



## Antiretroviral pre-exposure prophylaxis awareness, experience and acceptance among men who have sex with men in southwest Switzerland

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### Abstract

#### Objectives

Antiretroviral pre-exposure prophylaxis (PrEP) against HIV acquisition has been shown to be safe and effective in populations at risk of HIV acquisition. We examined PrEP awareness, experience and acceptance among men who have sex with men (MSM) in southwest Switzerland.

#### Methods

Between 1<sup>st</sup> June 2011 and 31<sup>st</sup> August 2012, individuals attending 1) MSM screening clinics (Checkpoint Geneva) and 2) meeting areas were invited to complete an anonymous questionnaire covering sexual practices and PrEP awareness, experience and interest in participating in future PrEP trials.

#### Results

Of 918 men approached, 654 (71%) agreed to participate, the majority (536/654, 82%) enrolled via Checkpoint. Most participants (512/654, 78%) were homosexual; 21/654 (3.2%) disclosed being HIV-positive; 140/654 (21%) had unknown HIV status. Unprotected anal intercourse (UAI) with a partner of different or unknown HIV status (non-serosorting) was practised by 49% of participants during the preceding year, more by participants of positive / unknown HIV status than by those negative / undisclosed status (68% vs 43%,  $P < 0.001$ ). Awareness of PrEP was reported in 42% (very aware in 17% and slightly aware in 25%); Checkpoint participants were more aware than those from other venues (47% versus 16%,  $P < 0.001$ ). PrEP experience was low (1.5%); 20% expressed interest in participating in future PrEP trials.

#### Conclusions

This is the first study exploring MSM PrEP awareness in Switzerland. Although overall awareness was 42%, interest in participating in future PrEP trials was low, against high frequencies of UAI and non-serosorting. If interest in using PrEP in practice is similar, alternative measures to curb HIV transmission are required in this population.

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## Short communication

Antiretroviral pre-exposure prophylaxis (PrEP) has been shown to be safe and effective in specific populations at substantial risk of HIV acquisition, including sexually-active men who have sex with men (MSM) (iPrEx Study <sup>1</sup>), heterosexual men and women <sup>2,3</sup> and adult injecting drug users <sup>4</sup>. PrEP as a daily oral fixed-dose combination of tenofovir disoproxil fumarate 300mg and emtricitabine 200mg (Truvada) has been endorsed for use in the United States <sup>5</sup>, and was made available in Switzerland in January 2016 on prescription and without reimbursement <sup>6</sup>.

Little is known regarding PrEP awareness in Switzerland. In the Swiss cantons of Geneva and Vaud, southwest Switzerland, HIV incidence figures are among the highest in the country, with up to 12-16 new positive tests per 100,000 inhabitants in 2012 <sup>7</sup>; MSM accounted for 45% of these new infections <sup>8</sup>. Following the results of the iPrEX Study <sup>1</sup>, we examined PrEP awareness, experience and acceptance among MSM in this region.

The study was approved by the Ethical Commission of the Canton of Vaud (approval number 71/11) and consisted of a questionnaire-based survey conducted between 1<sup>st</sup> June 2011 and 31<sup>st</sup> August 2012. Trained field workers recruited individuals from 1) Checkpoint Geneva, a health centre for MSM providing counselling and screening for sexually transmitted infections (STIs), and 2) targeted meeting places, both indoor (saunas, sex clubs) and outdoor (cruising areas and Pride event).

Questionnaires, completed anonymously under field-worker supervision, covered demographic information, sexual preference, HIV status and testing history, STI history, practice of unprotected anal intercourse (UAI) and partner number in the preceding twelve months. Participants were asked if they were aware of a prophylactic treatment taken before exposure to HIV (response options: 'very aware', 'slightly aware'

and 'unaware'), if they had ever taken antiretroviral therapy (ART) to protect themselves against HIV acquisition before sex (response options: 'yes' and 'no'), and if they would agree to participating in a clinical trial examining the protective efficacy of ART taken before potential HIV exposure (response options: 'yes' and 'no').

Continuous and categorical data were analysed using Student's t-test and the Chi squared or Fisher's exact test, respectively, using Microsoft Excel 2008 (Microsoft Corporation, Redmond, WA, USA). The percentage of individuals recruited of those approached was calculated but individuals declining to participate were not assessed.

Of 918 men approached, 654 (71%) agreed to participate, the majority of whom (536/654, 82%) were enrolled via Checkpoint Geneva (Table 1). Median participant age was 33 years (inter-quartile range 27-41 years) and 78% identified themselves as homosexual (Table 1). Of all participants, 21 (3.2%) disclosed being HIV positive, 72 (11%) had undergone recent STI treatment and 357 (55%) practised UAI. UAI without sero-sorting was reported by 76% of HIV-positive participants and was more common among individuals of positive or unknown HIV status than those of negative or undisclosed status (68% versus 43%,  $P < 0.001$ ).

Regarding PrEP, 110 (17%) were very aware and 164 (25%) slightly aware. Awareness was significantly higher among Checkpoint participants than those recruited from meeting places (47% versus 16%,  $P < 0.001$ ). There was no association with HIV status ( $P = 0.57$ ), STI screening history ( $P > 0.9$ ), UAI without sero-sorting ( $P = 0.57$ ) or partner number ( $P > 0.9$ ). Previous use of ART to protect against HIV was infrequent (10/654, 1.5%) and reported only among Checkpoint participants. There was no association with HIV status ( $P = 0.06$ ), STI screening history ( $P = 0.76$ ), UAI in the preceding 12 months ( $P = 0.62$ ), UAI without

**Table 1:** Participant characteristics according to recruitment site.

	Total	Checkpoint	Saunas	Other venues <sup>a</sup>
Approached, n	918	665	165	88
Participating, n (%) <sup>b</sup>	654 (71)	536 (81)	86 (52)	32 (36)
Median age, years (range)	33 (16-80)	33 (16-80)	33 (17-69)	34 (24-61)
Nationality, n (%)				
Swiss	347 (53)	294 (55)	37 (43)	16 (50)
Neighbouring countries <sup>c</sup>	139 (21)	103 (19)	27 (31)	9 (28)
Sexual preference, n (%)				
Homosexual	512 (78)	422 (79)	60 (70)	30 (94)
Bisexual	140 (21)	112 (21)	26 (30)	2 (6.3)
Missing data	2 (0.003)	2 (0.004)	0 (0)	0 (0)
HIV status, n (%)				
HIV positive	21 (3.2)	14 (2.6)	2 (2.3)	5 (16)
HIV negative	431 (66)	336 (63)	74 (86)	21 (66)
Unknown	140 (21)	127 (24)	9 (11)	4 (13)
Undisclosed	62 (9.5)	59 (11)	1 (1.2)	2 (6.3)
HIV testing history <sup>d</sup>				
Tested in last 12 months, n (%)	414 (65)	340 (63)	57 (66)	17 (53)
STI screen in last 12 months, n (%)	337 (52)	273 (51)	46 (54)	18 (56)
STI treated in last 12 months, n (%)	72 (11)	53 (9.9)	15 (17)	4 (13)
UAI practised, n (%)	357 (55)	296 (55)	41 (48)	20 (63)
UAI without sero-sorting, n (%)	321 (49)	280 (52)	24 (28)	17 (53)
Median partner number <sup>e</sup> , n (range)	5 (0-400)	5 (0-160)	7 (0-241)*	10 (0-400)*
Zero partners in last 12 months, n (%)	107 (16)	97 (18)	8 (9.3)	2 (6.3)
Aware of PrEP				
Very aware, n (%)	110 (17)	103 (19)*	4 (4.7)	3 (9.4)
Slightly aware, n (%)	164 (25)	152 (28)*	9 (11)	3 (9.4)
Previous PrEP experience	10 (1.5)	10 (0.9)	0 (0)	0 (0)
Agree to participate in PrEP trial	132 (20)	119 (22)	8 (9.3)	5 (16)

<sup>a</sup> Other venues = sex clubs, cruising areas and Pride event;

<sup>b</sup> All subsequent percentages are calculated taking participant number, not number approached, as the denominator;

<sup>c</sup> French, German and Italian;

<sup>d</sup> In participants of non-positive HIV status, n=633;

<sup>e</sup> Partner number referred to the number of sexual partners in the last 12 months, whether intercourse was protected or unprotected. \*P<0.001. Abbreviations: STI, sexually transmitted infection; UAI, unprotected anal intercourse; PrEP, pre-exposure prophylaxis.

sero-sorting ( $P>0.9$ ) or partner number ( $P>0.9$ ). Finally, only 20% of participants wished to participate in a future PrEP trial. Interest was higher among individuals reporting UAI without sero-sorting (26% versus 15%,  $P=0.02$ ). There was no association with STI screening history ( $P=0.05$ ), UAI in the preceding 12 months ( $P=0.17$ ) or partner number ( $P>0.9$ ).

In this group of predominantly HIV-negative, European MSM, we observed that 42% had some PrEP awareness but PrEP experience was very low. Only 20% (132/654) were interested in participating in a future PrEP trial, against 59% (360/633) potentially eligible for PrEP (non-HIV-positive and reporting UAI and/or a recent STI diagnosis<sup>5</sup>).

The low PrEP acceptance we observed might be related to the then non-endorsement by the Swiss federal office of public health, drug costs, and the timing of the study. Our survey was conducted between six and eighteen months after the publication of the iPrEx Study<sup>1</sup>. An internet-based survey conducted during the month post-publication of iPrEx<sup>9</sup> showed PrEP awareness of 19% among American MSM, similar to our figure of 17% for participants 'very aware' of PrEP but lower than our figure of 42% for those with some awareness ('very aware' plus 'slightly aware'). More recent studies in France<sup>10</sup> and Portugal<sup>11</sup> report MSM PrEP awareness of 41-42%.

Between 2012 and 2014, two multi-centre trials were conducted among high-risk MSM using either daily (PROUD<sup>12</sup>) or on-demand (IPERGAY<sup>13</sup>) PrEP. Both studies, presented at the 2015 Conference on Retroviruses and Opportunistic Infections (CROI)<sup>12,13</sup>, describe a relative reduction in HIV incidence of 86%. It is possible that PrEP awareness and acceptance would be greater were we to survey our population now, particularly if the question on acceptance were to refer to PrEP use in practice rather than within a clinical trial. Indeed, a multi-centre study of PrEP acceptance recently

reported enrolment of 60.5% of 1069 eligible MSM and transgender women who were offered up to 48 weeks of tenofovir/emtricitabine as PrEP in the United States<sup>14</sup>.

This study has limitations. Selection bias is possible, as the majority of participants were recruited from Checkpoint rather than from meeting venues, and this might have increased PrEP awareness and experience. We have no information regarding the MSM approached but not recruited, so it is not possible to quantify potential selection bias. Finally, as described above, the timing of the study in relation to subsequently published PrEP data may have led to awareness and acceptance figures which are not currently valid.

In conclusion, we observed 42% PrEP awareness and low acceptance among MSM in Switzerland after the iPrEx study, against high frequencies of UAI and UAI without sero-sorting. In the light of new data on the efficacy of daily and intermittent PrEP in high-risk MSM, PrEP acceptance in practice, as opposed to trial participation, may grow. In the meantime, and while PrEP costs are charged to the individual, measures to prevent HIV acquisition such as condom use, regular HIV screening and immediate access to ART still need to be promoted in Switzerland.

### Competing Interests

None declared

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## Appendix 1: Translated questionnaire

Patient code: \_\_\_\_\_ Age: \_\_\_\_\_  
Nationality \_\_\_\_\_ Canton of residence \_\_\_\_\_

Sexual preference  homosexual  bisexual

What is your HIV status?

positive  negative  
 unknown  I don't wish to answer

**Date of last HIV test** (month/year): ...../.....

**In the last 12 months**, have you unprotected sex at least once with a partner of either different HIV status to yourself or unknown status?

yes  no

**In the last 12 months**, how many times have you been screened for sexually transmitted infections? .....times

**In the last 12 months**, have you been diagnosed as having a sexually transmitted infection?

yes  no

If yes, which one(s) from the list below?

- Urethral gonorrhoea
- Anal gonorrhoea
- Oral gonorrhoea
- Chlamydia infection
- Syphilis
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Genital herpes
- Genital warts
- Lymphogranuloma venereum (LGV)
- Other: which?

### Do you have unprotected anal sex?

yes  no  active  passive

In a stable relationship  yes  no  sometimes  
Casual partner  yes  no  sometimes  
Anonymous partner  yes  no  sometimes

Number of partners in the last 12 months? \_\_\_\_\_  
With unprotected anal sex? \_\_\_\_\_

### The following questions concern prophylaxis prior to exposure to HIV infection:

Are you aware of the possibility of a prophylactic treatment taken before exposure to the HIV virus:

**very aware**  **slightly aware**  **unaware**

Have you ever taken treatment to protect yourself against HIV infection before having sex?

**yes**  **no**

Would you agree to taking part in a clinical study which examines the effectiveness of treatments protecting against HIV infection which are taken before having sex?

**yes**  **no**

We sincerely thank you for your participation. The person who provided this questionnaire is available for any questions you may have. Please return the questionnaire to this person.

In completing this questionnaire, you accept that the data are treated anonymously for research purposes. Following analysis, the results will be passed on via CheckPoint.

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