MRC GAY MEN'S SEXUAL HEALTH SURVEYS

DATA REVIEW

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THE SAMPLE

1271 (32.8%) men who have sex with men (MSM) surveyed in Glasgow and Edinburgh in 2005, 2008 and 2010 were defined as at high risk of HIV (reported unprotected anal intercourse [UAI] with more than one, casual, and/or unknown or discordant HIV status partners).

- At risk men were relatively young and well educated. More than two-thirds (67.3%) were under 35 years old and almost half (44.5%) had a further or vocational qualification and over a third (36.0%) a degree or post-graduate qualification. They were predominantly White (95.4%) and gay (94.5%). Half lived in Glasgow (51.7%) a quarter (24.1%) in Edinburgh, a fifth (19.5%) in the rest of Scotland and 4.7% in the rest of the UK.
- They were active on the gay scene; over half (54.7%) went to a commercial gay venue at least once a week and almost a fifth (18.0%) went out 4-5 times a week.
- HIV-positive men at risk of transmitting HIV tended to be older than the HIV-negative or untested men at risk of acquiring HIV. Untested men were more likely to live in the rest of Scotland than Glasgow or Edinburgh.
- As would be expected in a bar-based sample, all at risk men were likely to have attended a bar or club in the last month. However, significantly higher proportion of HIV-positive men reported use of Internet chat rooms, saunas and cruising areas than HIV-negative or untested men. The starkest difference was in use of cruising areas, reported by 33.3% of HIV-positive men, 15.9% of HIV-negative men, and 6.3% of untested men.

SEXUAL BEHAVIOUR

- Almost half (47.5%) of the at-risk men were in a relationship, and 46.1% of those were long-term (3 years+). Over a third (38.1%) did not know their partner's HIV status.
- Eight out of ten (82.5%) men reported more than one sexual partner in the previous 12 months. Over one third reported 11 or more sexual partners and 14.6% reported 11 or more anal sex partners. Two-fifths (42.5%) reported UAI with more than one partner, almost two-thirds (64.0%) reported UAI with a casual partner, and two-thirds (67.0%) did not always know the HIV status of their partner.
- As would be expected, most (80.8%) had met a sexual partner at a bar or a club in the previous 12 months. Over a third (37.9%) had met a sexual partner over the Internet, a third (33.5%) through private party or friends, under a quarter (23.6%) in a sauna or backroom and a fifth (19.6%) through work or college. 14.4% had met a partner in an outdoor cruising area and 11.2% had met a partner through chat lines or personal ads.
- The proportion of at risk men who reported that they always knew their UAI partners' HIV status significantly increased from 30.5% in 2005 to 39.0% in 2010 ($p=0.04$).
- HIV-positive men were more likely to report higher numbers of sexual, anal and UAI partners in the previous 12 months than HIV-negative or untested men, but there was no difference in knowledge of partners' status by HIV status.
- HIV-positive men were also more likely to have met a sexual partner in a sauna, backroom or cruising area in the previous 12 months than HIV-negative or untested men. 63.2% of HIV-positive men had met a partner in a sauna or backroom, compared to 26.6% of HIV-negative men and 17.4% of untested men. 52.6% of HIV-positive men had met a partner in a cruising area, compared to 16.0% of HIV-negative men and 9.4% of untested men.
- At risk men surveyed in saunas reported significantly more partners than men surveyed in bars, but there were no significant differences between the two groups in sexual risk behaviour.

SEXUAL HEALTH SERVICE USE

- Just under half (45.0%) of the at risk men (excluding confirmed HIV-positive men) had had an HIV test in the previous 12 months; 35.3% had never had an HIV test.
- Never tested men were younger, more likely to live out with the two survey cities, more likely to report fewer sexual partners and were more likely to report knowing their UAI partners' HIV status (even though unaware of their own). They were also less likely to have had an sexually transmitted infection (STI) test or report having an STI in the previous 12 months.
- Half (51.8%) of the at risk men reported having an STI test in the previous 12 months, and almost one in five (18.0%) had an STI during that time.
- Over time, an increasing proportion of at risk men reported having an HIV in the previous 12 months, but there was no corresponding increase in STI testing. The proportion of at risk men who reported having an STI in the previous 12 months varied significantly between the surveys: in 2005, 20.6% men reported having an STI, in 2008 this declined to 12.9%, before increasing again to 21.2% in 2010 ($p=0.003$).
- Three-quarters of HIV-positive men had been tested for STIs during the previous 12 months, compared to two thirds of HIV-negative men and 12.8% of untested men.
- Almost half (46.8%) of HIV-positive men reported having had an STI in the previous 12 months, compared to 20.6% of HIV-negative men and 10.1% of untested men.

UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS

- Health improvement interventions appeared to reach the men at risk, with 86.3% coming into contact with some intervention in the previous 12 months.
- Almost eight out of ten (79.5%) had picked up free condoms in a bar, club or sauna, two-fifths (42.6%) had picked up a sexual health leaflet in a bar, club or sauna, and over a third (36.0%) had looked for safer sex or sexual health information on the Internet. One in ten (11.1%) had been to group or one-to-one sexual health or HIV counselling.
- HIV-positive men were the most likely to have had contact with any intervention, picked up a sexual health leaflet, talked to an outreach worker, or been to sexual health or HIV counselling. The difference was greatest in counselling use; 30.8% of HIV-positive men reported counselling, compared with 11.9% of HIV-negative men and 6.3% of untested men.

IMPLICATIONS FOR SEXUAL HEALTH IMPROVEMENT AND SERVICE DELIVERY

- This Report presents a clear demographic and behavioural profile of men at high risk of HIV, thereby demonstrating where appropriate HIV prevention and sexual health improvement interventions might best be targeted.
- There were clear differences between HIV-positive, HIV-negative and untested men at risk of HIV, and while in general, HIV prevention should include all three groups, interventions could and should be tailored to the specific needs of each.
- By means of definition, sexual risk behaviour was high among at risk men and it is clear that reductions in such behaviours should continue to be a focus for intervention. Such interventions should target those locales and situations where and when men meet their sexual partners.
- Sex on premises venues and outdoor cruising areas were a particular locale for HIV-positive men to meet partners, and as such could be considered for specifically targeted interventions.

- HIV testing, and STI screening more generally, have to remain central to sexual health improvement and more must be done to meet the minimum testing levels recommended for MSM at high risk. Consideration should also be given to initiating recall systems for high risk men who test positive for STIs.
- Health improvement interventions appeared to reach the men at risk and accessing free condoms was by far the most commonly reported of all the interventions measured; it is a key prevention activity that should continue.
- Regular and frequent sexual health screens present secondary opportunities for first, HIV testing, and second, HIV prevention (through, for example, risk reduction counselling provided by Sexual Health Advisors).

2. INTRODUCTION

Men who have sex with men (MSM) are the group at greatest risk of acquiring HIV in the UK and are currently estimated to account for almost half (45%) of all new HIV diagnoses.[1] Despite ongoing prevention efforts, HIV incidence has remained stable among MSM in Scotland over the past 15 years,[2] and an estimated quarter of MSM in the UK newly diagnosed with HIV acquired their infection recently,[1] indicating ongoing and considerable risk for further transmission (given high viral loads at seroconversion[3-4]). Furthermore, the significant increase in HIV testing, evident since the introduction of the opt-out testing policy in genitourinary (GUM) clinics,[5-6] appears to have had a somewhat limited impact on undiagnosed HIV at the community level. Data from the MRC Gay Men's Sexual Health Surveys show that there was a (non-significant) reduction in undiagnosed infection among HIV-positive men from 41.7% to 26.3% between 2005 and 2008, but overall prevalence of undiagnosed HIV did not differ between men who were and were not recent testers (1.8% and 1.4% respectively).[6]

Unprotected anal intercourse (UAI) is the main risk factor for HIV among MSM, and increases in sexual risk behaviour have been well documented since the late 1990s.[7] Recent trends in sexual behaviour among MSM in the UK suggest risk has plateaued, remaining at the high levels reached in the late 1990s/early 2000s, meaning a substantial minority continue to report high risk behaviour.[8-9] Although studies have shown that most HIV-positive MSM reduce sexual risk behaviour after diagnosis,[10-11] a relatively recent US study found that even though diagnosed HIV-positive MSM were more likely to report UAI with HIV-positive than HIV-negative or unknown status partners, a quarter reported UAI with a partner of unknown or discordant HIV status.[12] In the UK (including Scotland), UAI with a partner of unknown or discordant HIV status in the previous 12 months was reported by 31% of diagnosed HIV-positive men (compared with 29% of undiagnosed men and 24% of HIV-negative men).[13] Even though the risk of HIV transmission might be reduced for HIV-positive MSM whose viral loads are well controlled (through regular monitoring and adherence to antiretroviral treatments), ongoing sexual risk behaviour presents significant risk of other sexually transmitted infections (STIs) and hepatitis C.[1]

A number of recent policy initiatives, including the Scottish Government's Sexual Health and Blood Borne Virus Framework (2010-2015), the HIV Action Plan (2009-2014), and Healthcare Improvement Scotland's HIV Standards, have renewed focus on HIV prevention.[14-16] In light of this, and in the context of ongoing HIV transmission and sexual risk behaviour among MSM, NHS Greater Glasgow & Clyde (GGC) and NHS Lothian are reviewing their HIV prevention efforts for gay and bisexual men. The review aims to address gaps in knowledge and current service provision to refocus prevention efforts. The NHS GGC and Lothian review includes i) an analysis of current HIV testing data held by Health Protection Scotland; ii) a review of the demographics, testing and sexual behaviours of higher risk MSM using data from the MRC Gay Men's Sexual Health Survey; iii) a case note review of MSM attending GUM and HIV treatment and Care services; and iv) the development of user engagement processes with a wide range of gay and bisexual men. This Report contains the review of the MRC Gay Men's Sexual Health Survey commissioned by NHS GGC in respect to ii) above.
The MRC Gay Men's Sexual Health Survey has been conducted every three years since 1996 in Glasgow and Edinburgh. Since 2005, we have collected oral fluid samples to be tested anonymously for HIV to improve the estimate of HIV prevalence and undiagnosed infection in this population. The surveys were enhanced in 2010 by an additional psychosocial survey in Glasgow, which aimed to evaluate the Make Your Position Clear (MYPC) campaign's impact on gay and bisexual men's sexual health and behaviour in the West of Scotland.

The aim of the Report is to provide a review of the characteristics and behaviours of gay and bisexual men at high risk of HIV. It describes their demographics, sexual behaviour, and sexual health service use, and discusses the implications of the results for HIV prevention and service delivery.

3. METHODS

3.1 SURVEYS

Three surveys are included in the review: the 2005 and 2008 MRC Gay Men's Sexual Health Surveys and the 2010 MYPC Survey. In 2005 and 2008, cross-sectional surveys were completed in commercial gay bars and saunas in Glasgow and Edinburgh (11 bars and two saunas in 2005; 12 bars and two saunas in 2008). Men were also asked to provide oral fluid samples to be tested for HIV antibodies. Barcodes matched the samples to the questionnaires. Oral fluid specimens were analysed at the West of Scotland Specialist Virology Centre (screened for anti-HIV using an enzyme immunoassay; positives re-screened, and repeat reactives confirmed using Western Blot). In 2010, a cross-sectional, questionnaire only survey was conducted in seven gay bars in Glasgow.

A form of time and location sampling was used to recruit representative samples of men from venues included in the surveys.[6] Bars were surveyed at two different time points, in the early evening (19.00-21.00) and the late evening (21.00-23.00). No bar was visited twice on the same evening. At the end of the survey period, each bar had been visited at both time points on each day of the week. Saunas were surveyed over two early evenings (5:00–7:00PM) and two weekend late afternoons (4:00-6:00PM). A team of temporary fieldworkers was trained then employed to distribute and collect anonymous, self-complete questionnaires in the bars. All men present or entering the venue were approached to complete a questionnaire.

Ethical approval was granted by the University of Glasgow, Faculty of Medicine Ethics Committee (2005 and 2008) and the Psychology Ethics Subcommittee at Glasgow Caledonian University (2010).

3.2 SAMPLES

A total of 4080 men are included in the sample. In 2005, 1744 men (66% response rate) participated in the survey: 1015 in Glasgow (66% response rate) and 729 in Edinburgh (67% response rate). In 2008, 1514 men participated (71% response rate): 866 in Glasgow (66% response rate) and 642 in Edinburgh (71% response rate). In 2010, 822 men participated in Glasgow (63% response rate). Combined data from all three surveys are presented in the Results unless otherwise stated.

3.3 DEFINITION OF MEN AT HIGH RISK OF HIV

For the purpose of this Report, men at high risk of HIV were defined as those who reported UAI with more than one partner, UAI with casual partners, or UAI with partners of unknown or discordant HIV status in the previous 12 months. 1271 men (32.8% of the total sample) met these criteria and were included in the main analyses.

3.4 MEASURES EMPLOYED

Questionnaires included comparable data on demographics, sexual behaviour, sexual health service use and uptake of health improvement interventions. The measures employed in this Report are:

- Demographics: age, employment status, qualifications, social class, post code, ethnicity, sexual identity, frequency of gay scene use, and venues attended (in the previous month).
- Sexual behaviour: relationship status, relationship partner's HIV status, number of sexual partners, number of oral sex partners, number of anal sex partners, number of UAI partners, UAI with casual partners, knowledge of UAI partner's HIV status, sexual position for UAI, and locations for meeting sexual partners (all measured in the previous 12 months).

- Sexual health service use: HIV testing, recency of HIV testing, result of last test, perceived HIV status, STI testing, STI experience, type of STI (all of the STI variables are measured for the previous 12 months).
- Uptake of health improvement interventions in the previous 12 months: picked up sexual health leaflets, looked for safer sex information on the Internet, obtained free condoms from a venue or Internet, talked to outreach workers, and participated in counselling on sexual health or HIV prevention.

The 2010 survey contained a range of psychosocial, norms and knowledge variables that are not included in this Report because comparable data were not available in 2005 or 2008. Analyses of these factors are included in the MYPC Evaluation Reports and can be considered in complement to the results presented here.[17-18]

The Report details the characteristics of men at high risk of HIV in relation to the above measures and presents differences by HIV status (self-reported HIV-positive, HIV-negative and untested/don't know), location (Glasgow vs. Edinburgh; for 2005/08 only), and time (2005, 2008 and 2010) as appropriate. Significant results from the HIV status, location and time comparisons are presented in the main body of the Report and full results of these are included in the Appendices.

Three sub-sample analyses are also included in the Review:

- characteristics of men at high risk of HIV who have never had an HIV test (demographics, sexual health service use, sexual behaviour);
- characteristics of men at high risk of HIV who have used saunas/backrooms, chatlines/personal ads, private parties, and outdoor cruising areas (demographics and sexual health service use) (2005 only);
- comparisons of the sexual behaviours of men at high risk of HIV in the bar and sauna samples (2005 and 2008 only).

3.5 STATISTICAL TESTS

Data were analysed using SPSS 15.0 for Windows. Univariate and bivariate results are presented and for bivariate comparisons, the Pearson χ^2 Test was used. A P value of less than 0.05 was considered to be statistically significant. Given the small numbers in some categories, the validity of statistically significant results was also checked and is noted in the Results.

4. RESULTS

4.1 SAMPLE

The three surveys have a combined sample of 4080 men (2005 N=1744; 2008 N=1514; and 2010 N=822). Using the 'at risk' definition described above, 32.8% (n=1271) were categorised as at high risk of HIV. The proportion at risk did not change significantly between the surveys: 31.7% (n=546) in 2005, 32.6% (n=439) in 2008, and 35.8% (n=286) in 2010 (p=0.117, see Appendix A: Summary of participants, Table 17).

The proportion at risk was significantly higher in Glasgow than in Edinburgh. Overall, 34.7% of men surveyed in Glasgow were at risk, compared with 28.5% in Edinburgh (p<0.001, see Appendix A: Summary of participants, Table 18). There was no significant change across time between the Glasgow and Edinburgh surveys.

There was no significant difference in the proportion defined as at risk by HIV status (Table 1). 36.4% of HIV-positive men were at risk of transmitting HIV, while 32.2% of HIV-negative men were at risk of acquiring HIV. Among untested men[1], 35.8% were at risk. We used the oral fluid testing data collected in 2005 and 2008 to explore the HIV status of the untested men. One untested man at risk of HIV had undiagnosed HIV in 2005/2008 (see Appendix A: Summary of participants, Table 21).

TABLE 1: PROPORTION AT RISK BY HIV STATUS

	Not at risk (N=2599)		At risk (N=1271)		
HIV status	N	*%*	N	*%*	P-value
HIV+	82	*63.6*	47	*36.4*	0.074
HIV-	1572	*67.8*	746	*32.2*	
Untested	791	*64.2*	441	*35.8*	
Total	2445	*66.5*	1234	*33.5*	

Although there was no statistically significant difference in the proportions at risk by HIV status, results are stratified by HIV status as appropriate throughout the remainder of the Report.

4.2 DEMOGRAPHIC CHARACTERISTICS

4.2.1 OVERVIEW

Table 2 shows the demographic characteristics of the men at high risk of HIV (N=1271). Although represented across all ages, the majority (67.3%) were aged <35 years, and almost a third (31.7%) were aged <25 years (Table 2). 22.4% were aged 35-44 years and 10.3% were aged 45+ years. The majority (83.0%) were employed and reported further or higher education (44.5% had a further or vocational qualification and 36.0% reported a degree or post-graduate education). Three quarters (76.8%) were in social classes I, II and IIIN.

[1] Men referred to as 'untested', in distinction from HIV-positive and HIV-negative men, throughout this report are comprised of men who had not been tested (95.3%) as well as a small proportion (4.7%) who had been tested but not received their test result.

Half (51.7%) of the at risk men were living in Glasgow and the surrounding area (though note that the 2010 survey was only conducted in Glasgow, biasing the overall sample to this location), 24.1% were resident in Edinburgh, 19.5% were from the rest of Scotland, and 4.7% were from elsewhere in the UK. Almost all were of white ethnicity (95.4%) and identified as gay (94.5%, with 5.0% bisexual).

Over half (54.7%) of the at risk men went out on the gay scene at least once a week and almost a fifth (18.0%) went out 4-5 times a week. In 2008, men were asked about their use of the gay scene in the previous month. Almost all (98.9%) respondents had attended a bar in the last month and 81.3% had been to a club (as would be expected with a bar-based sample). Over half (54.0%) had been on an Internet chat room, while 25.3% had been to a sauna and 13.7% to a cruising area. The demographic characteristics of the at-risk men did not change significantly across time.

TABLE 2: DEMOGRAPHIC CHARACTERISTICS OF MEN AT HIGH RISK OF HIV (N = 1,271)

	N	%
AGE GROUP		
<25	391	31.7
25-34	439	35.6
35-44	277	22.4
45+	127	10.3
WORK STATUS		
Employed or self-employed	1024	83.0
Unemployed, student, retired	210	17.0
QUALIFICATION		
Secondary	225	19.5
Further/vocational	512	44.5
Degree/post graduate	414	36.0
SOCIAL CLASS (2005 ONLY)		
I, II & IIIN	354	76.8
IIIM, IV & V	107	23.2
POSTCODE		
Rest of Scotland	229	19.5
Edinburgh	284	24.1
Glasgow	609	51.7
Rest of UK	55	4.7
ETHNICITY (2008 ONLY)		
White	417	95.4
Other	20	4.6
SEXUAL ORIENTATION (2008 ONLY)		
Gay	412	94.5
Bisexual	22	5.0
Straight	2	0.5

FREQUENCY OF GAY SCENE USE		
Once a month or less	201	16.2
2-3 times a month	361	29.1
1-2 times a week	455	36.7
4-5 times a week	224	18.0
GAY SCENE USE IN THE PREVIOUS MONTH (2008 ONLY)		
Bars	434	98.9
Clubs or club nights	357	81.3
Internet chat rooms	237	54.0
Saunas	111	25.3
Cruising areas	60	13.7

4.2.2 DEMOGRAPHIC DIFFERENCES BETWEEN AT RISK AND NOT AT RISK MEN

The demographic characteristics of men at risk were significantly different from men not at risk with respect to age, qualification, ethnicity and sexual orientation ($p<0.05$, see Appendix B: At risk vs. not at risk men, Table 24). Men at risk of HIV were younger, less likely to have a degree or post-graduate qualification, and more likely to be an ethnic minority and identify as gay. At risk men also went out more frequently and (in 2008) were more likely to have been to a bar, club and Internet chat room than those not at high risk.

4.2.3 DEMOGRAPHIC DIFFERENCES BETWEEN GLASGOW AND EDINBURGH[2]

Analyses were run to check whether the demographic characteristics of at risk men in Glasgow and Edinburgh differed (see Appendix D: Glasgow vs. Edinburgh, Table 29). Significant differences were found for age, qualification level, ethnicity and area of residence.

Men at high risk of HIV in Glasgow tended to be younger than those in Edinburgh (35.8% in Glasgow were aged <25 years, compared with 24.2% in Edinburgh). In Edinburgh, more at risk men reported higher education (43.2% had a degree or post-graduate qualification, compared with 32.5% in Glasgow). There was also a higher proportion of ethnic minorities in Edinburgh (8.1% vs. 2.5%). The Glasgow sample contained a higher proportion of non-locals (i.e. men live outside the city they were surveyed in) than Edinburgh; 31.1% of at risk men surveyed in Glasgow were not resident in Glasgow, compared with 21.6% of those surveyed in Edinburgh.

There was a difference in gay scene use between at risk men surveyed in Glasgow and Edinburgh. While overall at risk men surveyed in Glasgow seemed to frequent the gay scene more often, with 59.6% going out once or more a week, compared to 51.7% in Edinburgh, the latter were more likely to report going out 4-5 times a week (21.5% vs. 18.0% in Glasgow).

4.2.4 DEMOGRAPHIC DIFFERENCES BY HIV STATUS

Demographic characteristics of the at-risk men were also analysed by HIV status (see Appendix C: HIV status, Table 25). HIV-positive men at risk of transmitting HIV were older than HIV-negative men at risk of acquiring HIV; only 13.0% were aged <25 years, compared to 27.5% of HIV-negative men. Untested men were considerably younger (42.2% were <25 years).

[2] 2005 and 2008 data only

HIV-positive men were more likely to live in Edinburgh; half (50.0%) lived in Edinburgh and a third (34.4%) lived in Glasgow. HIV-negative men were more likely to live in Glasgow; almost half (45.3%) lived in Glasgow while a third (33.0%) lived in Edinburgh. Of the untested men, a significantly higher proportion lived in the rest of Scotland. Almost a quarter (23.8%) of untested men lived in the rest of Scotland, compared with 16.6% of HIV-negative men and 6.3% of HIV-positive men.

Overall frequency of gay scene attendance did not vary significantly by HIV status. However, venues attended and locations for meeting sexual partners did. HIV-positive men were more likely to report use of Internet chat rooms, saunas and cruising areas than HIV-negative or untested men. The starkest difference was in use of cruising areas, reported by 33.3% of HIV-positive men, 15.9% of HIV-negative men, and 6.3% of untested men.

4.2.5 DIFFERENCES ACROSS TIME

The demographic characteristics of men at risk did not vary significantly over time except for frequency of gay scene use ($p<.001$, see Appendix E: Across Time, Table 34). The proportion of at risk men who reported going out once a month or less increased from 10.8% in 2005 to 18.8% in 2008 and to 22.7% in 2010. The proportion going out 2-3 times a month remained constant throughout, while those going out 1-2 times a week and 4-5 times a week declined overall.

SUMMARY

Men at high risk of HIV were generally young, employed, and relatively well educated. They were predominantly white and identified as gay. Most at risk men reported going out on the gay scene more than once a month and over half went out at least once a week.

There were significant differences in demographic characteristics between at risk men in Edinburgh and Glasgow. The Glasgow sample was younger, more likely to have further or vocational than higher qualifications and was more ethnically homogenous. Men in the Edinburgh sample were slightly more likely to go out on the gay scene 4-5 times a week and once a month or less.

Within the at-risk sample, there were demographic differences by HIV status for age, post code and venues frequented. HIV-positive men at risk of transmitting HIV tended to be older than the HIV-negative or untested men at risk of acquiring HIV. Untested men were more likely to live in the rest of Scotland than Glasgow or Edinburgh. As would be expected in a bar-based sample, all at risk men were likely to have attended a bar or club in the last month. However, a significantly higher proportion of HIV-positive men reported use of Internet chat rooms, saunas and cruising areas than HIV-negative or untested men. Frequency of gay scene attendance appeared to have decreased over time.

4.3 SEXUAL BEHAVIOURS

The following section presents data on relationships and sexual risk behaviours. Overall frequencies, and analyses by HIV status are presented. Significant differences across time and between men in Edinburgh and Glasgow are noted where appropriate.

4.3.1 RELATIONSHIPS

Just under half (47.5%) of the men at risk of HIV were in a relationship with a man (Table 3). Of those in a relationship, just under half (46.1%) were long-term (3 years +) and over a third (38.1%) reported that they did not know their partner's HIV status.

TABLE 3: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV (2005 AND 2008 ONLY)

	N (N = 985)	%
CURRENTLY IN A RELATIONSHIP WITH A MAN		
Yes	464	47.5
No	512	52.5
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIPS)		
Less than 1 year	99	26.5
1 to 3 years	102	27.3
3 years +	172	46.1
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIPS; 2005 ONLY)		
HIV+	11	4.5
HIV-	142	57.5
Don't Know	94	38.1

There were no differences by HIV status or between Glasgow and Edinburgh (see Appendix C: HIV status, Table 27; Appendix D: Glasgow vs. Edinburgh, Table 30).

4.3.2 RELATIONSHIP DIFFERENCES ACROSS TIME

Among men in a relationship, there was a significant increase in those in a long-term relationship, rising from 37.3% in 2005 to 59.5% 2008 (see Appendix E: Across Time, Table 35).

4.3.3 SEXUAL BEHAVIOUR

Table 4 shows the sexual behaviour of the at risk men in the sample. Most (82.5%) reported more than one sexual partner in the previous 12 months; 30.0% had had over 11 sexual partners during that period. Three quarters (75.9%) reported more than one oral sex partner and 71.9% reported more than one anal intercourse partner in the previous 12 months. 42.5% reported UAI with more than one partner in the previous 12 months and 64.0% reported UAI with a casual partner. Two-thirds (67%) reported not always knowing the HIV status of their UAI partners. Sexual position for UAI varied with the mode response (42.1%) being equally either the insertive or receptive partner.

In 2005, men were asked where they had met their sexual partners in the previous 12 months. Overall, most (91.8%, n=501) had met sexual partners on the gay scene, and 80.8% had met someone in a bar or club. Around a third had met a partner

through the Internet (37.9%) or through a private party or friends (33.5%), and 23.6% met someone in a sauna. 19.6% met someone through work or college, and 14.4% in an outdoor cruising area, while 11.2% had used chat lines or personal adverts.

TABLE 4: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV

	N (N=1,271)	%
NUMBER OF SEXUAL PARTNERS		
1 partner[1]	218	*17.5*
2-10 partners	652	*52.5*
11+ partners	373	*30.0*
NUMBER OF ORAL SEX PARTNERS (2008 ONLY)		
0-1 partners	103	*24.1*
2-10 partners	214	*50.0*
11+ partners	111	*25.9*
NUMBER OF ANAL INTERCOURSE PARTNERS		
1 partner	354	*28.1*
2-10 partners	721	*57.3*
11+ partners	184	*14.6*
NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS		
1 partner	725	*57.5*
2+ partners	535	*42.5*
UAI WITH A CASUAL PARTNER		
No	457	*36.0*
Yes	814	*64.0*
ALWAYS KNEW UAI PARTNERS' HIV STATUS		
No	828	*67.0*
Yes	408	*33.0*
SEXUAL POSITION FOR UAI(2008 ONLY)		
Always/mostly insertive	140	*32.4*
Equally either insertive or receptive	182	*42.1*
Always/mostly receptive	110	*25.5*
LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS, 2005)		
Bar/club	405	*80.8*
Internet	190	*37.9*
Private party/friends	168	*33.5*
Sauna/backroom	118	*23.6*
Work/college	98	*19.6*
Outdoor cruising area	72	*14.4*
Chat line/personal ads	56	*11.2*
Other	15	*3.0*

[1] At risk men all had at least one sexual partner, anal partner and UAI partner in previous 12 months.

4.3.4 DIFFERENCES IN SEXUAL BEHAVIOUR BY HIV STATUS

Table 5 shows that HIV-positive men were more likely to report higher numbers of sexual, anal and UAI partners in the previous 12 months than HIV-negative or untested men. 62.2% of HIV-positive men reported 2+ UAI partners, compared with 48.7% of HIV-negative men and 29.7% of untested men. 78.7% of HIV-positive men reported UAI with a casual partner, compared with 70.6% of HIV-negative men and 50.1% of untested men. Around a third reported always knowing their UAI partners' HIV status; there was no difference by HIV status.

HIV-positive men were also more likely to have met a sexual partner in a sauna, backroom or cruising area in the previous 12 months than HIV-negative or untested men. 63.2% of HIV-positive men had met a partner in a sauna or backroom, compared to 26.6% of HIV-negative men and 17.4% of untested men. 52.6% of HIV-positive men had met a partner in a cruising area, compared to 16.0% of HIV-negative men and 9.4% of untested men. 31.6% of HIV-positive men had met a partner through a chatline or personal ads, compared to 10.5% of HIV-negative men and 10.3% of untested men.

TABLE 5: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV BY HIV STATUS

	HIV+ (N=47)		HIV- (N=746)		Untested/DK (N=441)		
	N	*%*	N	*%*	N	*%*	P-value
NUMBER OF SEXUAL PARTNERS							
1 partner	7	*15.2*	79	*10.8*	123	*28.4*	<0.001 [V[1]]
2-10 partners	18	*39.1*	381	*52.2*	234	*54.0*	
11+ partners	21	*45.7*	270	*37.0*	76	*17.6*	
NUMBER OF ORAL SEX PARTNERS (2008 ONLY)							
0-1 partners	3	*20.0*	48	*16.9*	50	*41.3*	<0.001 [NV]
2-10 partners	8	*53.3*	145	*51.1*	57	*47.1*	
11+ partners	4	*26.7*	91	*32.0*	14	*11.6*	
NUMBER OF ANAL INTERCOURSE PARTNERS							
1 partner	8	*17.4*	152	*20.5*	184	*42.2*	<0.001 [V]
2-10 partners	20	*43.5*	458	*61.6*	223	*51.1*	
11+ partners	18	*39.1*	133	*17.9*	29	*6.7*	
NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS							
1 partner	17	*37.8*	381	*51.3*	308	*70.3*	<0.001 [V]
2+ partners	28	*62.2*	362	*48.7*	130	*29.7*	
UAI WITH A CASUAL PARTNER							
No	10	*21.3*	219	*29.4*	220	*49.9*	<0.001 [V]
Yes	37	*78.7*	527	*70.6*	221	*50.1*	

ALWAYS KNEW UAI PARTNERS' HIV STATUS							
No	29	*63.0*	503	*69.4*	274	*63.3*	0.087
Yes	17	*37.0*	222	*30.6*	159	*36.7*	
SEXUAL POSITION FOR UAI (2008 ONLY)							
Always/mostly insertive	4	*26.7*	94	*32.5*	40	*32.5*	0.969
Equally both	6	*40.0*	122	*42.2*	51	*41.5*	
Always/mostly receptive	5	*33.3*	73	*25.3*	32	*26.0*	
LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS, 2005)							
Bar/club	16	*84.2*	221	*86.3*	156	*73.2*	0.002 [V]
Internet	10	*52.6*	117	*45.7*	60	*28.2*	<0.001 [V]
Private party/friends	9	*47.4*	82	*32.0*	75	*35.2*	0.351
Sauna/backroom	12	*63.2*	68	*26.6*	37	*17.4*	<0.001 [V]
Work/college	4	*21.1*	49	*19.1*	43	*20.2*	0.949
Outdoor cruising area	10	*52.6*	41	*16.0*	20	*9.4*	<0.001 [V]
Chat line/personal ads	6	*31.6*	27	*10.5*	22	*10.3*	0.017 [V]
Other	0	*0*	7	*2.7*	7	*3.3*	0.701

[1] The validity of the Pearson's Chi-Square test is violated when there are small frequencies in the cells. Results where ≥ 20% of the cells had expected count less than 5 or the minimum expected count was < 1 were judged non-valid.
V= Valid result
NV= Non-valid result

4.3.5 DIFFERENCES IN SEXUAL BEHAVIOUR BETWEEN GLASGOW AND EDINBURGH

The number of anal sex partners and locations for meeting sexual partners differed between at risk men in Glasgow and Edinburgh (see Appendix D: Glasgow vs. Edinburgh, Table 31). Edinburgh had a significantly higher proportion of men who reported 11+ anal intercourse partners in the previous 12 months: 17.9% vs. 12.3% in Glasgow (p=0.037). A higher proportion of men in Edinburgh had met a partner at a sauna; 29.1% compared with 20.0% of Glasgow men (p=0.019).

4.3.6 DIFFERENCES IN SEXUAL BEHAVIOUR ACROSS TIME

Across time, the only sexual behaviour that changed significantly was knowledge of UAI partners' HIV status. The proportion of at risk men who reported that they always knew their UAI partners' HIV status increased from 30.5% in 2005 to 32.2% in 2008 and then again to 39.0% in 2010 (p=0.044, see Appendix E: Across Time, Table 36).

SUMMARY

Almost half of the men at high risk of HIV were in a relationship, and around half of those were long-term (3 years+). Over a third did not know their partner's HIV status.

Most men at high risk of HIV reported more than one sexual partner in the previous 12 months, and almost a third had 11 or more partners. Two-fifths reported UAI with more than one partner and most had had UAI with a casual partner. Two-thirds did not always know the HIV status of their UAI partners.

Rates of sexual risk behaviour were higher among HIV-positive than HIV-negative and untested men. There were no differences in knowledge of partners' HIV status between the three groups, but overall, the proportion of men who reported always knowing their UAI partners' HIV status increased across time.

Most at risk men had met partners in a bar or club in the previous 12 months and around half of HIV-positive and HIV-negative men had met a partner on the Internet. HIV-positive men were, however, more likely to have met a partner at an outdoor cruising area and at saunas or backrooms.

4.4 SEXUAL HEALTH SERVICE USE

4.4.1 HIV TESTING

Table 6 shows 64.7% of men at high risk of HIV reported having had an HIV test at some point. Less than half (45.0%) of men at high risk of HIV had had an HIV test in the previous year and (in 2008 and 2010) 38.0% had been tested in the previous 6 months (see Appendix A: Summary of participants,
Table 20).

4.4.2 UNDIAGNOSED HIV AMONG AT RISK MEN

Among at risk men who have never been tested for HIV (n=345), 65.9% believed themselves to be HIV-negative, while 30.8% did not know. 81.7% of never tested men provided a saliva sample to be tested for HIV in the 2005 or 2008 surveys; all bar one tested negative (see Appendix A: Summary of participants, Table 21).

4.4.3 STI TESTING

Around half (48.2%) of the men at risk reported an STI test in the previous 12 months, and almost one in five (18.0%) had an STI during that time. Of those reporting an STI, a third (33.1%) had Chlamydia, slightly less than a third (31.3%) had Gonorrhoea, and 18.1% had Syphilis (39.8% reported another, unspecified STI).

TABLE 6: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV (N = 1,227)

	N	%
MOST RECENT HIV TEST (EXCLUDING HIV-POSITIVE MEN)		
In last year	529	*45.0*
1-5 years ago	169	*14.4*
Over 5 years ago	62	*5.3*
Never tested	415	*35.3*
STI TEST IN PREVIOUS 12 MONTHS (2008 & 2010 ONLY)		
No	343	*48.2*
Yes	368	*51.8*
STI IN PREVIOUS 12 MONTHS		
No	1020	*82.0*
Yes	224	*18.0*
TYPE OF STI (2005 &2008)		
Gonorrhoea	52	*31.3*
Chlamydia	55	*33.1*
Syphilis	30	*18.1*
Other STI	66	*39.8*

4.4.4 DIFFERENCES IN SEXUAL HEALTH SERVICE USE BY HIV STATUS

Table 7 shows that HIV-positive men at risk of transmitting HIV were much more likely to report having an STI test, and also to report having an STI, during the previous 12 months than HIV-negative or untested men. Three-quarters of HIV-positive men had been tested for STIs, compared to two thirds of HIV-negative men and 12.8% of untested men. Almost half (46.8%) of HIV-positive men reported having had an STI in the previous 12 months, compared to 20.6% of HIV-negative men and 10.1% of untested men.

TABLE 7: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV BY HIV STATUS

	HIV+ (N=35)		HIV- (N=558)		Untested/DK (N=368)		
	N	%	N	%	N	%	P-value
STI test in previous 12 months (2008 & 2010 only)							
No	7	25.9	160	33.7	171	87.2	<0.001 [V]
Yes	20	74.1	315	66.3	25	12.8	
STI in previous 12 months							
No	25	53.2	585	79.4	392	89.9	<0.001 [V]
Yes	22	46.8	152	20.6	44	10.1	
Type of STI (2005 & 2008 only)							
Gonorrhoea	8	44.4	33	31.4	11	29.7	0.508
Chlamydia	6	33.3	38	36.2	8	21.6	0.265
Syphilis	5	27.8	20	19.0	5	13.5	0.442
Other	8	44.4	35	33.3	19	51.4	0.134

V= Valid result
NV= Non-valid result

4.4.5 DIFFERENCES IN SEXUAL HEALTH SERVICE USE BETWEEN GLASGOW AND EDINBURGH

Overall, there was no difference in the proportion of at risk men who had ever had an HIV test between Glasgow and Edinburgh (p=0.062, see Appendix D: Glasgow vs. Edinburgh, Table 32). Recency of test did vary significantly (p=0.023), however, the proportions tested in the last year and the proportions tested 1-5 years ago were very similar and varied by less than one percent between the cities. The difference was Glasgow men were more likely to be untested (39.2% vs. 33.4%), while Edinburgh men were more likely to have been tested 5+ years ago (9.3% vs. 4.6%, p=0.023).

There were no differences in STI testing or experience between at risk men in Glasgow and Edinburgh.

4.4.6 DIFFERENCES IN SEXUAL HEALTH SERVICE USE ACROSS TIME

The proportion of at risk men who reported having an HIV test in the previous 12 months increased significantly across time (p<0.001, see Appendix E: Across Time, Table 37). In 2005, a third (34.3%) of all men at risk had been tested in the previous year; in 2008, it was over half (51.9%) and in 2010, it was 54.4%.

There was no change in STI testing over time, but the proportion of at risk men who reported having an STI in the previous 12 months varied significantly. In 2005, 20.6% of men reported having an STI. This declined to 12.9% in 2008, before increasing again to 21.2% in 2010 (p=0.003).

SUMMARY

Two-thirds of respondents reported having an HIV test at some point. Less than half (45.0%) had been tested in the previous year and (in 2008 and 2010) 38.0% had been tested in the previous 6 months. Half of men at high risk of HIV had had an STI test in the previous 12 months, and almost a fifth had had an STI during that time.

HIV-positive men were most likely to have had an STI test and an STI in the previous twelve months. Three-quarters of HIV-positive men had been tested for STIs, compared to two thirds of HIV-negative men and just over one in ten (HIV) untested men. Almost half of HIV-positive men reported having had an STI in the previous 12 months, compared to one in five HIV-negative men and one in ten untested men.

Men in Edinburgh were more likely to have been tested for HIV than men in Glasgow. However, the proportions tested in the previous year were similar between the cities. There were no differences in STI testing or experience between at risk men in Glasgow and Edinburgh.

Across the years, the proportion of men who had had an HIV test significantly increased. However, in 2010, only just over half of the HIV-negative/untested men at risk of HIV reported having tested in the previous year. There was no corresponding increase in STI testing (though this was only asked in 2008 and 2010).

4.5 UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS

In 2008 and 2010, respondents were asked about their contact with a range of health improvement interventions in the previous 12 months. Table 8 shows the reach of health improvement interventions, with 86.3% of the at risk men coming into contact with at least one intervention. 79.1% had obtained free condoms, 42.6% had picked up a sexual health leaflet, 36.0% had looked for safer sex or sexual health information on the Internet, 18.8% had talked to an outreach worker, and 11.1% had been to HIV or sexual health counselling.

TABLE 8. UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV (2008 & 2010 ONLY) (N = 725).

	N	%
Any health improvement intervention contact	606	*86.3*
Got free condoms from bar/club/sauna/Internet	551	*79.1*
Picked up sexual health leaflets in bar/club/sauna	295	*42.6*
Looked for safer sex/sexual health information on Internet	245	*36.0*
Talked to outreach worker in bar/club/sauna	128	*18.8*
Went to sexual health or HIV one to one or group counselling	76	*11.1*

4.5.1 UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS BY HIV STATUS

HIV-positive men were the most likely to have had contact with any intervention, picked up a sexual health leaflet, talked to an outreach worker, or been to sexual health or HIV counselling (Table 9). The difference was greatest in counselling use; 30.8% of HIV-positive men reported counselling, compared with 11.9% of HIV-negative men and 6.3% of untested men. There were no significant differences in looking for health information on the Internet or getting free condoms by HIV status.

TABLE 9: UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV BY HIV STATUS (2008 & 2010 ONLY)

	HIV+ (N=27)		HIV- (N=478)		Untested/DK (N=199)		
	N	%	N	%	N	%	P-value
Any health improvement intervention contact	24	*88.9*	416	*88.5*	157	*80.9*	0.032 [V]
Got free condoms from bar/club/sauna/Internet	18	*66.7*	381	*81.6*	145	*75.5*	0.056 [V]
Picked up sexual health leaflets in bar/club/sauna	14	*53.8*	209	*45.3*	66	*34.0*	0.014 [V]
Looked for safer sex/sexual health information on Internet	11	*42.3*	172	*38.0*	62	*32.1*	0.302 [V]
Talked to outreach worker in bar/club/sauna	6	*23.1*	99	*21.8*	21	*11.0*	0.005 [V]
Went to sexual health or HIV one to one or group counselling	8	*30.8*	54	*11.9*	12	*6.3*	0.001 [V]

V= Valid result
NV= Non-valid result

Uptake of health improvement interventions did not vary significantly between Glasgow and Edinburgh or over time (see Appendix D: Glasgow vs. Edinburgh, Table 33; Appendix E: Across Time, Table 38).

SUMMARY

More than eight out of ten at risk men had come into contact with at least one health improvement intervention in the previous 12 months. Most had received free condoms, two fifths had picked up a sexual health leaflet in a bar, club or sauna and almost a third had looked for safer sex or sexual health information on the Internet.

HIV-positive men were more likely to report contact with most of the health improvement activities than HIV-negative or untested men. They were particularly more likely to report having been for HIV or sexual health counselling.

4.6 SUB-SAMPLES

Three sub-sample analyses were requested:

- Characteristics of men at high risk of HIV who have never had an HIV test (demographics, sexual health service use, sexual behaviour);
- Characteristics of men at high risk of HIV who have used saunas/backrooms, chatlines/personal ads, private parties, and outdoor cruising areas (demographics and sexual health service use) (2005 only);
- Comparisons of the sexual behaviours of men at high risk of HIV in the bar and sauna samples.

These specific analyses are described in the following section. Full sub-sample analyses (i.e. of all demographic, sexual behaviour, sexual health service use, and uptake of sexual health improvement interventions) are included in the Appendices (see Appendix F: Sub-sample I: comparison of at risk men who had never had HIV test and tested men-Appendix H: Sub-sample III: Comparison of bar & sauna respondents).

4.6.1 SUB-SAMPLE I: COMPARISON OF AT RISK MEN WHO HAD NEVER HAD AN HIV TEST & TESTED MEN

A third (35.3%) of men at high risk of HIV had never had a HIV test.

4.6.1.1 DEMOGRAPHIC CHARACTERISTICS

Table 10 shows that never tested men were significantly younger, more likely to live in the rest of Scotland and less likely to live in Edinburgh than tested men. Men at risk who had never had a HIV test went out less frequently than men who had been tested; 48.8% went out once a week compared to 57.5% of tested men. They were just as likely to have gone to a bar or a club as tested men in the last month, however, they were significantly less likely to have visited Internet chat rooms (45.5% vs. 57.6%), saunas (11.6% vs. 29.9%) and cruising areas (6.3% vs. 16.2%).

TABLE 10: DEMOGRAPHICS CHARACTERISTICS OF MEN AT RISK OF HIV: NEVER VS. EVER TESTED MEN

	Never been tested (N = 415)		Been tested (N =836)		
AGE GROUP	N	*%*	N	*%*	p-value
<25	174	*42.9*	214	*26.4*	<0.001 [V]
25-34	116	*28.6*	317	*39.0*	
35-44	77	*19.0*	198	*24.4*	
45+	39	*9.6*	83	*10.2*	
WORK STATUS					
Employed or self-employed	331	*81.1*	681	*84.2*	0.179
Unemployed, student, retired	77	*18.9*	128	*15.8*	
HIGHEST QUALIFICATION					
Secondary	88	*23.3*	135	*17.7*	0.065
Further/vocational	165	*43.7*	341	*44.8*	
Degree/post graduate	125	*33.1*	286	*37.5*	
SOCIAL CLASS (2005 ONLY)					
I, II & IIIN	147	*75.4*	205	*77.9*	0.520
IIIM, IV & V	48	*24.6*	58	*22.1*	
POSTCODE (2005 & 2008 ONLY)					
Rest of Scotland	79	*24.1*	92	*16.0*	0.014 [V]
Edinburgh	87	*26.5*	193	*33.6*	
Glasgow	145	*44.2*	259	*45.1*	
Rest of UK	17	*5.2*	30	*5.2*	
ETHNICITY (2008 ONLY)					
White	108	*96.4*	303	*95.0*	0.532
Other	4	*3.6*	16	*5.0*	
SEXUAL ORIENTATION (2008 ONLY)					
Gay	100	*90.1*	306	*95.9*	0.069
Bisexual	10	*9.0*	12	*3.8*	
Straight	1	*0.9*	1	*0.3*	
FREQUENCY OF GAY SCENE USE					
Once a month or less	71	*17.3*	127	*15.5*	0.030 [V]
2-3 times a month	139	*33.9*	220	*26.9*	
1-2 times a week	133	*32.4*	316	*38.7*	
4-5 times a week	67	*16.3*	154	*18.8*	
GAY SCENE USE IN THE PREVIOUS MONTH (2008 ONLY)					
Bars	112	*100.0*	316	*98.4*	0.184
Clubs or club nights	95	*84.8*	260	*81.0*	0.364
Internet chat rooms	51	*45.5*	185	*57.6*	0.027 [V]
Saunas	13	*11.6*	96	*29.9*	<0.001 [V]
Cruising areas	7	*6.3*	52	*16.2*	0.008 [V]

V= Valid result
NV= Non-valid result

4.6.1.2 SEXUAL BEHAVIOUR

There were a number of significant differences in the sexual behaviours of never and ever tested men at risk of HIV (Table 11). Never tested men reported fewer sexual, oral and anal intercourse partners in the previous 12 months. Less than a third (28.2%) reported two or more UAI partners, compared to 49.2% of tested men, and they were more likely (37.8% vs. 31.0% for tested men) to report always knowing the HIV status of their UAI partners (even though they did not know their own HIV status based on a test).

Never tested men were significantly less likely to have met a new sexual partner in the previous 12 months than tested men across a number of venues. They were less likely to have met a partner in a bar (75.0% vs. 84.9%), over the Internet (27.0% vs. 45.4%), in a sauna or backroom (18.1% vs. 27.5%), and in outdoor cruising area (9.8% vs. 17.9%). A similar proportion had met partners through private parties or friends and work or college.

TABLE 11: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT RISK OF HIV: NEVER VS. EVER TESTED MEN

	Never been tested (N=415)		Been tested (N=836)		
	N	*%*	N	*%*	p-value
NUMBER OF SEXUAL PARTNERS					
1 partner	119	*29.2*	97	*11.8*	<0.001 [V]
2-10 partners	220	*54.1*	420	*51.3*	
11+ partners	68	*16.7*	302	*36.9*	
NUMBER OF ORAL SEX PARTNERS (2008 ONLY)					
0-1 partners	47	*43.9*	56	*17.8*	<0.001 [V]
2-10 partners	49	*45.8*	161	*51.1*	
11+ partners	11	*10.3*	98	*31.1*	
NUMBER OF ANAL INTERCOURSE PARTNERS					
1 partner	178	*43.4*	173	*20.8*	<0.001 [V]
2-10 partners	209	*51.0*	501	*60.2*	
11+ partners	23	*5.6*	158	*19.0*	
NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS					
1 partner	296	*71.8*	422	*50.8*	<0.001 [V]
2+ partners	116	*28.2*	409	*49.2*	
UAI WITH A CASUAL PARTNER					
No	209	*50.4*	244	*29.2*	<0.001 [V]
Yes	206	*49.6*	592	*70.8*	
ALWAYS KNEW UAI PARTNERS' HIV STATUS					
No	253	*62.2*	561	*69.0*	0.017
Yes	154	*37.8*	252	*31.0*	
SEXUAL POSITION FOR UAI (2008 ONLY)					
Always/mostly insertive	37	*33.9*	102	*31.9*	0.864
Equally either insertive or receptive	46	*42.2*	134	*41.9*	
Always/mostly receptive	26	*23.9*	84	*26.3*	

LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS, 2005)					
Bar/club	153	*75.0*	247	*84.9*	0.006 [V]
Internet	55	*27.0*	132	*45.4*	<0.001 [V]
Private party/friends	69	*33.8*	98	*33.7*	0.973
Sauna/backroom	37	*18.1*	80	*27.5*	0.016 [V]
Work/college	41	*20.1*	55	*18.9*	0.740
Outdoor cruising area	20	*9.8*	52	*17.9*	0.012 [V]
Chat line/personal ads	21	*10.3*	34	*11.7*	0.628
Other	6	*2.9*	8	*2.7*	0.899

V= Valid result
NV= Non-valid result

4.6.1.3 SEXUAL HEALTH SERVICE USE

Table 12 shows never tested men at high risk of HIV were less likely to have had an STI test in the previous 12 months than tested men: 10.6% reported an STI test compared to 65.3% of tested men. As would be expected, given the lower STI testing levels, never tested men were also less likely to report having had an STI in the previous 12 months than tested men.

TABLE 12: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV: NEVER VS. EVER TESTED

	Never been tested (N=415)		**Been tested (N=836)**		
	N	%	N	%	P-value
STI TEST IN PREVIOUS 12 MONTHS (2008 & 2010 ONLY)					
No	161	89.4	182	34.7	<0.001 [V]
Yes	19	10.6	342	65.3	
STI IN PREVIOUS 12 MONTHS					
No	369	89.8	644	78.3	<0.001 [V]
Yes	42	10.2	179	21.7	
TYPE OF STI (2005 &2008)					
Gonorrhoea	10	28.6	42	32.8	0.633
Chlamydia	7	20.0	47	36.7	0.063
Syphilis	5	14.3	25	19.5	0.478
Other	19	54.3	44	34.4	0.032 [V]

V= Valid result
NV= Non-valid result

SUMMARY

A third (33.2%) of at risk men had never had an HIV test. Demographically, they were younger and more likely to live in the rest of Scotland than at risk men who had had an HIV test, and less likely to live in Edinburgh. They went also went out on the gay scene less frequently than tested men.

Never tested men reported fewer sexual partners and were more likely to report knowing their UAI partners' HIV status (even though unaware of their own). They were also less likely to have had an STI test or report having an STI in the previous 12 months.

4.6.2 SUB-SAMPLE II: MEN WHO MET SEXUAL PARTNERS THROUGH SAUNAS/BACKROOMS, CHAT LINES/ PERSONAL ADS, PRIVATE PARTIES, OR CRUISING AREA

4.6.2.1 DEMOGRAPHICS CHARACTERISTICS

Among at risk men surveyed in 2005, 51.1% (n=256) had met a sexual partner through one of the following channels: saunas/backrooms, chat lines/personal ads, private parties, and outdoor cruising areas. This group was compared with the rest of the at risk sample. Table 13 shows a significantly higher proportion of those surveyed in Edinburgh were in this sub-sample. There were few other demographic differences between the sub-sample and the rest of the at risk men. The sub-sample was more likely to be employed, report higher education and live in Edinburgh or out with Scotland.

TABLE 13: DEMOGRAPHIC CHARACTERISTICS OF MEN AT RISK OF HIV: VENUE SUB-SAMPLE VS. THE REST OF MEN AT HIGH RISK OF HIV (2005 ONLY)

	At risk sub-sample (N=256)		Rest of at risk men (N=245)		
	N	%	N	%	p-value
CITY OF RECRUITMENT					
Edinburgh	111	*56.6*	85	*43.4*	0.047 [V]
Glasgow	145	*47.5*	160	*52.5*	
AGE GROUP					
<25	73	*29.7*	79	*33.9*	0.763
25-34	90	*36.6*	82	*35.2*	
35-44	59	*24.0*	53	*22.7*	
45+	24	*9.8*	19	*8.2*	
WORK STATUS					
Employed or self-employed	216	*87.8*	186	*79.5*	0.014 [V]
Unemployed, student, retired	30	*12.2*	48	*20.5*	

HIGHEST QUALIFICATION					
Secondary	42	*18.2*	56	*26.7*	0.050 [V]
Further/vocational	97	*42.0*	89	*42.4*	
Degree/post graduate	92	*39.8*	65	*31.0*	
SOCIAL CLASS					
I, II & IIIN	176	*78.9*	149	*74.9*	0.324
IIIM, IV & V	47	*21.1*	50	*25.1*	
POSTCODE					
Rest of Scotland	39	*16.4*	45	*21.1*	0.026 [V]
Edinburgh	90	*37.8*	54	*25.4*	
Glasgow	97	*40.8*	106	*49.8*	
Rest of UK	12	*5.0*	8	*3.8%*	
FREQUENCY OF GAY SCENE USE					
Once a month or less	27	*10.6*	23	*9.5*	.921
2-3 times a month	72	*28.3*	64	*26.6*	
1-2 times a week	100	*39.4*	101	*41.9*	
4-5 times a week	55	*21.7*	53	*22.0*	

V= Valid result, NV= Non-valid result

4.6.2.2 SEXUAL HEALTH SERVICE USE

No differences in HIV testing were found between the sub-sample and the remaining at risk men (Table 14). In 2005, men were not asked if they had had an STI test in the previous 12 months, but men in the sub-sample were more likely to report having an STI in the previous 12 months than the remaining at risk men (26.1% and 17.5% respectively). The sub-sample was also more likely to report having Syphilis than other at risk men (25.8% vs. 7.1% respectively).

TABLE 14: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV: VENUE SUB-SAMPLE VS. THE REST OF MEN AT HIGH RISK OF HIV

	At risk sub-sample (N=256)		**Rest of at risk men (N=245)**		
	N	*%*	N	*%*	P-value
HIV TEST IN PREVIOUS 12 MONTHS					
No	147	*63.1*	144	*64.3*	0.790
Yes	86	*36.9*	80	*35.7*	
STI IN PREVIOUS 12 MONTHS					
No	187	*73.9*	198	*82.5*	0.021 [V]
Yes	66	*26.1*	42	*17.5*	
TYPE OF STI (2005 &2008)					
Gonorrhoea	19	*28.8*	15	*35.7*	0.450
Chlamydia	21	*31.8*	13	*31.0*	0.925
Syphilis	17	*25.8*	3	*7.1*	0.015 [V]
Other	28	*42.4*	19	*45.2*	0.774

V= Valid result, NV= Non-valid result

SUMMARY

When compared to the rest of the at risk men, those in the venue sub-sample were more likely to have been surveyed in Edinburgh, be in employment, report higher education, and live in Edinburgh or out with Scotland.

There were no differences in HIV testing, but men in the sub-sample were more likely to report having an STI in the previous 12 months. They were also more likely to report having Syphilis.

4.6.3 SUB-SAMPLE III: COMPARISON OF BAR & SAUNA RESPONDENTS

Bars and saunas were surveyed in 2005 and 2008, though in each year the bar sample was considerably larger. 947 (96.1%) men at high risk of HIV were surveyed in bars and only 38 (3.9%) were surveyed in saunas, limiting the usefulness and scope of this comparison. The possible effect of the small sauna sample size should be kept in mind when considering the results.

4.6.3.1 SEXUAL BEHAVIOURS

Table 15 shows that at risk men surveyed in saunas reported more sexual, oral and anal partners than at risk men surveyed in bars. The majority (63.2%) of men surveyed in saunas reported 11+ sexual partners in the previous 12 months, compared with 29.0% of men surveyed in bars, while 34.2% reported 11+ anal sex partners in the previous 12 months, compared with 13.6% of the bar sample. Men surveyed in saunas were also more likely to have met a sexual partner over the Internet in the previous 12 months. There were no significant differences in the number of UAI partners, UAI with casual partners, and knowledge of UAI partners' HIV status.

TABLE 15: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV: BAR VS. SAUNA COMPARISON (2005 & 2008 ONLY)

	Bar Sample (N=947)		Sauna sample (N=38)		
	N	%	N	%	p-value
NUMBER OF SEXUAL PARTNERS					
1 partner	170	*18.2*	1	*2.6*	<0.001 [V]
2-10 partners	493	*52.8*	13	*34.2*	
11+ partners	271	*29.0*	24	*63.2*	
NUMBER OF ORAL SEX PARTNERS (2008 ONLY)					
0-1 partners	102	*25.1*	1	*4.8*	0.002 [V]
2-10 partners	206	*50.6*	8	*38.1*	
11+ partners	99	*24.3*	12	*57.1*	
NUMBER OF ANAL INTERCOURSE PARTNERS					
1 partner	272	*29.1*	4	*10.5*	<0.001 [V]
2-10 partners	537	*57.4*	21	*55.3*	
11+ partners	127	*13.6*	13	*34.2*	

NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS					
1 partner	546	*58.3*	18	*47.4*	0.182
2+ partners	391	*41.7*	20	*52.6*	
UAI WITH A CASUAL PARTNER					
No	343	*36.2*	11	*28.9*	0.360
Yes	604	*63.8*	27	*71.1*	
ALWAYS KNEW UAI PARTNERS' HIV STATUS					
No	630	*68.7*	26	*70.3*	0.840
Yes	287	*31.3*	11	*29.7*	
SEXUAL POSITION FOR UAI(2008 ONLY)					
Always/mostly insertive	134	*32.6%*	6	*28.6%*	0.158
Equally either insertive or receptive	176	*42.8%*	6	*28.6%*	
Always/mostly receptive	101	*24.6%*	9	*42.9%*	
LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS 2005)					
Bar/club	392	*81.0*	13	*76.5*	0.642
Internet	178	*36.8*	12	*70.6*	0.005 [V]
Private party/friends	162	*33.5*	6	*35.3*	0.876
Sauna/backroom	101	*20.9*	17	*100.0*	<0.001 [NV]
Work/college	95	*19.6*	3	*17.6*	0.840
Outdoor cruising area	67	*13.8*	5	*29.4*	0.072
Chat line/personal ads	50	*10.3*	6	*35.3*	0.001 [NV]
Other	15	*3.1*	0	*0.0*	0.461

V= Valid result
NV= Non-valid result

SUMMARY

At risk men surveyed in saunas reported significantly more sexual, oral and anal partners than men surveyed in bars, but there were no significant differences between the two groups in UAI or knowledge of partners' HIV status. They were also more likely to have met a sexual partner over the Internet than at risk men surveyed in bars.

5. DISCUSSION

This Report has reviewed the characteristics of men categorised as being at high risk of HIV (defined as those who reported UAI with more than one, casual, and/or unknown or discordant HIV status partners in the previous year) in our community-based surveys in 2005, 2008, and 2010. In this section, we summarise and compare the findings to research elsewhere and, finally, discuss the implications for sexual health promotion and service delivery.

Overall, just under a third of men were categorised as being at risk of HIV. They were relatively young, employed and well educated (over a third had a degree or post-graduate qualification). The youthfulness of those at high risk has been noted before.[8] They were active on the gay scene; over half went to a commercial gay venue at least once a week and almost a fifth went out 4-5 times a week. At risk men surveyed in Glasgow and Edinburgh had slightly different demographic profiles. Men surveyed in Glasgow tended to be younger and less well educated than those in Edinburgh (43.2% had a degree or post-graduate qualification in Edinburgh, compared with 32.5% in Glasgow). There was also a higher proportion of ethnic minorities in Edinburgh (8.1% vs. 2.5%). The Glasgow sample contained a higher proportion of non-locals (i.e. men live outside the city they are surveyed in) than Edinburgh.

Demographically, the men at high risk of HIV were distinct from the rest of the samples in several aspects. They were younger, less educated, and although overwhelmingly white, contained proportionately more minority ethnic groups (4.6% vs. 2.5%). At risk men were more likely to identify as gay, rather than bisexual or straight and frequented the commercial gay scene more often. Generally, the demographic characteristics of at risk men remained constant over time. However, there appears to have been a decrease in the frequency of gay scene use and an increase in long term relationships.

Although there was no significant difference in the proportion defined as at risk by (self-reported) HIV status, there were demographic differences between HIV-positive, HIV-negative and untested men. HIV-positive men at risk of transmitting HIV were older than HIV-negative and untested men and more likely to live in Edinburgh. Frequency of gay scene attendance did not vary significantly by HIV status, but the venues attended did. HIV-positive men were more likely to report use of Internet chat rooms, saunas and cruising areas than HIV-negative or untested men and were also more likely to have met a sexual partner in a sauna, backroom or cruising area in the previous 12 months. The starkest difference was in use of cruising areas, reported by 33.3% of HIV-positive men, 15.9% of HIV-negative men, and 6.3% of untested men.

Most men at high risk of HIV reported multiple sexual partners in the previous 12 months, and almost a third had 11 or more partners. Two-fifths reported UAI with more than one partner and most had had UAI with a casual partner. Two-thirds did not always know the HIV status of their UAI partners. As would be expected with a bar-based sample, most at risk men had met partners in a bar or club in the previous 12 months. However, over a third had also met a partner on the Internet and over half reported using Internet (gay) chat rooms in the previous month. The Internet's growth as a setting for social and sexual networking is unparalleled in recent years, and it is now frequently reported as a source of sexual partners by MSM.[19] This was also true of the men at risk of HIV in our Report. Sexual behaviours were generally similar in Glasgow and Edinburgh, but higher proportions of at risk men in Edinburgh reported meeting a sexual partner at a sauna.

Across time, the findings in this Report are comparable to those we and others have reported elsewhere; sexual risk behaviour has plateaued at the high level it increased to in 2000.[8-9] Among men at high risk of HIV, the only behavioural change evident between 2005 and 2010 was an increase in the proportions reporting knowledge of their UAI partners' HIV status. We previously reported that this increased between 1996 and 2002, but with no corresponding increase in HIV testing at that time, we concluded that it was more likely there had actually been an increase in assumptions of partners' HIV status.[20] With increases in HIV testing since then,[6] we could assume there have been parallel increases in accurate knowledge of one's own

(and therefore one's partners') HIV status. However, the propensity for gay men to assume rather than to discuss HIV status has been reported on elsewhere,[21] and warrants further investigation.

HIV-positive men were engaging more frequently in sexual risk behaviours than HIV-negative men, who in turn were more active than the untested group. This parallels findings we have reported previously,[13] and highlights the need to include all men in HIV prevention efforts. HIV-positive men were more likely to report higher numbers of sexual, anal and UAI partners in the previous 12 months than HIV-negative or untested men, but there were no differences in knowledge of UAI partners' HIV status. Although the risk of HIV transmission might be reduced for HIV-positive MSM whose infection is well controlled, risk of acquiring and transmitting other STIs and hepatitis C remains a concern.[1]

HIV-positive men were also more likely to have met a partner at an outdoor cruising area and at saunas or backrooms than HIV-negative or untested men, and there could be a need to consider targeted interventions for sex on premises venues and cruising areas. Overall, men surveyed in saunas reported greater sexual, oral and anal partners than men surveyed in bars, but there were no differences in sexual risk behaviours (UAI with multiple, casual or unknown HIV status partners). Sauna respondents were also much more likely to have met a partner over the Internet (70.6% compared with 36.8% of the bar sample). When compared with the rest of the sample (2005 only), at risk men who had met a sexual partner through saunas/backrooms, chat lines/personal ads, private parties, and/or outdoor cruising areas were no more likely to report HIV testing, but were more likely to have had an STI in the previous 12 months.

A third of at risk men had never had an HIV test, while just under half had tested in the previous 12 months, the minimum recommended frequency.[1] A similar proportion reported having had an STI test in the same time period, and almost one in five reported having an STI during that time. There were no differences in recent HIV testing (or STI testing and experience) between Glasgow and Edinburgh, but men surveyed in Glasgow were more likely to have never had an HIV test. The European MSM Internet Survey (EMIS) reported that rates of STI testing in the previous 12 months ranged from 15% in Slovakia to 53% in the Netherlands (44% in the UK).[22] In Scotland, STI screening every 6-12 months for MSM at ongoing risk is advised,[14] while the British Association of Sexual Health and HIV Guidelines, currently under consultation, recommend testing up to every three months for people at high risk.[23] There is evidently some way to go to reach these recommended levels.

As with sexual activity, STI testing was higher among HIV-positive than HIV-negative and untested men and almost half reported having had an STI in the previous 12 months (compared to one in five HIV-negative and one in ten untested men). Higher rate of STIs among HIV-positive men may be a product of the greater frequency with which they engage in sexual risk behaviour or simply a product of their higher testing rates. Although men may be employing sexual risk reduction strategies not examined here, the risk behaviours of HIV-positive men in this sample does leave them open to the possibility of infection with other strains of HIV and other STIs.[7] This deserves further attention.

Demographically, the third of at risk men never tested for HIV were younger and more likely to live in the rest of Scotland, and less likely to live in Edinburgh than men who had had an HIV test. They also went out on the gay scene less frequently. Untested men engaged in sexual behaviour with markedly few partners than tested men and were less likely to engage in sexual risk behaviour or have met sexual partners on the Internet, or in saunas, backrooms or outdoor cruising areas. They were more likely to report knowing their UAI partners' HIV status (even though they did not possess accurate knowledge of their own HIV status by means of having had a test). As noted above, further interrogation of at risk men's assumptions and disclosure of HIV status is warranted. Only one in ten untested men reported having had an STI test in the previous 12 months, and a similar proportion reported having had an STI in the same timeframe. This does suggest that HIV and STI testing could essentially be one and the same behaviour and could be promoted as such.

There have been marked increases in HIV testing across the surveys among at risk men (the proportion tested in the previous 12 months increased from 34.8% in 2005 to 54.3% in 2010). As we have already reported, this is indicative of the success of the opt-out HIV testing policy now in place.[6] There was no similar change in STI testing for at risk men (between 2008 and 2010). In contrast, when we examined STI testing among the complete 2008 and 2010 samples, we did find evidence of an increase in STI testing.[18] It is worrying that this increase is not evident among at risk men, who by virtue of being at risk of HIV will be at risk of other STIs. Self-reported STIs did vary across time and were reported by one in five at risk men in 2010 (this compares to just over one in ten in the overall sample[18]). Although means of STI transmission could be more varied (e.g. possibly, or more frequently, via oral sex) than HIV transmission, frequent STI testing would be recommended.

Health improvement interventions did appear to be reaching the men at risk, with most having received free condoms; two fifths had picked up a sexual health leaflet in a bar, club or sauna and almost a third had looked for safer sex or sexual health information on the Internet. This is comparable to findings we reported previously.[24] On a positive note, HIV-positive men were the most likely to have had contact with health improvement interventions, particularly counselling use (30.8% of HIV-positive men reported counselling, compared with 11.9% of HIV-negative and 6.3% of untested men). It is possible that this reflects their contact with services, and counselling received as part of their HIV care, but does demonstrate that further opportunity for intervention exists.

6. LIMITATIONS

It is important to note that only men who visited the venues surveyed had the opportunity to participate and caution should be taken when generalising to wider populations of MSM. Our definition of high risk for HIV was based on self-reported UAI behaviours; specifically the number and type of partners. UAI is known to present the greatest risk of HIV transmission for MSM,[7] but risk could be affected by the frequency of sexual acts, for which we do not have data. Risk could also be affected by the adoption of risk reduction strategies,[7] which are not explored in depth here. However, note that elsewhere we have reported there is limited uptake of such strategies among MSM in Scotland.[25] Comparison of the 2005, 2008 and 2010 surveys revealed a high degree of continuity across time, with a few exceptions. It is important to note that these changes are observed at the community level, and not within specific individuals, and, as the results are descriptive, they do not control for any demographic differences between the surveys. Finally, the cross-sectional nature of the data precludes any analysis of causality, but they do provide markers of, and trends in, the level of risk of HIV transmission and acquisition in order to identify men at potentially greater need of further sexual health promotion.[1]

7. IMPLICATIONS FOR SEXUAL HEALTH IMPROVEMENT AND SERVICE DELIVERY

Planning HIV prevention activities should be based on understanding patterns and risks for HIV transmission at a population level.[26] This Report presents a clear demographic and behavioural profile of men at high risk of HIV, thereby demonstrating where appropriate HIV prevention and sexual health improvement interventions might best be targeted. The differences between Glasgow and Edinburgh noted above could facilitate the tailoring of interventions to local populations. These differences are slight though, and we would suggest that all of the findings, and the following recommendations, are relevant to both Boards. There were clear differences between HIV-positive, HIV-negative and untested men at risk of HIV, and while in general, HIV prevention should include all three groups, interventions could and should be tailored to the specific needs of each.

By means of definition, sexual risk behaviour was high among at risk men and it is clear that reductions in such behaviours should continue to be a focus for intervention. Such interventions should target those locales and situations where and when men meet their sexual partners. While traditional locales are still relevant (as would be expected in a bar-based sample, eight out of ten men had met a partner at a bar or a club in the previous 12 months), over a third of the men (in 2005) reported meeting partners on the Internet. The Internet's potential as a site for sexual health intervention has been well recognised and it was a significant source of safer sex and sexual health information as well among the at risk men we surveyed. Such findings support Internet-based interventions (such as the Scottish Netreach Project), but there is limited evidence of their success.[27-28] Such interventions will likely need to evolve and adapt as Internet usage patterns change, and the impact of the emergence of mobile net applications, such as 'Grindr', is assessed. Sex on premises venues and outdoor cruising areas were a particular locale for HIV-positive men to meet partners, and as such could be considered for specifically targeted interventions.

HIV testing, and STI screening more generally, have to remain central to sexual health improvement. Testing rates have increased considerably in recent years and now compare more favourably to our international counterparts, but it is evident that more must be done to meet the minimum testing levels recommended for MSM at high risk. Though much of the increase in testing can probably be attributed to the introduction of the opt-out testing policy, the potential role of health improvement campaigns, such as the HIV Comeback Tour and Make Your Position Clear should not be underestimated.[5, 17-18] Such social marketing and mass media campaigns should continue, to ensure continued community engagement and support as well as encourage uptake of services. Consideration should also be given to initiating recall systems for high risk men who test positive for STIs; two recent studies have reported such systems can increase re-testing and the identification of incident infections.[29-30] Equally the use of venue based testing (and as noted above, including those places and spaces in which men meet for sex) should be encouraged.[31]

It is encouraging that health improvement interventions appeared to reach the men at risk. Accessing free condoms was by far the most commonly reported of all the interventions measured and is a key prevention activity that should continue. As well as being central to HIV prevention, the effective reach of this channel affords an opportunity for other interventions to 'piggy-back' on to it. HIV-positive men were the most likely to have had contact with health improvement interventions; possibly reflecting their contact with services, but the opportunity for further intervention (and not just with HIV-positive men) is apparent. Regular and frequent sexual health screens present secondary opportunities for first, HIV testing, and second, HIV prevention (through, for example, risk reduction counselling provided by Sexual Health Advisors). Sufficient review level evidence suggests that individual, group and community level interventions can reduce sexual risk behaviour among MSM,[32-33] though such interventions would likely have to be tailored to the target audience and the Scottish context. The research presented in this Report could aid in this endeavour.

8. CONCLUSIONS

What is described above represents a combination approach to prevention,[26] and such an approach will be required to have the best chance of improving the sexual health of gay and bisexual men in Glasgow and Edinburgh. There have been unprecedented increases in HIV testing in recent years, and the possible role of health improvement interventions targeting these behaviours should not be dismissed (even though near impossible to evaluate). It is also possible that the current plateau in risk behaviour might have been very different if no intervention had occurred. However, one third of the gay and bisexual men surveyed in Glasgow and Edinburgh in 2005, 2008 and 2010 were deemed to be at high risk of HIV. These men were generally young, well educated and out on the scene (whether that be on the commercial gay scene, on the Internet, or in more diverse settings such as saunas and cruising areas). They require, and perhaps deserve, specific attention. Prevention efforts targeted at this population and located in the venues and spaces where men meet their sexual partners is recommended. Complimenting these with frequent and regular sexual health screening, and the use of this screening as an opportunity for more in-depth intervention with men at particular risk would represent a truly combination approach.

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11. APPENDICES

APPENDIX A: SUMMARY OF PARTICIPANTS

TABLE 16: ALL PARTICIPANTS: SAMPLE SIZE

	N	%
2005	1,744	*42.7*
2008	1,514	*37.1*
2010	822	*20.1*
Total	**4080**	***100%***

TABLE 17: ALL PARTICIPANTS: RISK STATUS

	Not at high risk (N=2,599)		At risk (N=1,271)		Total participants		
	N	%	N	%	N	**%**	P-value
2005	1179	*68.3*	546	*31.7*	1725	*100.0*	0.117
2008	907	*67.4*	439	*32.6*	1346	*100.0*	
2010	513	*64.2*	286	*35.8*	799	*100.0*	
Total	**2,599**		**1,271**		**3,870**		

Total= 4080 (Valid= 3870 Missing cases= 210 (5.1%))

TABLE 18: ALL PARTICIPANTS: RISK STATUS BY LOCATION (2005 & 2008 ONLY)

	Not at high risk (N=2086)		At risk (N=985)		Total		
	N	%	N	%	N	%	p-value
Edinburgh	931	*71.5*	371	*28.5*	1302	*100.0*	<0.001 [V]
Glasgow	1155	*65.3*	614	*34.7*	1769	*100.0*	

TABLE 19: AT RISK MEN: HIV STATUS

	HIV+ (N=47)		HIV- (N=746)		Untested/Don't know (N=441)		Total participants		
	N	%	N	%	N	**%**	N	%	p-value
2005	20	*3.8*	268	*50.6*	242	*45.7*	530	*100.0*	<0.001 [V]
2008	15	*3.5*	290	*67.3*	126	*29.2*	431	*100.0*	
2010	12	*4.4*	188	*68.9*	73	*26.7*	273	*100.0*	
Total	47	*3.8*	746	*60.5*	441	*35.7*	1234	*100.0*	

Total= 1271 (Valid= 1234 Missing cases= 37 (2.9%))

TABLE 20: HIV TESTING AMONG MEN AT HIGH RISK OF HIV (N = 677), EXCLUDING HIV-POSITIVE MEN (2008 & 2010 ONLY)

	N	%
In last 6 months	257	*38.0*
Between 6 months and 1 year	101	*14.9*
Between 1 and 5 years ago	106	*15.7*
Over 5 years ago	31	*4.6*
Never tested	182	*26.9*

TABLE 21: AT RISK MEN: HIV SALIVA TEST RESULT[1] OF UNTESTED MEN (N=345) (2005 & 2008 ONLY)

	N	%
Negative	281	*99.6*
Positive	1	*0.4*
Total	**282**	***100.0***

[1] Response rate for saliva test: 81.7% (N=282)

TABLE 22: AT RISK MEN: LOCATION

	Edinburgh (N=371)		Glasgow (N=900)	
	N	%	N	%
2005	210	*38.5*	336	*61.5*
2008	161	*36.7*	278	*63.3*
2010	0	*0.0*	286	*100.0*

Total= 1271

TABLE 23: LOCATION BY RISK STATUS AND POSTCODE RECORDED

	Not high risk (N=2,599)		At risk (N=1271)		
	N	%	N	%	p-value
Rest of Scotland	378	*62.3*	229	*37.7*	<0.001 [V]
Edinburgh	733	*72.1*	284	*27.9*	
Glasgow	1,169	*65.7*	609	*34.3*	
Rest of UK	142	*72.1*	55	*27.9*	
Total	**2,422**	***67.3***	**1,177**	***32.7***	

Total= 1271

APPENDIX B: AT RISK VS. NOT AT RISK MEN

TABLE 24: DEMOGRAPHICS CHARACTERISTICS BY RISK STATUS

	Not high risk (N=2599)		At risk (N=1271)		
AGE GROUP	N	*%*	N	*%*	P –value
<25	584	*23.1*	391	*31.7*	<0.001 [V]
25-34	790	*31.3*	439	*35.6*	
35-44	787	*31.1*	277	*22.4*	
45+	367	*14.5*	127	*10.3*	
WORK STATUS					
Employed or self-employed	2097	*82.5*	1024	*83.0*	0.692
Unemployed, student, retired	446	*17.5*	210	*17.0*	
QUALIFICATION					
Secondary	423	*17.8*	225	*19.5*	<0.001 [V]
Further/vocational	842	*35.4*	512	*44.5*	
Degree/post graduate	1112	*46.8*	414	*36.0*	
SOCIAL CLASS (2005 ONLY)					
I, II & IIIN	749	*77.6*	354	*76.8*	0.772
IIIM, IV & V	216	*22.4*	107	*23.2*	
POSTCODE (2005 & 2008 ONLY)					
Rest of Scotland	296	*15.3*	174	*19.1*	0.003 [V]
Edinburgh	724	*37.4*	283	*31.0*	
Glasgow	805	*41.6*	408	*44.7*	
Rest of UK	110	*5.7*	47	*5.2*	
ETHNICITY (2008 ONLY)					
White	882	*97.5*	417	*95.4*	0.047 [V]
Other	23	*2.5*	20	*4.6*	
SEXUAL ORIENTATION (2008 ONLY)					
Gay	753	*83.5*	412	*94.5*	<0.001 [V]
Bisexual	92	*10.2*	22	*5.0*	
Straight	57	*6.3*	2	*0.5*	
FREQUENCY OF GAY SCENE USE					
Once a month or less	520	*20.7*	201	*16.2*	<0.001 [V]
2-3 times a month	826	*32.9*	361	*29.1*	
1-2 times a week	841	*33.5*	455	*36.7*	
4-5 times a week	324	*12.9*	224	*18.0*	
GAY SCENE USE IN THE PREVIOUS MONTH (2008 ONLY)					
Bars	880	*97.0*	434	*98.9*	0.038 [V]
Clubs or club nights	594	*65.5*	357	*81.3*	<0.001 [V]
Internet chat rooms	384	*42.3*	237	*54.0*	<0.001 [V]
Saunas	195	*21.5*	111	*25.3*	0.120
Cruising areas	101	*11.1*	60	*13.7*	0.180

V= Valid result, NV= Non-valid result

APPENDIX C: HIV STATUS

TABLE 25: DEMOGRAPHICS CHARACTERISTICS OF MEN AT HIGH RISK OF HIV BY HIV STATUS

	HIV+ (N=47)		HIV- (N=746)		Untested/Don't know (N=441)		
AGE GROUP	N	*%*	N	*%*	N	*%*	*P*-value
<25	6	*13.0*	200	*27.5*	182	*42.2*	<0.001 [V]
25-34	17	*37.0*	283	*39.0*	124	*28.8*	
35-44	16	*34.8*	172	*23.7*	82	*19.0*	
45+	7	*15.2*	71	*9.8*	43	*10.0*	
EMPLOYMENT STATUS							
Employed or self-employed	36	*83.7*	610	*84.0*	352	*81.3*	0.485
Unemployed, student, retired	7	*16.3*	116	*16.0*	81	*18.7*	
QUALIFICATIONS							
Secondary	7	*17.1*	117	*17.1*	93	*23.4*	0.083
Further/vocational	20	*48.8*	304	*44.3*	175	*44.1*	
Degree/post graduate	14	*34.1*	265	*38.6*	129	*32.5*	
SOCIAL CLASS (2005 ONLY)							
I, II & IIIN	14	*87.5*	183	*78.5*	153	*75.4*	0.452
IIIM, IV & V	2	*12.5*	50	*21.5*	50	*24.6*	
POSTCODE RECODED (2005 & 2008 ONLY)							
Rest of Scotland	2	*6.3*	85	*16.6*	83	*23.8*	0.009 [V]
Edinburgh	16	*50.0*	169	*33.0*	92	*26.4*	
Glasgow	11	*34.4*	232	*45.3*	156	*44.7*	
Rest of UK	3	*9.4*	26	*5.1*	18	*5.2*	
ETHNICITY (2008 ONLY)							
White	13	*92.9*	274	*94.8*	122	*96.8*	0.606
Other	1	*7.1*	15	*5.2*	4	*3.2*	
SEXUAL ORIENTATION (2008 ONLY)							
Gay	15	*100.0*	276	*95.8*	113	*90.4*	0.216
Bisexual	0	*0.0*	11	*3.8*	11	*8.8*	
Straight	0	*0.0*	1	*0.3*	1	*0.8*	
FREQUENCY OF GAY SCENE USE							
Once a month or less	7	*14.9*	116	*15.9*	74	*17.0*	0.202
2-3 times a month	15	*31.9*	196	*26.9*	144	*33.1*	
1-2 times a week	20	*42.6*	280	*38.5*	143	*32.9*	
4-5 times a week	5	*10.6*	136	*18.7*	74	*17.0*	
GAY SCENE USE IN THE PREVIOUS MONTH (2008 ONLY)							
Bar	15	*100*	285	*98.3*	126	*100*	0.292
Club or club nights	13	*86.7*	235	*81.0*	106	*84.1*	0.674
Internet chat rooms	10	*66.7*	169	*58.3*	57	*45.2*	0.031 [V]
Saunas	6	*40.0*	88	*30.3*	14	*11.1*	<0.001 [V]
Cruising areas	5	*33.3*	46	*15.9*	8	*6.3*	0.003 [V]

V= Valid result, NV= Non-valid result

TABLE 26: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV BY HIV STATUS (2005 & 2008)

	HIV+ (N=35)		HIV- (N=558)		Untested/DK (N=368)		
	N	%	N	%	N	%	P-value
CURRENTLY IN A RELATIONSHIP WITH A MAN							
Yes	18	51.4	237	42.8	198	54.2	0.003 [V]
No	17	48.6	317	57.2	167	45.8	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIPS)							
Less than 1 year	3	18.8	51	28.2	45	26.3	0.341
1 to 3 years	4	25.0	42	23.2	55	32.2	
3 years +	9	56.3	88	48.6	71	41.5	
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIPS; 2005)							
HIV+	5	50.0	5	4.8	1	0.8	<0.001 [NV]
HIV-	5	50.0	68	65.4	66	52.8	
Don't Know	0	0.0	31	29.8	58	46.4	

V= Valid result, NV= Non-valid result

TABLE 27: HIV TESTING AMONG MEN AT HIGH RISK OF HIV BY HIV STATUS

	HIV+ (N=47)		HIV- (N=746)		Untested/DK (N=441)		
HIV TEST IN PREVIOUS 12 MONTHS	N	*%*	N	*%*	N	*%*	P-value
No	19	*44.2*	218	*29.7*	428	*97.1*	<0.001 [V]
Yes	24	*55.8*	516	*70.3*	13	*2.9*	

V= Valid result, NV= Non-valid result

TABLE 28: PERCEIVED HIV STATUS OF MEN AT RISK WHO HAVE NEVER TESTED FOR HIV

	At Risk & Untested (N=415)	
PERCEIVED HIV STATUS	N	*%*
HIV+	13	*3.1*
HIV-	272	*65.9*
Don't know	128	*31.0*

APPENDIX D: GLASGOW VS. EDINBURGH

TABLE 29: DEMOGRAPHIC CHARACTERISTICS OF MEN AT HIGH RISK OF HIV (2005 & 2008 ONLY)

	Edinburgh (N=371)		Glasgow (N=614)		
AGE GROUP	N	*%*	N	*%*	P-value
<25	87	*24.2*	214	*35.8*	<0.001 [V]
25-34	128	*35.6*	213	*35.7*	
35-44	100	*27.8*	120	*20.1*	
45+	45	*12.5*	50	*8.4*	
EMPLOYMENT STATUS					
Employed or self-employed	300	*83.6*	505	*84.4*	0.718
Unemployed, student, retired	59	*16.4*	93	*15.6*	
QUALIFICATIONS					
Secondary	70	*21.0*	111	*20.4*	0.002 [V]
Further/vocational	119	*35.7*	256	*47.1*	
Degree/post graduate	144	*43.2*	177	*32.5*	
SOCIAL CLASS (2005 ONLY)					
I, II & IIIN	144	*80.9*	210	*74.2*	0.097
IIIM, IV & V	34	*19.1*	73	*25.8*	
POSTCODE RECODED					
Rest of Scotland	38	*11.4*	136	*23.5*	<0.001 [V]
Edinburgh	262	*78.4*	21	*3.6*	
Glasgow	10	*3.0*	398	*68.9*	
Rest of UK	24	*7.2*	23	*4.0*	
ETHNICITY (2008 ONLY)					
White	147	*91.9*	270	*97.5*	0.007 [V]
Other	13	*8.1*	7	*2.5*	
SEXUAL ORIENTATION (2008 ONLY)					
Gay	150	*94.9*	262	*94.2*	0.117
Bisexual	6	*3.8*	16	*5.8*	
Straight	2	*1.3*	0	*0.0*	
FREQUENCY OF GAY SCENE USE					
Once month or less	63	*17.4*	75	*12.5*	0.003 [V]
2-3 times a month	112	*30.9*	168	*28.0*	
1-2 times a week	109	*30.1*	250	*41.6*	
4-5 times a week	78	*21.5*	108	*18.0*	
GAY SCENE USE IN THE PREVIOUS MONTH (2008 ONLY)					
Bar	161	*100.0*	273	*98.2*	0.087
Club or club nights	126	*78.3*	231	*83.1*	0.211
Internet chat rooms	96	*59.6*	141	*50.7*	0.071
Saunas	44	*27.3*	67	*24.1*	0.453
Cruising areas	26	*16.1*	34	*12.2*	0.249

V= Valid result, NV= Non-valid result

TABLE 30: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV BY LOCATION (2005 & 2008)

	Edinburgh (N=371)		Glasgow (N=614)		
CURRENTLY IN A RELATIONSHIP WITH A MAN	N	%	N	%	P-value
Yes	163	44.5	301	49.3	0.145
No	203	55.5	309	50.7	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIPS)					
Less than 1 year	30	22.9	69	28.5	0.172
1 to 3 years	32	24.4	70	28.9	
3 years +	69	52.7	103	42.6	
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIPS; 2005 ONLY)					
HIV+	6	7.0	5	3.1	0.098
HIV-	54	62.8	88	54.7	
Don't Know	26	30.2	68	42.2	

V= Valid result, NV= Non-valid result

TABLE 31: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV BY LOCATION (2005 & 2008)

	Edinburgh (N=371)		Glasgow (N=614)		
NUMBER OF SEXUAL PARTNERS	N	*%*	N	*%*	P-value
1 partner	65	*17.9*	106	*17.4*	0.055
2-10 partners	173	*47.5*	333	*54.8*	
11+ partners	126	*34.6*	169	*27.8*	
NUMBER OF ORAL SEX PARTNERS (2008 ONLY)					
0-1 partners	37	*23.1*	66	*24.6*	0.913
2-10 partners	80	*50.0*	134	*50.0*	
11+ partners	43	*26.9*	68	*25.4*	
NUMBER OF ANAL INTERCOURSE PARTNERS					
1 partner	105	*28.8*	171	*28.0*	0.037 [V]
2-10 partners	194	*53.3*	364	*59.7*	
11+ partners	65	*17.9*	75	*12.3*	
NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS					
1 partner	203	*55.6*	361	*59.2*	0.275
2+ partners	162	*44.4*	249	*40.8*	
UAI WITH A CASUAL PARTNER					
No	128	*34.5*	226	*36.8*	0.365
Yes	243	*65.5*	388	*63.2*	
ALWAYS KNEW UAI PARTNERS' HIV STATUS					
No	246	*68.9*	410	*68.7*	0.941
Yes	111	*31.1*	187	*31.3*	

SEXUAL POSITION FOR UAI (2008 ONLY)					
Always/mostly insertive	52	*32.7*	88	*32.2*	0.992
Equally either insertive or receptive	67	*42.1*	115	*42.1*	
Always/mostly receptive	40	*25.2*	70	*25.6*	
LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS, 2005)					
Bar/club	152	*77.6*	253	*83.0*	0.134
Internet	77	*39.3*	113	*37.0*	0.615
Private party/friends	72	*36.7*	96	*31.5*	0.224
Sauna/backroom	57	*29.1*	61	*20.0*	0.019 [V]
Work/college	35	*17.9*	63	*20.7*	0.441
Outdoor cruising area	31	*15.8*	41	*13.4*	0.460
Chat line/personal ads	20	*10.2*	36	*11.8*	0.579
Other	8	*4.1*	7	*2.3*	0.252

V= Valid result, NV= Non-valid result

TABLE 32: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV BY LOCATION (2005 & 2008 ONLY)

	Edinburgh (N=355)		**Glasgow (N=599)**		
	N	*%*	N	*%*	P-value
EVER HAD HIV TEST (EXCLUDING HIV-POSITIVE MEN)					
No	115	*33.6*	230	*39.4*	0.082
Yes	227	*66.4*	354	*60.6*	
MOST RECENT HIV TEST (EXCL. HIV-POSITIVE MEN)					
In last year	143	*42.7*	244	*42.1*	0.019 [V]
1-5 years ago	47	*14.0*	82	*14.0*	
Over 5 years ago	30	*9.0*	27	*4.1*	
Never tested	115	*34.3*	230	*39.7*	
STI TEST IN PREVIOUS 12 MONTHS (2008 ONLY)					
No	79	*49.7*	139	*50.5*	0.863
Yes	80	*50.3*	136	*49.5*	
STI IN PREVIOUS 12 MONTHS					
No	301	*82.2*	503	*83.3*	0.677
Yes	65	*17.8*	101	*16.7*	
TYPE OF STI					
Gonorrhoea	23	*35.4*	29	*28.7*	0.366
Chlamydia	24	*36.9*	31	*30.7*	0.405
Syphilis	14	*21.5*	16	*15.8*	0.352
Other STI	27	*41.5*	39	*38.6*	0.707

V= Valid result, NV= Non-valid result

TABLE 33: UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV BY LOCATION (2008 ONLY)

	Edinburgh (N=161)		Glasgow (N=278)		
	N	%	N	%	P-value
Any sexual health contact in last 12 months	135	85.4	233	86.0	0.878
Got free condoms from bar/club/sauna/Internet	117	75.0	213	79.5	0.284
Picked up sexual health leaflets in bar/club/sauna	70	45.8	115	43.4	0.640
Looked for safer sex/sexual health info on Internet	48	32.2	93	35.9	0.450
Talked to outreach worker in bar/club/sauna	26	17.3	44	17.1	0.943
Went to sexual health or HIV one to one or group counselling	19	12.6	22	8.4	0.175

V= Valid result, NV= Non-valid result

APPENDIX E: ACROSS TIME

TABLE 34: DEMOGRAPHIC CHARACTERISTICS OF MEN AT HIGH RISK OF HIV BY TIME

	2005 (N=546)		2008 (N=439)		2010 (N=286)		
AGE GROUP	N	*%*	N	*%*	N	*%*	*P*-value
<25	163	*31.2*	138	*31.7*	90	*32.5*	0.876
25-34	189	*36.2*	152	*34.9*	98	*35.4*	
35-44	123	*23.6*	97	*22.3*	57	*20.6*	
45+	47	*9.0*	48	*11.0*	32	*11.6*	
EMPLOYMENT STATUS							
Employed or self-employed	439	*84.1*	366	*84.1*	219	*79.1*	0.143
Unemployed, student, retired	83	*15.9*	69	*15.9*	58	*20.9*	
QUALIFICATIONS							
Secondary	106	*22.1*	75	*18.8*	44	*16.1*	0.125
Further/vocational	206	*43.0*	169	*42.5*	137	*50.0*	
Degree/post graduate	167	*34.9*	154	*38.7*	93	*33.9*	
POSTCODE RECODED (2005 & 2008)							
Rest of Scotland	93	*18.9*	81	*19.3*			0.888
Edinburgh	152	*30.9*	131	*31.2*			
Glasgow	219	*44.5*	189	*45.0*			
Rest of UK	28	*5.7*	19	*4.5*			
FREQUENCY OF GAY SCENE USE							
Once month or less	58	*10.8*	80	*18.8*	63	*22.7*	<0.001 [V]
2-3 times a month	156	*29.0*	124	*29.2*	81	*29.1*	
1-2 times a week	215	*40.0*	144	*33.9*	96	*34.5*	
4-5 times a week	109	*20.3*	77	*18.1*	38	*13.7*	

V= Valid result, NV= Non-valid result

TABLE 35: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV BY TIME (2005 & 2008 ONLY)

	2005 (N=546)		2008 (N=439)		
CURRENTLY IN A RELATIONSHIP WITH A MAN	N	*%*	N	*%*	P-value
Yes	254	*47.0*	210	*48.2*	0.726
No	286	*53.0*	226	*51.8*	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIPS)					
Less than 1 year	78	*34.7*	21	*14.2*	<0.001 [V]
1 to 3 years	63	*28.0*	39	*26.4*	
3 years +	84	*37.3*	88	*59.5*	

V= Valid result, NV= Non-valid result

TABLE 36: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG AT MEN AT HIGH RISK OF HIV

	2005 (N=546)		2008 (N=439)		2010 (N=286)		
NUMBER OF SEXUAL PARTNERS	N	*%*	N	*%*	N	*%*	P-value
1 partner	84	*15.7*	87	*20.0*	47	*17.3*	0.214
2-10 partners	275	*51.3*	231	*53.0*	146	*53.9*	
11+ partners	177	*33.0*	118	*27.1*	78	*28.8*	
NUMBER OF ANAL INTERCOURSE PARTNERS							
1 partner	136	*25.4*	140	*32.0*	78	*27.4*	0.134
2-10 partners	313	*58.4*	245	*55.9*	163	*57.2*	
11+ partners	87	*16.2*	53	*12.1*	44	*15.4*	
NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS							
1 partner	300	*56.0*	264	*60.1*	161	*56.5*	0.391
2+ partners	236	*44.0*	175	*39.9*	124	*43.5*	
UAI WITH A CASUAL PARTNER							
No	205	*37.5*	149	*33.9*	103	*36.0*	0.503
Yes	341	*62.5*	290	*66.1*	183	*64.0*	
ALWAYS KNEW UAI PARTNERS' HIV STATUS							
No	363	*69.5*	293	*67.8*	172	*61.0*	0.044 [V]
Yes	159	*30.5*	139	*32.2*	110	*39.0*	

V=Valid result, NV= Non-valid result

TABLE 37: SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV BY TIME

	2005 (N=510)		2008 (N=416)		2010 (N=261)		
	N	%	N	%	N	%	P-value
HIV TEST IN PREVIOUS 12 MONTHS (EXCLUDING HIV POSITIVE MEN)							
No	327	*65.7*	200	*48.1*	119	*45.6*	<0.001 [V]
Yes	171	*34.3*	216	*51.9*	142	*54.4*	
MOST RECENT HIV TEST (EXCLUDING HIV POSITIVE MEN)							
In last year	171	*34.3*	216	*47.0*	142	*54.4*	<0.001 [V]
1-5 years ago	63	*12.7*	65	*17.9*	41	*15.7*	
Over 5 years ago	31	*6.2*	23	*7.9*	8	*3.1*	
Never tested	233	*46.8*	112	*27.2*	70	*26.8*	
STI TEST IN PREVIOUS 12 MONTHS (2008 & 2010)							
No			218	*50.2*	125	*45.1*	0.184
Yes			216	*49.8*	152	*54.9*	
STI IN PREVIOUS 12 MONTHS							
No	425	*79.4*	379	*87.1*	216	*78.8*	0.003 [V]
Yes	110	*20.6*	56	*12.9*	58	*21.2*	
TYPE OF STI (2005 &2008)							
Gonorrhea	34	*30.9*	18	*32.1*			0.871
Chlamydia	34	*30.9*	21	*37.5*			0.394
Syphilis	20	*18.2*	10	*17.9*			0.959
Other STI	49	*44.5*	17	*30.4*			0.077

V= Valid result, NV= Non-valid result

TABLE 38: UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV BY TIME (2008 & 2010 ONLY)

	2008 (N=439)		2010 (N=286)		
	N	%	N	%	P-value
Any sexual health contact in last 12	368	85.8	238	87.2	0.599
Got free condoms from bar/club/sauna/Internet	330	77.8	221	81.0	0.323
Picked up sexual health leaflets in bar/club/sauna	185	44.3	110	40.0	0.267
Looked for safer sex/sexual health info on Internet	141	34.6	104	38.1	0.346
Talked to outreach worker in bar/club/sauna	70	17.2	58	21.2	0.181
Went to sexual health or HIV one to one or group counselling	41	10.0	35	12.9	0.228

V= Valid result, NV= Non-valid result

APPENDIX F: SUB-SAMPLE I: COMPARISON OF AT RISK MEN WHO HAD NEVER HAD HIV TEST AND TESTED MEN

TABLE 39: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV: NEVER VS. EVER TESTED MEN (2005 & 2008 ONLY)

	Never tested (N=415)		Been tested (N=836)		
	N	%	N	%	P-value
CURRENTLY IN A RELATIONSHIP WITH A MAN					
Yes	454	*48.4*	10	*26.3*	0.008 [V]
No	484	*51.6*	28	*73.7*	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIP)					
Less than 1 year	98	*26.8*	1	*14.3*	0.398
1 to 3 years	101	*27.6*	1	*14.3*	
3 years +	167	*45.6*	5	*71.4*	
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIP; 2005 ONLY)					
HIV+	11	*4.6*	0	*0.0*	0.693
HIV-	137	*57.1*	5	*71.4*	
Don't Know	92	*38.3*	2	*28.6*	

V= Valid result, NV= Non-valid result

TABLE 40: UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV: NEVER VS. EVER TESTED MEN (2008 & 2010 ONLY)

	Never tested (N=415)		Been tested (N=836)		
	N	%	N	%	P-value
Any health improvement intervention contact	141	*79.2*	460	*88.6*	0.002 [V]
Got free condoms from bar/club/sauna/Internet	132	*75.0*	416	*80.6*	0.113
Picked up sexual health leaflets in bar/club/sauna	60	*33.7*	232	*45.6*	0.006 [V]
Looked for safer sex/sexual health information on Internet	55	*30.9*	190	*38.1*	0.087
Talked to outreach worker in bar/club/sauna	19	*10.7*	109	*21.8*	0.001 [V]
Went to sexual health or HIV one to one or group counselling	12	*6.9*	62	*12.3*	0.046 [V]

V= Valid result, NV= Non-valid result

APPENDIX G: SUB-SAMPLE II: MEN WHO HAVE MET PARTNER THROUGH SAUNAS/BACKROOMS, CHAT LINES/PERSONAL ADS, PRIVATE PARTIES, OR CRUISING AREA

TABLE 41: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV: VENUE SUB-SAMPLE VS. THE REST OF MEN AT HIGH RISK OF HIV (2005 ONLY)

	At risk sub-sample (N=256)		Rest of at risk men (N=245)		
	N	%	N	%	P-value
CURRENTLY IN A RELATIONSHIP WITH A MAN					
Yes	92	36.4	118	48.8	0.005 [V]
No	161	63.6	124	51.2	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIP)					
Less than 1 year	37	44.6	41	41.4	0.882
1 to 3 years	21	25.3	25	25.3	
3 years +	25	30.1	33	33.3	
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIP; 2005 ONLY)					
HIV+	4	4.4	5	4.3	0.983
HIV-	53	58.9	67	57.8	
Don't Know	33	36.7	44	37.9	

V= Valid result, NV= Non-valid result

TABLE 42: SEXUAL BEHAVIOUR IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV: VENUE SUB-SAMPLE VS. THE REST OF MEN AT HIGH RISK OF HIV (2005 ONLY)

	At risk sub-sample (N=256)		Rest of at risk men (N=245)		
	N	%	N	%	P-value
NUMBER OF SEXUAL PARTNERS					
1 partner	7	2.8	37	15.5	<0.001 [V]
2-10 partners	111	43.9	159	66.8	
11+ partners	135	53.4	42	17.6	
NUMBER OF ANAL INTERCOURSE PARTNERS					
1 partner	28	11.1	67	28.2	<0.001 [V]
2-10 partners	157	62.1	152	63.9	
11+ partners	68	26.9	19	8.0	

NUMBER OF UNPROTECTED ANAL INTERCOURSE (UAI) PARTNERS					
1 partner	111	44.0	145	60.7	<0.001 [V]
2+ partners	141	56.0	94	39.3	
UAI WITH A CASUAL PARTNER					
No	79	30.9	96	39.2	0.051
Yes	177	69.1	149	60.8	
ALWAYS KNEW UAI PARTNERS' HIV STATUS					
No	177	73.1	165	69.9	0.435
Yes	65	26.9	71	30.1	
LOCATIONS FOR MEETING SEXUAL PARTNERS (AMONG MEN REPORTING NEW PARTNERS, 2005)					
Bar/club	206	80.5	199	81.2	0.830
Internet	117	45.7	73	29.8	<0.001 [V]
Private party/friends	168	65.6	0	0.0	
Sauna/backroom	118	46.1	0	0.0	
Work/college	63	24.6	35	14.3	0.004 [V]
Outdoor cruising area	72	28.1	0	0.0	
Chat line/personal ads	56	21.9	0	0.0	
Other	7	2.7	8	3.3	0.727

V= Valid result, NV= Non-valid result

APPENDIX H: SUB-SAMPLE III: COMPARISON OF BAR & SAUNA RESPONDENTS

TABLE 43: DEMOGRAPHIC CHARACTERISTICS OF MEN AT HIGH RISK OF HIV: BAR VS. SAUNA COMPARISON (2005 & 2008 ONLY)

	Bar Sample (N=947)		Sauna sample (N=38)		
	N	%	N	%	P –value
AGE GROUP					
<25	295	*32.1*	6	*16.2*	0.068
25-34	329	*35.8*	12	*32.4*	
35-44	206	*22.4*	14	*37.8*	
45+	90	*9.8*	5	*13.5*	
WORK STATUS					
Employed or self-employed	775	*84.2*	30	*81.1*	0.606
Unemployed, student, retired	145	*15.8*	7	*18.9*	
HIGHEST QUALIFICATION					
Secondary	175	*20.8*	6	*16.7*	0.400
Further/vocational	362	*43.0*	13	*36.1*	
Degree/post graduate	304	*36.1*	17	*47.2*	
SOCIAL CLASS (2005 ONLY)					
I, II & IIIN	343	*76.9*	11	*73.3*	0.747
IIIM, IV & V	103	*23.1*	4	*26.7*	
POSTCODE					
Rest of Scotland	168	*19.2*	6	*17.1*	0.073
Edinburgh	271	*30.9*	12	*34.3*	
Glasgow	396	*45.2*	12	*34.3*	
Rest of UK	42	*4.8*	5	*14.3*	
ETHNICITY (2008 ONLY)					
White	401	*96.4*	16	*76.2*	<0.001 [NV]
Other	15	*3.6*	5	*23.8*	
SEXUAL ORIENTATION (2008 ONLY)					
Gay	393	*94.7*	19	*90.5*	0.602
Bisexual	20	*4.8*	2	*9.5*	
Straight	2	*0.5*	0	*0.0*	
FREQUENCY OF GAY SCENE USE					
Once a month or less	127	*13.7*	11	*29.7*	0.010 [V]
2-3 times a month	267	*28.8*	13	*35.1*	
1-2 times a week	348	*37.6*	11	*29.7*	
4-5 times a week	184	*19.9*	2	*5.4*	

GAY SCENE USE IN THE PREVIOUS MONTH (2008)					
Bars	418	*100.0*	16	*76.2*	<0.001 [NV]
Clubs or club nights	345	*82.5*	12	*57.1*	0.004 [NV]
Internet chat rooms	222	*53.1*	15	*71.4*	0.100
Saunas	90	*21.5*	21	*100.0*	<0.001 [V]
Cruising areas	53	*12.7*	7	*33.3*	0.007 [NV]

V= Valid result, NV= Non-valid result

TABLE 44: RELATIONSHIP STATUS AMONG MEN AT HIGH RISK OF HIV: BAR VS. SAUNA COMPARISON (2005 & 2008 ONLY)

	Bar Sample (N=947)		**Sauna sample (N=38)**		
	N	*%*	N	*%*	P-value
CURRENTLY IN A RELATIONSHIP WITH A MAN					
Yes	454	*48.4*	10	*26.3*	0.008 [V]
No	484	*51.6*	28	*73.7*	
RELATIONSHIP LENGTH (AMONG MEN IN RELATIONSHIP)					
Less than 1 year	98	*26.8*	1	*14.3*	0.398
1 to 3 years	101	*27.6*	1	*14.3*	
3 years +	167	*45.6*	5	*71.4*	
KNOW REGULAR PARTNER'S HIV STATUS (AMONG MEN IN RELATIONSHIP; 2005 ONLY)					
HIV+	11	*4.6*	0	*0.0*	0.693
HIV-	137	*57.1*	5	*71.4*	
Don't Know	92	*38.3*	2	*28.6*	

V= Valid result, NV= Non-valid result

TABLE 45 SEXUAL HEALTH SERVICE USE AMONG MEN AT HIGH RISK OF HIV: BAR VS. SAUNA COMPARISON (2005 & 2008 ONLY)

	Bar Sample (N=947)		Sauna sample (N=38)		
	N	%	N	%	P-value
EVER HAD HIV TEST (EXCLUDING HIV POSITIVE MEN)					
No	340	*38.2*	5	*14.3*	0.004 [V]
Yes	551	*61.8*	30	*85.7*	
MOST RECENT HIV TEST (EXCLUDING HIV-POSITIVE MEN)					
In last year	363	*41.3*	24	*68.6*	0.003 [V]
1-5 years ago	122	*13.9*	6	*17.1*	
Over 5 years ago	54	*6.1*	0	*0.0*	
Never tested	340	*38.7*	5	*14.3*	
STI TEST IN PREVIOUS 12 MONTHS (2008 & 2010 ONLY)					
No	212	*51.3*	6	*28.6*	0.042 [V]
Yes	201	*48.7*	15	*71.4*	
STI IN PREVIOUS 12 MONTHS					
No	777	*83.3*	27	*73.0*	0.103
Yes	156	*16.7*	10	*27.0*	
TYPE OF STI (2005 & 2008 ONLY)					
Gonorrhoea	48	*30.8*	4	*40.0*	0.542
Chlamydia	51	*32.7*	4	*40.0*	0.634
Syphilis	28	*17.9*	2	*20.0*	0.870
Other STI	64	*41.0*	2	*20.0*	0.188

V= Valid result, NV= Non-valid result

TABLE 46: UPTAKE OF HEALTH IMPROVEMENT INTERVENTIONS IN THE PREVIOUS 12 MONTHS AMONG MEN AT HIGH RISK OF HIV: BAR VS. SAUNA COMPARISON (2008 ONLY)

	Bar Sample (N=947)		Sauna sample (N=38)		
	N	%	N	%	P-value
Any sexual health contact in previous 12 months	350	85.8	18	85.7	0.993
Got free condoms from bar/club/sauna/Internet	314	77.7	16	80.0	0.811
Picked up sexual health leaflets in bar/club/sauna	173	43.5	12	60.0	0.146
Looked for safer sex/sexual health info on Internet	130	33.2	11	64.7	0.008 [V]
Talked to outreach worker in bar/club/sauna	66	16.9	4	22.2	0.560
Went to sexual health or HIV one to one or group counselling	41	10.4	0	0.0	0.149

V= Valid result, NV= Non-valid result