Epidemiology of Bacterial STIs in MSM with or at Risk of HIV in the Region of Madrid (2022–2024) # 1272

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Introduction & Aims

- Over 1 million curable sexually transmitted infections (STIs) are acquired daily worldwide, mostly asymptomatic [1].
- Men who have sex with men (MSM) and transgender women are disproportionately affected. Behavioral interventions alone have been ineffective, and HIV preexposure prophylaxis (PrEP) use has been linked to risk compensation [2-4].
- We analyzed recent bacterial STI epidemiology and risk factors among MSM with HIV and MSM on PrEP in Madrid (~7M inhabitants).

1. WHO: https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis).
2. MMWR Recomm Rep 2021; 70(4): 1-187.
3. Georgiadis N, et al. AIDS 2024; 38(7): 1033-45.
4. Serpa JA, et al. Clin Infect Dis 2020; 70(9): 1884-90.

Baseline Characteristics

Characteristic	MSM-HIV+ CoRIS N = 492	MSM-HIV+ Madrid-CoRE N = 241	MSM-HIV+ N = 733	MSM-HIV- N = 639	p*
Demographics					
– Age	37.5 (31 - 45)	48 (41 - 55)	41 (34 - 49)	37 (33 - 44)	<0.001
– Native-born Spaniard	287 (58.3)	160 (66.4)	447 (61.0)	368 (57.6)	0.205
– Caucasian	434 (88.2)	206 (85.5)	640 (87.3)	NA	
HIV-related variables					
– Prior AIDS-DCs	49 (10.0)	35 (14.5)	84 (11.5)	NA	
– Antiretroviral therapy	489 (99.4)	241 (100.0)	730 (99.6)	NA	
– CD4 cell count	786 (596 - 983)	773 (555 - 973)	777 (591 - 979)	NA	
– Undetectable HIV RNA	464 (94.3)	228 (94.6)	692 (94.4)	NA	
Risk practices for STI/HCV*					
– CRAI	229/353 (64.9)	124/185 (67.0)	353/538 (65.6)	623/639 (97.5)	<0.001
– Chemsex	90 /354 (25.4)	90 /186 (48.4)	180/540 (33.3)	157/582 (27.0)	0.023
– Slamsex	12 /354 (3.4)	29 /186 (15.6)	41 /540 (7.6)	18 /361 (5.0)	0.132
Prior history of HCV/STI					
– HVC infection	13 /492 (2.6)	241/241 (100)	254/733 (34.7)	14 /515 (2.7)	<0.001
– Any STI	332/492 (67.5)	218/241 (90.5)	550/733 (75.0)	433/639 (67.8)	0.003
– Syphilis	286/491 (58.2)	208/241 (86.3)	494/732 (67.5)	106/414 (25.6)	<0.001
– *Neisseria gonorrhoeae*	146/443 (33.0)	89 /205 (43.4)	235/648 (36.3)	134/414 (32.4)	0.209
– *Chlamydia trachomatis*	95 /438 (21.7)	62 /200 (31.0)	157/638 (24.6)	135/414 (32.6)	0.005

*In the previous 2 months

AIDS-DCs, AIDS-defining conditions; **CRAI**, condomless receptive anal intercourse.

STI Incidence During Follow-up

Participants with prevalent STIs at baseline were excluded from the incidence analysis

Group & STI type	FU (yrs)	Incident STIs	Incidence per 100 PY (95% CI)
MSM with HIV (N=733)			
– Any STI	789.8	255	32.29 (28.56 - 36.5)
– Syphilis	789.8	92	11.65 (9.5 - 14.29)
– *Neisseria gonorrhoeae*	789.8	118	14.94 (12.47 - 17.89)
– *Chlamydia trachomatis*	789.8	86	10.89 (8.82 - 13.45)
MSM without HIV (N=639)			
– Any STI	541.0	221	40.85 (35.80 - 46.60)
– Syphilis	541.0	51	9.43 (7.16 - 12.40)
– *Neisseria gonorrhoeae*	541.0	116	21.44 (17.87 - 25.72)
– *Chlamydia trachomatis*	541.0	86	15.90 (12.87 - 19.64)

STI Incidence Rate Ratio (MSM without vs with HIV): 1.26 (95% CI: 1.03–1.55); P=0.022.

Limitations and Strengths

Limitations

- Limited generalizability beyond MSM in Madrid or similar settings.
- No distinction between symptomatic and asymptomatic STIs.

Strengths

- Prospective multicenter design ensuring robust prevalence and incidence estimates.
- Inclusion of MSM with HIV and on PrEP highlighting different risk profiles.
- Comprehensive sociodemographic, behavioral, and laboratory data enabling detailed risk factor analysis.
- Sensitivity analyses ensuring reliable results.

Methods I

Study Design & Population
- Prospective multicenter (N=10) study (May 2022–Feb 2024)
- MSM ≥18 years:
  - With HIV: Recruited from those included in **CoRIS** [1] & **Madrid-CoRE** [2].
  - Without HIV: Recruited from PrEP users at Centro Sanitario Sandoval [3].

Study Visits
- MSM with HIV: Baseline, 6, and 12 months.
- MSM without HIV: Baseline + every 3 months (PrEP protocol).

Data Collection
- Baseline: Demographics, HIV variables, HCV/STI history.
- Behavioral Data:
  - MSM with HIV: App-based self-reporting.
  - MSM without HIV: Standardized questionnaires.

CoRIS = Cohort of the Spanish HIV Research Network
Madrid-CoRE = Madrid Coinfection Registry

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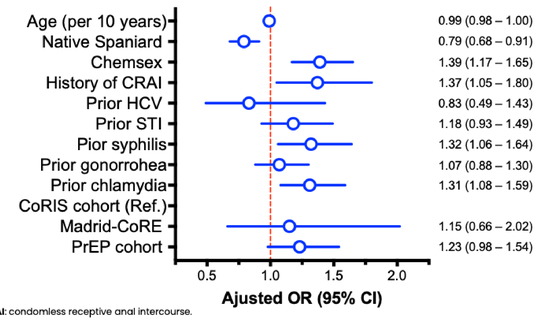
STIs Identified During the Study

1,372 participants

725 distinct **STIs** were identified in 535 (39.0%)
- **1 STI**: 384 participants (28.0%)
- **2 STIs**: 115 participants (8.4%)
- **3 STIs**: 33 participants (2.4%)
- **4 STIs**: 3 participants (0.2%)

Baseline Factors Associated with STIs

Including STIs at baseline and follow-up. Independent variables were selected based on a conceptual framework



CRAI: condomless receptive anal intercourse.

Conclusions

1) **High Burden of STIs:** The study highlights a significant prevalence and incidence of bacterial STIs among both MSM with HIV and those at risk of HIV on PrEP in the region of Madrid.

2) **Key Risk Factors:** Chemsex, CRAI, and a history of prior syphilis or chlamydia were strongly associated with increased risk, while older age and being a native Spaniard were associated with lower risk.

3) **Public Health Implications:** These findings underscore the need for tailored STI prevention and screening programs targeting high-risk behaviors and demographic groups to mitigate the STI burden in MSM populations.

Methods II

Data Collection, cont.
- Lab Tests (all visits or as needed):
  - HCV: Serology plus HCV-RNA if positive.
  - STIs: PCR (NG, CT) from urethra/urine, anus, and pharynx.
  - Syphilis: EIA/CIA plus VDRL/RPR.
  - Other: Blood counts, ALT/AST.

Study Outcomes
- Baseline STI prevalence.
- Incident STIs during follow-up.

Statistical Analysis
- Descriptive statistics for variables.
- Poisson regression for prevalence ratios, incidence rate ratios, and to identify risk factors for STIs counts (baseline & follow-up)
- Sensitivity analyses using logistic & Poisson regression.
- Software: SPSS 25 & STATA 18.

NG = *Neisseria gonorrhoeae*
CT = *Chlamydia trachomatis*

Baseline Prevalence of STIs

Group & STI type	Baseline STIs, N°	Prevalence % (95% CI)
MSM with HIV (N=733)		
– Any STI	123	16.8 (14.1 - 19.7)
– Syphilis	63	8.6 (6.7 - 10.9)
– *Neisseria gonorrhoeae*	42	5.7 (4.2 - 7.7)
– *Chlamydia trachomatis*	41	5.6 (4.0 - 7.5)
MSM without HIV (N=639)		
– Any STI	126	19.7 (16.7 - 23.0)
– Syphilis	50	7.8 (5.9 - 10.2)
– *Neisseria gonorrhoeae*	55	8.6 (6.6 - 11.1)
– *Chlamydia trachomatis*	53	8.3 (6.3 - 10.7)

STI Prevalence Ratio (MSM without vs with HIV): 1.28 (95% CI: 0.98–1.65); P=0.063.

STI Risk Factors. Sensitivity Analyses

	Model 1		Model 2		Model 3	
Variable	OR (95% CI)	P	OR (95% CI)	P	IRR (95% CI)	P
Age (per 10 years)	0.99 (0.98 - 1.00)	0.054	0.99 (0.97 - 1.00)	0.082	0.99 (0.98 - 0.999)	0.037
Native Spaniard	0.69 (0.55 - 0.87)	0.002	0.71 (0.53 - 0.95)	0.019	0.81 (0.67 - 0.97)	0.021
Chemsex	1.91 (1.45 - 2.52)	<0.001	1.65 (1.18 - 2.32)	0.004	1.39 (1.13 - 1.71)	0.002
History of CRAI	1.67 (1.14 - 2.46)	0.009	1.54 (0.90 - 2.65)	0.118	1.36 (0.99 - 1.87)	0.060
Prior HCV	0.71 (0.32 - 1.60)	0.409	0.49 (0.16 - 1.56)	0.228	0.97 (0.52 - 1.80)	0.911
Prior STI	1.38 (0.98 - 1.95)	0.069	1.77 (1.13 - 2.77)	0.013	1.00 (0.75 - 1.34)	0.983
Prior Syphilis	1.44 (1.03 - 2.02)	0.033	1.33 (0.87 - 2.04)	0.185	1.39 (1.06 - 1.81)	0.017
Prior Gonorrhea	1.22 (0.90 - 1.65)	0.194	0.86 (0.59 - 1.26)	0.439	1.18 (0.93 - 1.50)	0.161
Prior Chlamydia	1.29 (0.95 - 1.76)	0.107	1.94 (1.33 - 2.83)	0.001	1.15 (0.91 - 1.47)	0.239
CoRIS Cohort	Ref.		Ref.		Ref.	
Madrid-CoRE cohort	1.37 (0.58 - 3.19)	0.471	2.25 (0.68 - 7.40)	0.184	0.94 (0.49 - 1.82)	0.861
PrEP Cohort	1.04 (0.73 - 1.49)	0.830	1.38 (0.87 - 2.19)	0.176	1.15 (0.87 - 1.50)	0.328

- **Model 1**: Risk factors for STIs during the study period (baseline and follow-up) by Logistic regression.
- **Model 2**: Risk factors for prevalent STI by Logistic regression.
- **Model 3**: Risk factors for incident STIs by Poisson regression

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