Sexual risk and HIV testing disconnect in MSM recruited to an HIV self-testing trial

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Background

Increasing levels of HIV testing in men who have sex with men (MSM) remain key to reducing incidence. However, levels of ever and repeat HIV testing in UK MSM do not meet current testing recommendations with 28% never testing and only 55% testing annually (1, 2). Particularly poorly adhered to is the recommendation to test 3 monthly for men at higher risk of HIV through recent condomless anal intercourse (CAI) with partners of unknown or serodifferent HIV status, and/or drug use during sex (chemsex) with only 27% of those at 'higher risk' of HIV infection testing even 6 monthly (1).

HIV self-testing (HIVST) may increase testing rates by removing structural and social barriers to testing (3). We report on the frequency of previous HIV testing and associated factors at baseline in MSM who opted to enroll in a large HIV self-testing RCT (SELPHI).

Methods

SELPHI is an internet based, open-label, randomised controlled trial, which aims to assess effectiveness of free HIVST kits on HIV diagnosis rates.

Criteria for enrolment were aged ≥16 years old, male (including trans man), ever had anal intercourse (AI) with a man, living in England or Wales, not known to be HIV positive and provided consent to link to national HIV surveillance databases (4). Participants were randomly allocated 3:2 at enrolment to a free HIVST versus no free HIVST (Randomisation A).

Data collected via an online survey included socio-demographics (gender, sexual identity, education, age, ethnicity, UK birth), sexual behaviour, HIV/STI testing history, pre-exposure prophylaxis (PrEP) use.

Figure 1: Trial Scheme for Randomisation A

RANDOMISATION A - INCLUSION
- Male (including trans men)
- Has ever had sex with a man
- Is not known to be HIV Positive
- Aged ≥18 years old
- Resident in England or Wales
- Willing to provide name, date of birth, and a valid email address
- Gives consent to linkage with surveillance and clinic databases.
- Has not been previously randomised to the study

Randomisation A (n=10,000)

No baseline self-test [nBT] n=4,000

Free baseline self-test [BT] n=6,000

Primary Outcome A: confirmed HIV diagnosis within 3 months of enrolment, with date defined as the date of the first confirmatory test at clinic

3-Month Survey*

Table 1. Baseline characteristics at baseline of all recruited and of men at high risk of HIV infection

Characteristic	All participants (n=10,112)	Participants at current high risk of HIV infection (n=3,952)*
Region		
London	2510 (24.8)	938 (23.7)
SE England	1430 (14.2)	562 (14.2)
Other	6166 (61.0)	2449 (62.0)
Distance to nearest GUM clinic (km)		
<2	2795 (29.5)	1104 (29.6)
2-5	3737 (39.4)	1419 (38.1)
5-10	1616 (17.0)	659 (17.7)
≥10	1328 (14.0)	546 (14.6)
Age (years)		
16-19	534 (5.3)	205 (5.2)
20-29	3301 (32.6)	1299 (32.9)
30-39	2884 (28.5)	1144 (28.9)
40-49	1919 (19.0)	770 (19.5)
≥50	1474 (14.6)	534 (13.5)
Trans gender	81 (0.8)	32 (0.8)
Ethnicity		
White British	7595 (75.5)	3011 (76.6)
White Other	1406 (14.0)	501 (21.7)
Black	161 (1.6)	79 (2.0)
Asian	437 (4.3)	155 (3.9)
Mixed	313 (3.1)	119 (3.0)
Other	150 (1.5)	66 (1.7)
Highest level education		
School	4169 (41.7)	1776 (45.6)
College	1119 (11.2)	465 (11.9)
University	4706 (47.1)	1655 (42.4)
No. male anal sex partners in past 3 months		
0	1064 (10.5)	-
1	2140 (21.2)	-
2-4	4082 (40.4)	1821 (46.1)
5-9	1894 (18.7)	1336 (33.8)
≥10	932 (9.2)	795 (20.1)
No. male condom-less anal sex partners in past 3 months		
0	2828 (30.0)	-
1	3331 (32.9)	-
2-4	2943 (29.1)	1821 (46.1)
5-9	700 (6.9)	1336 (33.8)
≥10	309 (3.1)	795 (20.1)
PrEP		
Ever	795 (7.9)	540 (13.6)
Current	389 (3.8)	301 (7.6)

*2+CAI partners in previous 3 months

Results

10,112 men were recruited to the trial including 81 (0.8%) trans men. Median age was 33 years (IQR 26-44). Most were of white ethnicity (89.5%) with only 1.6% of black ethnicity and 4.3% of Asian ethnicity. The men were highly educated with 47.1% having a university education. In the previous 3 months, 89% reported AI and 72% reported CAI with ≥1 male partner (Table1).

Sociodemographic characteristics were similar in men at higher risk of HIV (defined as 2+CAI partners in the previous 3 months) to the overall sample. However PrEP use varied with 3.8% currently using PrEP in all participants compared to 7.8% men at higher risk of HIV infection were currently using PrEP.

Table 2. HIV testing characteristics of all participants and those at high risk of HIV infection

Characteristic	All participants (n=10,112)	Participants currently at high risk of HIV infection (n=3,952)
Never tested	1537 (15.4)	449 (11.5)
Time since last HIV test (months)		
<3	1695 (16.9)	884 (22.6)
3-6	1628 (16.3)	729 (18.6)
6-12	2093 (20.9)	822 (21.0)
12-24	1765 (17.6)	648 (16.6)
>24	1297 (12.9)	382 (9.8)
Number of HIV tests in previous 12 months (if at least one)		
1	2806 (52.3)	1116 (46.9)
2	1419 (26.8)	645 (27.1)
3	657 (12.7)	365 (15.30)
≥4	402 (7.6)	253 (10.6)
Venue of last HIV test		
Sexual health clinic	5090 (61.2)	2235 (65.6)
Hospital	415 (5.0)	136 (4.0)
Community service	347 (4.2)	127 (3.7)
Self-sample	1380 (16.6)	504 (14.8)
Self-test	556 (6.7)	212 (6.2)
Bar/pub/club/sauna	114 (1.4)	58 (1.7)
GP	294 (3.5)	102 (3.0)
Other	121 (1.4)	32 (0.9)

Overall, 17%, 33%, 54%, and 72% had tested for HIV in the last 3 months, 6 months, 12 months, and 2 years respectively. 13% had tested >2 years ago and 15% had never tested. In men had higher risk of HIV: 12% had never tested and almost half (47%) had tested > 6 months previously (Table 2, Figure 2).

Figure 2: Time since previous HIV test in all men and men at high risk of HIV infection
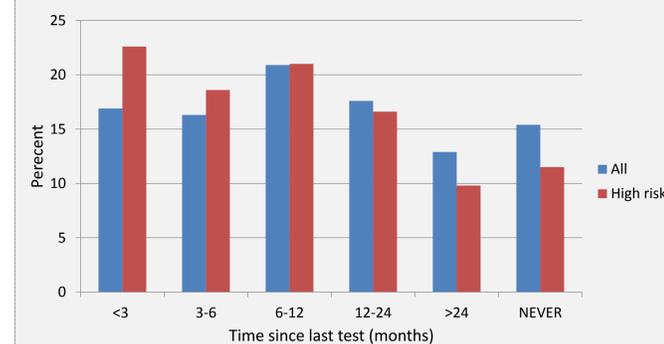
Considering a multivariable logistic analysis of factors associated with having never tested for HIV, living outside of major urban regions such as London and the southeast of England; being aged 16 to 20 years and having a lower level of education were all associated with never having been tested for HIV (data not shown).

Table 3. Logistic regression of predictors of recent testing among men at high risk of HIV infection

Characteristic	Tested at least once in in previous 6 months No. (%)	Adjusted OR (95% CI)	P value
Region			<0.001
London	522 (56.2)	1.95 (1.64,2.31)	
SE England	253 (45.3)	1.55 (1.28,1.88)	
Other	837 (34.5)	1.00	
Distance to nearest GUM clinic (km)			0.02
<2	537 (49.0)	1.20 (1.01,1.42)	
2-5	592 (42.2)	1.00	
5-10	224 (34.2)	0.86 (0.71,1.06)	
≥10	195 (36.1)	0.97 (0.78,1.21)	
Age (years)			0.11
16-19	61 (29.9)	0.74 (0.53,1.04)	
20-29	547 (42.3)	1.00	
30-39	501 (44.1)	0.96 (0.81,1.13)	
40-49	314 (41.6)	0.90 (0.75,1.09)	
≥50	190 (36.0)	0.77 9.62,0.96)	
Ethnicity			0.01
White British	1134 (38.0)	1.00	
White Other	270 (54.7)	1.36 (1.11,1.68)	
Black	38 (48.1)	1.18 (0.74,1.88)	
Asian	71 (46.1)	0.84 (0.60,1.19)	
Mixed	48 (40.3)	0.86 (0.58,1.26)	
Other	39 (60.0)	1.57 (0.93,2.66)	
Highest level education			<0.001
School	570 (32.4)	0.55 (0.47,0.63)	
College	185 (40.2)	0.71 (0.57,0.88)	
University	834 (50.8)	1.00	

In multivariate logistic regression of selected sociodemographic factors in men at higher risk of HIV, region of residence and education level were most strongly associated with a higher likelihood of having a recent HIV test (Table 3).

Conclusions

MSM recruited to the SELPHI HIVST RCT were not testing in line with current UK recommendations. Overall, almost half had never tested or last tested >12 months previously. In men at higher risk of recent HIV, less than half had tested in previous 6 months and a tenth had never tested. This may be due to low perceived risk of HIV infection, structural barriers (e.g. clinics difficult to access because of time constraints or capacity issues or distance) and individual psycho-social issues including perceived stigma.

Associations with lower levels of ever and repeat testing in this study suggest that targeting efforts and expanding testing opportunities in younger men and in those with lower levels of education or who live further from testing centres may improve access and uptake of HIV testing. Online promotion of free HIVST may be key to addressing many of these barriers. However we recruited low levels of BME and trans men who are key MSM groups at risk of HIV infection.

Further work is required to ensure that HIVST service provision can be adapted and targeted more effectively meet the needs of these key populations.

References
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