

# Characteristics of individuals with HIV presenting late for care across Europe

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**Collaboration of Observational HIV Epidemiological Research Europe**  
Coordination: Copenhagen HIV Programme (CHIP) & Institut de Santé Publique, d'Epidémiologie et de Développement (ISPED)



# Background

- Rates of HIV testing in many populations are low, resulting in late presentation
- Delays in diagnosis associated with:
  - poor prognosis
  - increased time for which the person remains infectious and unaware of their infection
- Many results from different countries using different definitions, consensus definition of late presentation published in 2011<sup>1</sup>
  - ***CD4 count <350/mm<sup>3</sup> or an AIDS diagnosis***
- Cross Europe comparisons rare
- Region wide statistics useful for monitoring, targeting interventions and monitoring the epidemic

<sup>1</sup>Antinori A et al, HIV Medicine 2011;12:61-64

# Aims

Using data from COHERE<sup>1</sup>, a Europe wide collaboration of 33 cohorts across Europe

- Report the characteristics of LP
- Investigate temporal trends in the proportion of newly diagnosed people who are LP
- Characterise this proportion across different regions of Europe

Where LP defined as  $CD4 < 350/mm^3$  or AIDS at presentation for care

<sup>1</sup>COHERE: Collaboration of Observational HIV Epidemiological Research Europe, details at <http://www.cphiv.dk/COHERE/tabid/295/Default.aspx>

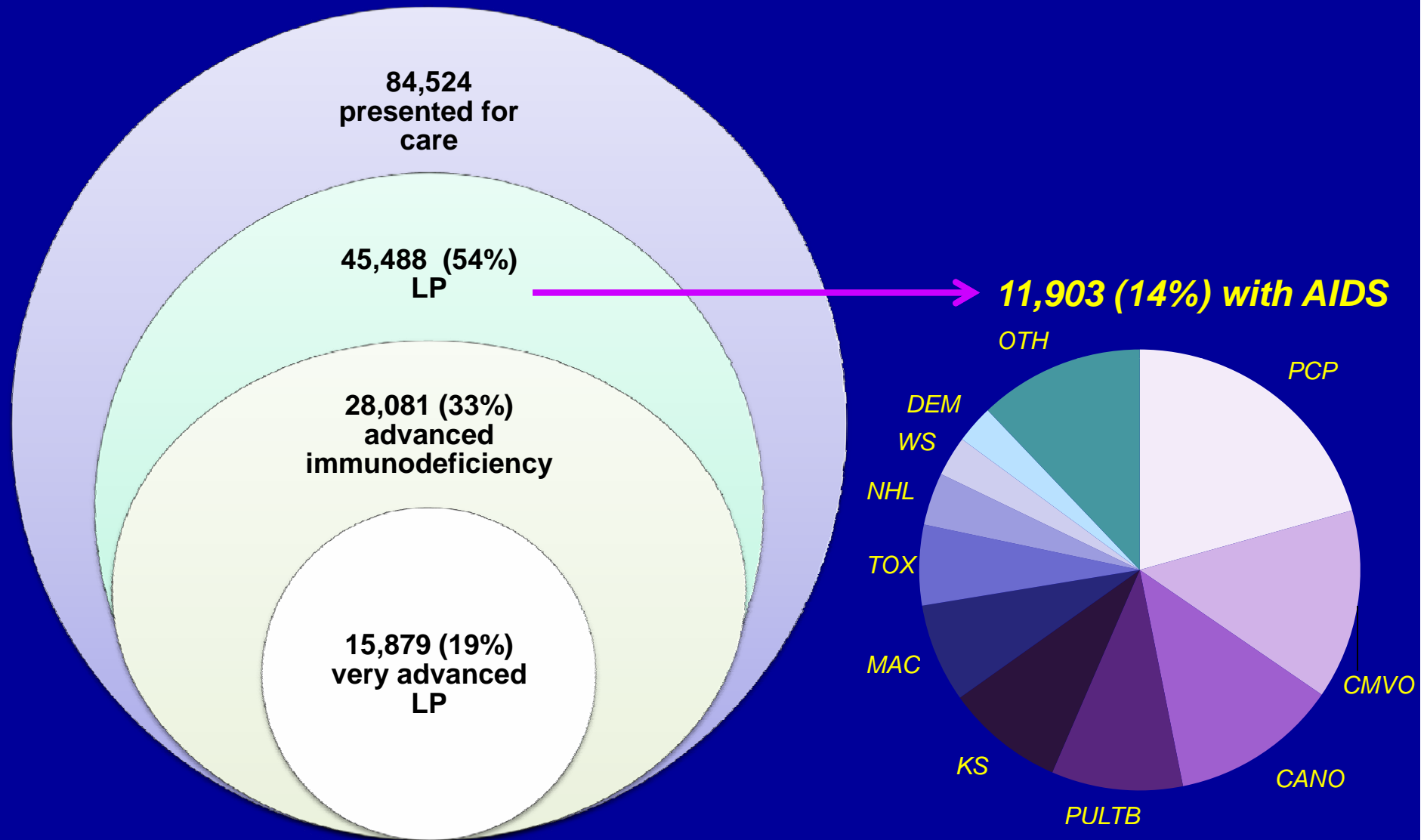
# Inclusion criteria

- Adults (>16 years old)
- Presenting for care for the first time on or after 1/1/2000
- CD4 count available at or within 6 months of presentation
- Not from a seroconverter cohort included in COHERE

## Definitions

LP :	CD4<350/mm <sup>3</sup> / AIDS at presentation for care
Advanced immunodeficiency :	CD4<200/mm <sup>3</sup> / AIDS at presentation for care
Very advanced LP :	CD4<50/mm <sup>3</sup> / AIDS at presentation for care

# LP across Europe : COHERE



LP : CD4 < 350/AIDS; advanced immunodeficiency : CD4 < 200/AIDS;  
very advanced LP : CD4 < 50/AIDS

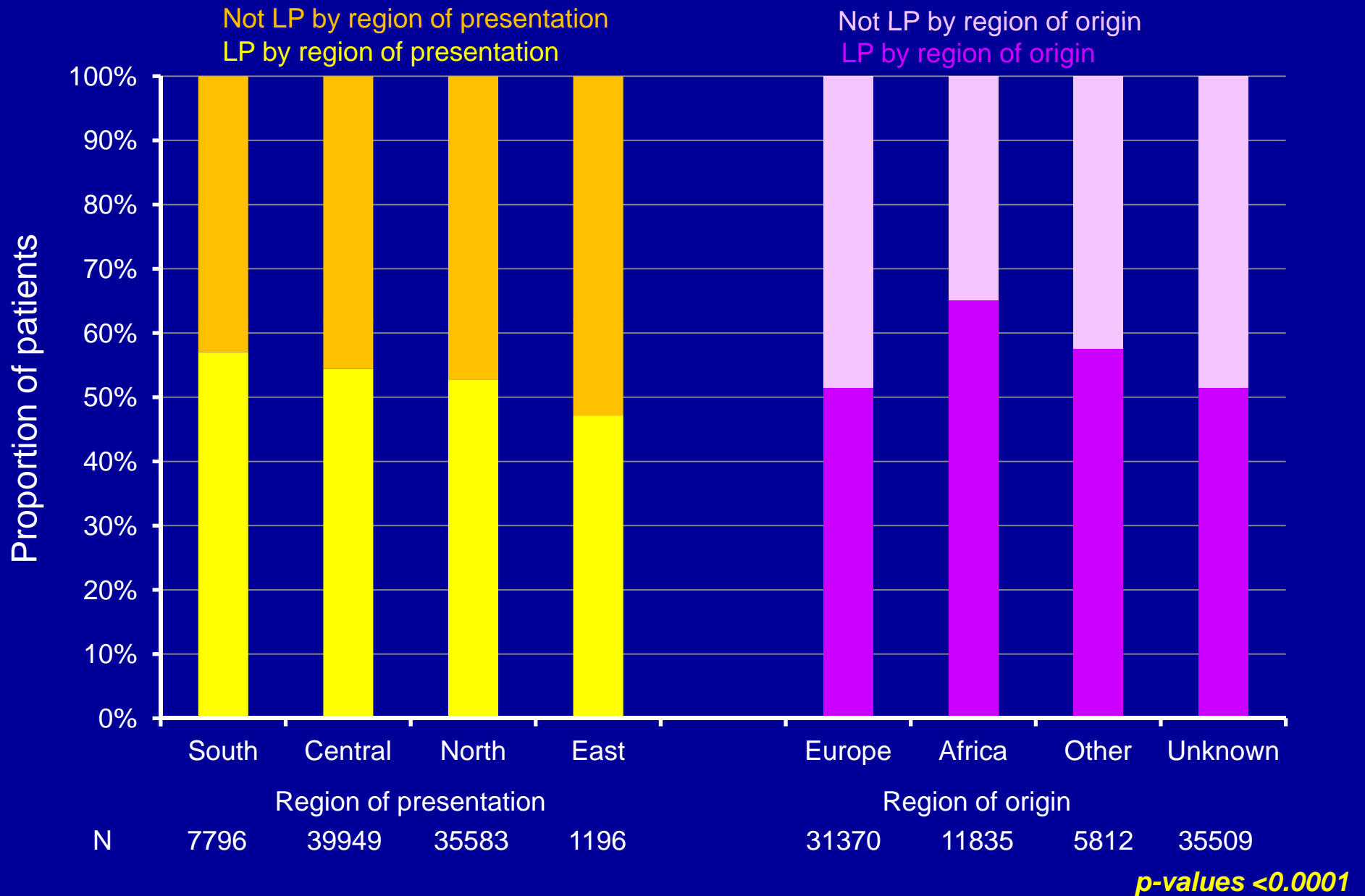
# Characteristics at presentation (1)

	LP		Not LP	
Total presenting for care (N, % of total)	45488	53.8	39036	46.2
Year presentation, month/year (median, IQR)	2/05	8/02 – 8/07	8/05	12/02 – 1/08
HIV Exposure MSM N (%)	14317	43.7	18444	56.3
Heterosexual male	11158	66.1	5717	33.9
Heterosexual female	11479	57.0	8652	43.0
Male IDU	2393	57.8	1749	42.2
Female IDU	718	50.8	695	49.2
Male other	3678	58.3	2634	41.7
Female other	1745	60.4	1145	39.6
Age, years (Median, IQR)	38	31 – 45	34	28 – 41
CD4, /mm <sup>3</sup> (Median, IQR)	175	70 – 270	535	432 – 688

**All p-values <0.0001**

MSM; men who have sex with men IDU; injection drug use

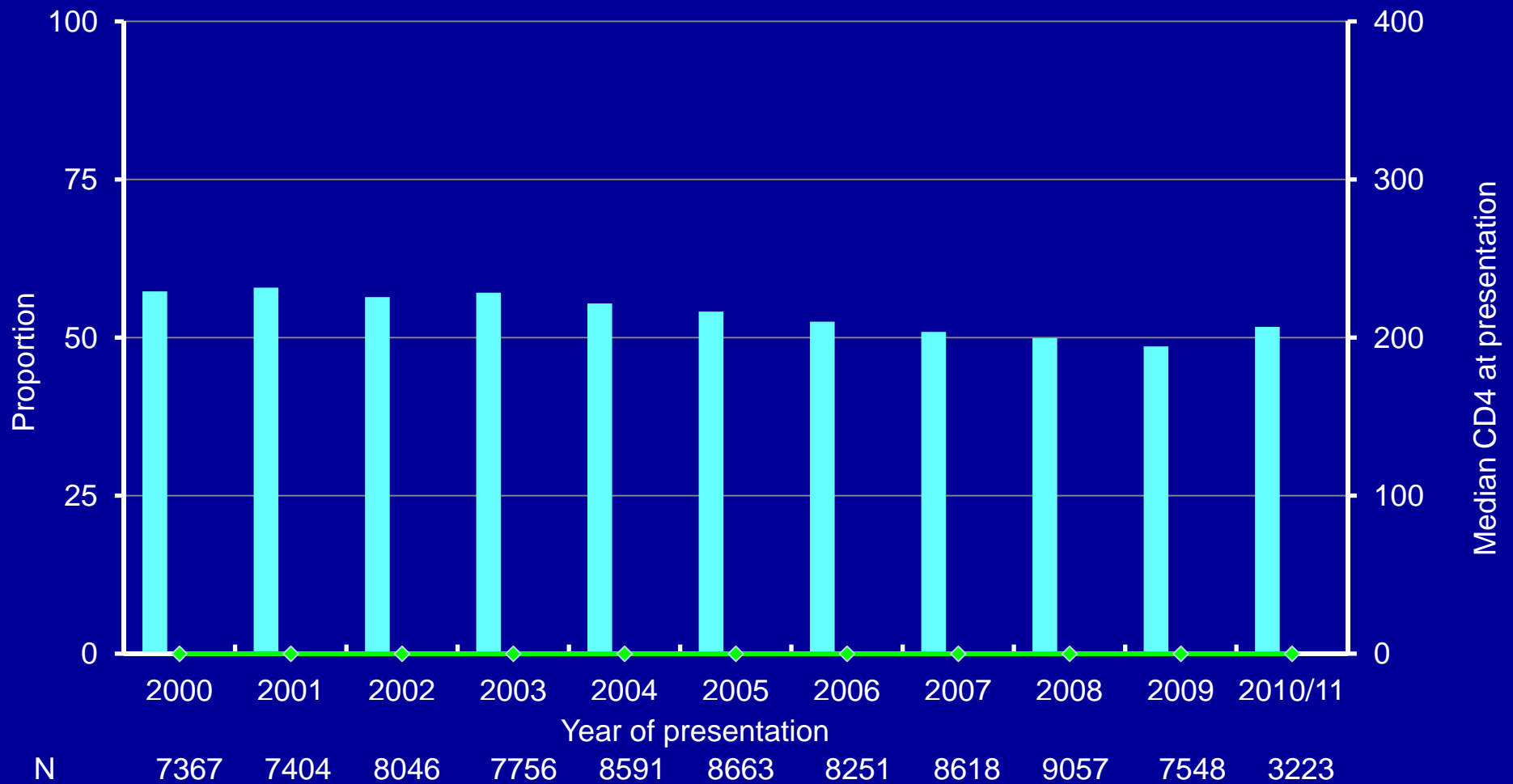
# Characteristics at presentation (2)



# LP by year of presentation (1)

■ LP

Crude odds ratio 0.96 (0.95 – 0.97) per calendar year



LP : CD4 < 350/AIDS; advanced immunodeficiency : CD4 < 200/AIDS



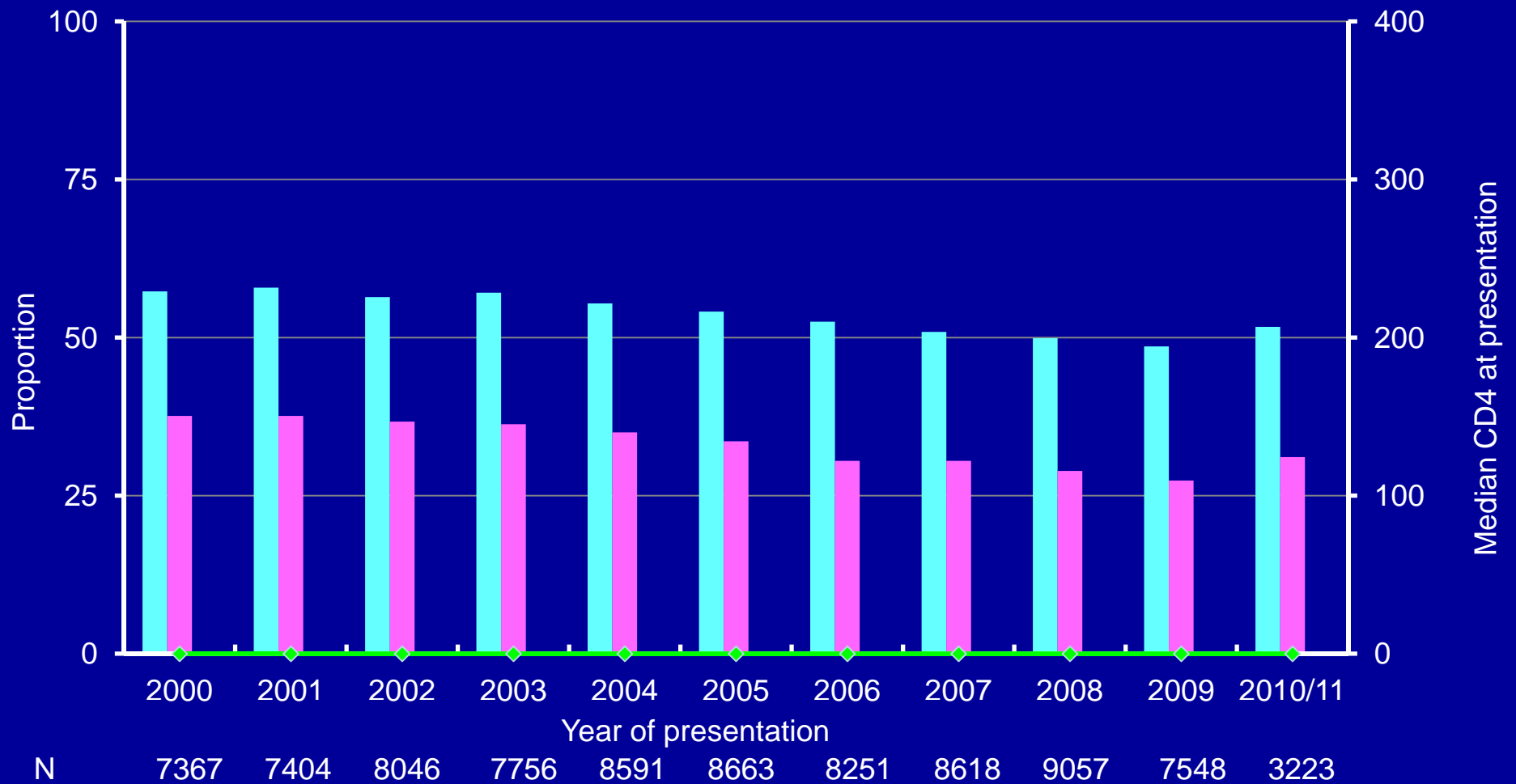
# LP by year of presentation (2)

■ LP

■ advanced immunodeficiency

Crude odds ratio 0.96 (0.95 – 0.97) per calendar year

Crude odds ratio 0.95 (0.94 – 0.96) per calendar year



LP : CD4 < 350/AIDS; advanced immunodeficiency : CD4 < 200/AIDS

# LP by year of presentation (3)

■ LP

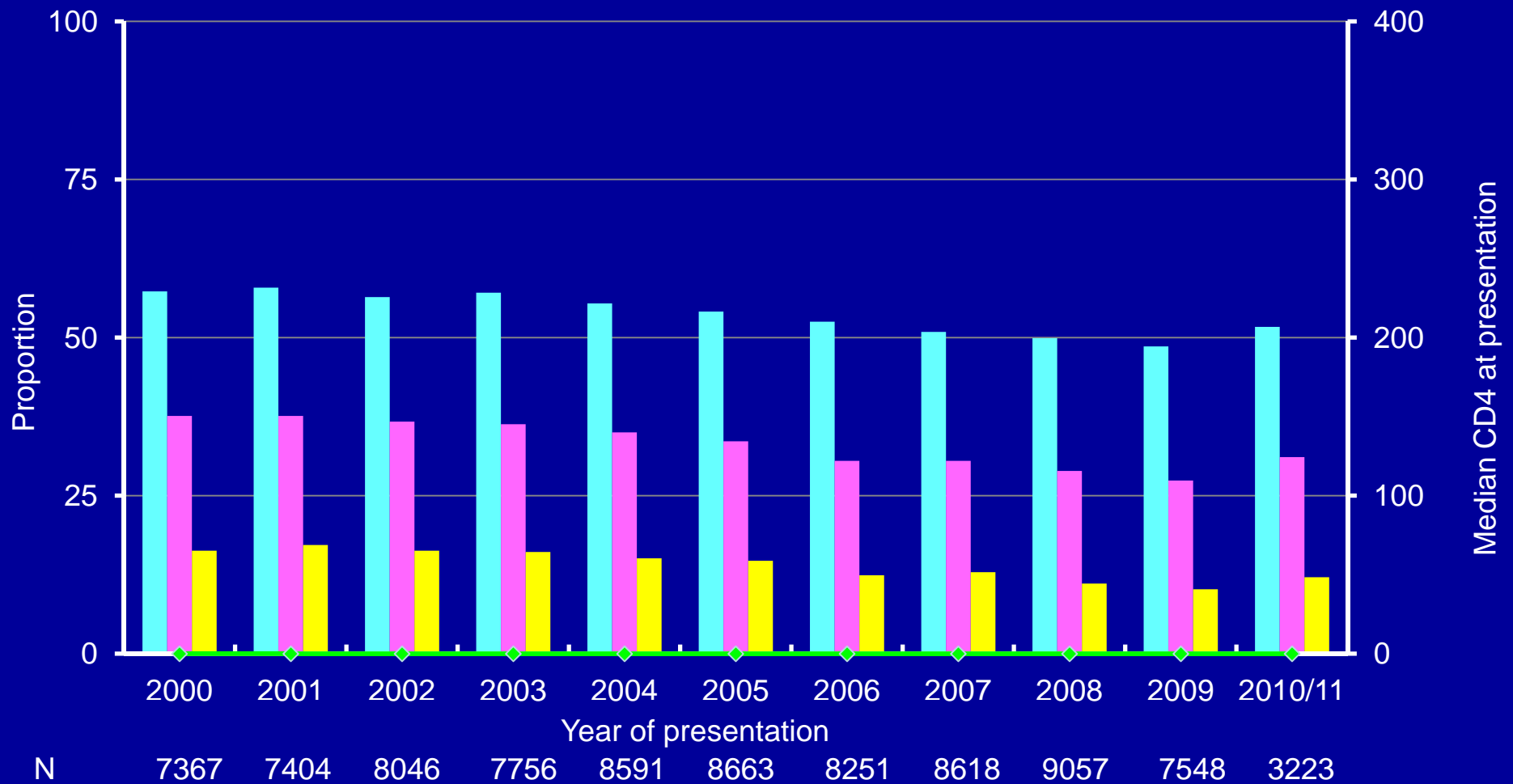
■ advanced immunodeficiency

■ AIDS

Crude odds ratio 0.96 (0.95 – 0.97) per calendar year

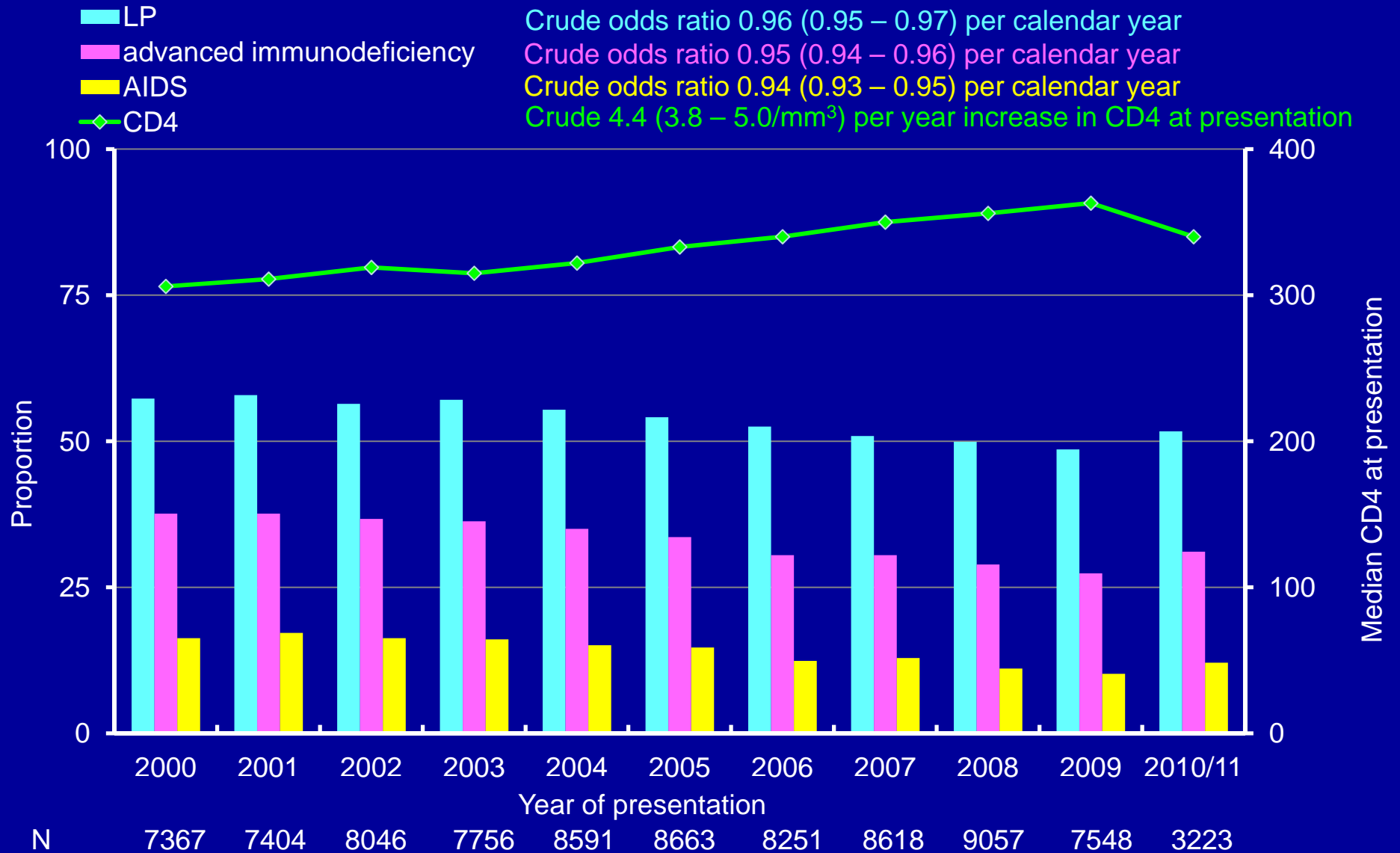
Crude odds ratio 0.95 (0.94 – 0.96) per calendar year

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LP : CD4 < 350/AIDS; advanced immunodeficiency : CD4 < 200/AIDS

# LP by year of presentation (4)

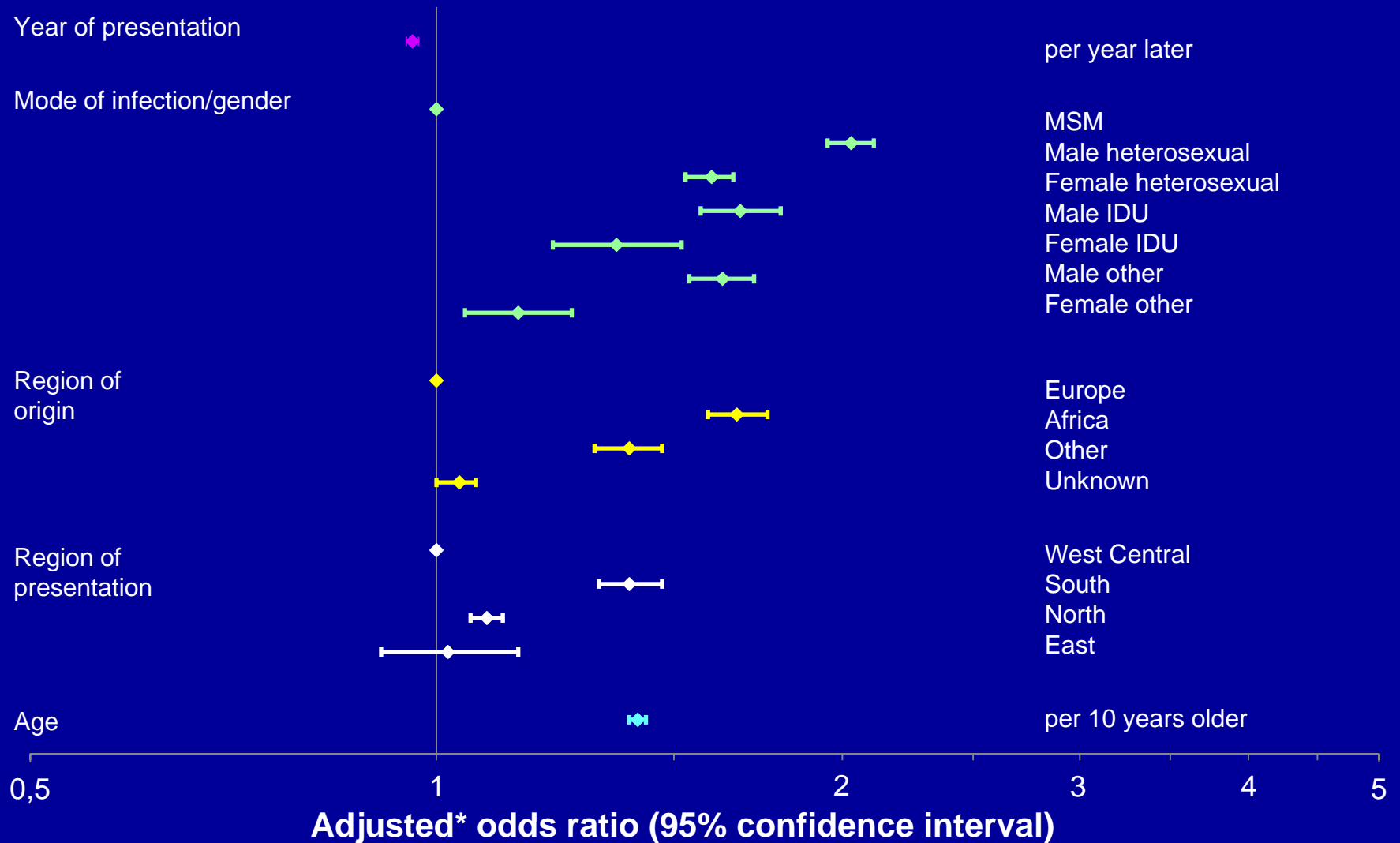


LP : CD4 < 350/AIDS; advanced immunodeficiency : CD4 < 200/AIDS

# Characteristics by year of presentation

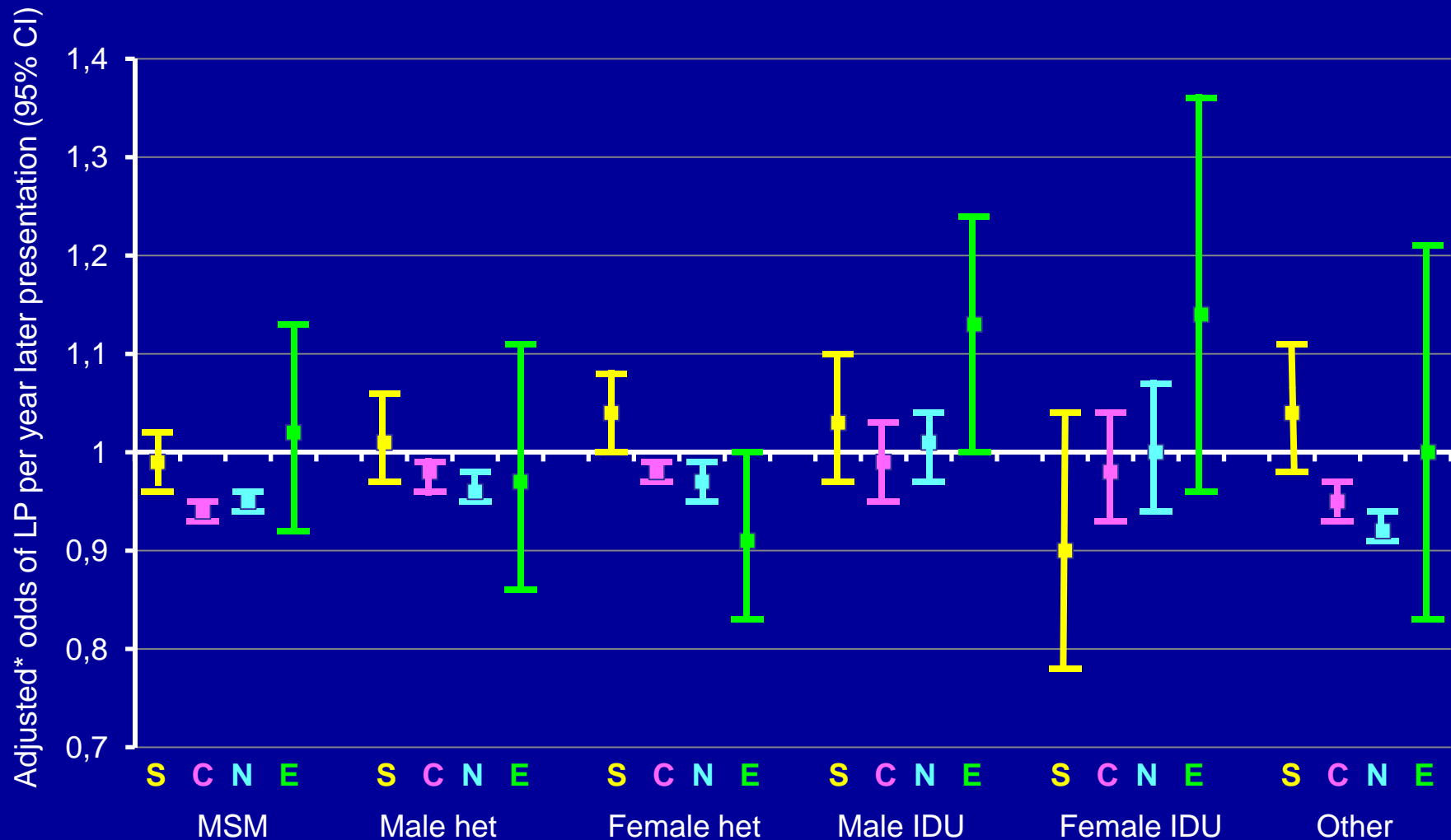
	Year of presentation		
	2000	2005	2009
Total presenting for care (N)	7367	8663	7548
Presenting late (N,% of total)	4222 (57.3)	4683 (54.1)	3671 (48.6)
With advanced immunodeficiency (N,% of total)	2769 (37.6)	2911 (33.6)	2069 (27.4)
Mode of infection/gender (N,% presenting late)			
MSM	1185 (52.3)	1485 (43.6)	1354 (39.3)
Heterosexual male	1037 (66.4)	1149 (65.9)	808 (63.1)
Heterosexual female	1052 (55.8)	1285 (58.0)	746 (56.3)
Male IDU	383 (54.6)	245 (61.0)	116 (60.1)
Female IDU	101 (44.5)	65 (52.9)	31 (50.8)
Male other	309 (65.7)	302 (58.3)	448 (47.5)
Female other	155 (60.8)	152 (59.8)	168 (55.5)
Region of origin (N,% presenting late)			
Europe	1410 (54.3)	1632 (51.7)	1453 (46.5)
Africa	693 (65.9)	805 (66.8)	560 (64.1)
Other	232 (64.4)	389 (58.1)	291 (52.2)
Unknown	1887 (56.1)	1857 (51.1)	1367 (45.6)

# Characteristics associated with LP



\*Adjusted for variables shown in figure. MSM; men who have sex with men IDU; injection drug use

# Adjusted odds of LP and year of presentation



Region of presentation : S; South. C; Central. N; North. E; East.

MSM; men who have sex with men. Het; heterosexual. IDU; injection drug use.

\*Adjusted for age and region of origin.

Interaction between year and mode of infection or region of presentation <0.0001

# Multivariate predictors of CD4 at presentation

	CD4	95% CI	p
<b><i>Year of presentation (per yr later)</i></b>	<b>1.2**</b>	<b>0.8 to 1.6</b>	<b>&lt;0.0001</b>
HIV Exposure/ gender N (%)	Ref		
MSM	Ref		
Heterosexual male	-29.9	-32.8 to -15.2	<0.0001
Heterosexual female	-14.0	-17.4 to -10.7	
Male IDU	-18.4	-24.0 to -12.9	
Female IDU	-4.1	-13.6 to 5.4	
Male other	-24.0	-28.6 to -19.4	
Female other	5.4	-1.9 to 12.7	
Age (per 10 yr older)	-16.3	-17.4 to -15.2	<0.0001
Region of presentation (N,%)	Ref		<0.0001
South	Ref		
West Central	-15.1	-19.5 to -10.8	
North	7.9	5.3 to 10.5	
East	0.3	-10.6 to 11.1	
Region of origin	Ref		<0.0001
Europe	Ref		
Africa	-5.4	-9.4 to -1.4	
Other	-14.4	-19.2 to -9.5	
Unknown	-18.6	-11.4 to -5.7	

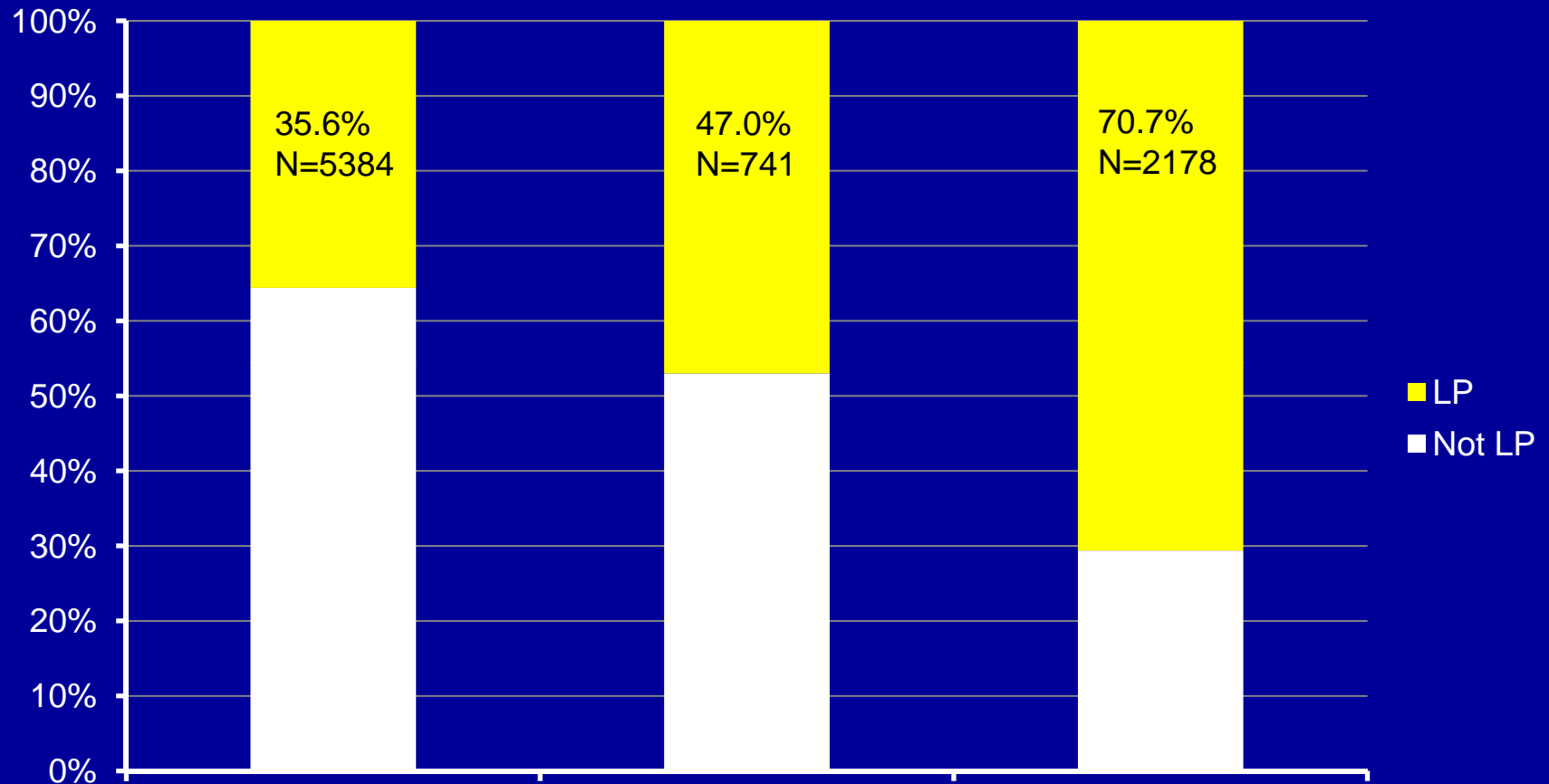
**\*\*Univariate 4.4 (3.8 – 5.0/mm<sup>3</sup>) increase in CD4 at presentation per year later presentation**

**Figures show the adjusted CD4 at presentation, adjusted for the factors shown in the table.**

MSM; men who have sex with men IDU; injection drug use

# Individuals at low, moderate and high risk for LP

Variation in proportion of LP depending on study population



	Low	Moderate	High
Risk	MSM	IDU	Heterosexual
Age	<35	<35	>55
Region of presentation	Europe	Europe	Europe
N	15123	1576	3077

MSM; men who have sex with men IDU; injection drug use



# Availability of CD4 at presentation

## Effect on proportion of LP

CD4 count window	All	South	Central	North	East
	N (% LP)	%	%	%	%
1 month	67,338 (55)	58	56	53	48
<b>6 months</b>	<b>84,524 (54)</b>	<b>57</b>	<b>54</b>	<b>53</b>	<b>47</b>
12 months	88,507 (54)	57	54	53	46
1 <sup>st</sup> available	98,743 (53)	57	53	52	45
No CD4 in 1 <sup>st</sup> 6 months : LP	102,532 (62)	63	64	68	74
No CD4 in 1 <sup>st</sup> 6 months and no AIDS : not LP	102,532 (45)	51	44	47	26

*All figures are proportion of LP according to availability of CD4 at presentation*

# Limitations

- Almost 20% excluded due to no CD4 counts, different estimates of proportion of LP depending on how you treat these patients in analyses
- Clinics enrolled in COHERE not necessarily representative of rest of Europe; 320+ clinics from 34 countries
- Screening practises for HIV will vary in different countries and across regions
- Limited data from East Europe and most affected by missing CD4 count data

# Conclusions

- Over 50% of individuals with CD4 counts measured at or within 6 months of presentation are LP across Europe
- The proportion of newly diagnosed persons who are LP decreased by 4% per year
- Considerable variation within different exposure groups and regions of Europe
- Median CD4 at presentation of all patients increased by only 1.2 cells/mm<sup>3</sup> per year
- Older non-MSM originating from outside of Europe, presenting in South or North Europe were more likely to be LP
- A substantial number of 'low risk' individuals continue to be LP

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•**Executive committee:** Ian Weller (Chair, University College London), Manuel Battegay (SHCS, MoCHIV), Jordi Casabona (PISCIS), Dominique Costagliola (FHDH), Antonella d'Arminio Monforte (ICONA), Frank de Wolf (ATHENA), Maria Prins (CASCADE), Jesper Grarup (Head, Copenhagen Regional Co-ordinating Center), Genevieve Chene (Head, Bordeaux Regional Co-ordinating Centre).

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