

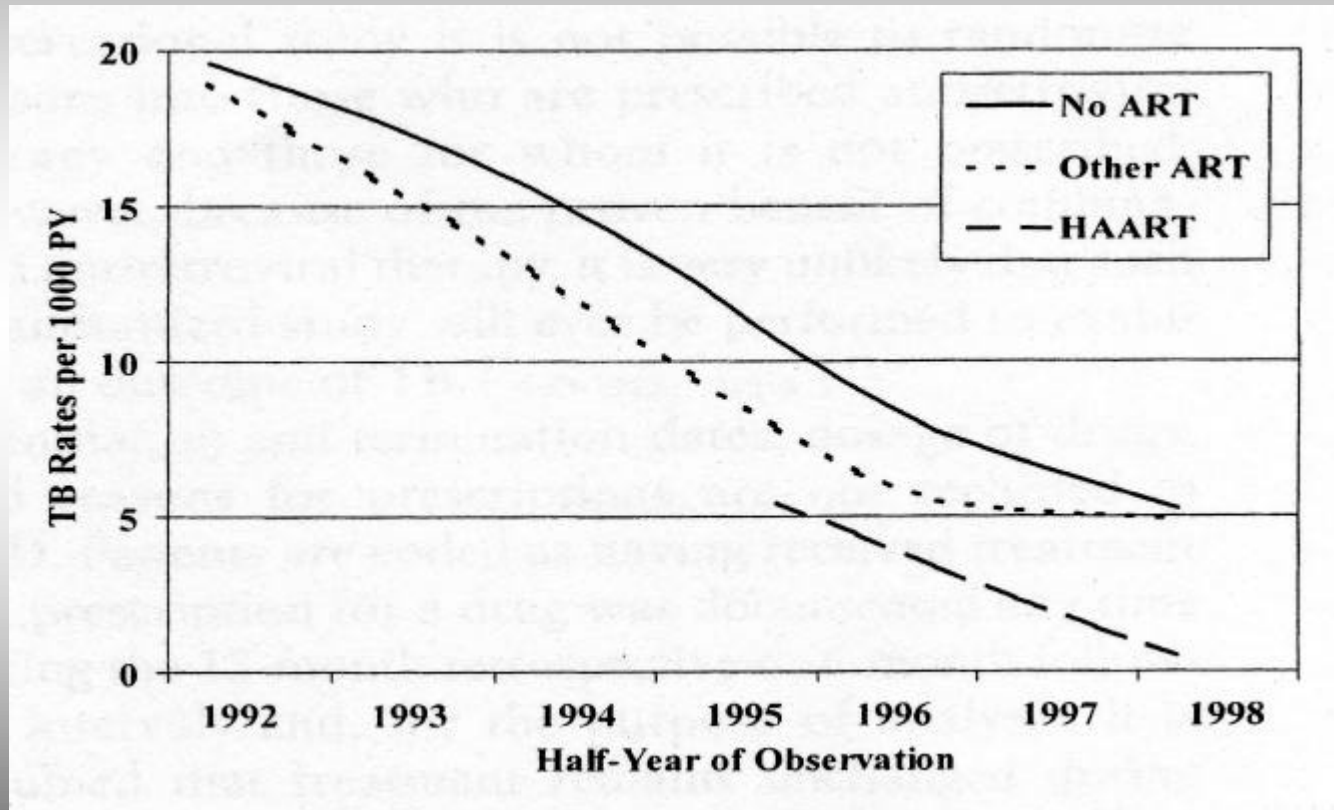
X Taller Internacional sobre Tuberculosis. UITB 2006.

Barcelona, 27 y 28 de Noviembre de 2006

Evolución de la Incidencia de TB en Personas Infeectadas por VIH

**Santiago Moreno
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Tuberculosis in AIDS Patients South Africa



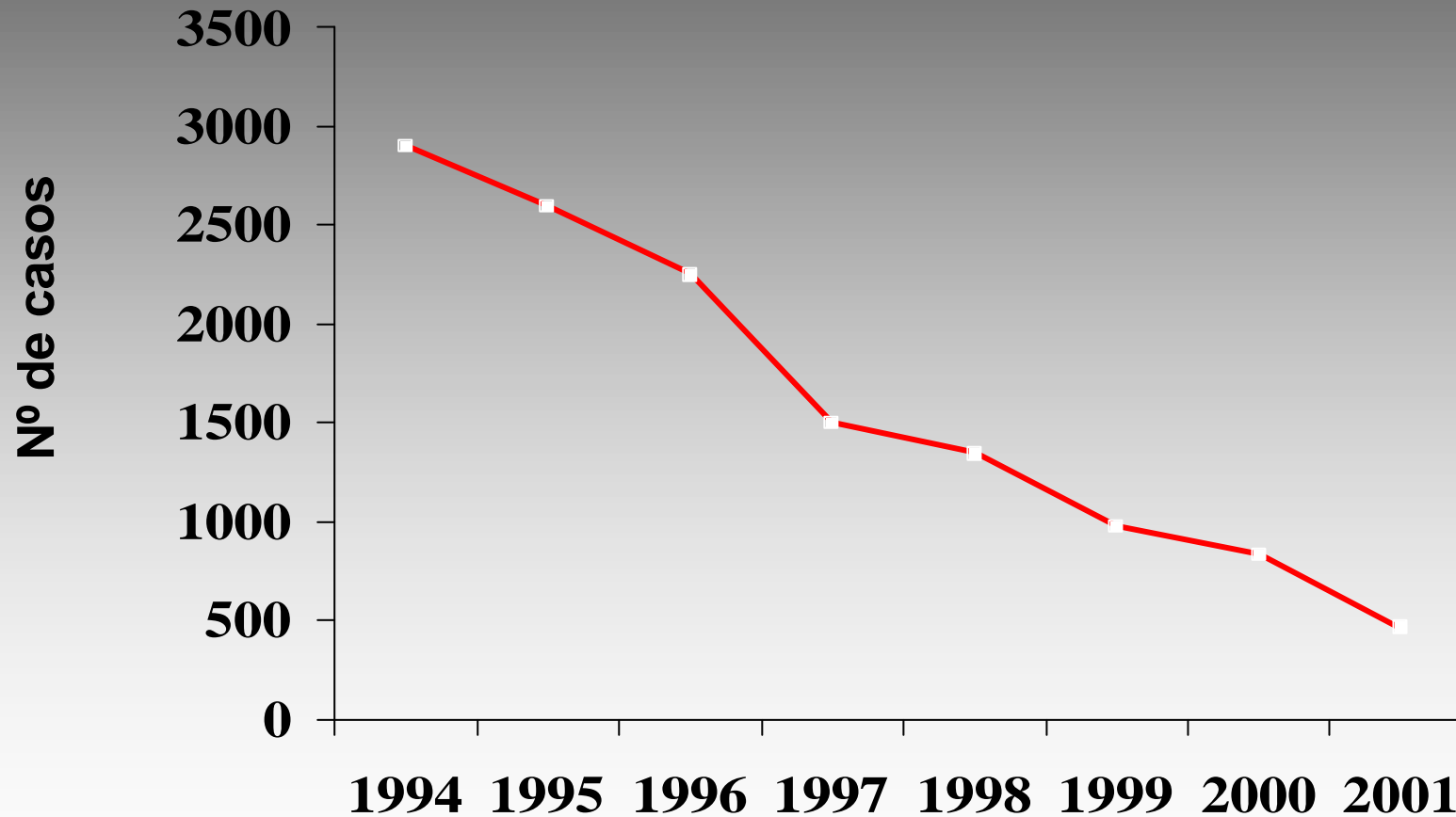
HAART decreased the risk of TB in 80%

Tuberculosis in AIDS Patients USA (100 hospitals)

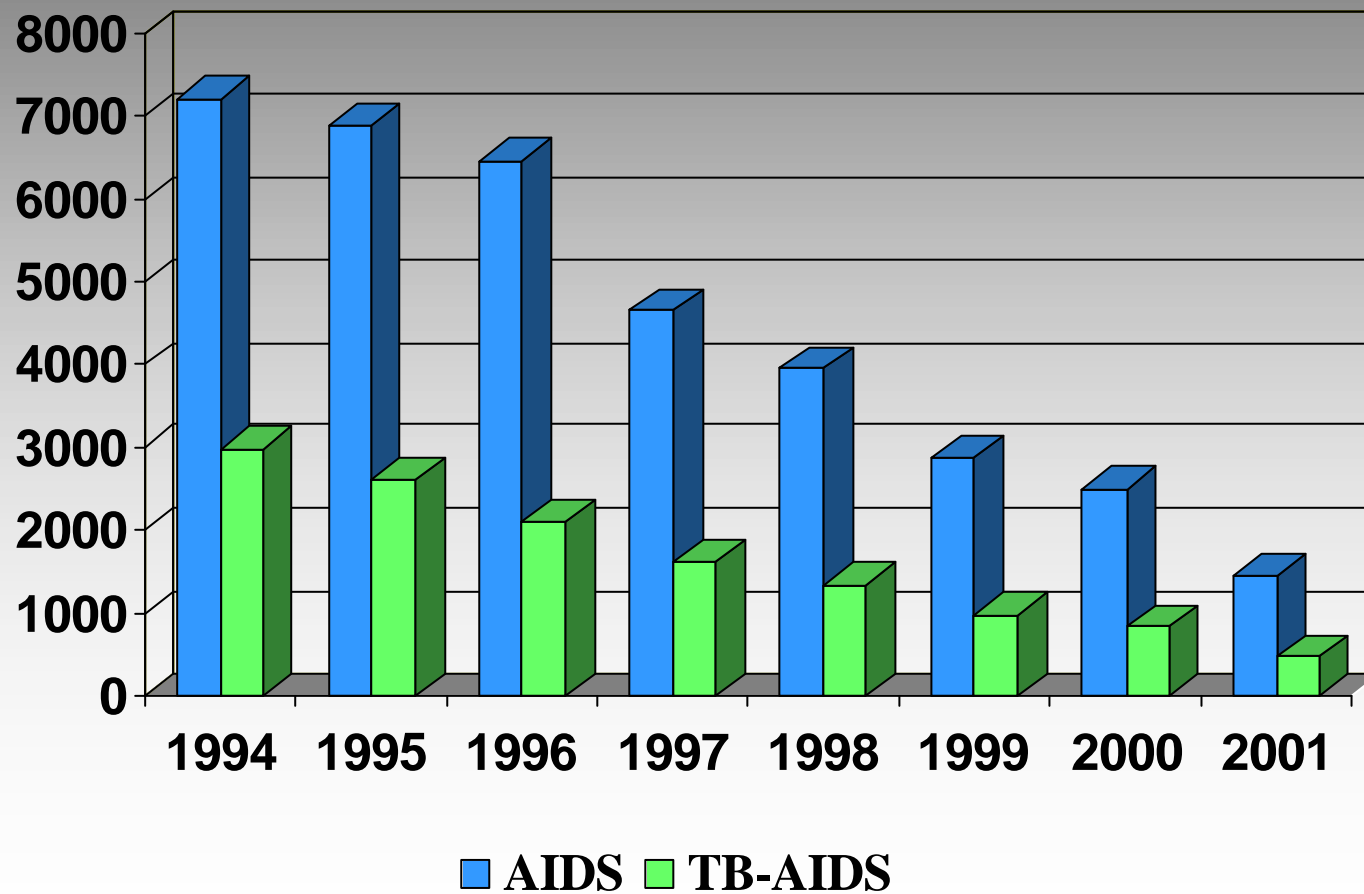
	HAART			Non-HAART			Adjusted risk ratio (95%CI)	p	Adjusted number of cases averted (95% CI)
	Number of cases of tuberculosis	Patient- years	Incidence*	Number of cases of tuberculosis	Patient- years	Incidence*			
Overall	9	375.1	2.4	82	848.2	9.7	0.19 (0.09-0.38)	<0.0001	7.3 (4.7-9.8)
CD4 count (cells/μL)									
<200	5	148	3.4	41	235	17.5	0.18 (0.07-0.47)	<0.0001	14.2 (9.7-19.7)
200-350	2	121.2	1.7	27	225	12.0	0.12 (0.03-0.53)	<0.0001	10.6 (6.8-15.9)
>350	2	100.1	2.0	14	388.3	3.6	0.36 (0.1-1.74)	0.78	2.3 (1.1-4.4)
WHO stage									
1 or 2	1	219	0.5	36	657.4	5.5	0.08 (0.01-0.57)	0.01	5.1 (3.45-7.1)
3 or 4	8	172.75	4.6	46	190.8	24.1	0.22 (0.09-0.41)	0.03	18.8 (13.2-26.1)
Socioeconomic status									
Low	6	166.21	3.6	65	514.34	10.9	0.21 (0.09-0.49)	<0.0001	8.6 (6.2-11.5)
High	3	208.89	1.44	17	333.86	5.09	0.17 (0.05-0.57)	<0.0001	4.2 (2.3-7.0)

HAART decreased the risk of TB in 81%

Tuberculosis in AIDS Patients Spain (1994-2001)



TB in AIDS Patients Spain (1994-2001)



Tuberculosis in AIDS Patients Spain (1994-2001)

Year	n ^o	%	decr. (%)
1994	2977	41.8	-
1995	2610	38.4	12.3
1996	2115	35.9	19.0
1997	1621	35.1	23.4
1998	1344	34.2	17.1
1999	980	34.4	27.1
2000	830	34.2	15.3
2001	473	32.3	43.0

HAART decreased the risk of TB in 84%

Estudio Multicéntrico CoRIS-MD

Objetivos

- **Evaluar el impacto del tratamiento antirretroviral en la incidencia de tuberculosis en personas infectadas por el VIH**
- **Identificar los factores asociados con la evolución de la incidencia de tuberculosis**

Estudio Multicéntrico CoRIS-MD

Métodos

- **Cohorte multicéntrica (10 hospitales)**
- **Período de Estudio: 1/1997 – 12/2003**
- **Criterios de Inclusión/Exclusión:**
 - No tuberculosis previa
 - Seguimiento mínimo de 6 meses
- **Diagnóstico de tuberculosis:**
 - Datos del hospital
 - Cruce con el Registro Nacional de SIDA

Estudio Multicéntrico CoRIS-MD

Métodos

- **Tasas de Incidencia (IC 95%)**
- **Modelos de regresión de Cox**
- **Análisis de supervivencia (Kaplan-Meier)**

Características Sociodemográficas (n= 4268)

	No.	%
Male sex	3100	72.6
Age at entry		
£ 30	1165	27.3
31 – 35	1394	32.7
36 – 40	991	23.2
= 41	718	16.8
Transmission category		
Male homosexual contact	651	15.3
Injecting drug use	2345	54.9
Heterosexual contact	986	23.1
Other/Unknown	286	6.7

Características clínicas (n= 4268)

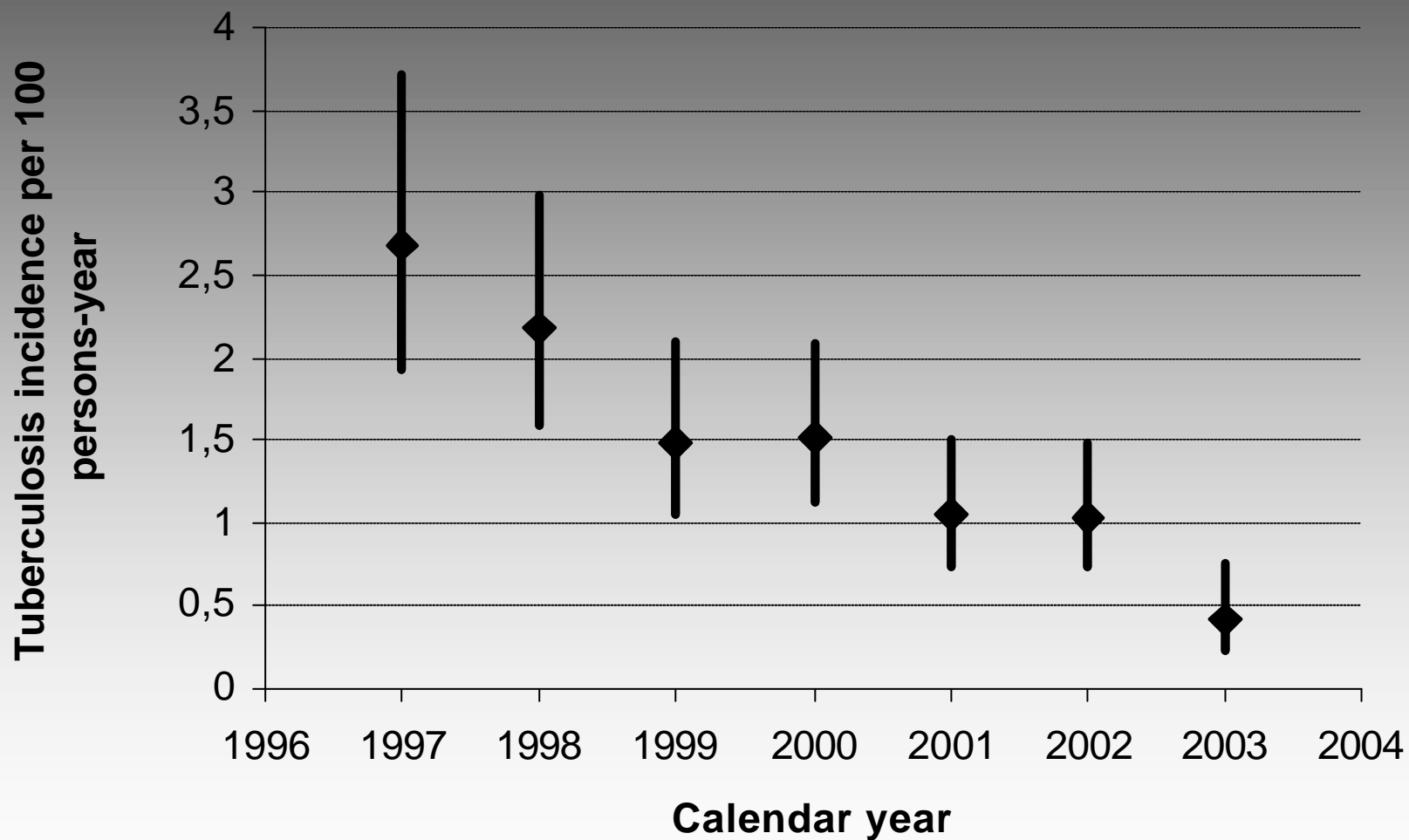
	No.	%
HAART previous to Tbc or last contact	3361	78.7
AIDS diagnosis previous to Tbc or last contact	1012	23.7
CD4 cell count (x10 ⁶ cells/l) at entry		
< 200	1161	27.2
200 – 350	764	17.9
> 350	1560	36.6
Unknown	783	18.4
HIV-1 RNA (log ₁₀ copies/ml) at entry		
< 4	1107	25.9
4 – 5	612	14.3
> 5	507	11.9
Unknown	2042	47.8

Tuberculosis rates

	Persons-year (p-y)	No. Tbc	Tbc rate x 100 p-y (95% CI)
Total	16464*	221	1.34 (1.18 to 1.53)
Calendar period			
1997-1998	3179	74	2.33 (1.85 to 2.92)
1999-2000	4839	69	1.43 (1.13 to 1.81)
2001-2003	8447	78	0.92 (0.74 to 1.15)

*Mean follow-up: 3.8 years

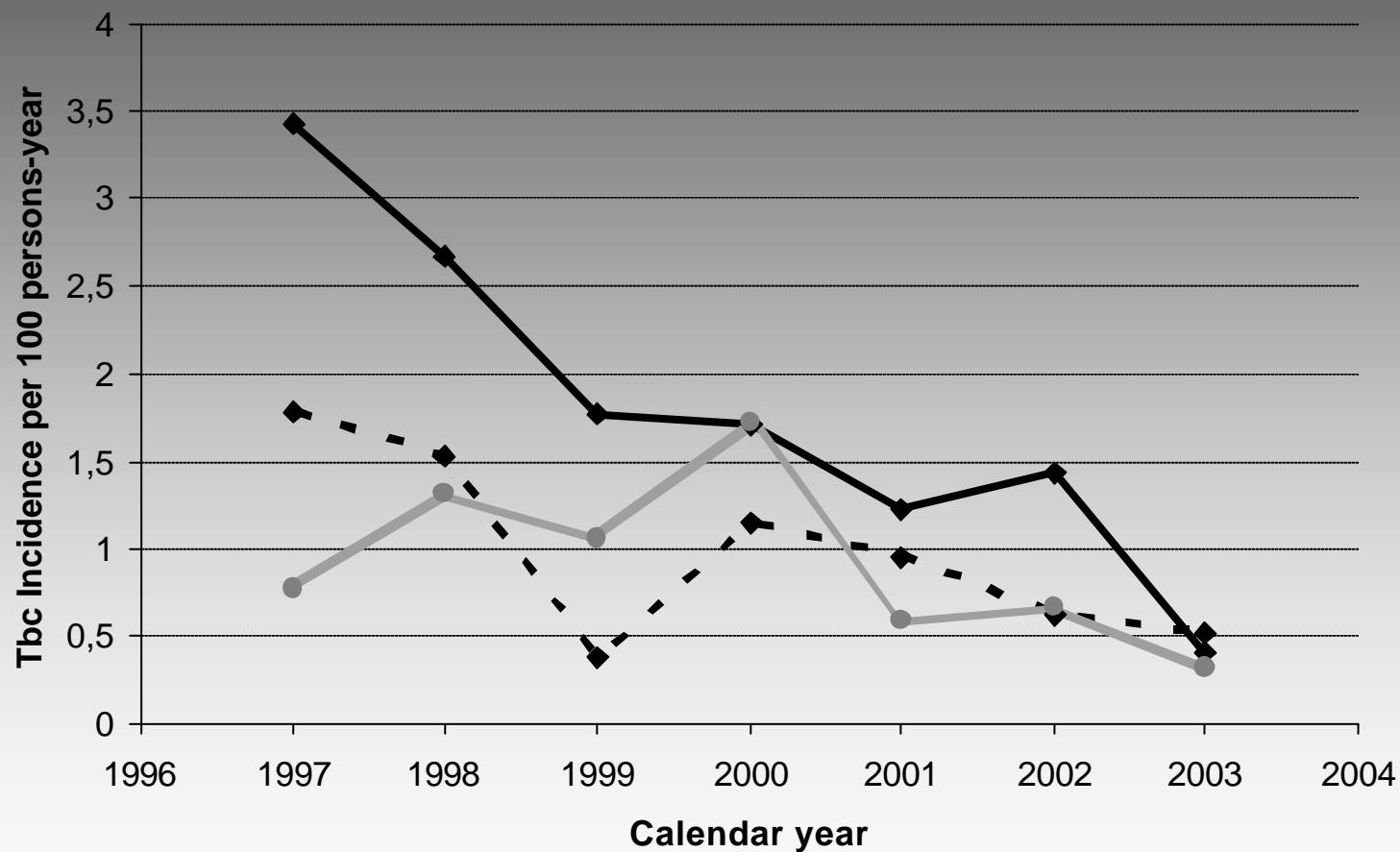
Trends in tuberculosis rates (95% CI) per 100 persons-year



Tuberculosis rates according to selected sociodemographic characteristics.

	Persons-year (p-y)	No. Tbc	Tbc rate x 100 p-y (95% CI)
Sex			
Male	11653	167	1.43 (1.23 to 1.67)
Female	4811	54	1.12 (0.86 to 1.47)
Age at entry			
£ 30	4754	68	1.43 (1.13 to 1.81)
31 – 35	5831	79	1.35 (1.09 to 1.69)
36 – 40	3529	48	1.36 (1.02 to 1.80)
= 41	2350	26	1.11 (0.75 to 1.62)
Transmission category			
Homosexual	2227	17	0.76 (0.47 to 1.23)
IDU	9407	165	1.75 (1.51 to 2.04)
Heterosexual	3781	29	0.77 (0.53 to 1.10)
Other/Unknown	1050	10	0.95 (0.51 to 1.77)

Trends in tuberculosis rates by transmission category

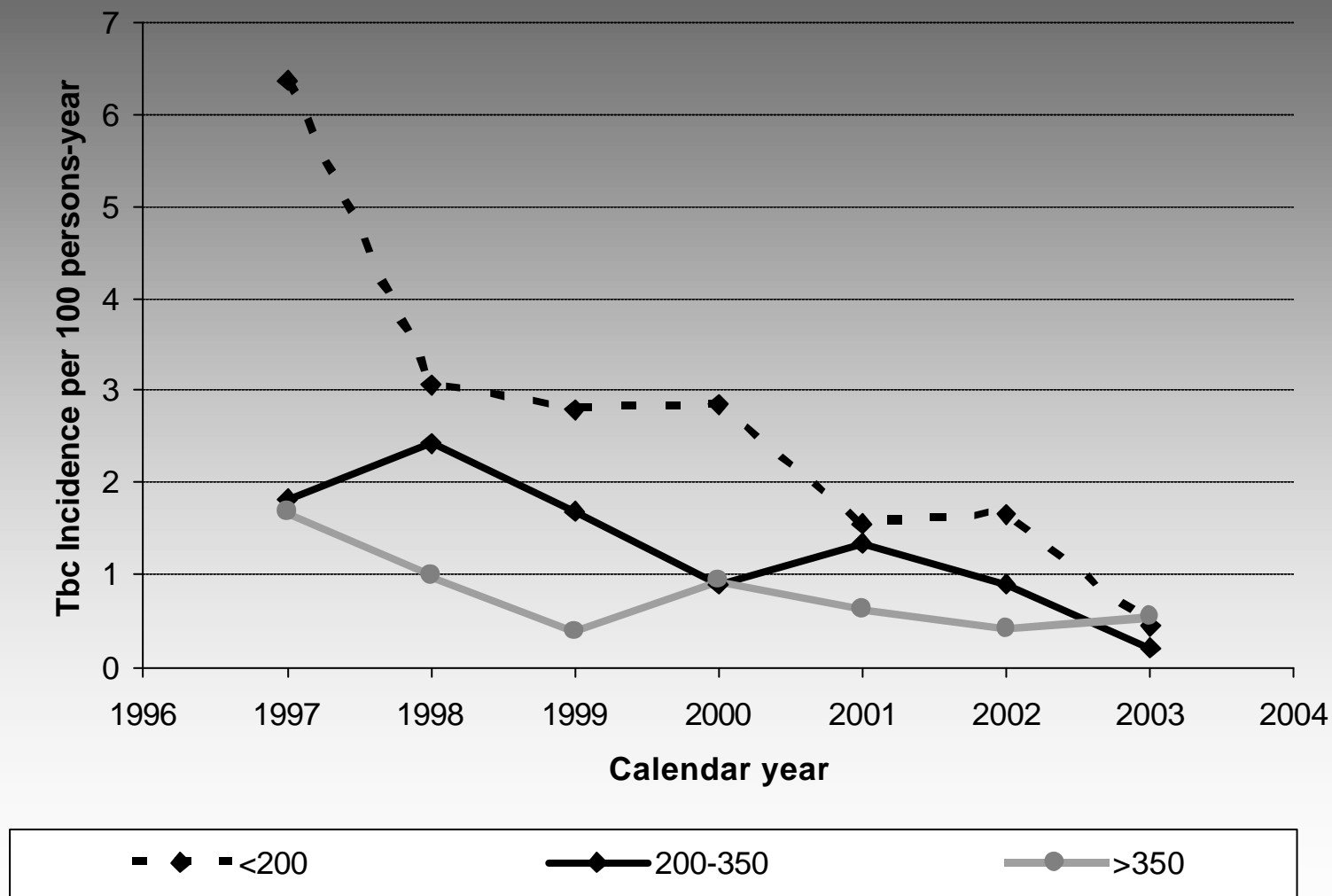


- ◆ - Male homosexual contact - ◆ - Injecting drug use - ● - Heterosexual contact

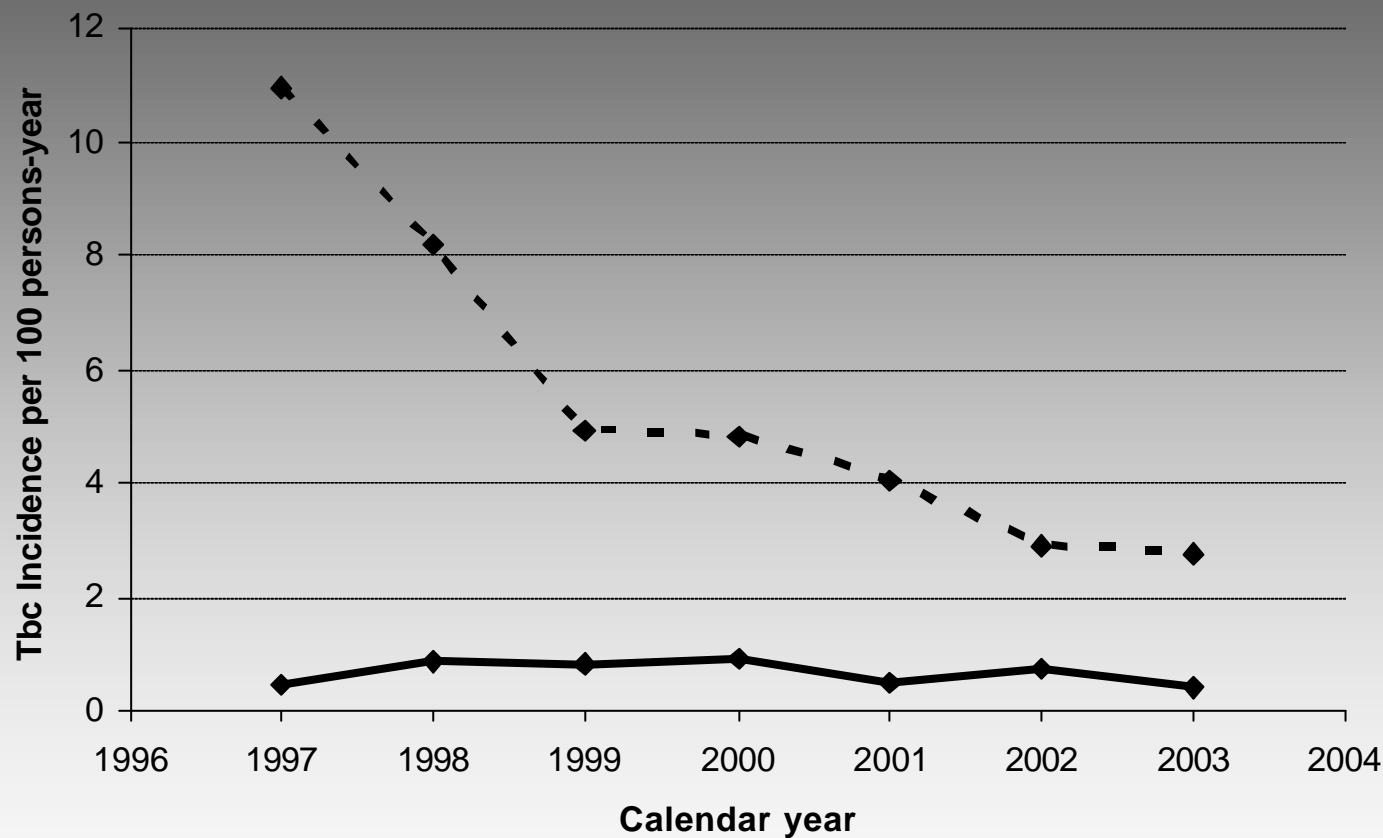
Tuberculosis rates according to selected clinical characteristics.

	Persons-year (p-y)	No. Tbc	Tbc rate x 100 p-y (95% CI)
Treatment history			
No HAART	2664	125	4.69 (3.94 to 5.59)
HAART	13799	96	0.70 (0.57 to 0.85)
CD4 cell count			
< 200	3857	87	2.26 (1.83 to 2.78)
200 – 350	2832	34	1.20 (0.86 to 1.68)
> 350	5857	42	0.72 (0.53 to 0.97)
HIV-1 RNA			
< 4	3491	17	0.49 (0.30 to 0.78)
4 – 5	1980	21	1.06 (0.69 to 1.63)
> 5	1494	30	2.01 (1.40 to 2.87)
AIDS previous to Tbc			
No	12497	179	1.43 (1.24 to 1.66)
Yes	3965	42	1.06 (0.78 to 1.43)

Trends in tuberculosis rates (per 100 persons-year) by CD4 at entry



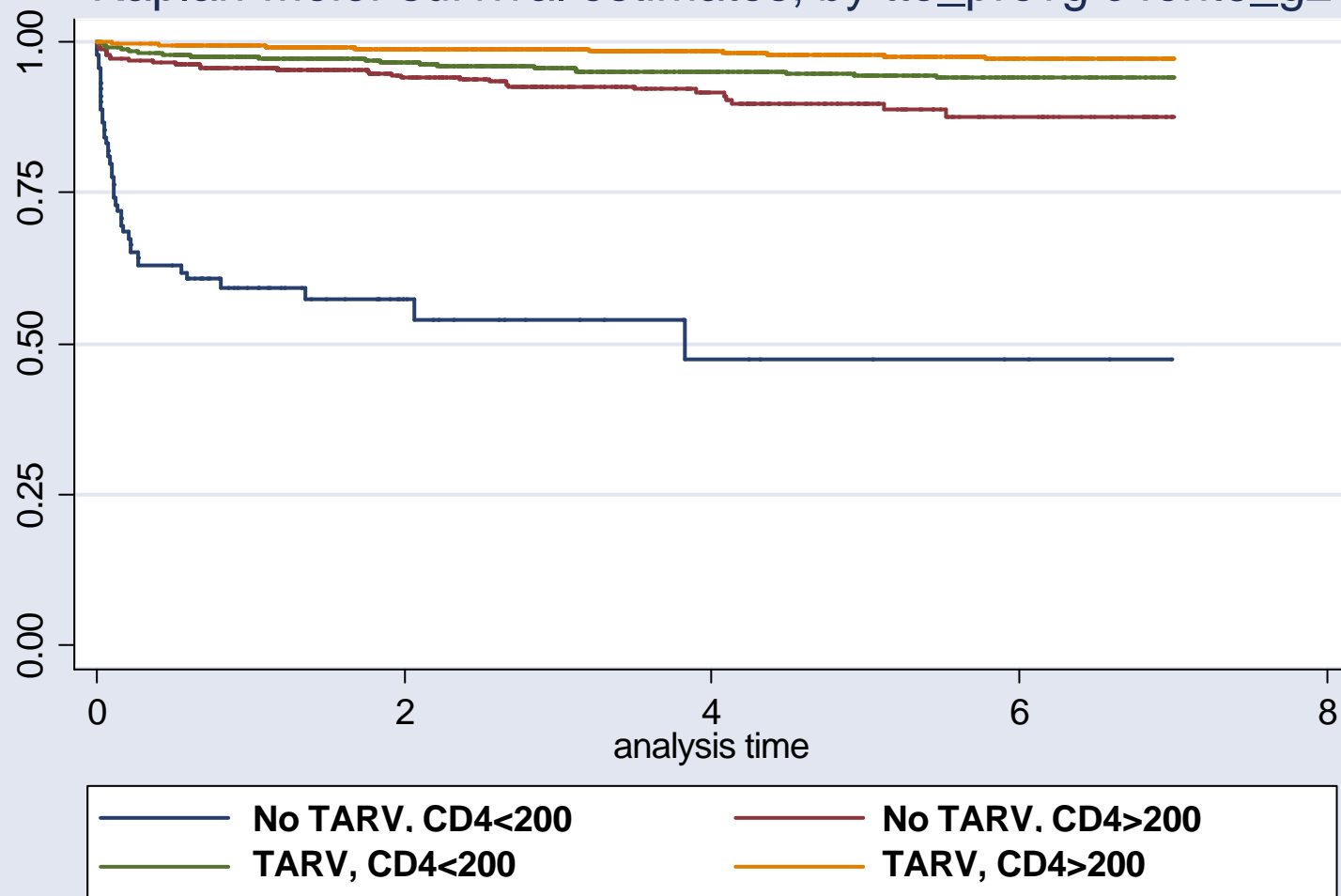
Trends in tuberculosis rates (per 100 persons-year) by previous treatment



■ ◆ No HAART

—◆— HAART anytime

Kaplan-Meier survival estimates, by tto_prevg c4ent6_g2



Effect of covariates on the incidence of tuberculosis (adjusted)

		HR (95% CI)	p-value
Calendar period	1997-1998	1.00	< 0.001
	1999-2000	0.72 (0.52 to 1.00)	
	2001-2003	0.57 (0.41 to 0.80)	
Transmission category	Homosexual	1.00	< 0.001
	IDU	1.64 (1.07 to 2.52)	
	Heterosexual	0.89 (0.51 to 1.57)	
Treatment history	No HAART	1.00	< 0.001
	HAART	0.09 (0.05 to 0.15)	
CD4 cell count	< 200	1.00	< 0.001
	200 – 350	0.37 (0.26 to 0.50)	
	> 350	0.14 (0.09 to 0.20)	
HIV-1 RNA	< 4	1.00	< 0.001
	4 – 5	2.02 (1.20 to 3.41)	
	> 5	3.89 (2.01 to 7.51)	

Tuberculosis rates by previous treatment history

Sociodemographic variables

		No HAART (n = 907)	HAART (n = 3361)
		4.69 (3.94 to 5.59)	0.70 (0.57 to 0.85)
Calendar period	1997 – 1998	8.74 (6.70 to 11.41)	0.78 (0.50 to 1.21)
	1999 – 2000	4.84 (3.52 to 6.65)	0.76 (0.54 to 1.09)
	2001 – 2003	2.62 (1.86 to 3.68)	0.63 (0.47 to 0.84)
Sex	Male	5.16 (4.23 to 6.29)	0.72 (0.57 to 0.91)
	Female	3.57 (2.47 to 5.18)	0.65 (0.44 to 0.95)
Age	≤ 30	3.92 (2.83 to 5.44)	0.83 (0.59 to 1.18)
	31 – 35	4.57 (3.40 to 6.14)	0.72 (0.52 to 1.00)
	36 – 40	5.65 (3.95 to 8.08)	0.60 (0.38 to 0.95)
	≥ 41	5.92 (3.57 to 9.82)	0.52 (0.29 to 0.95)
Transmission category	Homosexual	3.03 (1.45 to 6.36)	0.50 (0.27 to 0.93)
	IDU	5.27 (4.29 to 6.46)	0.95 (0.76 to 1.20)
	Heterosexual	3.77 (2.38 to 5.99)	0.33 (0.18 to 0.60)

Tuberculosis rates by previous treatment history

Clinical variables

		No HAART (n = 907)	HAART (n = 3361)
		4.69 (3.94 to 5.59)	0.70 (0.57 to 0.85)
CD4 cell count	< 200	33.7 (24.6 to 46.1)	1.28 (0.97 to 1.70)
	200 – 350	5.87 (3.65 to 9.44)	0.67 (0.42 to 1.08)
	> 350	1.88 (1.27 to 2.78)	0.38 (0.23 to 0.60)
HIV-1 RNA	< 4	1.72 (0.90 to 3.31)	0.27 (0.13 to 0.54)
	4 – 5	3.56 (2.02 to 6.27)	0.55 (0.29 to 1.05)
	> 5	16.5 (10.4 to 26.1)	0.87 (0.49 to 1.53)
AIDS previous to Tbc	No	4.64 (3.85 to 5.59)	0.68 (0.54 to 0.86)
	Yes	5.18 (3.12 to 8.59)	0.73 (0.50 to 1.07)

Tuberculosis rates by previous treatment history

Sociodemographic variables

		No HAART (n = 907)	HAART (n = 3361)
		4.69 (3.94 to 5.59)	0.70 (0.57 to 0.85)
Calendar period	1997 – 1998	8.74 (6.70 to 11.41)	0.78 (0.50 to 1.21)
	1999 – 2000	4.84 (3.52 to 6.65)	0.76 (0.54 to 1.09)
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Sex	Male	5.16 (4.23 to 6.29)	0.72 (0.57 to 0.91)
	Female	3.57 (2.47 to 5.18)	0.65 (0.44 to 0.95)
Age	≤ 30	3.92 (2.83 to 5.44)	0.83 (0.59 to 1.18)
	31 – 35	4.57 (3.40 to 6.14)	0.72 (0.52 to 1.00)
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	≥ 41	5.92 (3.57 to 9.82)	0.52 (0.29 to 0.95)
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Tuberculosis rates by previous treatment history

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	Heterosexual	3.77 (2.38 to 5.99)	0.33 (0.18 to 0.60)

Conclusiones

- **La incidencia de tuberculosis ha disminuido considerablemente con el TARV, aunque sigue siendo significativa**
- **El uso de drogas y el recuento bajo de CD4 son los principales factores asociados**
- **La disminución observada en pacientes sin TARV se debe tanto a una reducción en la proporción de IVDU en los años más recientes, como a una disminución en la transmisión**

CoRIS-MD

■ Hospitales participantes

- Hospital Ramón y Cajal, Madrid
- Hospital Donostia, San Sebastian
- Hospital Universitario Virgen del Rocío, Sevilla
- Hospital Clínico Universitario San Cecilio, Granada
- Hospital Universitario de Canarias, Tenerife
- Hospital La Fe, Valencia
- Hospital General de Elche, Alicante
- Hospital de la Rioja, Logroño

■ Manejo y análisis de los datos

- Universidad Miguel Hernandez, Alicante
- Instituto de Salud Carlos III, Madrid
- EVES, Valencia