Timely initiation of cART in treatment naive individuals and adherence to cART is likely to reduce morbidity from non-AIDS infections
- Further investigation of regional differences could contribute to improvement in HIV management across Europe

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