

Eligibility for Pre-Exposure Prophylaxis in a cohort of HIV negative Men who have Sex with Men in Lisbon, Portugal

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Aim

We aimed to estimate subjects eligibility for pre-exposure prophylaxis (PrEP) and its association with seroconversion, using a cohort of HIV-negative men who have sex with men (MSM). Eligibility for PrEP was defined according to the guidelines from the World Health Organization (WHO), the United States Public Health Service and Centers for Disease Control and Prevention (CDC) and the European AIDS Clinical Society (EACS).

Methods

We used data from the Portuguese **Lisbon Cohort of MSM**. From April 2011 to June 2017, 5447 participants were enrolled of whom 2392 had at least one follow-up visit by October 2017. To compute eligibility we used information collected in the structured questionnaires administered at entry and at each follow-up.

Table 1: Comparison of eligibility criteria for PrEP according to the guidelines from the World Health Organization (WHO), the US Public Health Service and Centers for Disease Control and Prevention (CDC) and the European AIDS Clinical Society (EACS) and operational definition in the Lisbon Cohort of MSM

WHO (2012, 2017)	CDC (2014)	EACS (2015, 2017)	Operational definition
Sexually active in a high HIV incidence/prevalence population AND	Any male sex partners in past 6 months AND	Men who have Sex with Men (MSM) AND	Men reporting male sex partners (in the previous 12 months)
-	Not in a monogamous partnership with a recently tested, HIV-negative man AND	-	Other than men reporting only one HIV-negative steady partner and no occasional partners (in the previous 12 months)
Vaginal or anal sexual intercourse without a condom with more than one partner (1) OR	History of inconsistent or no condom use (2) OR	Inconsistent condom use with casual partners (3) OR	(1, 2) Anal sex with regular or occasional partners without a condom (at least once in the previous 12 months) AND (1) reporting more than one sexual partner (3) Anal sex with occasional partners without a condom (at least once in the previous 12 months)
Sexual partner with HIV who is not virally suppressed (4) OR	HIV-positive sexual partner (5) OR	Sex with HIV-positive partners who are not on treatment (6) OR	(4, 5, 6) Anal sex with an HIV-positive partner (in the previous 12 months) AND (4, 6) HIV-positive partner with detectable or unknown viral load
A recent history (in the last six months) of a sexually transmitted infection (STI) by laboratory testing or self-report or syndromic STI treatment (7) OR	Recent bacterial STI (8)	Recent STI (7) OR	(7) Self-report diagnosis of Syphilis, Chlamydia, Lymphogranuloma venereum (LGV), Gonorrhoea, Trichomoniasis, Genital Herpes, Condyloma or Genital warts or Human Papillomavirus (in the previous 12 months) (8) Self-report diagnosis of Syphilis, Chlamydia, LGV, or Gonorrhoea (in the previous 12 months)
Post-exposure prophylaxis (PEP) for sexual exposure in the past six months	-	Use of post-exposure prophylaxis (in the previous 12 months) OR	Use of PEP (in the previous 12 months)
-	-	Chemsex	Use of GHB or Methamphetamines or Mephedrone during sex (in the previous 12 months)

We computed incidence rates (IR) and respective 95% confidence intervals (CI) for eligible and non-eligible participants for each guideline at baseline and at most recent/last visit. Incident rate ratios (IRR) and 95% CI were computed using the Poisson generalized linear regression to test the association between being eligible for PrEP and HIV seroconversion.

Results

The proportion of MSM eligible for PrEP was higher according to the CDC guidelines. At baseline, eligibility for PrEP was similar for those with at least one follow-up visit and those not followed-up. However, followed participants presented a significantly lower proportion of eligibility at the most recent visit than at baseline.

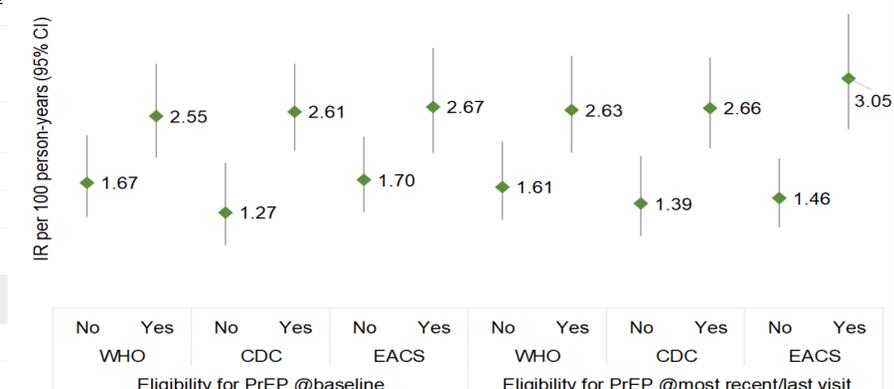
Table 2: Proportion of eligible MSM for PrEP among those enrolled in the cohort (n=5447) and those with at least one follow-up (n=2392) according to the WHO (2012, 2017), CDC (2014) and EACS (2015, 2017) guidelines

Criteria	WHO (2017)	CDC (2014)	EACS (2017)
	n (%)	n (%)	n (%)
Sexually active MSM	5320 (97.7)	5320 (97.7)	5320 (97.7)
Not in a monogamous partnership with a recently tested, HIV-negative man	-	5070 (93.1)	-
Inconsistent condom use	2761 (50.7) with > one partner	3622 (66.5)	2178 (37.3) with casual partners
Serodiscordant couples	131 (2.4) not virally suppressed	484 (8.9)	131 (2.4) not on treatment
Recent STIs	429 (7.9)	300 (5.5) bacterial STI	429 (7.9)
Use of PEP recently	79 (1.5)	-	79 (1.5)
Use of drugs related to sex (Chemsex)	-	-	156 (2.9)
MSM eligible to PrEP at baseline (n=5447)	2929 (53.8)	3556 (65.3)	2485 (45.6)
MSM with at least one follow-up visit (n=2392)			
At baseline	1310 (54.8)	1580 (66.1)	1111 (46.4)
At most recent/last visit	1130 (47.2)	1317 (55.1)	960 (40.1)

Table 3: HIV cases, person-years of follow-up according to the WHO (2012, 2017), CDC (2014) and EACS (2015, 2017) guidelines at baseline and at most recent/last visit

	@baseline						@most recent/last visit					
	WHO		CDC		EACS		WHO		CDC		EACS	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
HIV cases	38	66	22	82	46	58	38	66	28	76	41	63
Person-years	2281.4	2592.1	1731.8	3141.7	2702.4	2171.1	2361.8	2511.8	2013.9	2859.6	2809.0	2064.6

Figure 1: IR (95% CI) according to the WHO (2012, 2017), CDC (2014) and EACS (2015, 2017) guidelines at baseline and at most recent/last visit



Independently of the guideline, being eligible for PrEP at baseline was associated to increased risk of seroconversion, and the CDC guidelines showed the strongest association. This association was even stronger if measured at the most recent visit, particularly for the European guidelines.

Figure 2: Association of eligibility for PrEP @baseline and HIV incidence

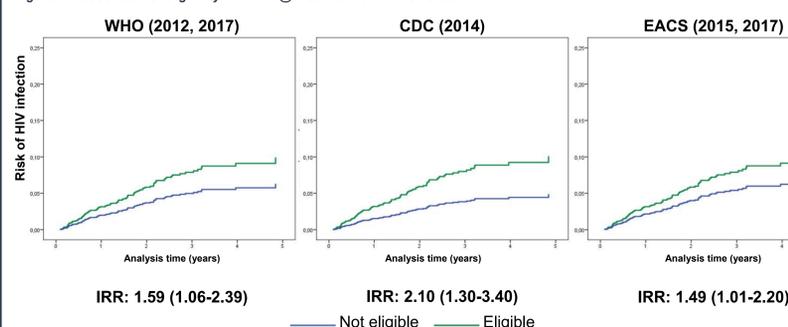
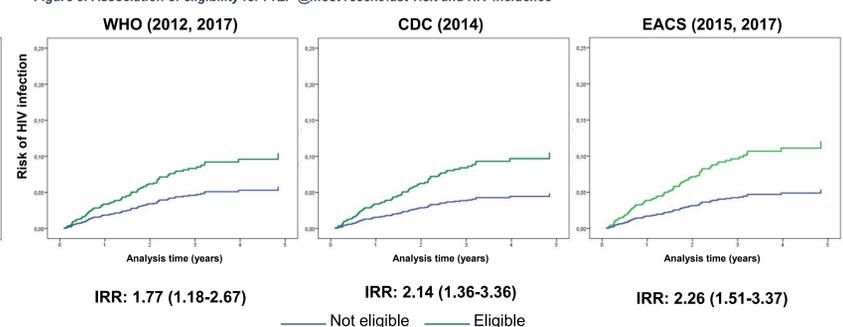


Figure 3: Association of eligibility for PrEP @most recent/last visit and HIV incidence



Conclusions

We found that a large proportion of MSM would be eligible for PrEP based on current international recommendations, although this proportion varied according to the recommendations used. The European guidelines were the most strongly associated with seroconversion, particularly when assessed at the most recent visit. Time decrease in eligibility might reflect that risk behaviors diminished because of counseling and participating in the cohort study.

Cohort description: The Lisbon Cohort of MSM is an observational study designed as an open prospective cohort. The cohort is conducted at CheckpointLX - a community-based voluntary HIV counselling and testing centre in Lisbon, Portugal. It has ongoing recruitment since April 2011. All men, who present for testing and have a negative test at first visit, aged 18 or older who report having had sex with other men are invited to participate and follow-up visits scheduled according to their convenience, but ideally with 6-month intervals. At each evaluation a structured questionnaire is administered and HIV rapid testing are performed by peer counsellors.



PROMOTERS



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