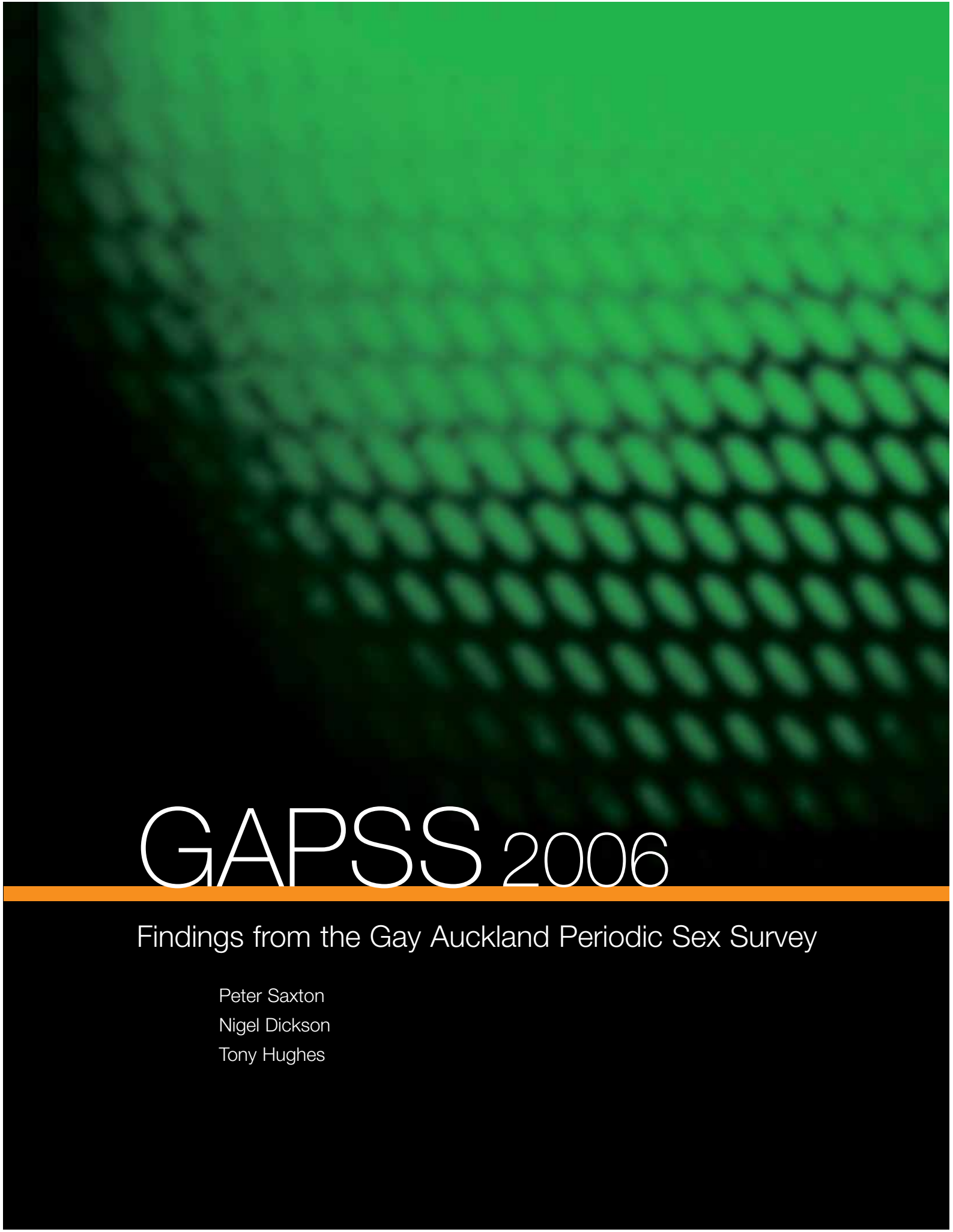

GAPSS 2006

Findings from the Gay Auckland Periodic Sex Survey

Peter Saxton
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Tony Hughes

NEW ZEALAND AIDS FOUNDATION
TE TUUAAPAPA MATE AARAIKORE O AOTEAROA

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Findings from the Gay Auckland Periodic Sex Survey

Te Rangahau Tane Ai Tane

December 2006

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GAPSS 2006

Executive summary

This report contains the basic results of the 2006 Gay Auckland Periodic Sex Survey (GAPSS) undertaken in Auckland during the week of 12th-19th February 2006. Of the 1228 men enrolled, 69.7% of the sample was recruited at the Big Gay Out fair day, 12.4% at gay bars, and 17.9% at gay saunas or sex-on-site venues.

Overview

- The overwhelming majority of respondents who participated in GAPSS 2006 had not taken part in previous GAPSS surveys. The large number of results that were very consistent across each survey therefore suggest that the data are robust for the populations sampled.

- The characteristics of men who have participated in GAPSS over the study period have changed somewhat. Either certain types of men are increasingly locating their sexual and social networking elsewhere such as the Internet (e.g. men who have high numbers of sexual partners), or this reflects actual changes in the population of MSM (e.g. men are becoming less gay community-affiliated over time) - or both.

- Men recruited at the Big Gay Out, gay bars, and gay saunas/ sex-on-site venues each display different needs, and should continue to be targeted in addition to men who are now preferentially using online dating sites.

- There has been no increase in HIV testing patterns across the sample, suggesting that the recent increase in HIV diagnoses among MSM in New Zealand is real. Some MSM report lower rates of HIV testing than others however, and should be encouraged to increase their testing levels.

- Certain attitudes to HIV and safe sex are associated with condom use. Attitudes also appear to be changing over time, and differ between MSM. Thus it is important to continue to influence attitudes through social marketing and peer-based interventions.

- Knowledge about HIV and condoms is positively associated with condom use. Knowledge also differs between MSM. Increasing men's access to knowledge about HIV and condoms is an important health promotion activity.

- Expectations that an HIV positive man will disclose his status before sex have increased between 2004 and 2006. Many MSM who report unprotected sex with a casual partner do not acknowledge this is occurring with men who could have a different HIV status to themselves.

Key Indicators and frequencies

The following summarises findings across the three surveys (2002, 2004 and 2006) as well as specific results for 2006:

First experiences of anal sex with a male (2006 respondents only)

- The modal age at which first anal sex occurred was 17, followed by 18 and 19.

- Condom use at first anal sex has increased over time before levelling off: 7.8% of men whose first anal sex occurred in 1975 had used condoms on this occasion, 81.0% of men whose first anal sex occurred in 2006 had done so.

HIV testing and HIV status

- Rates of ever having had an HIV test were stable between 2002-2006:
    - 71.1%, 72.5%, 72.2% of all respondents.

- Recent HIV testing rates (testing in the six months prior to survey) were also stable:
    - 23.9%, 25.9%, 25.8% of all respondents.

- A decreasing proportion of each sample reported that they were HIV positive:
    - 4.7%, 4.3%, 3.3% of all respondents.

Sexual relationships

- The most common number of sexual partners over the previous six months:
    - Between 2 and 5 in each of the three surveys.

- Any sex with casual or regular partners in the previous six months (2002-2006):
    - 68.2%, 71.9%, 71.8% had engaged in sex with a regular sex partner;
    - 63.9%, 63.4%, 62.9% had engaged in sex with a casual sex partner.

- Were in a regular sexual relationship with a man at the time of survey (2002-2006):
    - 49.0%, 54.8%, 54.1%.

- Description of current regular partner remained stable (2002-2006):
    - 75.4%, 75.4%, 72.6% described them as a “boyfriend, long-term lover, life partner, or husband”;
    - 20.4%, 19.2%, 21.5% described them as a “fuckbuddy”.

Knowledge about HIV and safe sex (2006 respondents only)

- 95.0% knew that “anal sex without a condom is very high risk for HIV transmission”.

- 81.0% knew that “oral sex is low risk for HIV transmission”.

- 91.2% knew that “once infected, HIV remains in your body for life”.

- 42.8% knew that “around 1 in 3 gay/bisexual men who are infected with HIV don’t know it”.

- 40.1% knew that “HIV is more easily transmitted to others in the first few weeks after infection”.

- 42.5% knew that “1 gay/bisexual man is being diagnosed with HIV in New Zealand every 4 days”.

- 60.7% knew that “the lining inside your anus (bum) can both absorb HIV and transmit HIV”.

- 79.3% knew that “HIV cannot pass through an undamaged latex condom”.

<u>Attitudes to the HIV epidemic:</u>

- “HIV/AIDS is a less serious threat than it used to be”:
    - 19.0%, 18.4%, 16.0% agreed/strongly agreed (2002-2006).

- “Condoms are OK as part of sex”:
    - 94.7%, 89.1%, 92.2% agreed/strongly agreed (2002-2006).

- “I would sometimes rather risk HIV transmission than use a condom during anal sex”:
    - 12.6%, 9.4%, 8.8% agreed/strongly agreed (2002-2006).

- “I don’t like wearing condoms because they reduce sensitivity”:
    - 40.1%, 35.1%, 30.2% agreed/strongly agreed (2002-2006).

- “A man who knows he has HIV would tell me he was positive before we had sex”:
    - 22.2%, 32.5% agreed/strongly agreed (2004-2006 only).

<u>Sex and condom use with current regular partner</u>

- Had anal sex with current regular partner in the previous six months:
    - 79.9%, 80.5%, 82.5% of those with a current regular partner (2002-2006).

- Respondents who reported *at least once* not using a condom during anal sex with their current regular partner in the previous six months:
    - 65.1%, 62.6%, 65.9% of those having anal sex with a current regular partner (2002-2006)

- Respondents recruited from gay bars, and respondents who were aged under 25, reported increasing rates of non-condom use with regular partners over time (i.e. between 2002 and 2006).

- In the 2006 sample, reporting *at least once* not using a condom with a current regular partner was higher among respondents who:
    - Were recruited at gay bars;
    - Were aged 15-24;
    - Were NZ/European/Pakeha;
    - Described their partner as a "boyfriend, etc" as opposed to a "fuckbuddy";
    - Had been in a relationship with their boyfriend for longer;
    - Whose knowledge about various aspects of HIV and condoms was lower;
    - Had last tested HIV negative and their partner had last tested HIV negative.

<u>Sex and condom use with casual partners</u>

- Had anal sex with casual partner/s in the previous six months:
    - 68.2%, 72.4%, 72.3% of those who had casual sex (2002-2006).

- Respondents who reported *at least once* not using a condom during anal sex with a casual partner/s in the previous six months:
    - 33.3%, 33.5%, 34.9% of those who had anal sex with a casual partner (2002-2006).

- Respondents recruited from gay bars, and respondents whose latest HIV test was negative, reported increasing rates of non-condom use with casual partners over time (i.e. between 2002 and 2006).

- In the 2006 sample, reporting *at least once* not using a condom during casual sex was higher among respondents who:
    - Had higher numbers of male sexual partners in the previous six months;
    - Had sex with a man whom the respondent had met online in the last six months;
    - Had higher numbers of male sexual partners who had been met online;
    - Agreed with the statement "I would sometimes rather risk HIV transmission than use a condom during anal sex".
    - Agreed with the statement "I don't like wearing condoms because they reduce sensitivity";
    - Whose knowledge about certain aspects of HIV and condoms was lower.

<u>Sexual health check-ups and sexually transmitted infections (2006 respondents only)</u>

- 43.2% had been for a sexual health check-up in the previous year.

- 8.0% reported an STI in the previous year.

Viagra and recreational drug use (2006 respondents only)

- 13.3% reported using Viagra/Cialis in the previous six months.
- 56.9% reported any drug use in the previous six months.
- The most commonly reported drugs were amyl, cannabis, ecstasy and amphetamines.

Introduction

The Gay Auckland Periodic Sex Survey (GAPSS) 2006 is the third study undertaken in Auckland as part of a regular biannual behavioural programme on HIV risk practices among men who have sex with men (MSM). GAPSS 2006 surveyed a broad cross-section of MSM about sexual practices, HIV testing and attitudes to the epidemic with a view to monitoring changes in these outcomes since the inaugural GAPSS survey in 2002. In addition, a number of new questions not asked in previous surveys were included in 2006, canvassing sexual health check-ups, sexually transmitted infections, knowledge about HIV and condoms, recreational drug use and viagra, and first experiences of anal sex with a male.

The GAPSS project consists of a conventional offline survey conducted over one week during the "Hero" gay pride festival in February/March. In 2006, an online module was also added to the behavioural surveillance programme for the first time. The Gay men's Online Sex Survey (GOSS) commenced at the end of the GAPSS offline data collection and recruited MSM through heavy promotion on two Internet dating sites. As no publicity for the GOSS survey occurred prior to it being launched, and as men who had recently participated in GAPSS were ineligible to participate in GOSS, the GOSS survey offers a sample of MSM who have been missed by the conventional GAPSS offline surveillance programme. The addition of an online module was envisioned as a logical response to the twin challenges posed by a dramatic increase in the Internet as a source of male sexual partners which was identified in the 2004 GAPSS report (Saxton, Dickson and Hughes, 2004), simultaneous with a sharp increase in HIV diagnoses among MSM in New Zealand (see below). The GOSS results (n=2141) will be released in a different format and are not included in this report of the GAPSS offline surveillance.

This third community report is a summary of the main findings from the 2006 survey and presents the latest results alongside those found in 2002 and 2004. Further analysis of data from 2006, as well as comparisons with previous surveys, will follow this report and will be available either from the New Zealand AIDS Foundation website (www.nzaf.org.nz), via publications in peer-reviewed journals, or by contacting the team at research@nzaf.org.nz.

An important feature of the initial analysis and dissemination process for each GAPSS survey is to feed key results back to the communities that participated in the research, as well as MSM community stakeholders. Thus, another important feature of this reporting process is to stimulate interest in additional research such as in-depth interview work (qualitative research) to explore the basic findings in more detail, or further quantitative research to explore the relationship between variables that have not been presented in this report. The GAPSS research team welcomes all approaches to this end.

The 2006 GAPSS survey was a collaborative project involving the Research, Analysis and Information Unit of the community-based New Zealand AIDS Foundation (NZAF) in Auckland and the AIDS Epidemiology Group (AEG) based in the Department of Preventive and Social Medicine at the University of Otago Medical School in Dunedin. It was funded by the Ministry of Health and received ethical approval from the Auckland Ethics Committee.

Behavioural surveillance

The United Nations Joint Programme on HIV/AIDS (UNAIDS) considers behavioural surveillance to be a key component of national surveillance of the HIV/AIDS epidemic (UNAIDS/WHO 2000). Periodic behavioural surveillance - undertaking similar studies conducted at regular intervals - has three main aims:

- to enable changes in the overall level of risk in a specific population to be traced and to provide early warning of possible changes in the epidemic;
- to help identify sub-groups in which higher-risk activities are evident or emerging, allowing prevention programmes to be properly targeted;
- to help generate a sustained community response to the epidemic by encouraging public engagement in the results of behavioural surveillance.

Although many health surveys use random national telephone sampling to generate participants, obtaining large numbers of participants in this way who are MSM is costly due mainly to the low prevalence of homosexuality in the population, an absence of registers identifying precisely where homosexual men live, and thus the high number of calls that would need to be made. Although progress has been made in describing the geographic micro-location of MSM in Auckland (Hughes and Saxton, 2006), obtaining repeat samples of ~ 1000 MSM in this way is still impractical given limited resources. In order to generate a large sample of MSM, the GAPSS project instead employed non-random techniques that target venues and events that attract large numbers of MSM, a technique that is described as “opportunistic” research.

When using non-random sampling in this way, behavioural surveillance must use methods that encourage participation amongst a wide variety of individuals if it is to generalise the findings beyond an otherwise restricted group of participants. For results to be comparable from period to period, recruitment strategies also need to be consistent each time so that biases between each of the study samples are minimised. The inclusion of questions on demographic characteristics in each successive survey period helps to assess whether samples drawn from consecutive time periods are broadly similar or not, and this is important when interpreting whether a change in the results reflects an actual change or merely the characteristics of a different “slice” of the target population. Issues relating to the conduct of the GAPSS 2006 survey and the characteristics of the study participants are therefore described in more detail in the next two chapters.

The GAPSS project fulfils some of the goals set out in two national strategic documents: *The New Zealand Health Monitor* and the *HIV/AIDS Action Plan: Sexual and Reproductive Health Strategy*. The *New Zealand Health Monitor* notes in “Section 2: Health information” that “you cannot manage what you do not measure” (Ministry of Health, 2002: 6) and highlights the importance of quality information streams when making evidence-based decisions in health promotion. The *HIV/AIDS Action Plan* also lists the objective of better understanding the behaviours driving HIV infection and the trends in populations at highest risk of HIV infection (Ministry of Health 2003: 40).

Aims and objectives

The aim of GAPSS 2006 was to obtain follow-up information on behaviours and attitudes of a sample of MSM that was selected in a manner similar to the 2002 and 2004 surveys.

The specific objectives were to:

- Obtain a sample of MSM attending a number of different sites in a similar way to 2002/4;
- Collect information from this sample on demographic characteristics, sexual practices, HIV testing and status, and attitudes to HIV and safe sex behaviour;
- Present the 2006 data with a focus on identifying change since 2002/4;
- Present information collected on new aspects of the HIV epidemic not measured before;
- Communicate the findings in ways that increase their uptake in policy and HIV health promotion planning.

Epidemiology of HIV in New Zealand

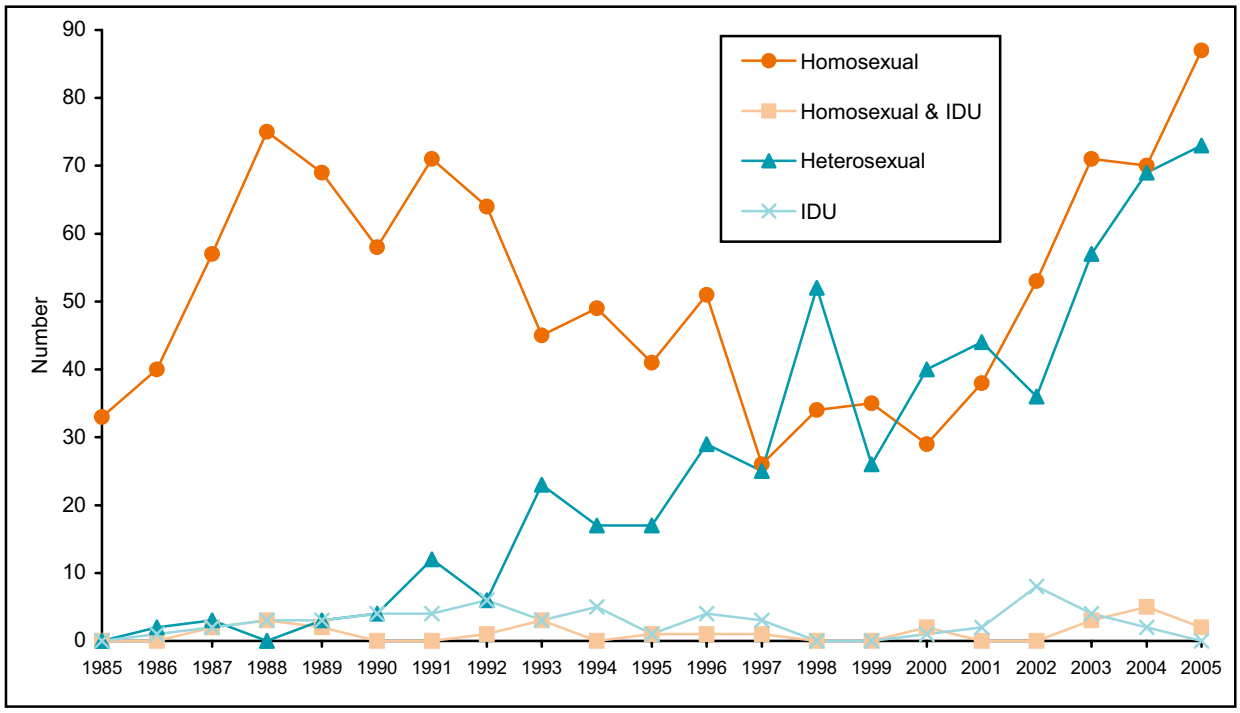
Part of the rationale behind conducting periodic behavioural risk surveillance is to help explain or predict trends in the epidemiology of HIV - the monitoring of HIV diagnoses. Although AIDS is a notifiable condition in New Zealand, the advent of Highly Active Anti-Retroviral Therapies (HAART) has made AIDS diagnoses less useful as a means of tracking the HIV epidemic. HIV is not notifiable in New Zealand, but since 1996 an enhanced surveillance system for newly reported HIV diagnoses has provided detailed information on HIV diagnoses and improved understanding of patterns in HIV infection (Paul et al. 2000).

AIDS diagnoses peaked in 1989 and have generally declined since then. New Zealand was one of the first countries in the world to experience a decline in AIDS incidence (Sharples et al. 1996), and the major factors for this are likely to have been the reduction in HIV infection amongst men who have sex with men in the mid-1980s, and the effective prevention of epidemics in other population subgroups. Since the mid-1990s, AIDS incidence has also reduced in part due to the availability of antiretroviral therapies that have delayed the progression of HIV infection to AIDS.

The HIV epidemic in New Zealand is comprised of two distinct sub-epidemics, one among MSM that is largely locally-acquired, and one among heterosexual migrants for whom infection was largely acquired overseas in countries of high HIV prevalence such as sub-Saharan Africa. HIV diagnoses among MSM have increased dramatically in recent years. As Fig 1 shows, the number of HIV diagnoses among MSM rose from 38 in 2001, to 53 in 2002, to 71 in 2003, was 70 in 2004, and rose again to 88 in 2005 (excludes MSM who also had injecting drug use (IDU) risk factors; data may differ slightly from previous statistics due to delayed reporting) (AIDS Epidemiology Group, 2006a).

HIV diagnoses due to heterosexual contact have also increased recently, although over the last five years only 14% of these cases have been acquired in New Zealand (AIDS Epidemiology Group, 2006b).

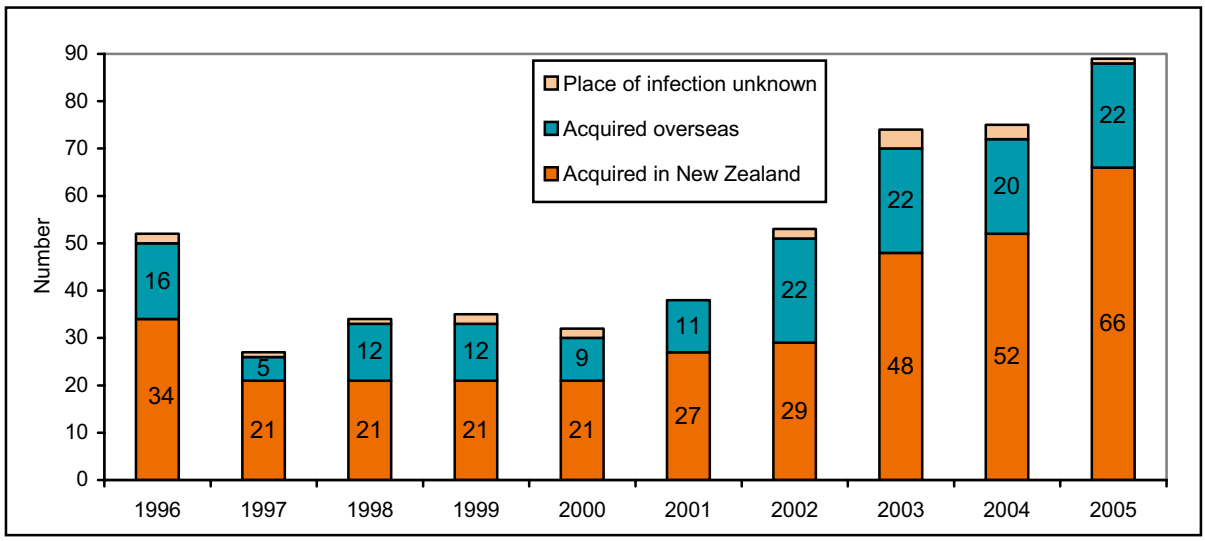
Figure 1. Annual number of diagnosed HIV infections in New Zealand by risk category 1985-2005



Source: AIDS Epidemiology Group data. IDU = injecting drug user. Data may differ from that previously published due to delayed reporting.

In contrast to diagnoses due to heterosexual contact, the majority of diagnoses due to homosexual contact relate to infections that were reported to have been acquired in New Zealand (Fig 2). In 2005 for example, 75% of HIV diagnoses among MSM were believed to have been acquired locally. The number of overseas acquired new diagnoses has remained stable since 2002 at around 22 annually. Although still low by international standards, the number of locally-acquired new HIV diagnoses has increased substantially since 2000.

Figure 2. Place of infection for annual HIV diagnoses among MSM 1996-2005



Source: AIDS Epidemiology Group data. Contains some cases among MSM who were also IDU. Data may differ from that previously published due to delayed reporting.

Further information is available on the recent increase in HIV diagnoses among MSM that were acquired in New Zealand. Figs 3 to 5 indicate that MSM who lived in the Northern health region (predominantly Auckland), who were aged 30-39, or who were NZ European/Pakeha have been particularly affected. As diagnoses of HIV rely on patterns of HIV testing, these data will underestimate the true annual incidence of HIV infection that is occurring among MSM living in New Zealand, and may also underestimate infections occurring in some population groups who demonstrate lower rates of HIV testing.

Figure 3. Usual residence for annual HIV diagnoses among MSM acquired in New Zealand

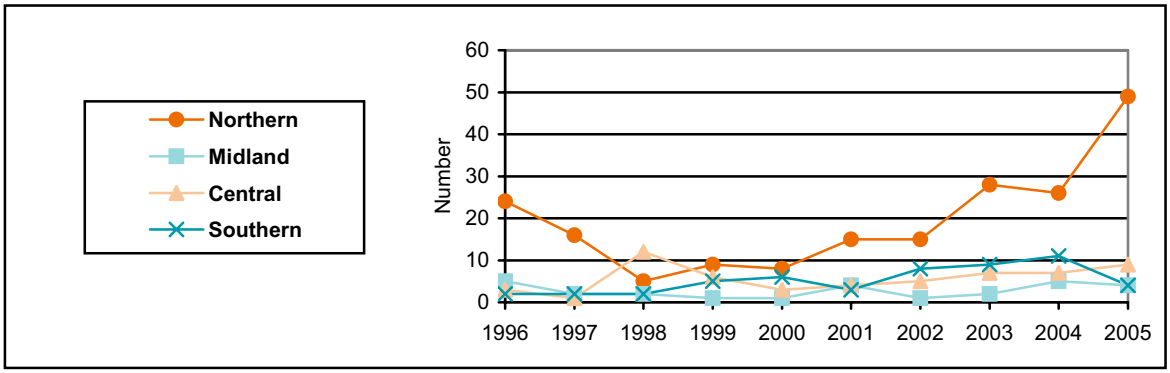


Figure 4. Age group for annual HIV diagnoses among MSM acquired in New Zealand

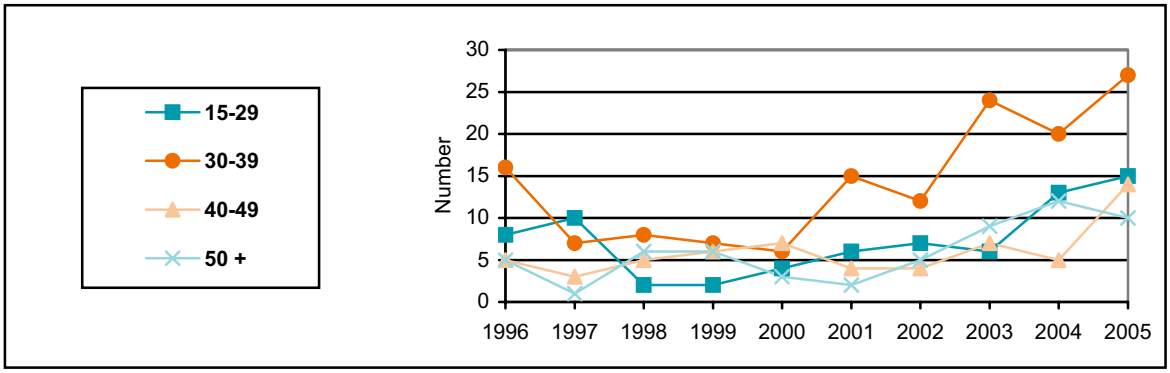
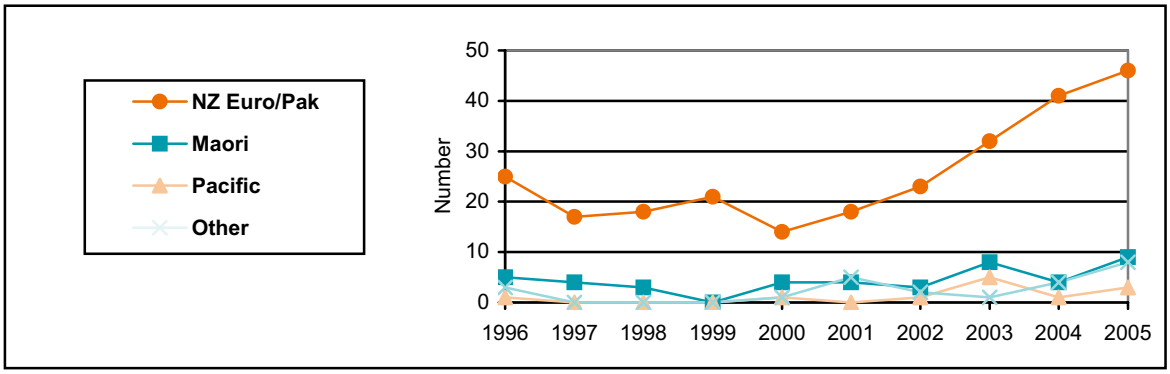


Figure 5. Ethnic group for annual HIV diagnoses among MSM acquired in New Zealand



Source for all Figures: AIDS Epidemiology Group data.

Study recruitment

Sample selection

The 2006 GAPSS study surveyed MSM attending: (1) the Big Gay Out (an annual gay pride fair/picnic at a central Auckland park); (2) four saunas and 'sex-on-site' venues frequented by MSM; and (3) three bars specifically frequented by gay men.

Men at these sites were invited to take part in the survey by trained recruitment staff. Participants were given a clipboard with a cover, which they could close over their questionnaire for privacy if they wished. The clipboards had a pen, a questionnaire and an information sheet attached to them and respondents were instructed to complete the survey themselves. Magnification sheets were available at all venues for those with sight impairments. Men who stated they lived outside Auckland were still invited to take part as they were regarded as participating in the Auckland gay "scene" if they were at one of the identified recruitment sites.

Secure return boxes for the completed questionnaires were provided near the recruitment staff, and when finished, respondents were requested to place their questionnaire into these boxes themselves in order to ensure the confidentiality of their responses. Completion of the questionnaire generally took five to ten minutes. In 2006, participants were once again offered the opportunity to enter a separate prize draw for double tickets to the HERO party that occurred at the end of the recruitment period. For more details on the GAPSS 2006 recruitment phase see Saxton (2006).

Questionnaire

The questionnaire consisted of a series of core questions focusing on anal intercourse, use of condoms, sexual partnerships, HIV testing and serostatus, aspects of social attachment to the gay community, and a range of demographic items including age, education, ethnicity, and area of residence. These core questions will be retained in each study to provide information that can be compared over time.

Additional questions formulated in consultation with NZAF's Gay Men's Health Programme and other key stakeholders were also included and may change in future surveys based on the priorities identified by these groups and by emerging questions in the field of HIV prevention. In 2006, new questions were added on experiences of first anal sex, number of anal sex acts with a casual partner in the last four weeks, use of Viagra, recreational drug use, whether the respondent knew someone with HIV, sexual health check-ups, sexually transmitted infections, knowledge of HIV and safe sex, and whether the respondent had taken part in previous GAPSS surveys. Previously included questions on ejaculation during unprotected anal sex and socialising with gay men were withheld from the 2006 questionnaire in order to make room for the additional material. The expanded questionnaire

increased in size to a folded A3 instrument with questions on three sides. However, continual refinements were made to the questionnaire layout, and pilot-testing with a range of MSM revealed that the time taken to complete was similar to previous years.

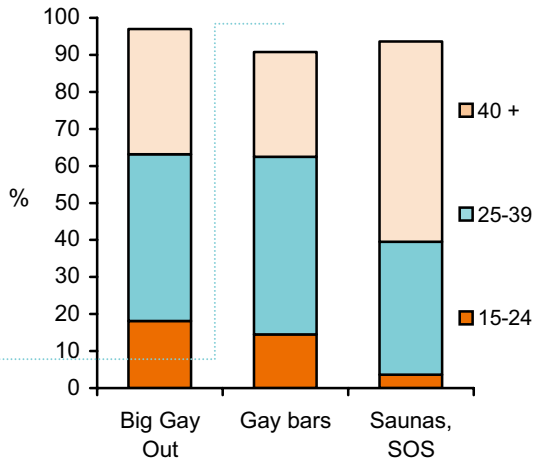
Presentation of the data in this report

Since the GAPSS sample was composed of respondents who were enrolled at three different kinds of site (Big Gay Out, gays bars, gay saunas/cruise clubs), and because men with different characteristics might attend these locations, the key findings are reported by site as well as for the total sample. It is particularly important to bear in mind the composition of the total GAPSS sample when drawing conclusions about changes in key results over time.

Graphs in this report are usually placed on the left or right hand side of a page. Those on the left present comparisons between 2002 - 2006 whereas those on the right present sub-analyses from the 2006 survey.

Column graphs in this report each total to 100%. Where the vertical bars fall short of 100% the difference is due to missing data or incomplete responses, unless otherwise stated.

Age groups by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

The example here presents results from the 2006 survey only, and shows the age distribution of respondents recruited at the three different sites. It shows that a lower proportion of respondents recruited at the saunas/sex-on-site venues were younger (aged 15-24), and conversely that a higher proportion were aged 40 and over, when compared with respondents recruited from the Big Gay Out or the gay bars.

Statistical analysis

Statistical comparisons have been conducted to determine if behaviours or attitudes differ significantly between two or more groups of respondents: usually between sites of recruitment and also between respondents exhibiting different demographic characteristics (e.g. men of different age groups). These have been done using chi-squared (χ^2) tests of proportions. The smaller the value of the 'p-value' derived from the test, the more likely proportions are to be truly different, and not a chance finding. By convention, if there is a prior reason to expect a difference, and the p-value for the comparison is less than 0.05, then the finding is said to be 'statistically significant'. In the example above, the p-value of $p<0.001$ signifies that the difference in age groups between the three sites is statistically significant. (Note that 'p=ns' will denote a non-statistically significant result i.e. $p>0.05$).

The statistical tests used in this report only test for associations between two different variables, and do not control for the potential impact of other variables in the survey. For example, if a significant association is found between unprotected sex and site of recruitment, this finding might be influenced by the fact that the average age at each site of recruitment is different, and thus the finding in part reflects the effect of age on unprotected sex. Separating out the influence of each variable on a given behaviour is possible by using more complex statistical techniques that may be performed on the data in the future, but are not presented here. The identification of statistically significant results in this report may therefore best be used in the targeting of groups via health promotion, rather than necessarily "explaining" why the behaviour varies in that way.

Similarly, comparisons between the studies in 2002, 2004 and 2006 need to be interpreted cautiously as in some instances there may have been some differences in the make up of the three samples. In other cases the small number of respondents in certain categories may make comparisons unreliable, or result in different groups being combined together for analysis. These examples will be noted in the text or beneath Tables and Figures.

Statistical analysis of the data in this report omits 'not stated' responses from calculations, thus the tests examine differences between men who provided a response to the relevant questions.

Characteristics of the sample

Overall, 1245 questionnaires were completed and placed in the secure return boxes in 2006. Seventeen participants did not answer the majority of the questions and these responses have been removed, leaving 1228 questionnaires that were included in the analysis. This was similar to the number of questionnaires completed in 2004 (1220 final responses).

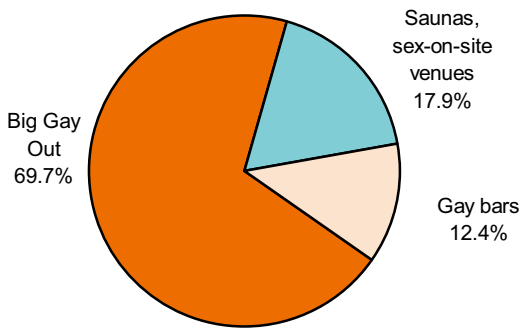
Composition of the sample and response rate

The majority of the 1228 respondents in 2006 were recruited from the Big Gay Out fair day (69.7%) (Fig 6). In general, the sources of recruitment in 2006 mirrored those in the previous surveys (Table 1).

Table 1. Responses by site of recruitment and survey

	2002		2004		2006	
Site	n	%	n	%	n	%
Big Gay Out	577	71.1	833	68.3	856	69.7
Gay bars	96	11.8	164	13.4	152	12.4
Saunas/ sex-on-site	139	17.1	223	18.3	220	17.9
Total	812	100.0	1220	100.0	1228	100.0

Figure 6. Composition of the sample (2006)



As in previous years, the response rate was determined from records kept by the recruitment staff, who filled in a schedule noting whether men who were approached agreed to participate, declined, had already completed a survey, were not eligible, or were not capable of completing a questionnaire (e.g. were obviously intoxicated). At the Big Gay Out and the gay bars, individuals who placed their surveys into the return boxes were offered a coloured sticker to indicate they had taken part, assisting the recruitment effort by directing recruiter's approaches towards men who did not have the stickers visible.

In 2006 respondents were asked to indicate whether they had ever completed a GAPSS survey before. Of all 1228 respondents, 4.5% reported that they had participated in both the 2002 and 2004 surveys, 17.1% reported they had participated in 2004 only, and 5.1% reported that they participated in 2002 only. In total therefore, 21.6% indicated they had taken part in GAPSS 2004, and 9.6% indicated that they had taken part in GAPSS 2002.

Response rates for the Big Gay Out and gay bars had declined between 2002 and 2004, and were slightly lower overall in 2006. Response rates at the Big Gay Out (the first site used to recruit men) declined from 82% in 2002 to 73% in 2004 but held steady at 72% in 2006; response rates at the gay bars declined from 76% to 62% to 56%; and at gay saunas from 73% to 71% to 69%.

Age

The age profile of the GAPSS sample continued to be dominated by men aged 25-39, with 43.8% of the 2006 sample in this age bracket (Table 2). There were proportionately fewer men aged under 25 in the 2006 sample compared to 2004. The overall age distribution was slightly different for all three samples, and these changes were statistically significant.

Table 2. Age group by survey

	2002		2004		2006	
	n	%	n	%	n	%
15-24	134	16.5	219	18.0	185	15.1
25-39	395	48.6	510	41.8	538	43.8
40 and over	265	32.6	447	36.6	451	36.7
Not stated	18	2.2	44	3.6	54	4.4
Total	812	100.0	1220	100.0	1228	100.0

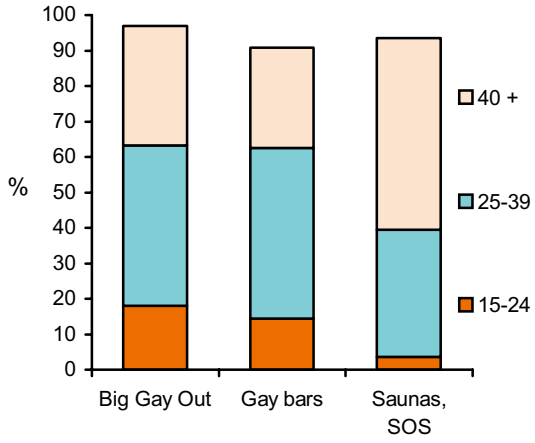
P<0.05 over time.

There were statistically significant differences in the age distribution of men recruited at the three sites in 2006 (Fig 7).

Over half the men recruited at the saunas/sex-on-site venues were aged 40 or over, compared to around a third of men at the Big Gay Out.

Very few men recruited at the saunas/sex-on-site venues were aged under 25 (less than 5%), whereas around 15-20% of the men recruited at the gay bars and Big Gay Out were in this age group.

Figure 7. Age group by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

Ethnicity

Participants were offered the opportunity to indicate more than one ethnicity. Those who indicated multiple ethnicities were classified by first prioritising 'Maori', then 'Pacific island', 'Asian' and then 'other' if they reported multiple ethnicities.

Just over 70% of the 2006 sample reported that they were Pakeha or NZ European, and around 10% reported that they were Maori (Table 3). The proportions of men recruited into GAPSS over the three surveys who were NZ European/Pakeha has declined somewhat, and the proportion of men who identified as Maori has increased slightly. A small proportion of Asian, Pacific, and men of 'other' ethnicity took part but this was not dissimilar to the ethnic breakdown of the Auckland population. The overall ethnic distribution of the sample had not changed significantly over time.

Table 3. Ethnicity by survey

	2002		2004		2006	
	n	%	n	%	n	%
NZ European/Pakeha	630	77.6	892	73.1	875	71.3
Maori	65	8.0	115	9.4	121	9.9
Pacific Island	26	3.2	46	3.8	40	3.3
Asian*	-	-	78	6.4	76	6.2
Other	76	9.4	51	4.2	66	5.4
Not stated	15	1.8	38	3.1	50	4.1
Total	812	100.0	1220	100.0	1228	100.0

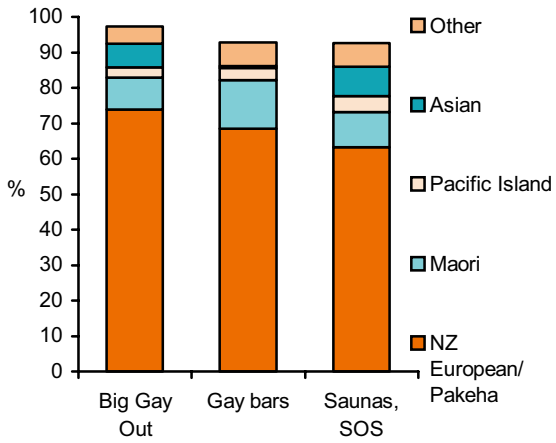
*Note: Asian ethnicity was not separately reported in 2002. P=ns over time.

There were statistically significant differences between the ethnicity of men recruited at the three sites (Fig 8).

In comparison to the Big Gay Out, men recruited at gay bars were more likely to identify as Maori (13.8%), and were less likely to identify as NZ European/Pakeha (68.4%) or as an Asian ethnicity (less than 1%). Those recruited at gay saunas were least likely to identify as NZ European/ Pakeha (63.2%) and most likely to identify as Asian (8.2%).

It is possible that the ethnic profile of the different sites is influenced by the age of MSM who visit them.

Figure 8. Ethnicity by site of recruitment (2006)



Note: 'Not stated' not shown. P=0.02

Education

The education profile of the 2006 sample continued to be high. There were no changes over time and over 40% had some form of tertiary degree qualification (Table 4).

Table 4. Highest education qualification by survey

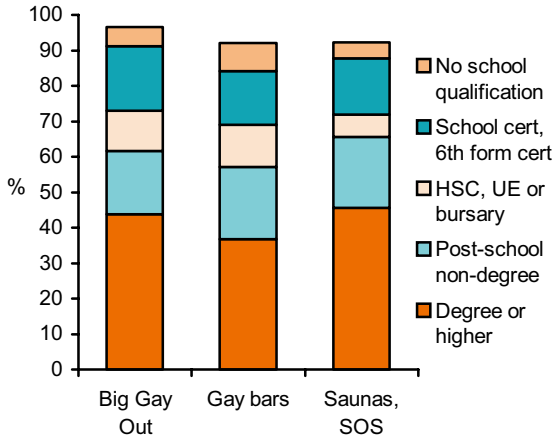
	2002		2004		2006	
	n	%	n	%	n	%
Degree or higher	338	41.6	501	41.1	530	43.2
Post-school non-degree qualification e.g. Trade, diploma	182	22.4	258	21.1	229	18.6
HSC, UE or bursary, NCEA	106	13.1	123	10.1	128	10.4
School cert, 6th form cert, NCEA	118	14.5	221	18.1	215	17.5
No school qualification	42	5.2	68	5.6	68	5.5
Not stated	26	3.2	49	4.0	58	4.7
Total	812	100.0	1220	100.0	1228	100.0

P=ns over time.

Highest education qualification did not differ significantly by site of recruitment in 2006 (Fig 9).

A similar proportion of men recruited at the Big Gay Out and the saunas/sex-on-site venues had a degree or higher, whereas those recruited from gay bars were proportionately least likely to do so, potentially reflecting the younger age profile of the gay bar sample.

Figure 9. Highest education qualification by site of recruitment (2006)



Note: 'Not stated' not shown. P=ns.

Area of residence

In 2006, just under a third of all respondents lived in Auckland's "inner city district" (Table 5).[1]

Table 5. Area of residence by survey

	2002		2004		2006	
	n	%	n	%	n	%
Auckland inner city district	247	30.4	323	26.5	381	31.0
Auckland non-inner city district	409	50.4	646	53.0	592	48.2
Auckland not further defined	72	8.9	86	7.0	41	3.3
Not Auckland	80	9.9	163	13.4	167	13.6
Not stated	4	0.5	2	0.2	47	3.8
Total	812	100.0	1220	100.0	1228	100.0

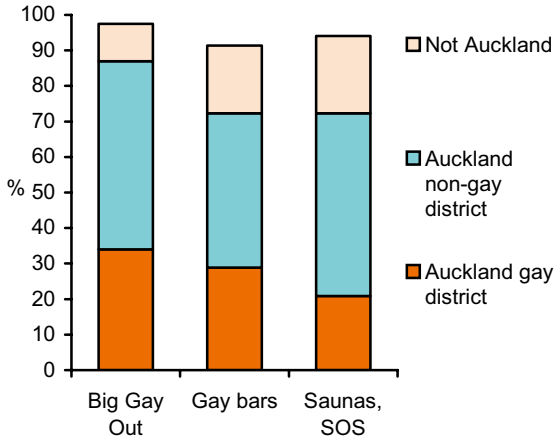
P=ns over time.

The Big Gay Out is held in an Auckland city park (just outside the inner city district), and all the bars and all but one of the saunas are located in the Auckland inner city district.

Proportionately more men at the Big Gay Out (34.0%) and gay bars (28.9%) lived in the Auckland inner city district compared to men recruited at the saunas/ sex-on-site venues (20.9%) (Fig 10).

Unsurprisingly, more men at the gay bars (19.1%) and gay saunas (21.8%) were from outside Auckland than respondents recruited at the Big Gay Out fair day (10.5%).

Figure 10. Area of residence by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

[1] Using census area unit definitions, the 'inner city district ' is comprised of: Herne Bay, St Mary's Bay, Auckland Central, Ponsonby West, Ponsonby East, Freeman's Bay, Westmere, Grey Lynn West, Grey Lynn East, Newton, Grafton, Surrey Crescent, Arch Hill, Eden Terrace, Newmarket, and Kingsland (Hughes and Saxton, 2006).

Sexual identity

When asked to use one descriptor, the majority of the 2006 sample identified as gay or homosexual (85.0%), with 9.1% identifying as bisexual (Table 6). A very small proportion of respondents identified as "queer" (2.4%), "fa'afafine" (0.4%), "heterosexual" (0.6%), or as an "other" identity (1.5%, including 1.1% who stated "takataapui").

Table 6. Sexual identity by survey

	2002		2004		2006	
	n	%	n	%	n	%
Gay/homosexual	659	81.2	1050	86.1	1044	85.0
Bisexual	82	10.1	126	10.3	112	9.1
Queer	23	2.8	12	1.0	29	2.4
Fa'afafine	0	0.0	6	0.5	5	0.4
Heterosexual	11	1.4	5	0.4	7	0.6
Other, including takataapui	32	3.9	17	1.4	18	1.5
Not stated	5	0.6	4	0.3	13	1.1
Total	812	100.0	1220	100.0	1228	100.0

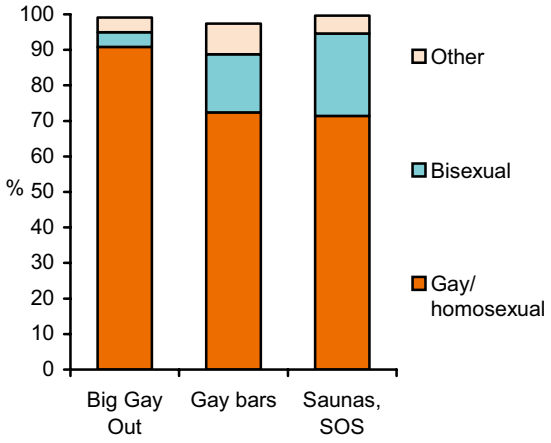
P<0.001 over time (categories condensed into "gay", bisexual" and "all other").

There were significant differences between the sexual identities reported by men recruited at the three sites (Fig 11).

Around 90% of men recruited at the Big Gay Out self-identified as gay or homosexual, but this descriptor was less preferred by men recruited at the gay bars (72.4%) and saunas/sex-on-site venues (71.4%).

A bisexual identity was chosen by 16.4% of respondents recruited at the gay bars, and almost a quarter (23.2%) of respondents recruited at the saunas/sex-on-site venues

Figure 11. Sexual identity by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

Amount of free time spent with gay men

The majority of men in 2006 reported spending "a lot" (42.9%) or "some" (33.1%) of their free time with gay men (Table 7). However, around 20% reported that they only spent "a little" or "none" of their free time in the company of gay men. There appears to be a decrease in the level of social attachment to other gay men in the 2006 sample compared to previous years.

Table 7. Amount of free time spent with gay men by survey

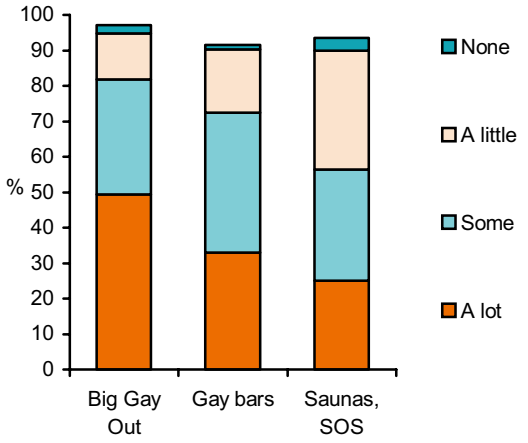
	2002		2004		2006	
	n	%	n	%	n	%
A lot	411	50.6	615	50.4	527	42.9
Some	264	32.5	436	35.7	407	33.1
A little	115	14.2	146	12.0	211	17.2
None	19	2.3	12	1.0	31	2.5
Not stated	3	0.4	11	0.9	52	4.2
Total	812	100.0	1220	100.0	1228	100.0

P<0.05 over time.

There were statistically significant differences in the amount of free time spent with gay men according to site of recruitment (Figure 12).

The differences by site of recruitment seen in sexual identity (above) were also evident for the amount free time with gay men, with "a lot" of social attachment to gay men being highest for men at the Big Gay Out (49.3%) and lowest among men recruited at the saunas/sex-on-site venues (25.0%). Similarly, just a third (32.9%) of men recruited at the gay bars reported that "a lot" of their free time was spent with gay men.

Figure 12. Free time spent with gay men by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

Workforce status

Most respondents in 2006 (82.2%) were employed at the time of survey. Few (2.4%) were unemployed and 5.6% of the sample were students (Table 8).

Table 8. Workforce status

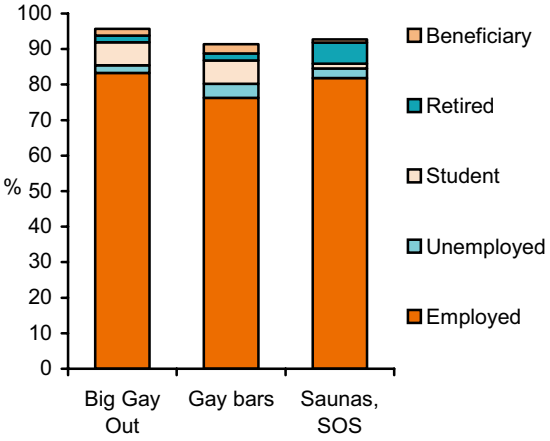
	2004		2006	
	n	%	n	%
Employed	976	80.0	1009	82.2
Unemployed	38	3.1	30	2.4
Student	94	7.7	69	5.6
Retired	48	3.9	32	2.6
Beneficiary	18	1.5	22	1.8
Not stated	46	3.8	66	5.4
Total	1220	100.0	1228	100.0

P=ns over time.

There were statistically significant but only small differences in workforce status according to site of recruitment (Figure 13).

The proportion who were currently employed was lowest at the gay bars, and the proportion who were retired was highest at the gay saunas.

Figure 13. Workforce status by site of recruitment (2006)



Note: 'Not stated' not shown. P<0.001.

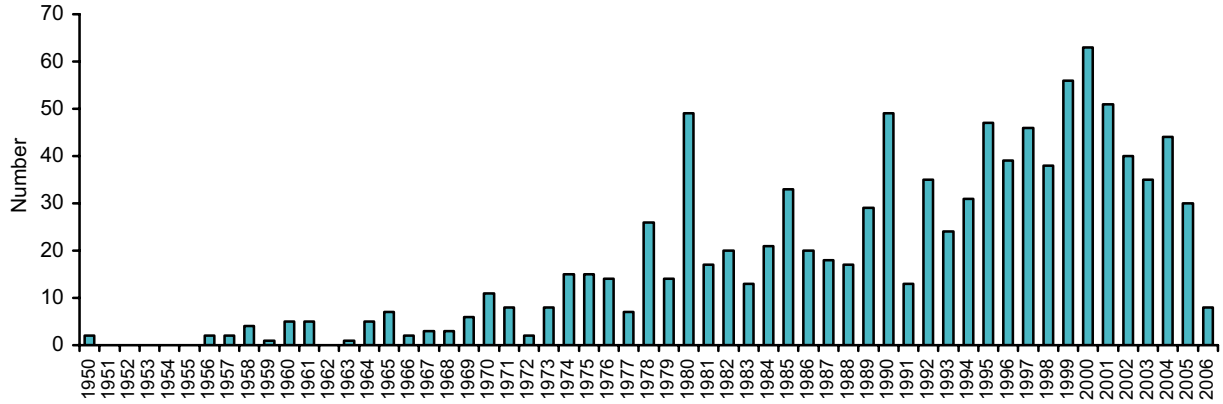
Experiences of first anal sex with a male

There are several reasons why experiences of first anal sex are of interest to public health practitioners, epidemiologists, gay community advocates and individual MSM. A changing age at which first anal sex occurs could have an impact on the epidemiology of HIV since it broadens or contracts the population who are potentially at risk of infection. The age at which anal sex is initiated is important since it will signal the age by which comprehensive sexuality education needs to be delivered to adolescents, if such education is to be useful to sexually active individuals (Hickson et al. 2003). Some measure of the overall effectiveness of sexuality education versus the (often) countervailing pressures of the media and peer norms can be gleaned from the rate of condom use at first anal sex. The use of condoms at first anal sex also provides an assessment of the success of the overall HIV prevention context, in that it also measures the intention of a person's sexual partner to use condoms, who may have had more sexual experience, be a different age to the respondent, and have had more exposure to HIV education. The willingness or not to use condoms when at least one of the sexual partners is having their first anal sex experience also reflects on the sexual culture between homosexual men, the dynamic between two sexual partners who may have only recently met, and nuanced issues such as interest in the wellbeing of others and the resilience of men to unwanted (or unprotected) sexual experiences (Fenaughty et al. 2006).

The 2006 GAPSS instrument asked three questions about first anal sex. Respondents were invited to state the year in which first anal sex occurred, whether the sex involved insertive anal sex (the respondent's penis in a partner's anus, or being the "top"), receptive anal sex (the partner's penis in the respondent's anus, or being the "bottom"), or both insertive and receptive anal sex. Respondents were also asked to indicate whether a condom had been used for their first act of anal sex.

Fig 14 shows the year at which first anal sex was reported by men of all ages in the 2006 GAPSS sample.

Figure 14. **Year of first anal sex with a male reported by respondents in 2006**

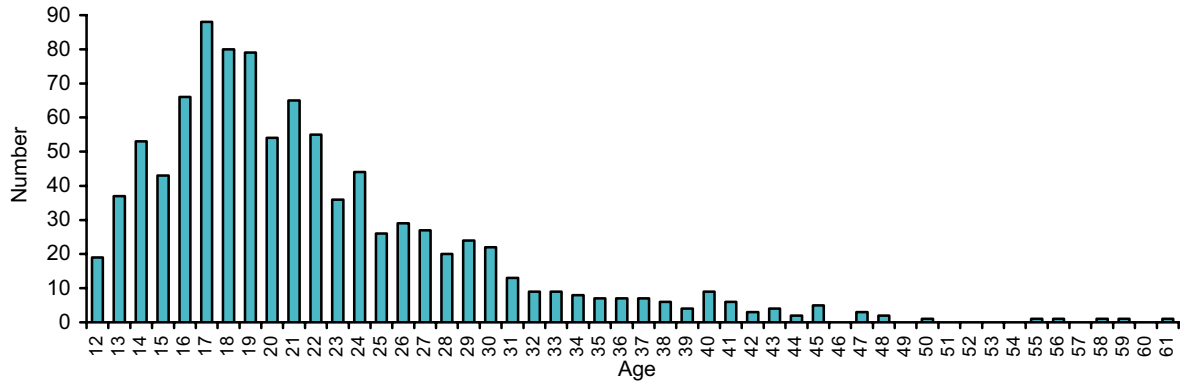


Note: 'Not stated' n=110; 'Never had anal sex' n=74.

Sex between men (including oral sex) was illegal in the New Zealand statutes until 1986. The successful passing of the Homosexual Law Reform Bill decriminalised sex between consenting adults with an equal age of consent to heterosexual sex at age 16. Curiously, of the men in the GAPSS sample who would have been over the age of 16 in 1986 (i.e. men who were born in 1970 or earlier, and who would now be 36 years old or over), over half (56.3%) had already had *anal* sex with a man by this date (with a small margin of error since respondents were not asked for exact birth dates). This indicates that even the possibility of imprisonment did not deter a majority of homosexual men from engaging in sex with men at the time, although community advocates have argued that criminalisation undoubtedly hampered community efforts to educate individuals about the risks of HIV in the early 1980s (Parkinson and Hughes, 1987).

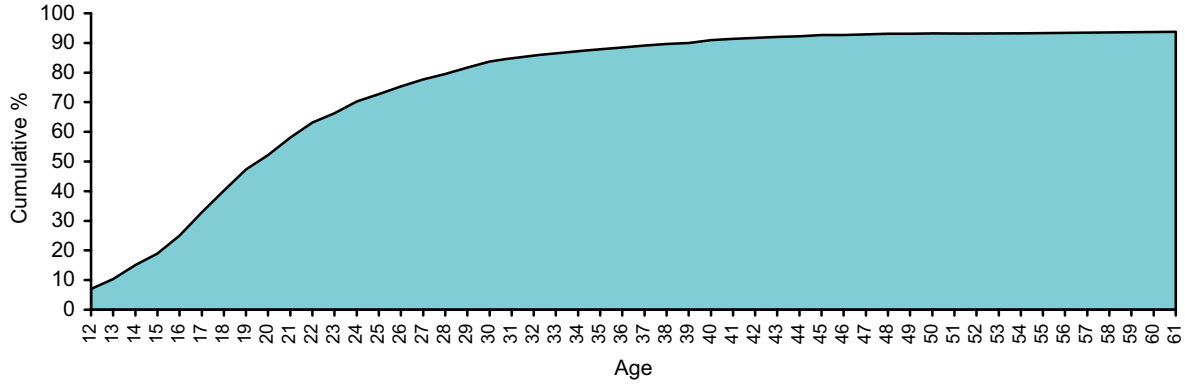
Fig 15 shows the age at which respondents first had anal sex. The "modal" age (the age cited by most respondents) at which anal sex first occurred was 17, followed closely by age 18 and age 19.

Figure 15. Age of first anal sex with a male reported by respondents in 2006



Note: 'Not stated' n=123; 'Never had anal sex' n=70. A small number of individuals reported first anal sex before age 12 but are not reported here. The questionnaire did not ask respondents whether experiences of first sex were coerced or not, yet this may have been true for an unknown number of individuals who reported first anal sexual contact at a young age, as well as for others in the sample.

Figure 16. Cumulative percentage of respondents who reported first anal sex with a male

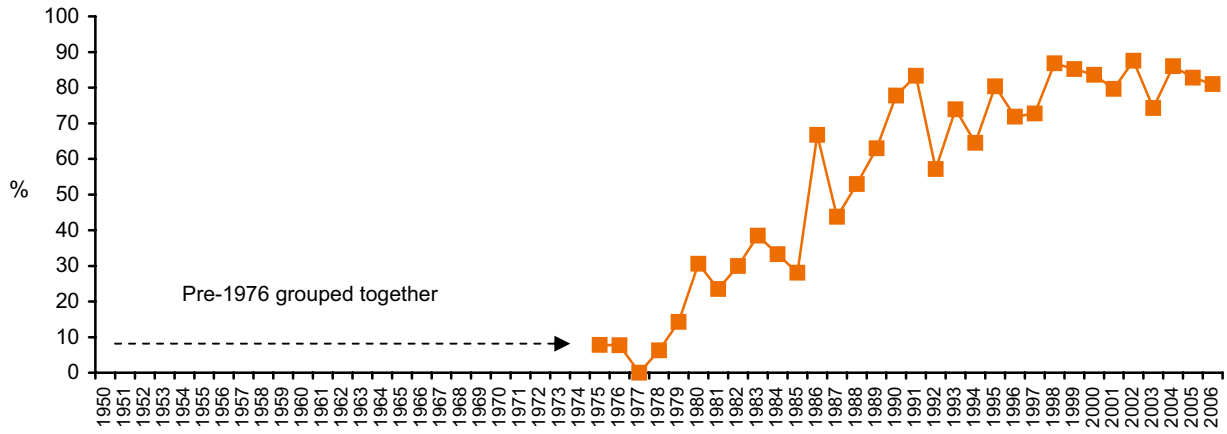


Note: 'Not stated' not shown. Figure shows cumulative percentage of those who responded to the question, including 'never had anal sex' n=70.

Of the GAPSS respondents who answered the question on date of first anal sex (n=1105), 25.0% reported having anal sex by the age of 16 (Fig 16). Half (52.2%) had done so by the age of 20, 83.7% by the age of 30, and 90.9% had engaged in anal sex by the age of 40. A small proportion (6.3%, n=70) of respondents who answered the question had never had anal sex.

An encouraging finding is illustrated in Figure 17, which examines retrospective reports of condom use at first anal sex among those who provided information. Among all respondents who first had anal sex prior to 1976, 7.8% of reported that their first anal sex involved a condom. By 2006, this rate had risen to 82.8% of first anal sex experiences in that year. As Table 9 demonstrates, this statistically significant increase in condom use at first anal sex occurred through each five year period from 1976-1980 and continued until 1996-2000, at which point it appears to level off.

Figure 17. Condom use at first anal sex reported by respondents in 2006 by year of first anal sex with a male



Note: 'Not stated' n=110; 'Never had anal sex' n=74.

Table 9. Condom use at first anal sex with a male reported by respondents in 2006 by time period

Used condom at first anal sex	Period during which first anal sex occurred													
	Before 1976		1976-1980		1981-1985		1986-1990		1991-1995		1996-2000		2001-2005	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Yes	8	7.8	19	19.8	30	30.0	80	65.0	104	70.7	190	80.5	161	82.1
No	94	92.2	77	80.2	70	70.0	43	35.0	43	29.3	46	19.5	35	17.9

Note: 'Not stated' condom use omitted from calculations (n=36 of all respondents who provided information about year of first anal sex). P<0.001.

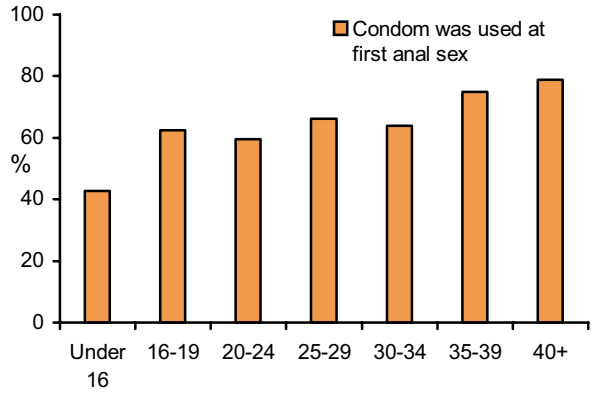
The findings reported in Table 9 signal a considerable achievement by homosexual and bisexual men in response to the threat of HIV. Similarly however, it represents a caution that the current high levels of condom use at first anal sex are not inevitably fixed – and have been as low as 65.0% in the second half of the 1980s when anxiety surrounding HIV was arguably higher than it is in today's post-treatments context.

Condom use at first anal sex appeared to vary according to the age at which first anal sex occurred (Fig 18). Respondents who were aged under 16 when they first had anal sex were least likely to have done so with a condom (42.7%). Rates of condom use for first sex then increased and stabilised for those who engaged in first anal sex between the ages of 16-19 (62.4%), 20-24 (59.5%), 25-29 (66.1%) and 30-34 (63.9%), when it then rose to 75.0% of those who were aged 35-39 and 78.9% of those who were aged forty and over (remembering that the majority of respondents had had their first experience of anal sex well before 40).

Respondents were also asked whether they had been receptive during their first episode of anal sex with a male, insertive, or had been both receptive and insertive. Fig 19 shows that more men had been receptive (the "bottom")(69.1%) than had been insertive (the "top")(53.3%). A quarter of all first anal sex experiences involving both insertive and receptive anal sex (25.0%).

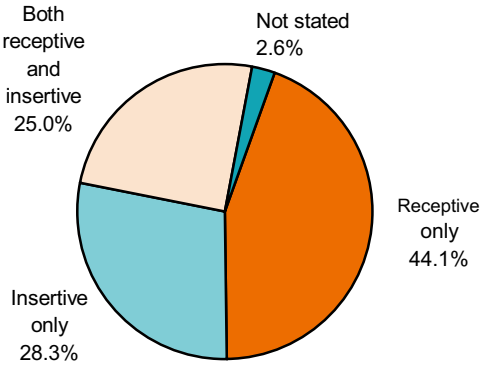
Condom use did not differ significantly depending on the modality of first anal sex.

Figure 18. Condom use at first anal sex with a male by age at which first anal sex occurred (2006)



P<0.001.

Figure 19. Modality of first anal sex with a male (2006)



HIV testing and HIV status

HIV testing

In the questionnaire, respondents were asked if they had ever had an "HIV antibody test to detect infection with the virus that causes AIDS".[2] Those who had tested in the past were asked when the last test was undertaken, and what the result was.

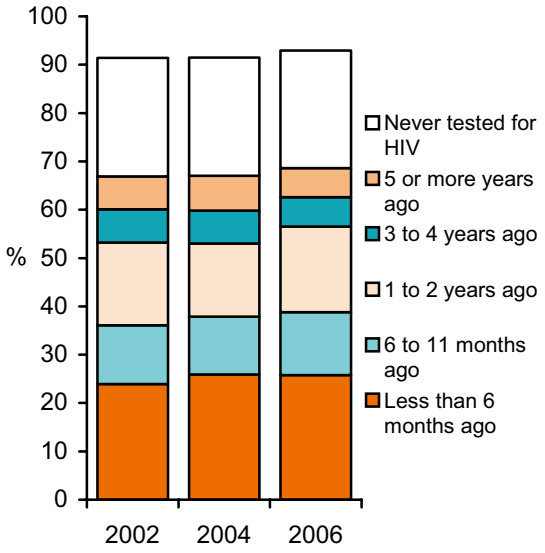
In 2006, 72.2% of the entire sample reported that they had tested for HIV at least once in their life (Table 10), and a quarter (24.3%) had never tested for HIV. These results were the same as in 2004.

Table 10. Ever tested for HIV by survey

	2002		2004		2006	
	n	%	n	%	n	%
Tested for HIV at least once in lifetime	577	71.1	885	72.5	887	72.2
Never tested for HIV	199	24.5	299	24.5	299	24.3
Not stated	36	4.4	36	3.0	42	3.4
Total	812	100.0	1220	100.0	1228	100.0

HIV testing has been available in New Zealand since 1985, and whether a man has ever tested for HIV may not provide useful information on current HIV testing behaviours nor a participant's current HIV status.

Figure 20. Time since last HIV test by survey



Note: In 2002, 2004 and 2006, 'not stated' n=36, 36, 42; tested but did not provide information on when this occurred n=34, 68, 45.

Fig 20 shows the timing of the most recent HIV test among all respondents in 2002, 2004 and 2006.

In 2006, 25.8% of the whole GAPSS sample had tested for HIV in the six months prior to survey, compared to 25.9% in 2004 and 23.9% in 2002.

Of all 2006 respondents, 38.8% had tested at least once in the previous year, and 56.4% had tested within the last two years.

As in previous years, some respondents had last tested for HIV three or more years ago (12.1%).

[2] The question was worded in this way to avoid confusion with viral load tests, which measure the amount of HIV virus in an HIV positive person's bloodstream.

There were no demographic differences in timing of last HIV tests between 2002 and 2006. However, there were significant differences according to age, ethnicity, and sexual identity among respondents in 2006.

As Fig 21 shows, overall rates of testing were lower among younger respondents. Men aged 15-24 were less likely to have ever tested for HIV in their lifetime than older respondents, with 56.8% having tested at least once in their life compared to 79.2% of those aged 25-39 and 75.4% of those aged 40 or over.

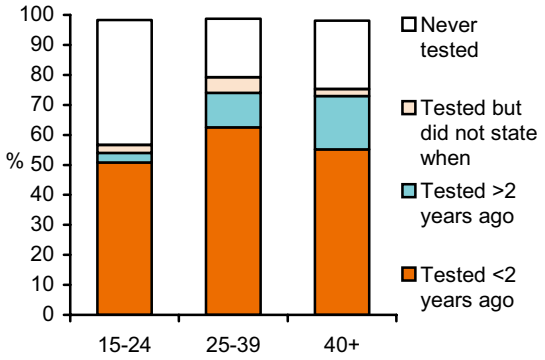
Fig 22 shows that HIV testing rates varied according to ethnicity. NZ European and Maori respondents reported roughly equal rates of ever having tested (77.4% and 74.5% respectively) and having tested in the last two years (60.6% and 57.9%).

However, only 40% of all Pacific respondents had ever tested, and just 52.6% of Asian respondents had ever tested for HIV.

Respondents who identified as bisexual were more likely to have never tested for HIV (33.9%) compared to respondents who identified as gay (22.9%) (Fig 23).

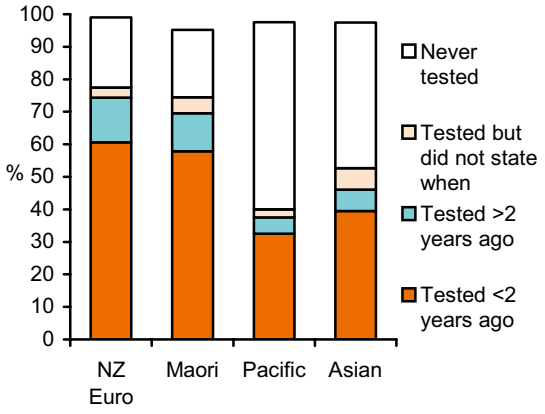
Three quarters (74.6%) of men who identified as gay had tested at least once, including 57.9% who had tested in the last 2 years, whereas a lower proportion of bisexual identifying men (58.7%) had tested at least once, including 49.5% who had done so in the last two years.

Figure 21. Timing of last HIV test by age group (2006)



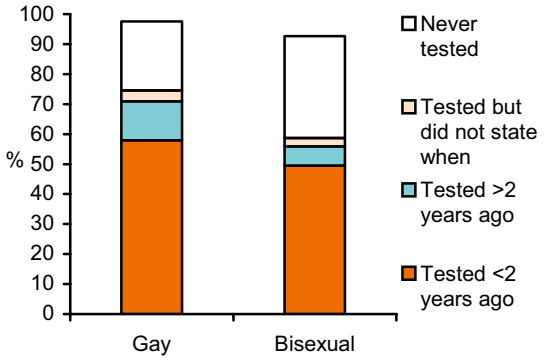
Note: 'Not stated' not shown. P<0.001.

Figure 22. Timing of last HIV test by ethnicity (2006)



Note: 'Not stated' not shown. P<0.001.

Figure 23. Timing of last HIV test by sexual identity (2006)



Note: 'Not stated' not shown. P<0.05.

HIV status

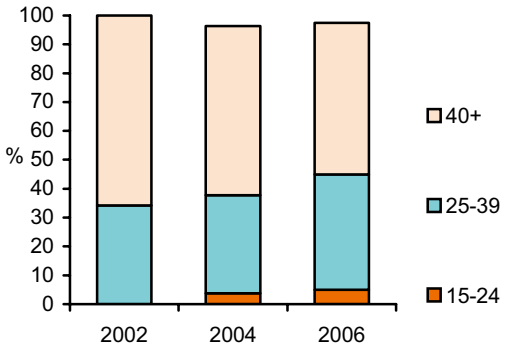
All participants who stated they had tested for HIV at least once were asked the result of their last test, and also what they believed their HIV status was “at present”. Forty respondents in 2006 indicated they had received an HIV positive test result, representing 4.5% of those who had ever tested for HIV or 3.3% of the entire 2006 GAPSS sample (Table 11). The 2006 GAPSS sample thus had a slightly lower proportion of men who had tested positive than in previous years, which is unusual since the prevalence of HIV (the proportion of MSM who have been diagnosed with HIV) should be rising in this population group.

Table 11. HIV test status by survey

	2002		2004		2006	
	n	%	n	%	n	%
HIV negative at last test	514	63.3	756	62.0	799	65.1
Tested HIV positive	38	4.7	53	4.3	40	3.3
Never tested/ No result yet	205	25.2	307	25.2	306	24.9
Not stated	55	6.8	104	8.5	83	6.8
Total	812	100.0	1220	100.0	1228	100.0

These data are likely to underestimate the actual prevalence of HIV infection among all participants. This is because some men had never tested for HIV, and some may have been infected with HIV in the time since they received their last negative HIV test result.

Figure 24. Age group of respondents who had tested positive by survey



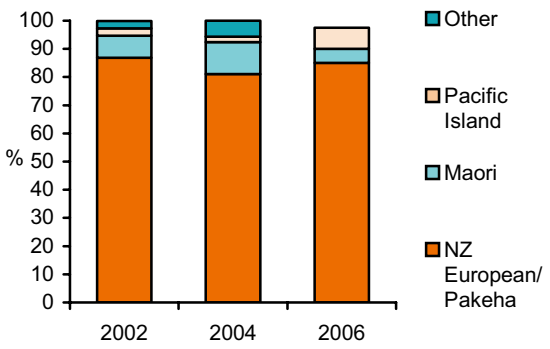
Note: Age ‘not stated’ n=2 in 2004 and n=1 in 2006.

The majority of respondents in the 2006 survey who had tested HIV positive were in the age group 40 and over (52.5%).

Forty percent who had tested positive were aged 25-39, and a small number were aged 15-24 (5.0%).

The age distribution of men tested HIV positive was roughly the same across all three surveys (Fig 24).

Figure 25. Ethnicity of respondents who had tested positive by survey



Most respondents in the 2006 GAPSS survey who had tested positive identified as NZ European/Pakeha (85.0%), 5.0% identified as Maori, 2.5% as Asian and 5.7% as some other ethnicity (Fig 25).

The small number of respondents in each of the three surveys with diagnosed HIV means that the characteristics of positive men need to be interpreted with caution.

Respondents were asked what they believed their current HIV status was. Table 12 shows the results for respondents' current belief about HIV status among those who had either tested HIV negative at their last test or who had never tested for HIV/ not received their last test result (i.e. excluding those who had received an HIV positive test result).

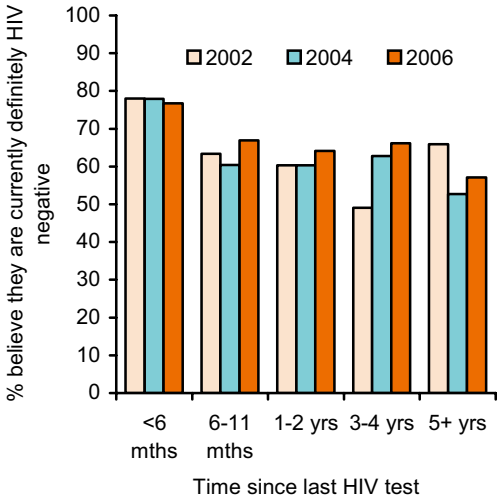
Table 12. Belief about current HIV status by test status and survey (non-tested +ve respondents)

Respondent's belief about their own HIV status at present	2002				2004				2006			
	Tested HIV negative		Hasn't tested/ Don't know		Tested HIV negative		Hasn't tested/ Don't know		Tested HIV negative		Hasn't tested/ Don't know	
	n	%	n	%	n	%	n	%	n	%	n	%
Definitely HIV negative	340	66.1	121	59.0	503	66.5	179	58.3	552	69.1	187	61.1
Probably HIV negative	156	30.4	53	25.9	218	28.8	72	23.5	219	27.4	74	24.2
Probably HIV positive	1	0.2	2	1.0	1	0.1	5	1.6	1	0.1	2	0.7
Definitely HIV positive	0	0.0	2	1.0	2	0.3	4	1.3	1	0.1	3	1.0
Don't know	11	2.1	16	7.8	24	3.2	34	11.1	22	2.8	30	9.8
Missing	6	1.2	11	5.4	8	1.1	13	4.2	4	0.5	10	3.3
Total	514	100.0	205	100.0	756	100.0	307	100.0	799	100.0	306	100.0

In 2006, proportionately more respondents who had last tested HIV negative believed that they were currently "definitely negative" (69.1%) compared to respondents who had never tested for HIV before (61.1%). This was consistent with findings in each previous survey.

The proportion of respondents who had ever tested for HIV who believed they were currently "definitely" negative has remained largely stable over the three surveys (66.1% in 2002, 66.5% in 2004 and 69.1% in 2006). Similarly, men who had never tested for HIV showed no signs of increasing beliefs that they were currently "definitely negative" (59.0% in 2002, 58.3% in 2004 and 61.1% in 2006).

Figure 26. Current belief about being "definitely negative" among men who last tested HIV negative by time since last HIV test and survey



P<0.001 in 2002 and 2004, P<0.05 in 2006.

Fig 26 illustrates how beliefs about current HIV status differed according to how long ago the respondent's last HIV negative tested was.

In 2006, respondents who had last tested HIV negative were most likely to believe they were "definitely negative" if their last HIV test was less than six months ago (76.7%) compared to men whose last negative test was between 6 months and four years ago (66.9%, 64.1% and 66.2% respectively) and compared to men whose last test was five or more years ago (57.1%).

A similar pattern was evident in previous GAPSS surveys.

Sexual relationships

Sexual practices such as the type of sex and the frequency of condom use vary according to the sexual relationship in which they happen. Aspects of a sexual relationship such as the amount of sex that occurs with a partner, how long a sexual relationship has lasted, what the nature of the relationship is, and perceptions about each other's HIV status all influence the sexual activities engaged in between sex partners and the HIV risk that is involved (Saxton et al. 2003). Furthermore, the "partnering context" also plays a role. The number of other sexual partners a man has, and the timing of these partnerships (sequentially or simultaneously), is associated with the level of condom use with each partner, and even patterns of testing and beliefs about one's own HIV status (Saxton, Dickson & Hughes 2005). Before examining patterns of anal sex and condom use, this section provides some information on the partner formation "landscape" from the 2006 survey.

The questionnaire included definitions of several key concepts. The term "sex" was defined as meaning "any physical contact that you felt was sexual". The definitions of casual and regular sex partners given (see footnote) differentiated between the partner types by the quantity of sexual interaction as opposed to the emotional nature of the relationship.[3]

Respondents were asked how many regular male sexual partners they had sex with in the six months prior to survey, whether they currently had a regular male partner at the time of survey, how long they had been in a regular relationship with the current partner, whether they currently lived with this partner, and what best described the nature of their relationship. If a respondent currently had more than one regular male partner, they were asked to focus on the partner they had the most sex with.

Number of sexual partners

The most common number of male sexual partners recorded in 2006 was between 2 to 5 (31.5%). Just over one in ten (11.6%) reported over 20 male sexual partners (Table 13).

Table 13. Number of male sexual partners in the previous six months by survey

	2002		2004		2006	
	n	%	n	%	n	%
None	42	5.2	85	7.0	49	4.0
One	177	21.8	302	24.8	322	26.2
2 to 5	239	29.4	352	28.9	387	31.5
6 to 10	121	14.9	165	13.5	172	14.0
11 to 20	87	10.7	129	10.6	126	10.3
21 to 50	91	11.2	119	9.8	100	8.1
More than 50	44	5.4	52	4.3	42	3.4
Missing	11	1.4	16	1.3	30	2.4
Total	812	100.0	1220	100.0	1228	100.0

P<0.05

[3] The questionnaire provided the following definitions: "Casual partner: Men you've had sex with 3 times, twice or once in the last 6 months"; "Regular partner: These are men you've had sex with 4 or more times in the last 6 months. They could be boyfriends, life partners, fuckbuddies etc…".

There was a statistically significant difference in the number of male sexual partners reported over the three surveys (Table 13), with proportionately fewer respondents claiming more than 20 partners in the previous six months at each survey.

In the 2006 survey, the sexual partnering history over the last six months for men recruited at the Big Gay Out, gay bars and saunas/sex-on-site venues is shown in the three graphs on the right (Figs 27-29).

In contrast to the overall 2006 sample, the most common number of sexual partners reported by men recruited at the Big Gay Out was one partner (Fig 27).

For men recruited at the gay bars (Fig 28) and the saunas (Fig 29), the most common number of partners was between 2 and 5, although the next most common number of partners was “one” partner for gay bar recruitees and “6 to 10” for sauna recruitees.

The “tail” of the sexual partnering distribution is also “thicker” for men recruited at the gay saunas, with 8.2% of such men reporting over 50 male partners compared to 2.6% of men from the gay bars and 2.3% of men from the Big Gay Out.

Age was also associated with number of sexual partners in 2006, with men aged under 25 only half as likely to report more than 20 partners (6.5%) than were men aged 25-39 (12.8%) and 40 plus (12.9%).

Sex with a woman in the last six months was reported by 6.8% of all respondents, which was similar to 2004 (6.1%). Half (49.5%) of respondents who identified as bisexual reported sex with women compared to 2.0% of men who identified as gay, and a higher proportion of younger respondents (10.8%) reported sex with a female sexual partner compared to men aged 25-39 (5.4%) and 40 plus (6.0%).

Figure 27. Number of male sexual partners in the previous six months (Big Gay Out)

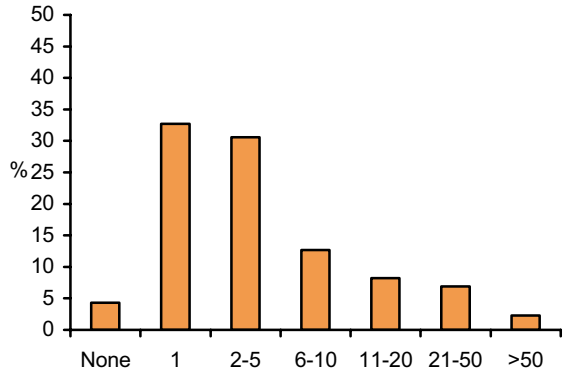


Figure 28. Number of male sexual partners in the previous six months (Gay bars)

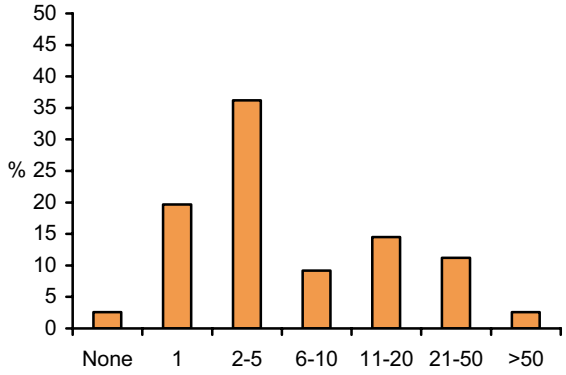
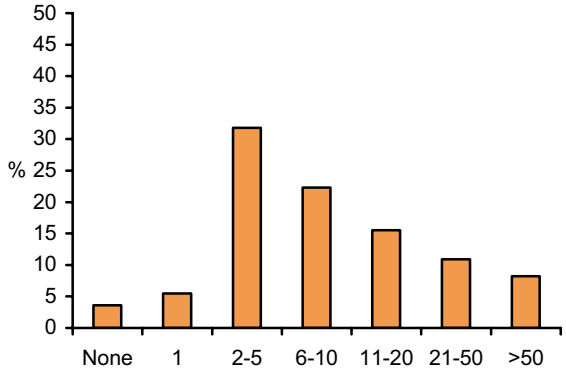


Figure 29. Number of male sexual partners in the previous six months (Saunas/ sex-on-site)



Types of sexual relationships over the previous six months

Table 14 and Fig 30 combine the responses to a number of questions on casual and regular sex partners to show the different relationship contexts men reported in the past six months.

Table 14. Types of sexual relationships with men over the previous six months by survey

	2002		2004		2006	
	n	%	n	%	n	%
No sex with a man	42	5.2	85	7.0	51	4.2
One regular sex partner only	164	20.2	257	21.1	282	23.0
Two or more regular sex partners and no casual sex	20	2.5	32	2.6	28	2.3
One regular sex partner and casual sex	183	22.5	250	20.5	251	20.4
Two or more regular sex partners and casual sex	187	23.0	338	27.7	321	26.1
Casual sex only	149	18.3	185	15.2	200	16.3
Not stated/ incomplete information	67	8.3	73	6.0	95	7.7
Total	812	100.0	1220	100.0	1228	100.0

The general patterning of sexual relationships over the previous six months was similar across all three surveys. In 2006, 71.8% (882 respondents) reported any sex with a regular male sexual partner (compared to 68.2% in 2002 and 71.9% in 2004). The proportion reporting any casual sex was also stable: 62.9% (772 respondents) in 2006 compared to 63.9% in 2002 and 63.4% in 2004.

As Figure 30 more clearly illustrates, respondents reported a variety of sexual partner combinations over a six month period. In the 2006 survey, only a quarter (23.0%) had just one regular sexual partner and one in six (16.3%) had casual sex only, with the majority of the sample reporting multiple sexual partnerships of different types.

Figure 30. Sexual relationships with men over the previous six months (2006)

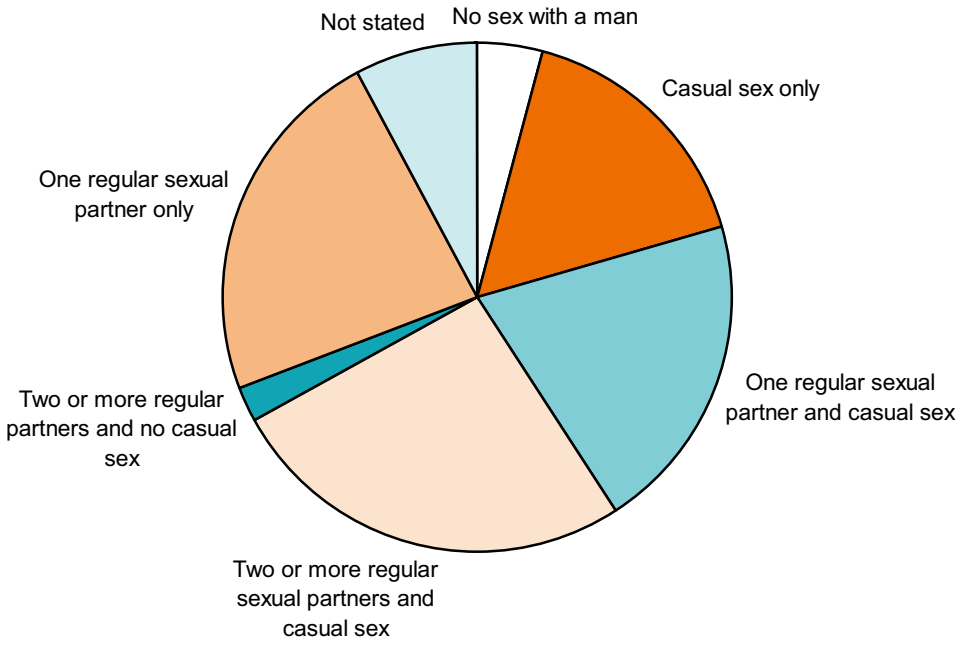
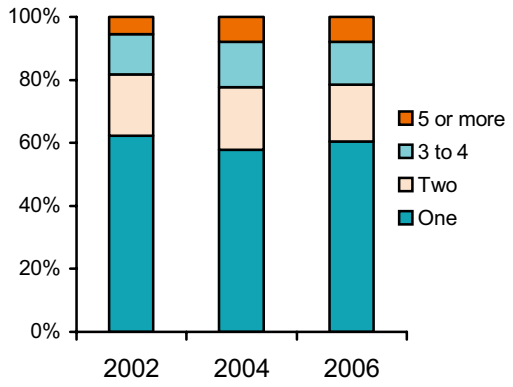


Figure 31. Number of regular male partners over the previous six months by survey



Note: Only includes men who reported at least one regular sex partner in the previous six months.

Of those who reported any sex with a regular male partner, Fig 31 shows the number of regular partners respondents had had over the previous six months by year of survey.

As in previous years, most respondents from 2006 who had any sex with a regular male partner reported having just one regular partner over this time (60.5%, compared to 57.8% in 2004).

The proportion of respondents who reported five or more regular male partners in the previous six months was the same in 2006 (7.9%) as it was in 2004 (7.9%).

Current regular sex partner

For men reporting any regular partners in the previous six months, the GAPSS survey focussed questions about sexual practices, protective behaviours and HIV test status to a respondent's *current* regular sex partner. Respondents with multiple current regular sexual partners were asked to focus on the partner who they had the *most* sex with.

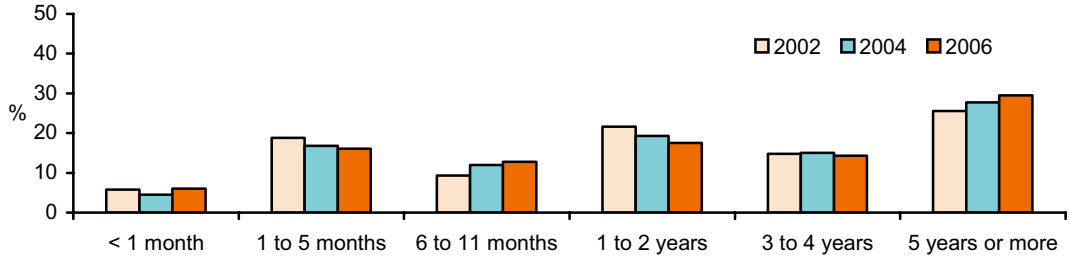
In 2006, 882 respondents had engaged in sex with a regular sex partner over the six months prior to survey. Of those, 664 respondents or 54.1% of the total 2006 GAPSS sample reported currently having a regular sex partner at the time of survey (Table 15).

Table 15. Men reporting current regular male sexual partner by survey

	2002		2004		2006	
	n	%	n	%	n	%
Current regular sexual partner	398	49.0	668	54.8	664	54.1
No current regular sexual partner	414	51.0	552	45.3	564	45.9
Total	812	100.0	1220	100.0	1228	100.0

In 2006, 29.5% of respondents with a current regular sexual partner had been in this sexual relationship for five years or more, compared to 25.6% in 2002 and 27.7% in 2004. Just over one in five (22.1%) had been in the relationship for less than six months (Fig 32).

Figure 32. Length of current regular sexual relationship



Note: Only includes men with a current regular sexual partner. 'Not stated' relationship length in 2002-2006 n=16, 32, 25.

Men described their regular sexual partners in different ways. In 2006, a similar proportion of respondents described their current regular partner as a "fuckbuddy" (21.5%) as opposed to a "boyfriend, long-term lover, life partner, or husband" (72.6%) (Table 16).

Table 16. Description of current regular partner by survey

	2002		2004		2006	
	n	%	n	%	n	%
"Boyfriend, long-term lover, life partner, or husband"	300	75.4	504	75.4	482	72.6
"Fuckbuddy"	81	20.4	128	19.2	143	21.5
Someone who I pay to have sex with	3	0.8	2	0.3	-	-
Not stated/ incomplete information	14	3.5	34	5.1	39	5.9
Total	398	100.0	668	100.0	664	100.0

Note: Paying for sex not included in 2006 survey.

The proportion of respondents who reported living in the same household as their current partner remained similar among regular partners described as a "boyfriend" (70.5% in 2006 vs 67.3% in 2004) and those described as a "fuckbuddy" (7.7% in 2006 vs 7.0% in 2004).

Current Regular Partner's HIV Testing

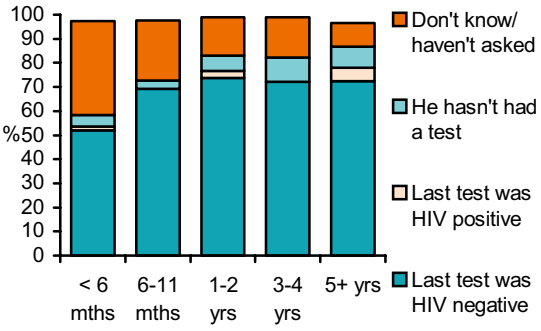
Respondents with a current regular male sex partner were asked what the result of his latest HIV test was. Discussions or assumptions about a regular partner's test status may differ between men who have themselves tested positive and those who have not, thus the results presented from Table 17 through to Fig 39 below are limited to respondents who have not tested positive. The majority of those respondents in 2006 (66.3%) reported that their current partner's latest test was HIV negative and a small number (2.6%) reported that it was HIV positive. Around 1 in 5 (20.6%) stated that they had never asked their regular partner about his HIV testing history.

Table 17. HIV test status of current regular partner by survey (non-positive respondents)

	2002		2004		2006	
	n	%	n	%	n	%
Don't know/ haven't asked him	62	17.8	132	22.5	127	20.6
He hasn't had a test	49	14.0	48	8.2	42	6.8
Last test was HIV negative	222	63.6	371	63.2	409	66.3
Last test was HIV positive	6	1.7	16	2.7	16	2.6
Not stated/ incomplete information	10	2.9	20	3.4	23	3.7
Total	349	100.0	587	100.0	617	100.0

Fig 33 shows how a respondent's understanding of their regular partner's HIV test status varies by the length of the current relationship. In 2006, respondents whose regular sexual relationship was less than six months long reported the highest rate of "don't know/haven't asked him" (38.9%) compared to relationships that were 6-11 months (24.7%), 1-2 years (15.9%), 3-4 years (16.7%) and 5 or more years duration (9.8%).

Figure 33. HIV test status of current regular sex partner by relationship length among non +ve respondents (2006)

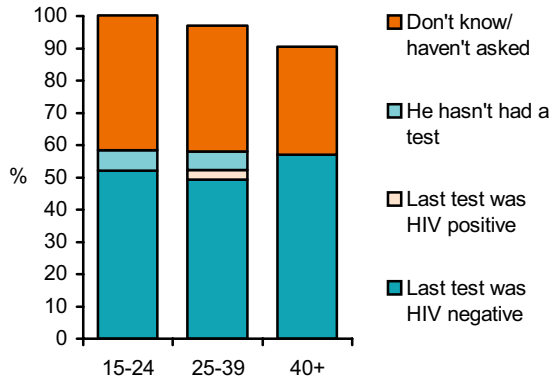


Newer regular relationships (i.e. those of less than six months duration) were more likely to involve responses about a current partner's HIV test status such as "I don't know/haven't asked him". Figs 34 and 35 therefore examine whether there is evidence of further variation within newer partnerships in the 2006 survey.

Fig 34 shows that men from all age groups reported broadly similar responses about their new regular relationship. Respondents aged 40 and over were proportionately least likely to state that they "don't know/hadn't asked" about their new partner's HIV test status (33.3%) compared to respondents aged 25-39 (39.1%) and those aged under 25 (41.7%).

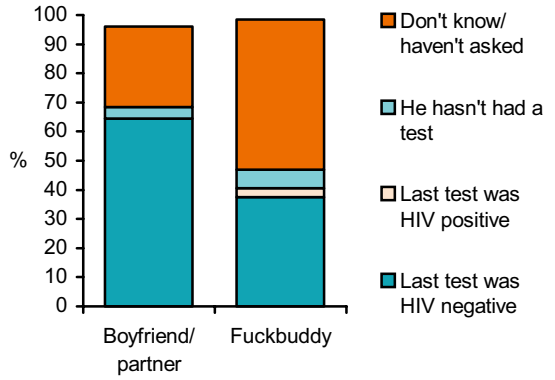
Fig 35 however reveals that responses about a regular partner's HIV test status did differ markedly for new relationships that were described either as a "boyfriend/partner" type of relationship as opposed to those that were described as a "fuckbuddy" type of regular relationship. Half (51.6%) of respondents with a new "fuckbuddy" relationship had not asked their partner or did not know his test status, compared to 27.6% of those with new "boyfriend" type relationships.

Figure 34. HIV test status of current regular sex partner by age group, among non +ve respondents in "new" relationships (2006)



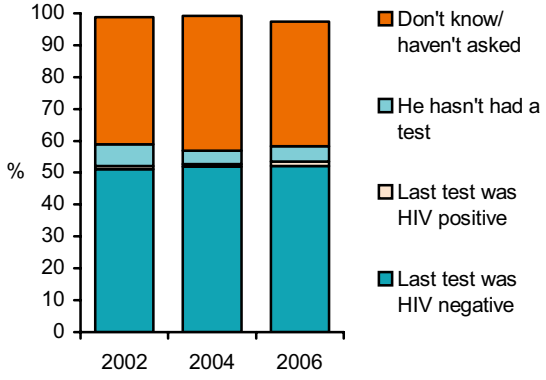
'Not stated' for 15-24, 25-39 and 40+; n=0, 2, 2. P=ns.

Figure 35. HIV test status of current regular sex partner by description of partner, among non +ve respondents in "new" relationships (2006)



'Not stated' for boyfriend, fuckbuddy; n=3, 1. P<0.05.

Figure 36. HIV test status of current regular sex partner by survey, among non +ve respondents in "new" relationships by survey



'Not stated' by survey; n=1, 1, 4. P=ns.

Returning again to new regular relationships and whether patterns of HIV test status knowledge have changed over time, Fig 36 demonstrates that the results have been very consistent across all three surveys.

Approximately equal proportions of respondents with new relationships reported that they "didn't know/hadn't asked" their new regular sex partner their HIV test status in 2002 (39.8%), 2004 (42.3%) and 2006 (38.9%).

Respondents were also asked what they *believed* their current regular partner's HIV status was at present. Table 18 shows the results of this question according to the partner's HIV testing history as reported by the respondent (note that the categories of "hasn't tested" and "don't know/haven't asked him" have been combined for this analysis).[4]

Table 18. Respondent's belief about regular partner's current HIV status by partner's last HIV test status and survey (non +ve respondents)

Respondent's belief about regular partner's HIV status at present	2002				2004				2006			
	Regular Partner's Test History				Regular Partner's Test History				Regular Partner's Test History			
	Tested HIV negative		Hasn't tested/ Don't know		Tested HIV negative		Hasn't tested/ Don't know		Tested HIV negative		Hasn't tested/ Don't know	
	n	%	n	%	n	%	n	%	n	%	n	%
Definitely HIV negative	180	81.1	55	49.6	301	81.1	76	42.2	333	81.4	78	46.2
Probably HIV negative	36	16.2	44	39.6	58	15.6	75	41.7	63	15.4	59	34.9
Probably HIV positive	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0	0	0.0
Definitely HIV positive	2	0.9	1	0.9	2	0.5	2	1.1	2	0.5	0	0.0
Don't know	2	0.9	10	9.0	7	1.9	24	13.3	7	1.7	32	18.9
Missing	2	0.9	0	0.0	3	0.8	3	1.7	4	1.0	0	0.0
Total	222	100.0	111	100.0	371	100.0	180	100.0	409	100.0	169	100.0

Note: Only includes non HIV positive respondents who have a current regular partner, whom the respondent described as either having a last test that was HIV negative, as having never tested, or whom the respondent did not ask about their HIV testing history.

Consistent with previous surveys, 81.4% of 2006 survey respondents who reported that their partner had tested negative at their last HIV test believed that their partner was currently "definitely negative". Proportionately fewer respondents who reported that their partner had never tested for HIV or that hadn't asked their partner about their HIV testing history stated this (46.2%) (Table 18 and Fig 37). For regular partners who last tested negative and who were untested/hadn't been asked, Figs 38 and 39 show how these beliefs that a regular partner was "definitely negative" were also associated with the description of partner.

Figure 37. Respondent's belief about partner's current HIV status by partner's test history (2006)

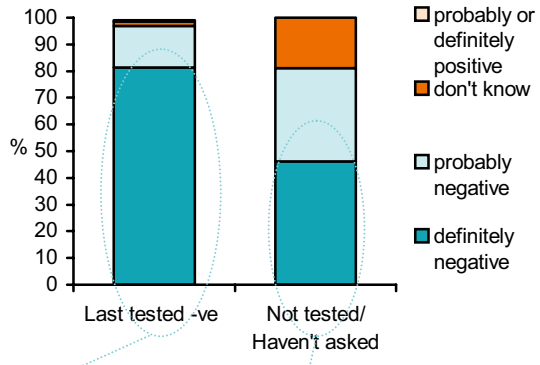


Figure 38.

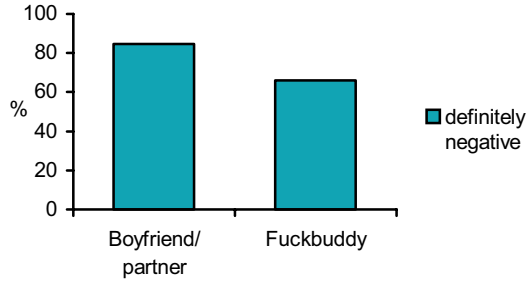


Figure 39.

[4] Note again that the data reported here for 2002 and 2004 differs slightly from that presented in Table 18 from Saxton, Dickson & Hughes (2004), as the table above omits respondents who have themselves tested HIV positive.

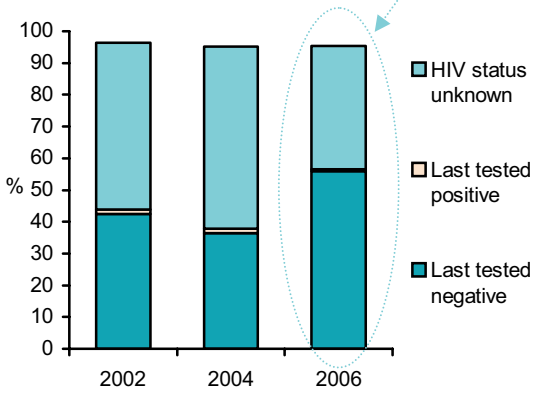
Combining information on a partner's last HIV test status with information on the respondent's last HIV test status, the degree of *possible* sero-concordance (having the same HIV status) with regular partners was determined (Table 19). It is important to note that we are not able to establish the *actual* level of sero-concordance, since a respondent's assessment of their own or their partner's actual HIV status may not be correct, and regular sexual partners who disclosed information about their HIV status to a respondent may not have been aware of an undiagnosed infection.

Table 19. Possible sero-concordance with current regular sex partner (2006)

	Respondent's own latest HIV test status					
	Unknown		HIV Negative		HIV Positive	
Partner's last HIV test status	n	%	n	%	n	%
HIV status unknown*	59	38.8	110	23.7	1	4.8
Last test was HIV negative	85	55.9	324	69.7	13	61.9
Last test was HIV positive	1	0.7	15	3.2	7	33.3
Not stated	7	4.6	16	3.4	0	0.0
Total	152	100.0	465	100.0	21	100.0

* Combination of "unknown/haven't asked him" and "he hasn't had a test". Only includes men who had a current regular sex partner and who provided information on their own HIV test history (n=638).

Figure 40. HIV test status of current regular sex partner by survey, among untested respondents



'Not stated' by survey; n=3, 7, 7. P<0.05.

Respondents in 2006 whose own last HIV test was negative (n=465) were most likely to report that their current regular partner's status was HIV negative (69.7%), as in previous surveys (69.7% in 2002 and 71.8% in 2004, not shown). Respondents who had tested HIV positive (n=21) were most likely to state that their partner had also tested HIV positive (33.3%).

The proportion of respondents who had never tested for HIV (n=152 in 2006) who stated that their regular sex partner's test status was HIV negative (55.9%) was higher than in previous years, as Fig 40 shows. In 2002, 42.5% of untested respondents stated that their regular sex partner was HIV negative, this being even lower in 2004 (36.4%).

Although there is no clear linear trend, it may indicate that untested men in 2006 were either asking their regular partners about their test status more often than in previous years (thus reducing the proportion reporting '"HIV status unknown"), or that they were more willing to make assumptions that their regular sex partner's test status was negative.

Untested men did not report higher rates of *believing* that their current partner was currently "definitely negative" over time (66.7%, 64.3% and 67.8% in 2002-2006, not shown). This potentially suggests that in 2002 and 2004, beliefs that a partner was "definitely negative" were more likely to rely on speculation than on discussing test status.

Concurrent sexual partnering

Some men, and couples, have sex with other men in addition to their current regular partner. Sometimes it happens with or without the other partner's knowledge, and it might also happen when a relationship is just forming or is about to end.

Overlapping, simultaneous or "concurrent" relationships present risks for the transmission of HIV in certain conditions. When unprotected anal sex occurs, concurrent relationships create connections between individuals that facilitate the rapid spread of HIV, because they increase the number of individuals the virus is able to infect in a relatively short space of time (Morris and Kretzschmar, 1997). At a personal level, overlapping relationships allow HIV entry into a sexual partnership, even when one of the individuals has not acquired any new sexual partners other than their current one. The following analysis presents the proportion of men in regular sexual relationships that we were able to identify in GAPSS as having concurrent sexual partners, and later sections will examine the patterns of condom use and HIV risk present in these circumstances.

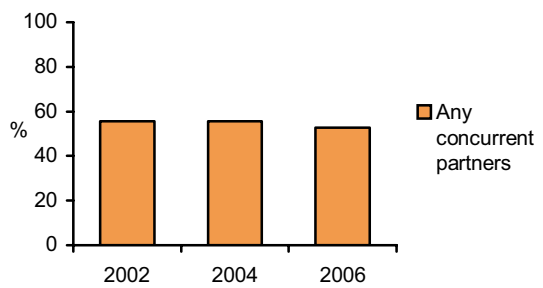
We are able to identify and distinguish between concurrent, and serial/sequential sexual partnering, by identifying those who reported currently being in a relationship with a regular partner for "six months or more", and then by investigating whether they had reported any other regular or casual partners during this six month period. In 2006, three-quarters (492 respondents out of 664, or 74.1%) of those with current regular sexual partners reported being with their current regular partner for six months or more, and Table 20 shows the results for concurrent sex among this group.

Table 20. Concurrent sexual partnering among respondents with current regular partner of at least six months duration by survey

	2002		2004		2006	
	n	%	n	%	n	%
No other partners in <6 months	116	40.8	206	41.7	219	44.5
Concurrent casual partners only in <6 months	86	30.3	134	27.1	133	27.0
Concurrent regular partners only in <6 months	5	1.8	11	2.2	11	2.2
Both concurrent regular and concurrent casual partners in <6 months	68	23.9	129	26.1	115	23.4
Not stated	9	3.2	14	2.8	14	2.8
Total	284	100.0	494	100.0	492	100.0

Note: Only those with a current regular partner of at least six months duration are included in the Table above.

Figure 41. Any concurrent sex among respondents with regular partners of at least six months duration by survey



Of these 492 respondents in 2006, over half (259 respondents or 52.6%) reported at least one concurrent sexual partner (Table 20 and Fig 42).

This was slightly lower than previous surveys, where 55.6% had concurrent partners in 2002 and 55.5% had concurrent partners in 2004 (Fig 41).

Figure 42. Concurrent sexual partnerships among respondents with current regular sex partner of at least six months duration (2006)

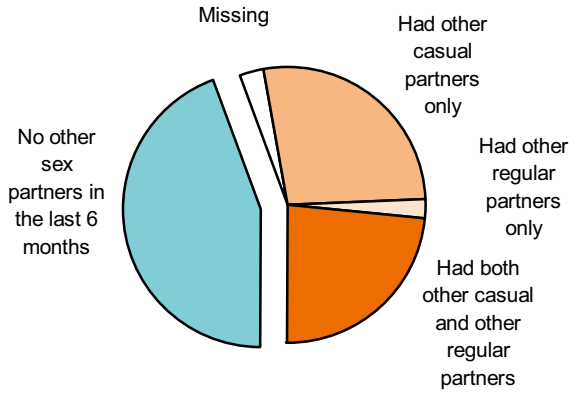
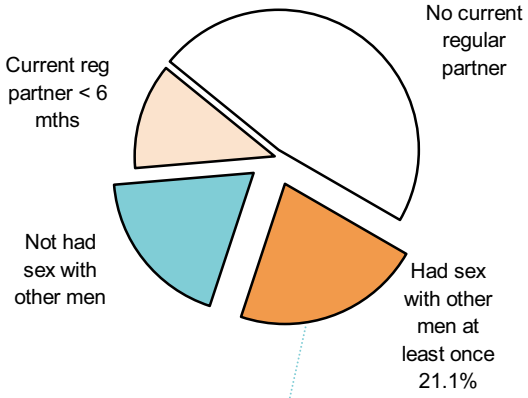


Figure 43. Concurrent sex in the six months prior to survey: out of whole 2006 sample



Overall, these 259 respondents who had concurrent sexual partnerships in the six month period prior to survey represent 21.1% of the entire 2006 GAPSS sample (Fig 43), consistent with the 19.5% found in 2002 and the 22.5% found in 2004.

The rate of concurrent partnerships identified in GAPSS obviously also depends on patterns of regular sexual relationships of at least six months duration, and some men are less likely to report such relationships. For example, younger men are less likely to be in relationships of over 6 months (22.7% of all respondents aged under 25) than are older men (around 44% of those aged over 25), and respondents recruited at gay bars were less likely to be in a regular partnership of this length (27.0%) than were respondents recruited at the Big Gay Out (44.4%) or saunas (32.3%).

Nevertheless, concurrent regular partnerships were found across all types of respondents. Fig 44 shows that concurrent partnerships in the previous six months were identified among those recruited at the Big Gay Out (20.0% of all men recruited from this site), gay bars (16.5%) and gay saunas (28.6%). Fig 45 shows that while concurrent partnering increased with age (from 10.3% to 20.6% to 27.1%) it was not a phenomenon reported only by certain age groups (in fact, respondents aged 15-24 who *did* have a regular relationship of six months or

Figure 44. Concurrent sex by site of recruitment: out of all respondents (2006)

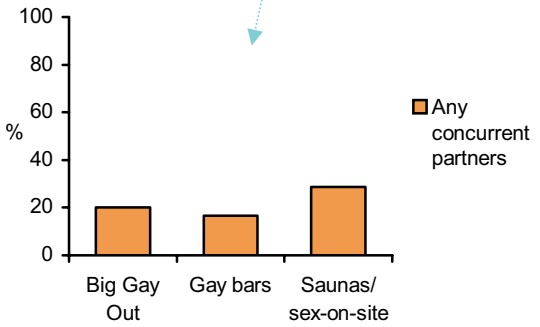
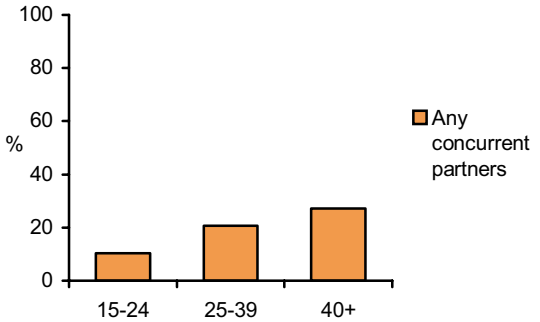


Figure 45. Concurrent sex by age group: out of all respondents (2006)



more were just as likely to report sex with another man over this period (45.2%) as were men aged 25-39 (46.8%)).

As stated above, concurrent sexual partnering in GAPSS can only be determined among a portion of the whole sample – those who had regular sexual relationships of at least six months length. It is not possible for GAPSS to determine concurrent sex in the previous six months for those in relationships for less than six months duration, since this could falsely identify multiple partnerships as concurrent when in fact they may be sequential partnerships that never overlapped. Also, men having only casual sex (defined as sex with a man up to a maximum of three times in a six month period) may also experience concurrent casual partnering, but we are unable to explore this. This means that the actual rates of concurrent sex will be higher than those reported here for any given six month period, and of course will inevitably rise if the period over which concurrent sex is measured is extended to a year or a lifetime.

Sex with a man whom the respondent met via the Internet

In all three surveys the GAPSS project included a question on sex and the Internet. In the 2006 online survey (not reported here), additional questions were posed specifically on frequency of online cruising. In the offline questionnaire, we focussed on the act of having sex with someone the respondent had met via the Internet in the previous six months. The results from this question therefore highlight the proportion of respondents who had actually obtained sexual partners via the Internet within a given time period (six months), as compared to other questions such as whether the Internet was the preferred source of sexual partners (not reported here).

As Table 21 below shows, the proportion of 2006 GAPSS respondents who had had sex with a man whom they met via the Internet in the six months prior to survey appeared to decrease slightly from 2004, from 42.0% to 38.3%. This finding is interesting, given the apparent popularity of Internet dating sites among MSM in New Zealand.

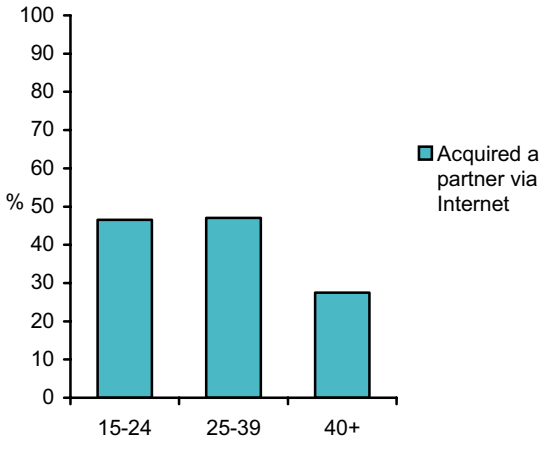
Table 21. Sex with a man whom the respondent met via the Internet in previous six months by survey

	2002		2004		2006	
	n	%	n	%	n	%
Yes	204	25.1	513	42.0	470	38.3
No	520	64.0	633	51.9	658	53.6
No sex with a man/ not stated	88	10.8	74	6.1	100	8.1
Total	812	100.0	1220	100.0	1228	100.0

P<0.001.

Acquiring a sexual partner via the Internet differed significantly according to age group (Fig 46).

Figure 46. Sex via the Internet in last six months by age group (2006)



Note: 'Not stated' not shown. P<0.001.

Just under half of respondents aged 15-24 (46.5%) and respondents aged 25-39 (47.0%) had had sex with someone they met via the Internet in the previous six months, compared to 27.5% of men aged 40 and over.

As in 2004, reporting sex via the Internet was found to be related to the amount of free time respondents spent with gay men, although it did not appear to be as pronounced. Respondents who spent "a lot" of their free time with other gay men were more likely to have met a sexual partner via the Internet (41.9% in 2006 vs 47.0% in 2004) compared to those who spent "some" (39.6% in 2006 vs 40.1% in 2004), "a little" (35.1% in 2006 vs 31.5% in 2004) or "none" (22.6% in 2006 vs 16.7% in 2004) of their free time with gay men.

Knowledge about HIV and safe sex

Questions about respondent's knowledge of HIV and safe sex issues were asked for the first time in the GAPSS project in 2006. Research into men's knowledge of HIV was last conducted in 1996 in New Zealand (Saxton et al. 1997; Saxton et al. 1998), and the inclusion of knowledge items into GAPSS 2006 followed health promotion campaigns from 2003 highlighting the risk (or safety) associated with different sexual acts, statements about the epidemiology of HIV such as undiagnosed infections and the early acute infectious stage, and recent publicity during 2004 and 2005 concerning the increase in HIV diagnoses.

The knowledge items in the questionnaire appeared as a series of statements with a heading informing the participant that "the following statements are all TRUE. Please indicate whether you knew this or not". Response categories offered were "I knew that", "I didn't know that" and "I wasn't sure". As with all the GAPSS questions, the self-complete and anonymous format for participating in the survey should reduce social desirability biases that may have been stronger if respondents had had to disclose this verbally to an interviewer, or if responses could be linked back to identifiable individuals. Inquiring about knowledge of HIV and safe sex via a sequence of true statements also has the advantage of imparting or reinforcing knowledge through the process of taking part in the survey.

The results for the eight knowledge items are shown below in Table 22.

Table 22. Knowledge about HIV and safe sex (2006)

	I knew that (%)	I wasn't sure (%)	I didn't know that (%)
Anal sex without a condom is very high risk for HIV transmission	95.0	0.8	0.3
Oral sex is low risk for HIV transmission	81.0	12.5	2.4
Once infected, HIV remains in your body for life	91.2	3.4	1.4
Around 1 in 3 gay/bisexual men who are infected with HIV don't know it	42.8	32.7	20.0
HIV is more easily transmitted to others in the first few weeks after infection	40.1	22.2	33.6
1 gay/bisexual man is being diagnosed with HIV in New Zealand every 4 days	42.5	22.2	23.2
The lining inside your anus (bum) can both absorb HIV and transmit HIV	60.7	15.8	19.5
HIV cannot pass through an undamaged latex condom	79.3	11.5	5.1

Note: Rows may not total to 100% due to missing data.

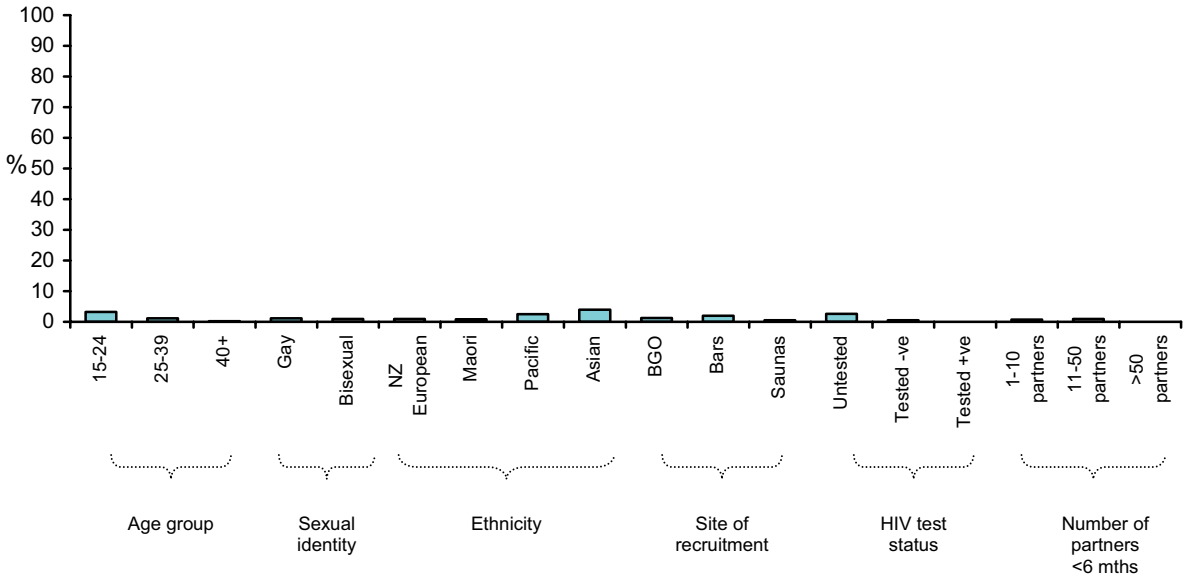
Virtually all respondents knew that anal sex without a condom was very high risk for HIV transmission (95.0%), and that HIV cannot be eradicated from the body once infection occurs (91.2%). Proportionately fewer respondents were as certain about the risk from oral sex (81.0%), and only 8 out of 10 respondents (79.3%) knew that intact condoms are impermeable to HIV. Lower rates of knowledge were recorded for statements regarding HIV epidemiology in New Zealand and other transmission issues.

The following section examines whether knowledge varies across selected health promotion target groups. Each of the eight knowledge items are tested for association with the following variables: age group, sexual identity, ethnicity, site of recruitment, HIV test status and number of sexual partners in the previous six months. The Figures below present the proportion of respondents who were either "unsure" or who "didn't know that" in each of the variable sub-categories (e.g. respondents aged 15-24). The orange bars represent variables across which there was a statistically significant variation in lack of knowledge (e.g. between men who were aged 15-24, 25-39 and 40 and over).

Anal sex without a condom is very high risk for HIV transmission

Just 1.1% of the whole sample reported that they did not know or were unsure that unprotected anal sex was very high risk for HIV transmission. Less than 5% of all groups reported any lack of knowledge for this statement, and this did not vary between groups (Fig 47).

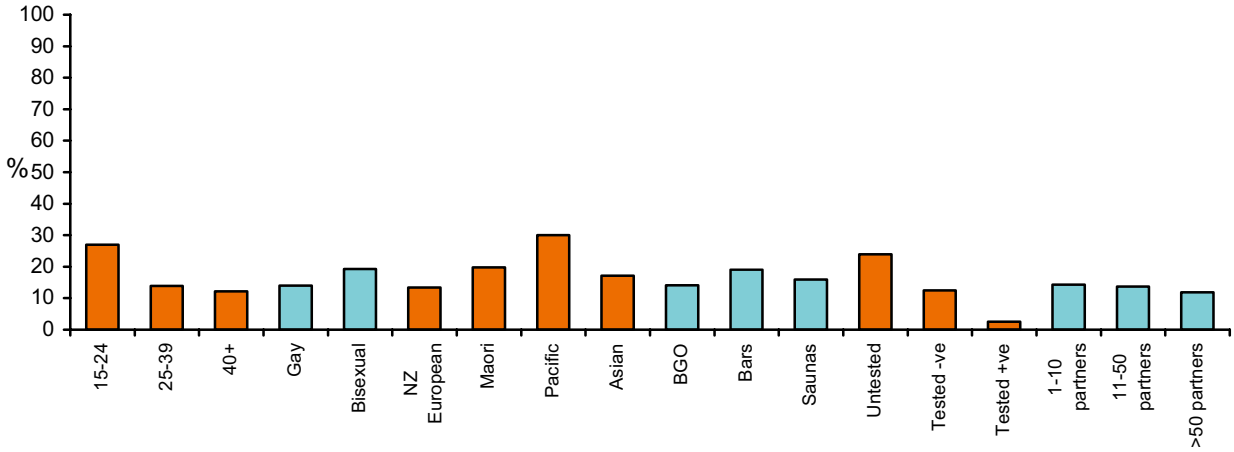
Figure 47. Lack of knowledge that anal sex without a condom is very high risk for HIV transmission (2006)



Oral sex is low risk for HIV transmission

On average 14.9% of the whole sample reported some lack of knowledge on this item. Greater lack of knowledge occurred among younger respondents (27.0% of those under 25), Maori and Pacific respondents (19.8% of Maori, 30.0% of Pacific respondents), and among those who had never tested for HIV (23.9%) (Figure 48). The highest rate of knowledge was reported by respondents who had tested positive, had last tested negative, or who were aged 40 and over.

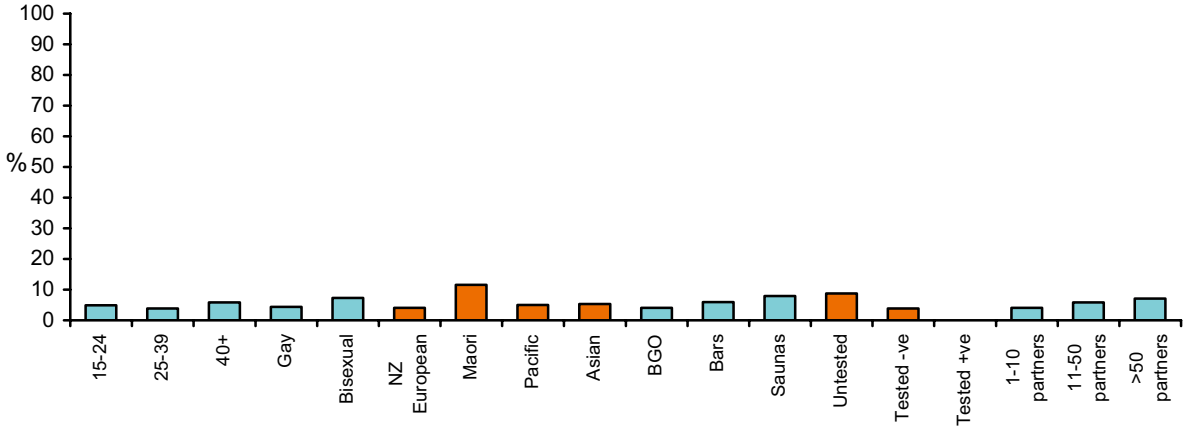
Figure 48. Lack of knowledge that oral sex is low risk for HIV transmission by selected health promotion groups (2006)



Once infected, HIV remains in your body for life

One in twenty respondents (4.8%) reported any lack of knowledge or uncertainty on this item. This was greater among Maori respondents (11.6%) and respondents who had never tested for HIV (8.8%) (Figure 49).

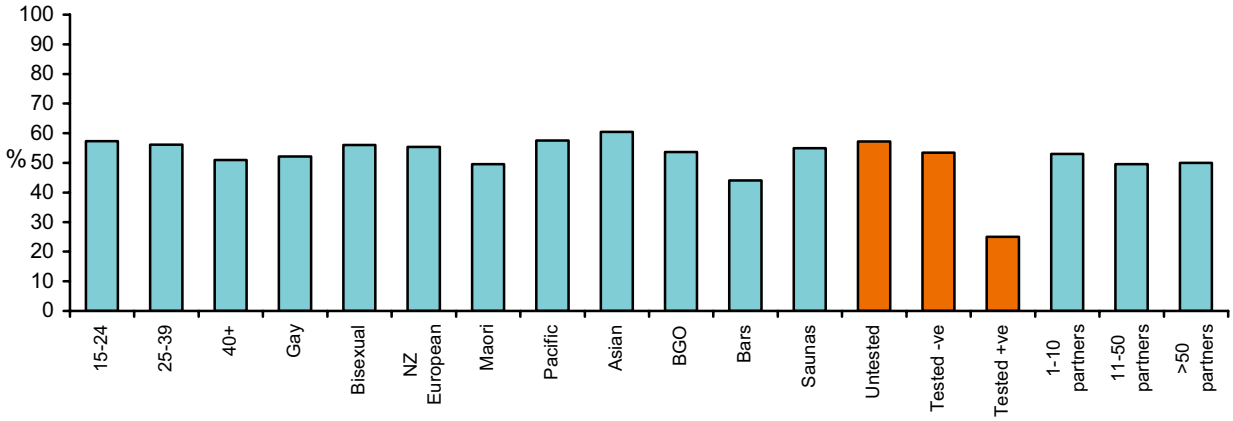
Figure 49. Lack of knowledge that once infected, HIV remains in the body for life by selected health promotion groups (2006)



Around 1 in 3 gay/bisexual men who are infected with HIV don't know it

The assertion that 1 in 3 gay/bisexual men who are HIV positive are unaware of their infection has been promoted by NZAF for a number of years based on findings among MSM from the United Kingdom (Rogers et al. 2002; Dodds et al. 2004). An average of 52.8% of all respondents had not heard of this estimate. No groups reported significantly less knowledge on this topic than others, although respondents who had tested HIV positive were significantly more aware of this estimate (just 25.0% were unaware) (Fig 50).

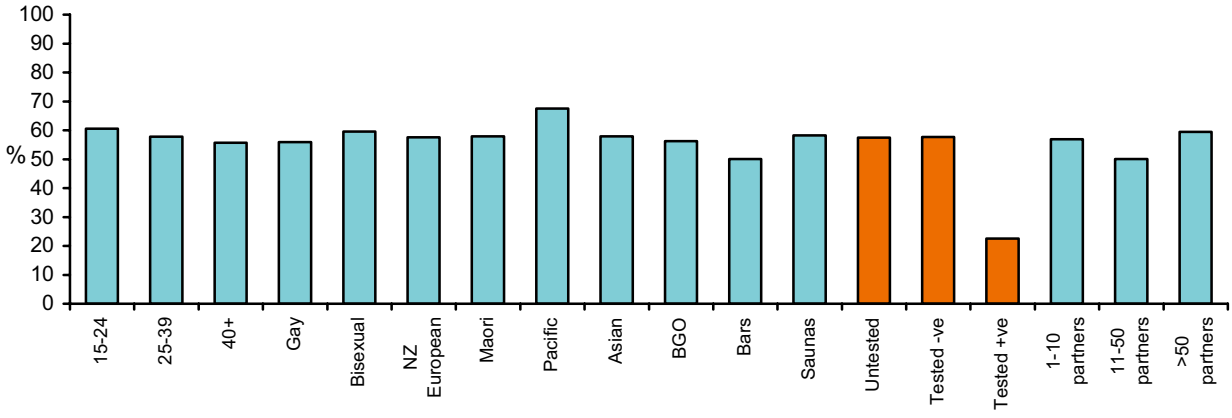
Figure 50. Lack of knowledge that 1 in 3 gay/bisexual men infected with HIV don't know it (2006)



HIV is more easily transmitted in the first few weeks after infection

Over half the sample (55.8%) reported that they were unaware that HIV is more easily transmitted in the early stages of infection. The issue of acute infection has been highlighted to reinforce condom use in the context of sex in non-monogamous regular "boyfriend" and "fuckbuddy"-type relationships, and also to counter "disclosure-based" approaches around unsafe sex by emphasising the fact that newly infected men who may be unaware of their own infection (and therefore unable to disclose) are also highly infectious. In GAPSS, few differences were observed between groups on this item, although again those who had tested HIV positive were most aware of this issue (only 22.5% stated they did not know this).

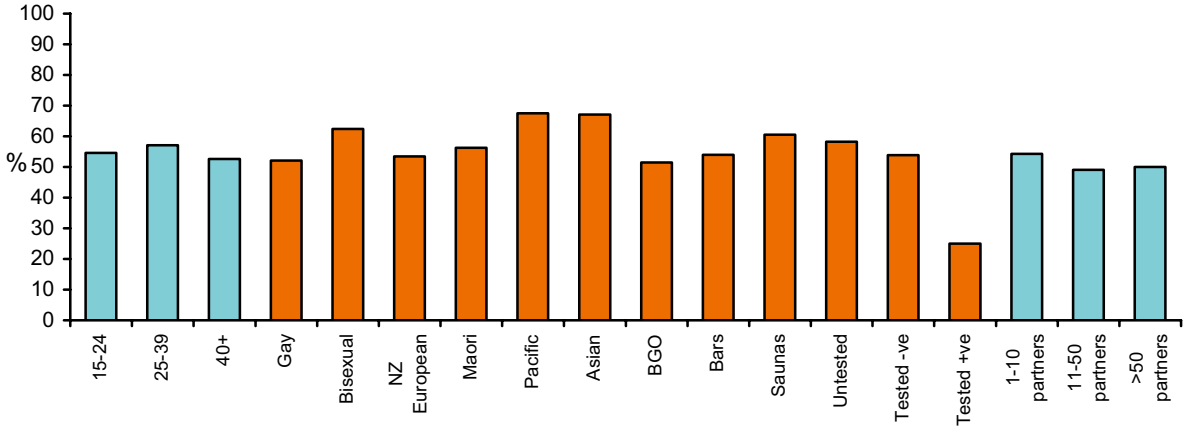
Figure 51. Lack of knowledge that HIV is more easily transmitted in the early stages of infection (2006)



1 gay/bisexual man is being diagnosed with HIV every 4 days in New Zealand

Of all respondents, 53.4% reported not knowing that one gay or bisexual man was being diagnosed with HIV every four days in New Zealand, a statistic that had been promoted extensively in media releases in 2005 surrounding the recent increase in HIV diagnoses among MSM. Respondents who identified as bisexual (62.4%), who were of Pacific (67.5%) or Asian (67.1%) ethnicity, and who were recruited at the saunas/sex-on-site venues (60.5%) were more likely to report not knowing this statistic (Figure 52). Respondents who had tested HIV positive were most likely to have heard this figure (25.0% did not know).

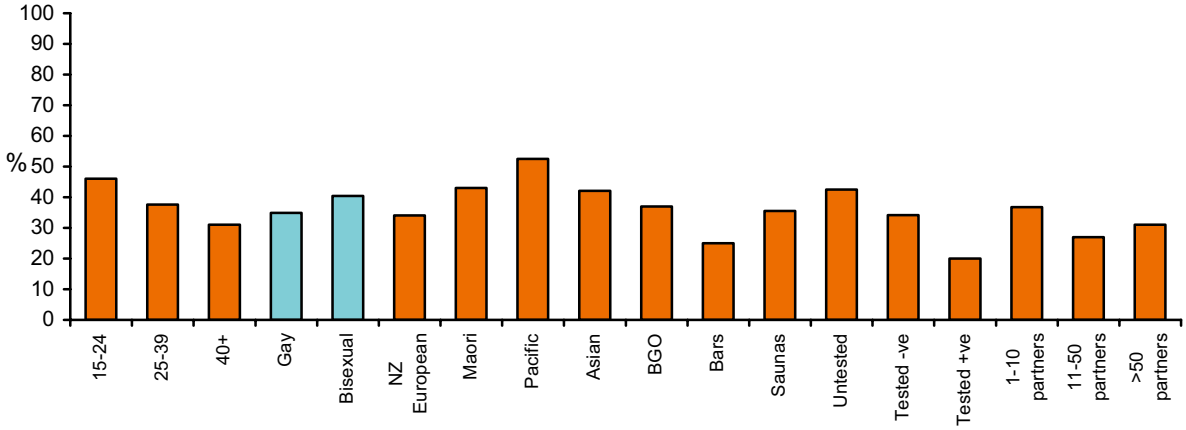
Figure 52. Lack of knowledge that 1 gay/bisexual man is being diagnosed every 4 days in NZ (2006)



The lining inside your anus (bum) can both absorb HIV and transmit HIV

Just over a third (35.3%) of the sample reported not being aware how the anus facilitates HIV transmission through both absorption and expression of HIV. Respondents who were aged under 25 (46.0%), were Maori (43.0%), Pacific (52.5%) or Asian (42.1%), or had not tested for HIV (42.5%) reported greater lack of knowledge on this issue. Alternatively, those recruited at gay bars (25.0%), who had tested positive (20.0%), or who had higher numbers of male sexual partners (27.0% and 31.0% respectively) reported greater awareness.

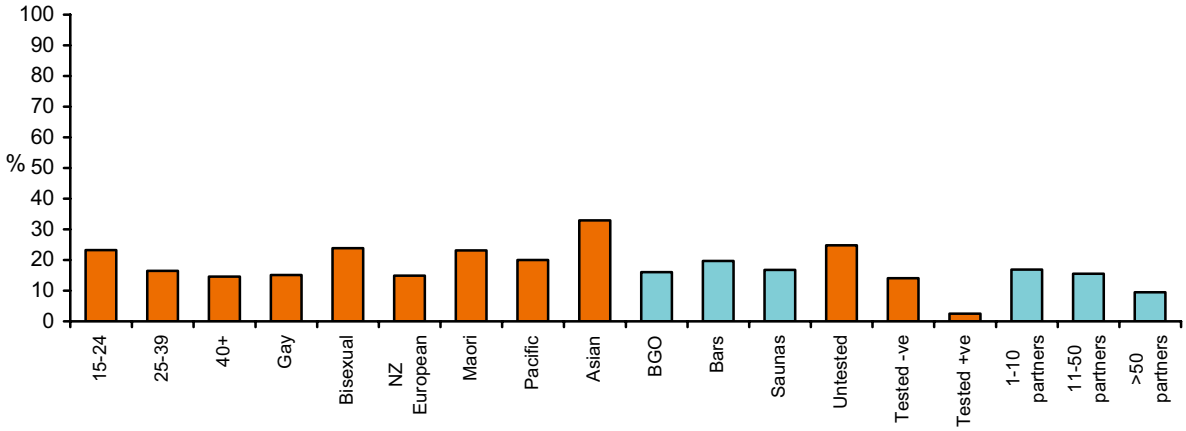
Figure 53. Lack of knowledge that the lining inside your anus can both absorb and transmit HIV (2006)



HIV cannot pass through an undamaged latex condom

One in eight (16.6%) of the sample did not know or were unsure of the fact that HIV cannot pass through the side of an intact latex condom. Greater lack of knowledge was reported by respondents who were aged under 25 (27.0%), who identified as bisexual (23.9%), who were Maori (23.1%), Pacific (20.0%) or Asian (32.9%), or who were untested (24.8%). Again, respondents who had tested positive were least likely not to know this (2.5%) (Fig 54).

Figure 54. **Lack of knowledge that HIV cannot pass through an undamaged latex condom (2006)**



Attitudes

All respondents were asked how they felt about five statements regarding HIV, condom use and sex. Four statements were repeated in 2006 that had been included in both 2002 and 2004, and one statement from 2004 on expectations of disclosure of HIV status was also repeated again. Participants were invited to "strongly agree", "agree", "disagree", or "strongly disagree" with each one.[5] Comparisons over time are displayed in Tables, and the bar graphs illustrate the proportion of respondents in each of the health promotion categories who stated that they "agreed/strongly agreed" or "disagreed/strongly disagreed" with the statement in 2006. As in the Knowledge section in this report, where respondents demonstrated statistically significant differences in agreement/disagreement, this is highlighted by orange bars and is described in the text.

"HIV/AIDS is a less serious threat than it used to be because of new treatments"

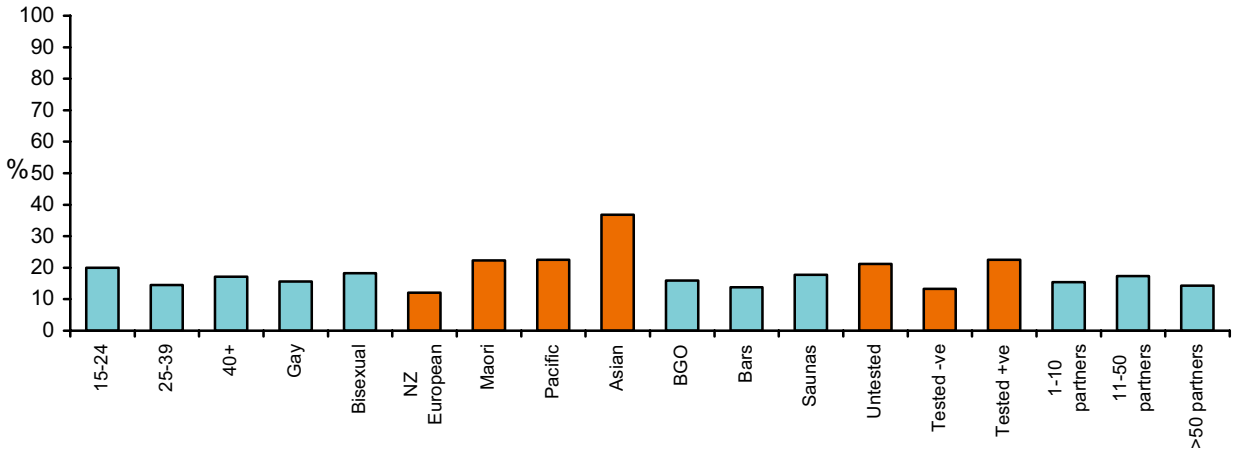
Table 23. "HIV/AIDS is a less serious threat…" by survey

	2002		2004		2006	
	n	%	n	%	n	%
Strongly agree	43	5.3	62	5.1	63	5.1
Agree	111	13.7	162	13.3	133	10.8
Disagree	264	32.5	366	30.0	324	26.4
Strongly disagree	373	45.9	584	47.9	670	54.6
Not stated	21	2.6	46	3.8	38	3.1
Total	812	100.0	1220	100.0	1228	100.0

P=0.002 over time.

There was a statistically significant increase the proportion of respondents who "strongly disagreed" that HIV/AIDS was a less serious threat", with over half reporting this in 2006 (54.6%). Fewer respondents also agreed or strongly agreed with this statement in 2006 (16.%) (Table 23).

Figure 55. Proportion agreeing with statement "HIV/AIDS is a less serious threat than it used to be because of new treatments" (2006)



[5] In contrast to previous reports that combined "agree" and "agree strongly", and "disagree" and "disagree strongly", the Tables in this report present the full range of responses. The new bar graphs in this section however present either the negative/positive combined response for simplicity.

Ethnicity and HIV test status were associated with agreement with this statement in 2006 (Fig 55). Over a third of Asian respondents (36.8%) agreed/strongly agreed with this statement, as did 22.5% of Pacific respondents and 22.3% of Maori respondents. Respondents who had never tested for HIV (21.2%) and respondents who had tested HIV positive (22.5%) were also more likely to agree with this statement.

"Condoms are OK as part of sex"

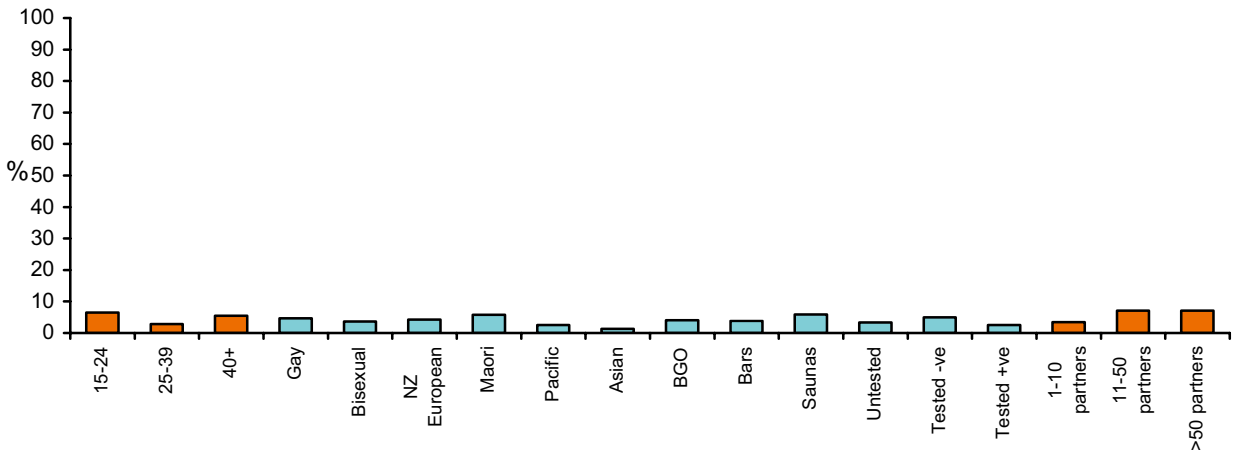
Table 24. "Condoms are OK as part of sex" by survey

	2002		2004		2006	
	n	%	n	%	n	%
Strongly agree	478	58.9	676	55.4	774	63.0
Agree	291	35.8	411	33.7	358	29.2
Disagree	18	2.2	43	3.5	36	2.9
Strongly disagree	6	0.7	36	3.0	18	1.5
Not stated	19	2.3	54	4.4	42	3.4
Total	812	100.0	1220	100.0	1228	100.0

P=ns over time.

As in previous years, the overwhelming majority of respondents in 2006 agreed or strongly agreed that "condoms are OK as part of sex" (92.2%). There was no clear trend over the three surveys (Table 24).

Figure 56. Proportion disagreeing with statement "Condoms are OK as part of sex" (2006)



Respondents who had higher numbers of male sexual partners in the previous six months were more likely to disagree/strongly disagree with this statement (Fig 56). One in 14 of those who had between 11 and 50 male partners (7.1%) and those with over 50 male partners (7.1%) did not agree that condoms were OK as part of sex. Respondents who were aged 25-39 on the other hand were less likely to disagree with this statement.

"I would sometimes rather risk HIV transmission than use a condom during anal sex"

Less than 10% (8.8%) of all respondents agreed that "I'd sometimes rather risk HIV than use a condom for anal sex" in 2006. This proportion has decreased slightly over time (Table 25).

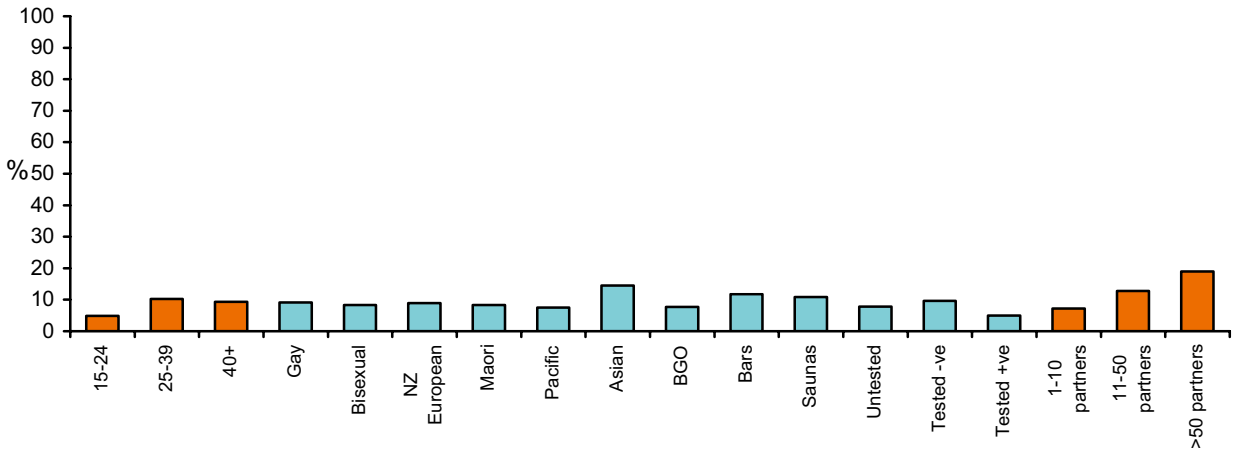
Table 25. "I would sometimes rather risk HIV transmission than use a condom during anal sex" by survey

	2002		2004		2006	
	n	%	n	%	n	%
Strongly agree	32	3.9	45	3.7	34	2.8
Agree	70	8.6	70	5.7	74	6.0
Disagree	152	18.7	205	16.8	203	16.5
Strongly disagree	535	65.9	802	65.7	865	70.4
Not stated	23	2.8	98	8.0	52	4.2
Total	812	100.0	1220	100.0	1228	100.0

P=0.003 over time.

Correspondingly, the proportion of respondents who reported that they "strongly disagree" with this statement increased in 2006 to 70.4%, an increase from 65.9% in 2002 and 65.7% in 2004.

Figure 57. Proportion agreeing with statement "I would sometimes rather risk HIV transmission than use a condom during anal sex" (2006)



Younger respondents (aged under 25) were least likely to agree that they'd sometimes rather risk HIV transmission than use a condom during anal sex (4.9%). Agreement with this statement was highest among men who had more sexual partners in the last six month, with 12.8% of men reporting 11-50 male partners and 19.0% of men reporting more than 50 male partners stating that they would sometimes prefer not to use condoms even though they knew this would entail more HIV risk (Fig 57).

"I don't like wearing condoms because they reduce sensitivity"

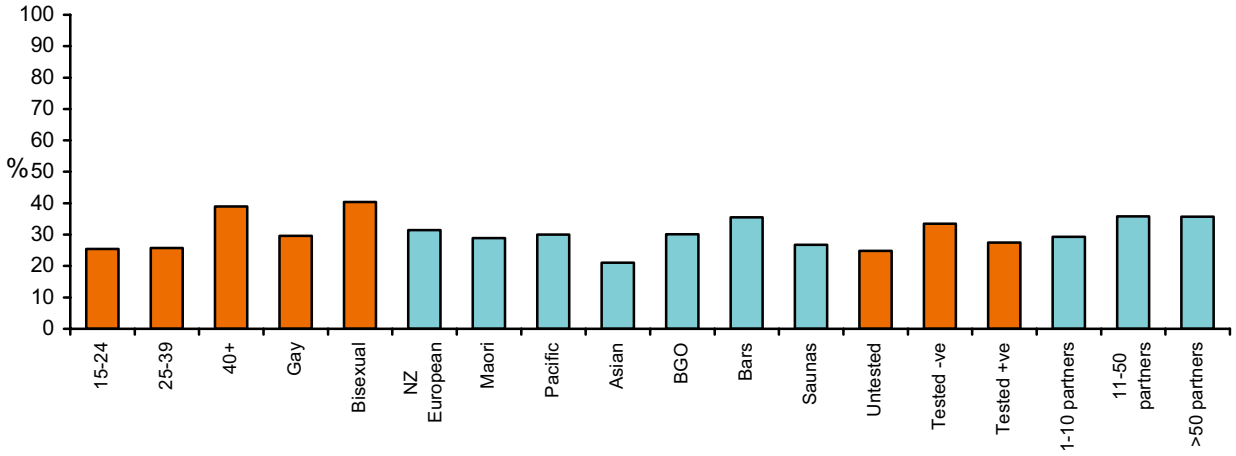
Table 26. "I don't like wearing condoms because they reduce sensitivity" by survey

	2002		2004		2006	
	n	%	n	%	n	%
Strongly agree	98	12.1	111	9.1	93	7.6
Agree	228	28.1	321	26.3	278	22.6
Disagree	208	25.6	379	31.1	384	31.3
Strongly disagree	253	31.2	340	27.9	416	33.9
Not stated	25	3.1	69	5.7	57	4.6
Total	812	100.0	1220	100.0	1228	100.0

P<0.001 over time.

Although 30.2% of respondents in 2006 agreed or strongly agreed that they don't like wearing condoms because they reduce sensitivity, the proportion of respondents stating this had decreased significantly over time (40.1% in 2002 and 35.1% in 2004). This decrease has occurred in both the "strongly agree" and "agree" responses from 2002 to 2006 (Table 26).

Figure 58. Proportion agreeing with statement "I don't like wearing condoms because they reduce sensitivity" (2006)



Agreement with this statement varied by age group, sexual identity, and HIV test status (Fig 58). Respondents who were aged 40 and over (39.0%) or who identified as bisexual (40.4%) were more likely to agree than were other respondents. Respondents who had never tested for HIV were less likely to agree (24.8%).

"A man who knows he has HIV would tell me he was positive before we had sex"

Table 27. "A man who knows he has HIV would tell me he was positive before we had sex" by survey

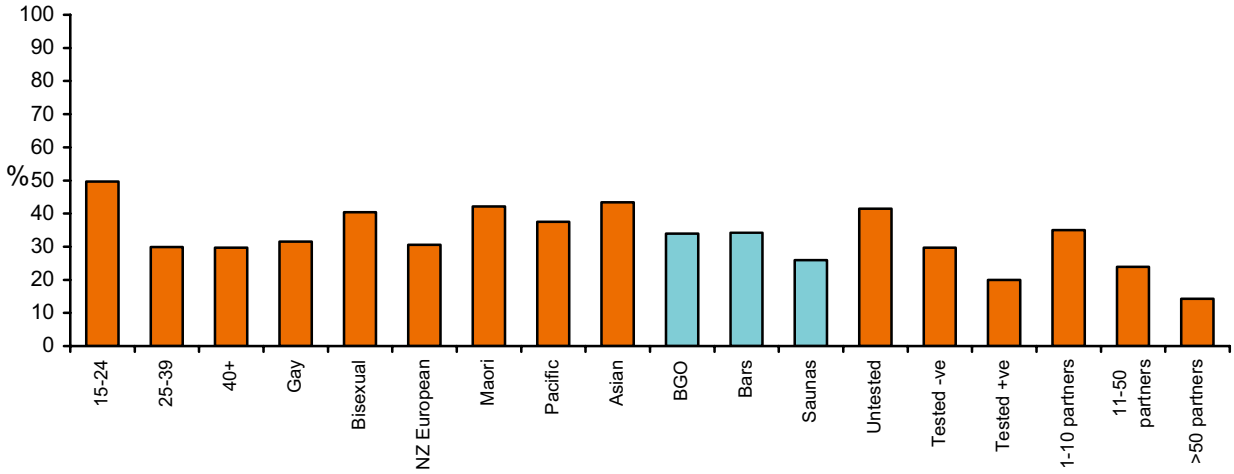
	2002		2004		2006	
	n	%	n	%	n	%
Strongly agree	-	-	139	11.4	203	16.5
Agree	-	-	132	10.8	196	16.0
Disagree	-	-	490	40.2	498	40.6
Strongly disagree	-	-	401	32.9	280	22.8
Not stated	-	-	58	4.8	51	4.2
Total	812	100.0	1220	100.0	1228	100.0

P<0.001 over time.

Proportionately more respondents in 2006 agreed that a man who had been diagnosed with HIV would tell them he was positive before they both had sex (32.5% in 2006 vs 22.2% in 2004; note that this statement was not included in 2002). Despite this increase in expectations that disclosure will occur, the majority of MSM (63.4% in 2006) did not believe that a positive man would necessarily do this (Table 27).

Examining the 2006 results by key health promotion groups revealed that there was more variability for this statement than all others (Fig 59) – agreement differed by age group, by sexual identity, ethnicity, HIV test status and number of male sexual partners. Agreement that a positive man would disclose his HIV status before sex was highest among respondents who were younger (49.7% of those aged under 25), identified as bisexual (40.4%), were of Asian (43.4%), Maori (42.1%) or Pacific (37.5%) ethnicity, or who had not tested for HIV (41.5%). On the other hand, agreement that disclosure would occur was lowest among respondents who had themselves tested HIV positive (20.0%) as well as those who had between 11-50 sexual partners (23.9%) and those who had over 50 male partners in the last six months (14.3%).

Figure 59. Proportion agreeing with statement "A man who knew he had HIV would tell me he was positive before we had sex" (2006)



Condom use classifications

This section outlines the two ways of expressing condom use frequencies that are used in the GAPSS project: *Any unprotected anal sex* and *High, Medium and Low* condom use.

Any unprotected anal sex

The first classification is the number of respondents who reported *at least once not using a condom during anal sex*. It distinguishes respondents who had any instances of unprotected anal sex from respondents who always used a condom when engaging in anal sex in the six months prior to survey (Table 28).

"Always used a condom" = A cells
"Not always used a condom" = N cells

Table 28. Condom use classification: Any unprotected sex

When insertive, used condoms…	When receptive, used condoms…					
	Not receptive	Always	Almost always	1/2 time	Very rarely	Never
Not insertive		A	N	N	N	N
Always	A	A	N	N	N	N
Almost always	N	N	N	N	N	N
1/2 time	N	N	N	N	N	N
Very rarely	N	N	N	N	N	N
Never	N	N	N	N	N	N

High, Medium, Low condom use

The second utilises the five-point condom use frequency scale in the questionnaire (condom use 'always', 'almost always', 'about half the time', 'very rarely' and 'never') to extend the description of unprotected sex into a three-part categorisation of High, Medium and Low. Under this typology, *"High" condom users are those who used a condom at least "always" or "almost always" when they engaged in either receptive or insertive anal sex, "Low" condom users are those who used condoms at most "very rarely" or "never" when they engaged in either receptive or insertive anal sex, with the rest categorised as having used condoms at a "Medium" level* (Table 29).

Some complexity arises because some men may have used condoms "always" for receptive anal sex and "never" for insertive anal sex and vice versa. These "asymmetric" condom users have been grouped into the "Medium" category for the purposes of this analysis.

This typology has been developed because it enables a respondent who used condoms 99% of the time to be differentiated from someone who very rarely or never used a condom for anal sex. It also acknowledges that men who are otherwise habitual condom users may 'slip up' from time to time, and that it may still be useful to distinguish such individuals from respondents who were less habitual condom users.

"High" = H cells
"Medium" = M cells
"Low" = L cells

Table 29. Condom use classification: High, Medium, Low

		When receptive, used condoms…					
		Not receptive	Always	Almost always	1/2 time	Very rarely	Never
When insertive, used condoms…	Not insertive		H	H	M	L	L
	Always	H	H	H	M	M	M
	Almost always	H	H	H	M	M	M
	1/2 time	M	M	M	M	M	M
	Very rarely	L	M	M	M	L	L
	Never	L	M	M	M	L	L

These condom use frequencies are expressed in three ways in various parts of this report:
(a) as a proportion of those who had anal sex with a (casual/current regular) partner;
(b) as a proportion of those who reported a (casual/current regular) partner;
(c) as a proportion of the total sample.

Sex with a current regular partner

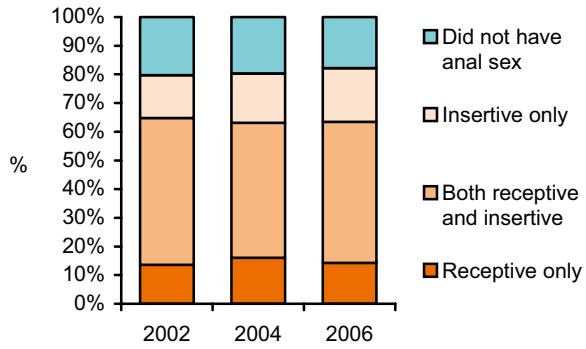
This section focuses on respondents who had a regular male partner at the time of survey. A regular partner was defined in the survey as a man "you've had sex with four or more times in the previous six months. They could be boyfriends, life partners, fuckbuddies etc…".

Just over half (54.1%) of the total 2006 sample (664 out of 1228 respondents) stated that they currently had a regular male sex partner, consistent with 2004 (54.8%) and higher than 2002 (49.0%). Of these 664 respondents, 650 provided sufficient information for the analysis of sexual practices and condom use.

Anal sex with a current regular partner

Of the 650 respondents who reported information about their current regular partner, 536 (82.5%) reported having anal sex with this partner in the six months prior to interview (Fig 60 and 62). This was similar to 2002 (79.9%) and 2004 (80.5%).

Figure 60. Anal sex with current regular partner in previous six months by survey



Note: Out of respondents who had a current regular partner.

As in previous surveys, the majority of men who had anal sex had engaged in both insertive and receptive anal sex with their current regular partner, with roughly equal proportions engaging in anal sex that was receptive only or insertive only (Fig 60).

As Table 30 shows, in 2006 one-fifth of respondents who had anal sex were receptive only (17.0%) and one-fifth were insertive only (22.2%), with the majority having both insertive and receptive anal sex with their current regular partner (58.6%).

Table 30. Modality of anal sex with current regular partner in previous six months by survey

	2002		2004		2006	
	n	%	n	%	n	%
Insertive anal sex only	58	18.4	108	21.1	119	22.2
Both receptive and insertive anal sex	199	63.2	296	57.9	314	58.6
Receptive anal sex only	53	16.8	101	19.8	91	17.0
Not stated	5	1.6	6	1.2	12	2.2
Total	315	100.0	511	100.0	536	100.0

There were no significant differences in modality of anal sex with a current regular partner between 2002, 2004 and 2006 (Table 30).

Any unprotected anal sex with a current regular partner

This report first presents condom use data as the proportion reporting “any” unprotected anal sex and then reports the categorisation of condom use into “High”, “Medium” and “Low” frequencies. Table 31 provides information on the total samples from 2002-2006 on “any” unprotected anal sex, enabling condom use rates to be expressed in a variety of ways.

Of the men having anal sex with their current regular partner, 65.1% and 62.6% had at least once not used a condom in the six months prior to survey in 2002 and 2004 respectively. In 2006, this proportion was 65.9% (Fig 61).

Expanding the sample out to those who had any type of sex with a current regular partner (i.e. including those who didn’t have anal sex), 52.0% and 50.4% in 2002 and 2004 respectively had any anal sex without condoms. In 2006, 54.3% of the 650 respondents reported any non-condom use with their current regular partner.

Looking at the entire sample collected in each survey, Table 31 and Fig 63 show that the proportion who at least once did not use a condom with a current regular partner was 25.2% in 2002, 26.2% in 2004 and 28.7% in 2006.

Table 31. Any unprotected anal sex with current regular partner by survey: whole sample

	2002		2004		2006	
	n	%	n	%	n	%
No current regular sex partner	383	47.2	535	43.9	514	41.9
Current regular sex partner but no anal sex	79	9.7	124	10.2	114	9.3
Current regular partner and anal sex:						
Always used a condom	110	13.5	191	15.7	183	14.9
At least once did not use a condom	205	25.2	320	26.2	353	28.7
Not stated	35	4.3	50	4.1	64	5.2
Total	812	100.0	1220	100.0	1228	100.0

Condom use rates need to be examined closely in order to appreciate whether and in what ways unprotected sex is changing over time.

When men engage in anal sex with their current regular partner, rates of “any” non-condom use have fluctuated over time (65.1% to 62.6% to 65.9%), and the data do not support suggestions that non-condom use may be decreasing in this context.

Likewise, non-condom use rates out of all respondents with a current regular partner also fluctuated, although a slight increase the proportion of men in 2006 having anal sex with their regular partner (up to 82.5%) meant that the 2006 rate of any unprotected sex was slightly higher than in 2002.

This higher rate of anal sex in 2006 compared to previous years, and the higher rate of regular partnering compared to 2002, similarly resulted in a greater proportion of men reporting any unprotected sex with a current regular partner in the 2006 survey as a whole (Fig 63). None of these slight changes however were statistically significant over time.

Figure 61. Any unprotected anal sex in previous six months by survey: of those having anal sex with current regular partner

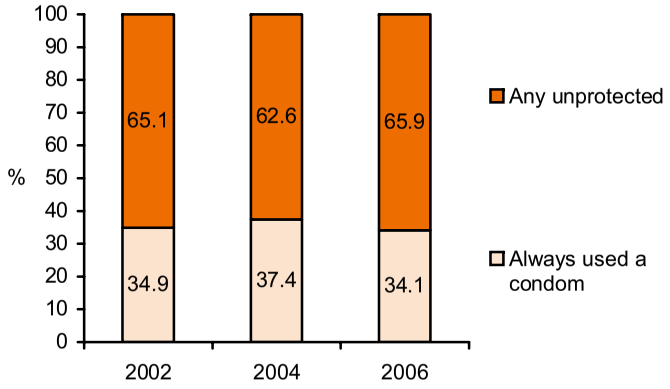


Figure 62. Had anal sex with current regular partner in previous six months by survey

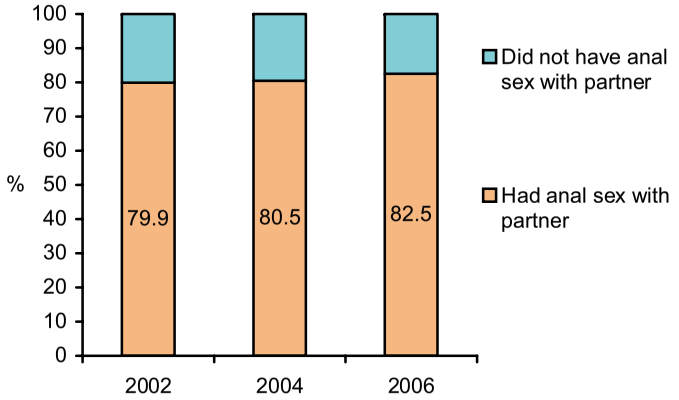


Figure 63. Any unprotected anal sex in previous six months by survey: of whole sample

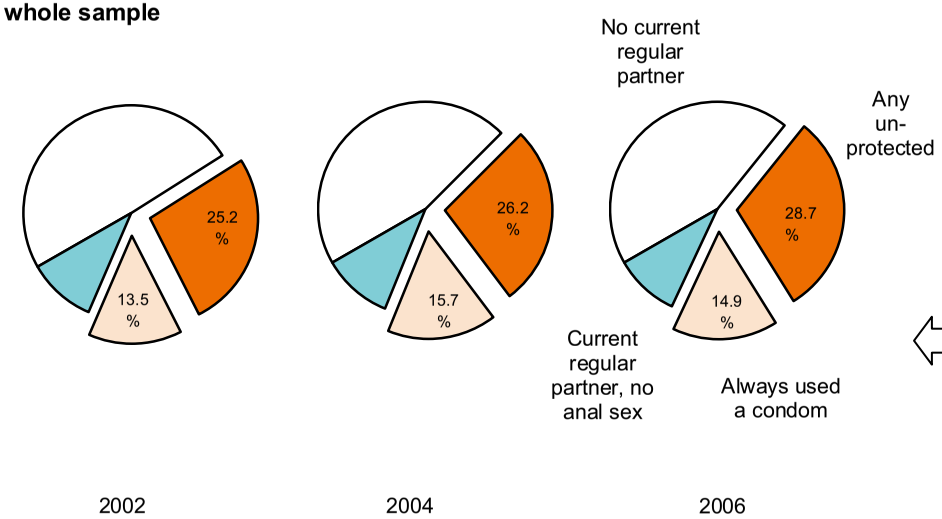
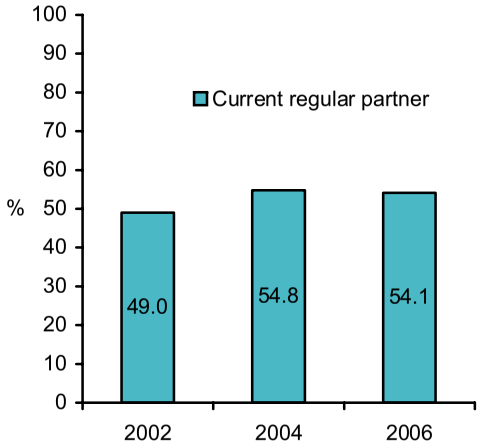


Figure 64. Have current regular sex partner by survey



High, Medium, Low condom use with current regular partner

A different way to explore unprotected sex with regular partners is to examine High, Medium and Low frequency condom use as opposed to whether any non-condom use has occurred. (Table 32). As the following results indicate, respondents were roughly divided into two groups – those who used condoms at a High level with a current regular partner and those who used them at a Low level, with few reporting Medium levels of condom use.

Of the respondents who engaged in anal sex with their current regular partner, Low condom use was 45.7% in 2002 and 47.6% in 2004, and was found to be 47.8% in 2006. Conversely, High condom use was 45.7% in 2002, 44.2% in 2004 and 45.4% in 2006 (Fig 65).

Expressing this as a proportion of those who had any sex with a current regular partner, 36.5% were Low condom users in 2002, 38.3% were Low users in 2004, and 39.3% were Low users in 2006. High condom use was 36.5%, 35.6% and 37.3% in 2002-2006 respectively.

Table 32 shows these findings expressed as a proportion of the total GAPSS samples. Low condom use was reported by 17.6%, 19.9% and 20.5% of all respondents across the surveys, and High condom use was reported by 17.6%, 18.5% and 19.5% of all respondents over time (Fig 67).

Table 32. Any unprotected anal sex with current regular partner by survey: whole sample

	2002		2004		2006	
	n	%	n	%	n	%
No current regular sex partner	383	47.2	535	43.9	514	41.9
Current regular sex partner but no anal sex	79	9.7	124	10.2	114	9.3
Current regular partner and anal sex:						
High condom use	143	17.6	226	18.5	239	19.5
Medium condom use	27	3.3	42	3.4	36	2.9
Low condom use	143	17.6	243	19.9	252	20.5
Not stated	35	4.3	50	4.1	73	5.9
Total	812	100.0	1220	100.0	1228	100.0

Note: 'Not stated' increases slightly in this table compared to Table 31 due to the different condom use classification.

These results obtained from analysing condom use by High, Medium and Low frequency also suggest that there is no consistent time trend in unprotected sex among regular sex partners overall from 2002 to 2006.

The findings from 2006 also support data from previous years that portray patterns of condom use in regular sexual relationships as being bi-modal, with respondents reporting that they either "generally" used condoms or "generally" did not, with few reporting condom use rates in between these two frequencies.

Figure 65. High, Medium, Low condom use in previous six months by survey: of those having anal sex with current regular partner

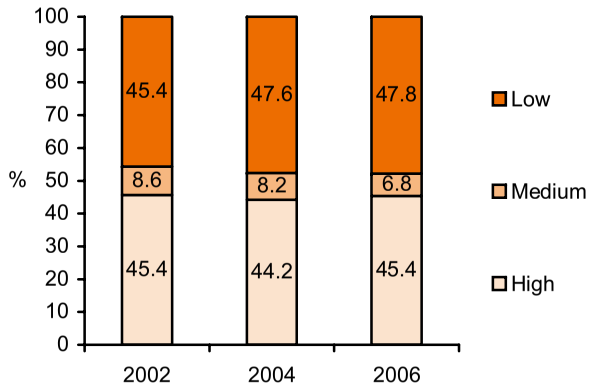


Figure 66. Had anal sex with current regular partner in previous six months by survey

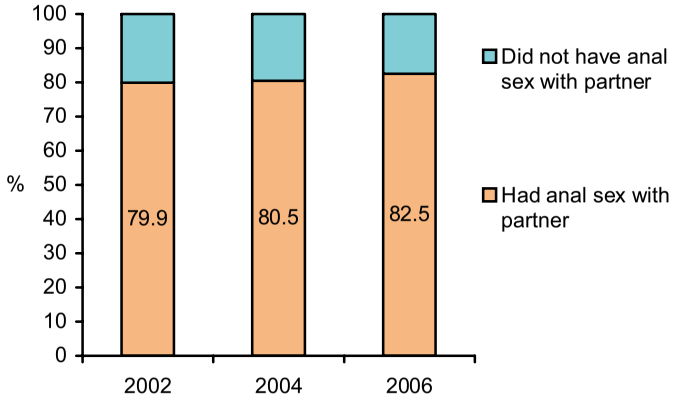


Figure 67. High, Medium, Low condom use in previous six months by survey: of whole sample

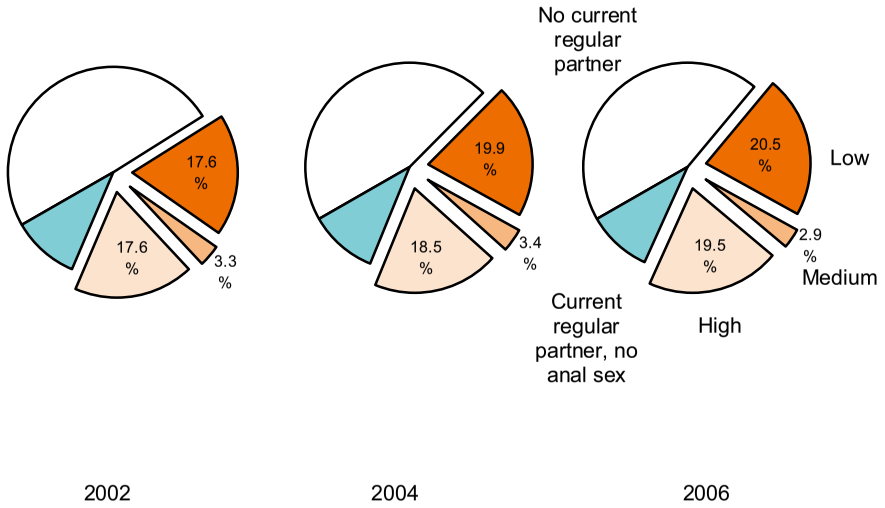
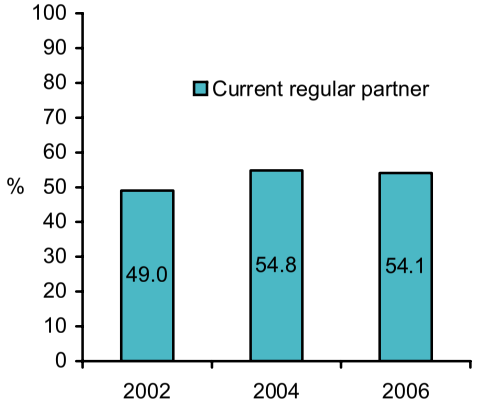


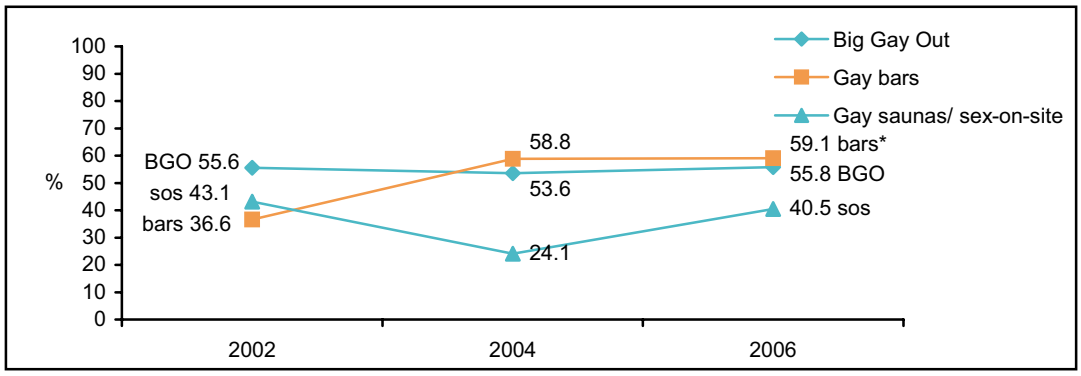
Figure 68. Have current regular sex partner by survey



Changes over time among key groups

In addition to tracking overall changes in risk practices between 2002 and 2006, the GAPSS survey aims to examine trends within key HIV health promotion target groups among MSM. In 2006, the three previous variables of interest were site of recruitment, age group, ethnicity and HIV test status (Figs 69 to 72). The outcome measured in these Figures is the rate of "any" non-condom use, expressed as a proportion of those who had a current regular partner (i.e. it measures both changes in condom use as well as anal sex). The average rates of non-condom use for the whole sample were 52.0%, 50.4% and 54.3% in 2002 to 2006.

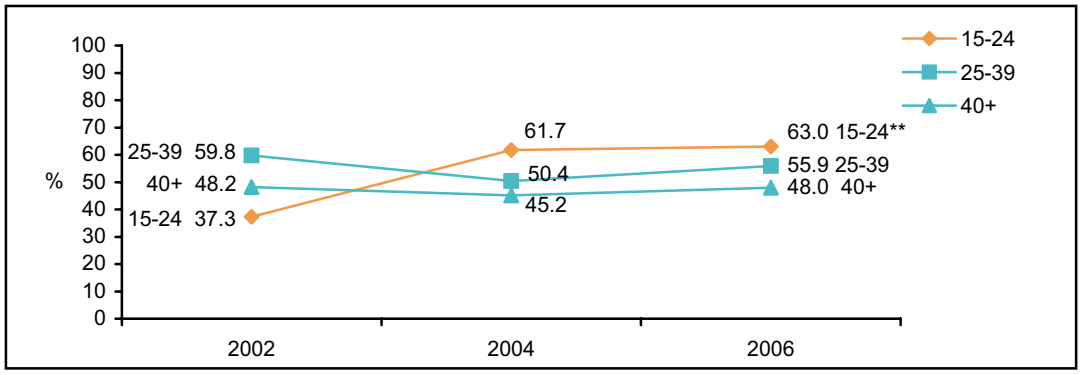
Figure 69. Changes in rate of "any" unprotected anal sex with current regular partner by site of recruitment 2002-2006



* Statistically significant difference over time p<0.05.

Rates of unprotected anal sex with a current regular sex partner levelled off in 2006 among respondents recruited in gay bars and at the Big Gay Out. Respondents recruited at gay saunas/sex-on-site venues reported higher rates of unprotected sex in 2006 than in 2004, however these were similar to levels reported in 2002 and no clear trend emerged over time.

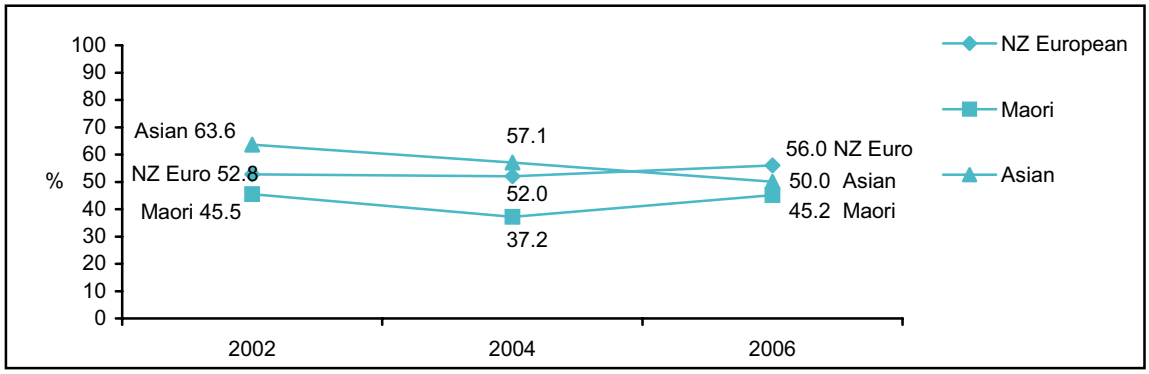
Figure 70. Changes in rate of "any" unprotected anal sex with current regular partner by age group 2002-2006



** Statistically significant difference p<0.01.

A levelling off in unprotected sex also occurred as reported by age group. Younger respondents reported the highest rate of any unprotected sex with a regular sex partner in 2004 and 2006 and also reported the greatest increase in unprotected sex over time.

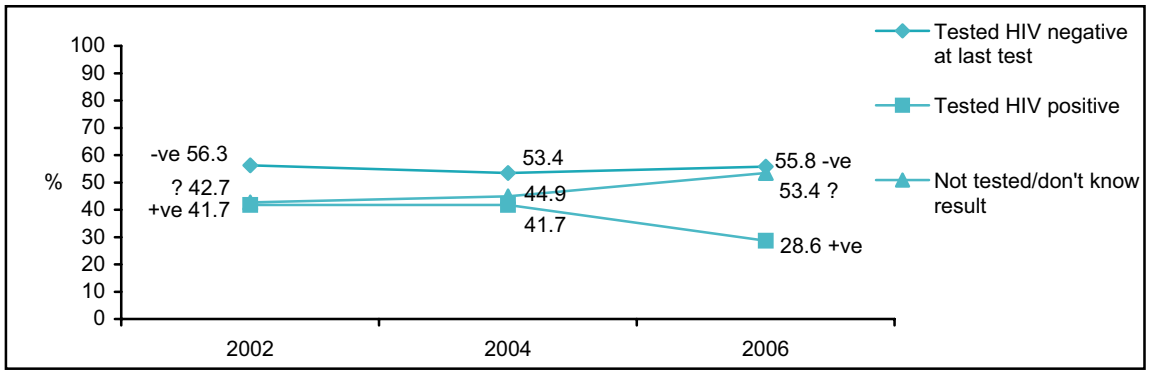
Figure 71. Changes in rate of "any" unprotected anal sex with current regular partner by ethnicity 2002-2006



Note: No statistically significant differences by ethnicity between 2002 and 2006. Respondents of Pacific or "other" ethnicity were not included due to small numbers.

Relatively stable patterns of condom use with regular partners were observed between 2002 and 2006 for different ethnic groups. MSM of an Asian ethnicity demonstrated the greatest proportional decline in non-condom use, however this was not statistically significant and reflected changes in anal sex practices as well as condom use.

Figure 72. Changes in rate of "any" unprotected anal sex with current regular partner by HIV test status 2002-2006



Note: No statistically significant differences by HIV test status between 2002 and 2006.

Respondents who had never tested for HIV reported rising rates of unprotected sex with a regular sex partner over time, although this was not statistically significant. MSM who had tested HIV positive reported lower rates of unprotected sex with regular sex partners in 2006 than in 2002 and 2004, however the number of HIV positive respondents with regular sex partners at each survey was small (n=24, 24 and 21) and the results are therefore prone to fluctuation.

Unprotected anal sex and possible sero-concordance between regular sex partners

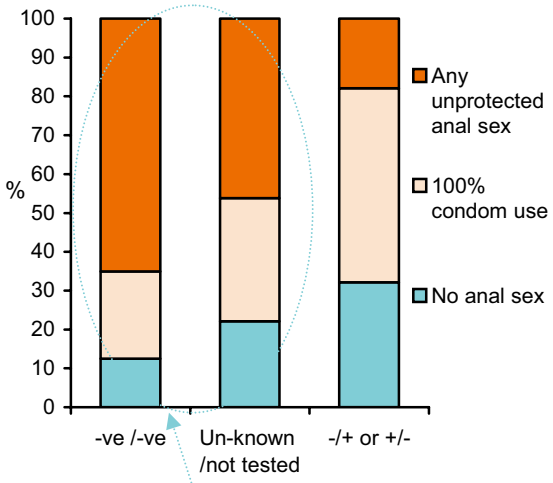
Within regular sexual relationships, engagement in unprotected anal sex may be associated with beliefs about each person's HIV status. This can been assessed in each GAPSS survey by examining the HIV test status of the respondent's current regular partner, in conjunction with the respondent's own HIV test status. Fig 73 expands the information presented earlier in Table 19 on possible sero-concordance by including information on the sexual practices reported by the respondent with their partner.

These data suggest that the HIV test status of both regular sex partners plays an important role in decisions involving anal sex and the use of condoms (Fig 73).

Regular sex partnerships in which both partners had last tested HIV negative were the most likely to involve anal sex, and also most likely to involve any unprotected sex.

Rates of anal sex and unprotected sex declined among partnerships in which at least one partner's HIV test status was unknown or they hadn't tested for HIV.

Figure 73. Any unprotected sex with a regular partner by possible seroconcordance (2006)



Note: Only includes those who provided information on both partner's last test. Excludes +ve/+ve partnerships. P<0.001 (n=7).

MSM who had a sero-discordant regular partner (i.e. a partnership in which the respondent was HIV positive and the partner was HIV negative, or vice versa) were most likely not to have anal sex, and when they did have anal sex, were least likely to engage in any unprotected sex.

Table 33 shows these results over the three surveys, excluding +ve/+ve and +ve/-ve partnerships due to the low numbers of respondents in these categories.

Table 33. Unprotected sex with a regular sex partner by possible sero-concordance and survey (excludes +ve/+ve and +ve/-ve partnerships)

Sex with a regular sex partner	2002 Partnership status				2004 Partnership status				2006 Partnership status			
	-ve / -ve		At least one partner Untested/ Unknown		-ve/ -ve		At least one partner Untested/ Unknown		- ve/ -ve		At least one partner Untested/ Unknown	
	n	%	n	%	n	%	n	%	n	%	n	%
No anal sex	21	11.2	41	27.3	44	14.1	57	24.8	40	12.5	55	22.1
100% condom use	42	22.3	50	33.3	82	26.2	76	33.0	72	22.4	79	31.7
Any unprotected sex	125	66.5	59	39.3	187	59.7	97	42.2	209	65.1	115	46.2
Total	188	100.0	150	100.0	313	100.0	230	100.0	321	100.0	249	100.0

Note: Only includes respondents who provided information on both partner's last test and who provided full information on sex with a regular partner. Excludes +ve/+ve and +ve/-ve partnerships.

Condom use with current regular partner by demographic variables

The following three sub-sections describe differences in unprotected sex with a current regular partner by selected demographic, partnering, and attitude/knowledge variables among respondents to the 2006 survey. The blue bars represent men who did not have anal sex, and the orange bars relate to anal sex that involved 100% condom use (light) or any non-condom use (dark).

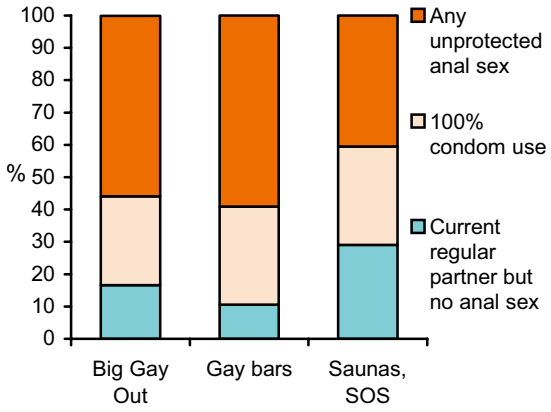
As in 2004, respondents recruited in gay bars (59.1%) and at the Big Gay Out (55.8%) were significantly more likely than respondents recruited at the saunas/ sex-on-site venues (40.5%) to have had any unprotected anal sex with their current regular partner (Fig 74).

In part this was due to the lower rate of anal sex engaged in by sauna recruitees with their regular sex partner (Fig 74), however MSM recruited at these sites were also less likely to have unprotected sex with regular partners when anal sex occurred.

Fig 75 shows that in 2006 younger respondents (63.0%) were significantly more likely to have any unprotected sex with their regular partner than those aged 25-39 (55.9%) and those aged 40 and over (48.0%). MSM aged 40 and over were least likely to have engaged in anal sex with their current regular partner recently.

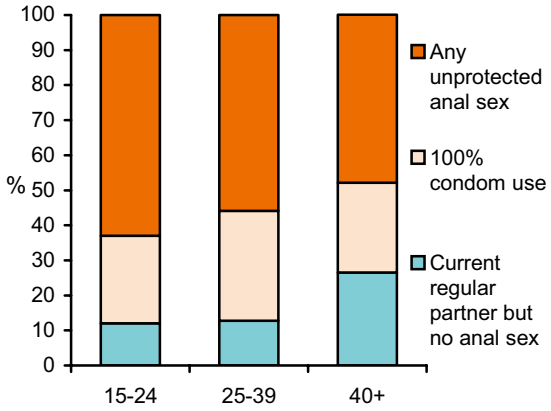
Fig 76 shows that rates of condom use with regular partners varied according to the ethnicity of respondents. NZ European respondents were most likely to report anal sex and most likely to report non-condom use with their regular partner. Asian respondents were least likely to report anal sex, but when this occurred, were more likely to report any unprotected anal sex.

Figure 74. Any unprotected sex with a regular partner by site (2006)



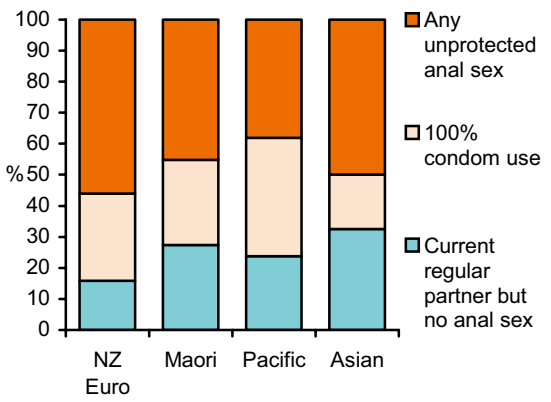
Note: P<0.05.

Figure 75. Any unprotected sex with a regular partner by age group (2006)



Note: P<0.001.

Figure 76. Any unprotected sex with a regular partner by ethnicity (2006)



Note: P<0.05.

Condom use with current regular partner by partnering variables

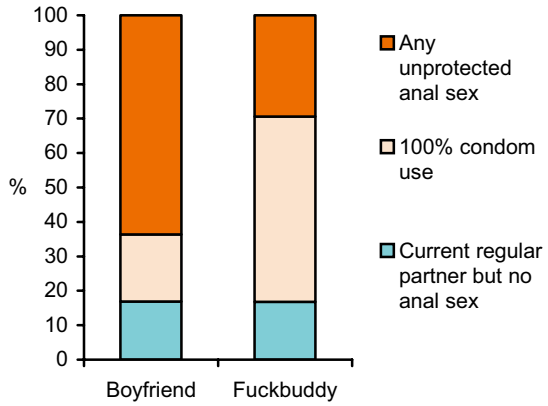
Around one in five regular sex partners are described by GAPSS respondents as a "fuckbuddy". As Figure 77 illustrates, although rates of anal sex are equivalent among both types of regular partner, the description of a respondent's regular sex partner has a significant influence on whether condoms are used.

Almost two-thirds (63.6%) of those with "boyfriend" type regular partners had any unprotected sex, compared to 29.4% of those who described their regular sex partner as a "fuckbuddy".

Fig 78 shows rates of unprotected sex by length of partnership among respondents with "boyfriend" type regular partners. Condom use was highest in new relationships (of less than a month) and then steadily declines. Rates of anal sex also varied by relationship length, being lowest among new relationships and those of 5 years or more, and highest in those of between 1 and 2 years duration. Rates of any unprotected sex were also highest in the latter group of respondents.

In 2004, having sex with another man while in a relationship was found to be associated with condom use with regular partners. Fig 79 shows unprotected sex by concurrency among respondents with boyfriend-type regular partners of at least six months duration in the 2006 survey. Somewhat surprisingly, having sex outside the regular partnership was not associated with higher condom use within the regular boyfriend-type relationship in 2006: 66.0% of sexually exclusive respondents reported unprotected sex compared to 63.1% of sexually non-exclusive MSM.

Figure 77. Any unprotected sex with a regular partner by description of partner (2006)



Note: P<0.001

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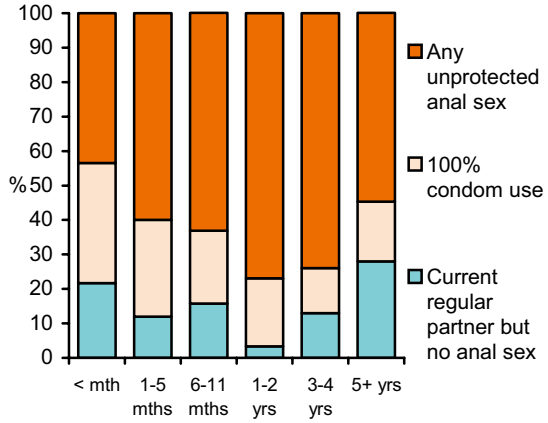
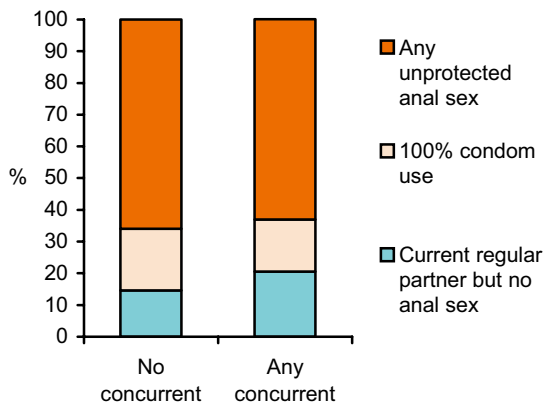
Figure 78. Any unprotected sex with a regular partner (boyfriend) by relationship length (2006)



Note: P<0.001. Only includes "boyfriend" type partners.

Figure 79. Any unprotected sex with a regular partner (boyfriend) by concurrency (2006)



Note: P=ns. Only includes "boyfriend" type partners.

Condom use with current regular partner by knowledge variables

Higher knowledge of HIV and safe sex was associated with greater use of condoms with regular partners. The Figures below report findings on three knowledge items that many MSM were not aware about in 2006.

Fig 80 shows that respondents who knew that "HIV is more easily transmitted to others in the first few weeks after infection" were less likely to have had unprotected sex with their regular sexual partner (47.6%) than were MSM who did not know that or who weren't sure (59.3%).

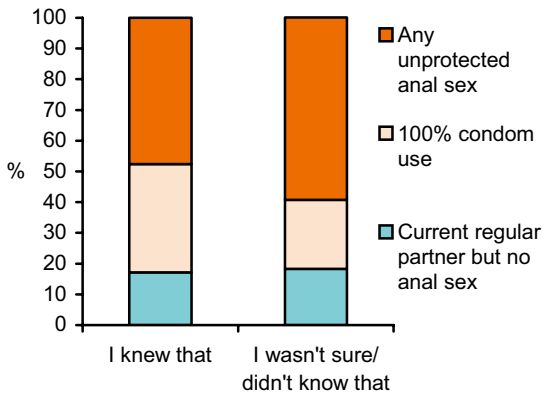
Respondents who were aware that "the lining inside your anus (bum) can both absorb HIV and transmit HIV" were less likely to report unprotected anal sex with a current regular partner (50.8%) compared to respondents who reported that they weren't sure of this or didn't know this (60.4%) (Fig 81).

In both the above cases, although knowledge was related to the use of condoms during anal sex, the rate of anal sex was similar for MSM who were aware of the information and those who weren't.

For the knowledge item "HIV cannot pass through an undamaged latex condom", MSM who were not aware of this were less likely to have had anal sex (Fig 82). When anal sex was practised, a greater proportion of these men did not use condoms.

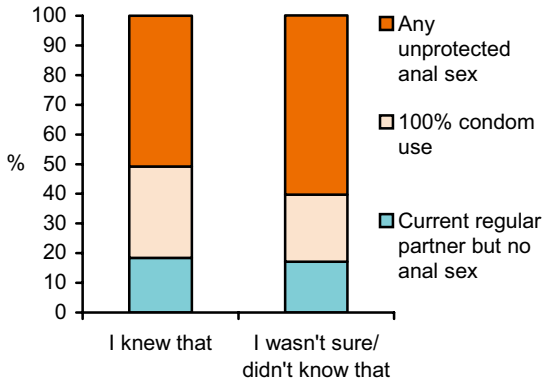
Out of all those who had a regular partner, respondents who knew that HIV could not pass through an intact condom were less likely to have unprotected anal sex (52.9%) compared to respondents who weren't sure or who did not know this (60.6%).

Figure 80. Any unprotected sex with a regular partner by "HIV is more easily transmitted in early stages" (2006)



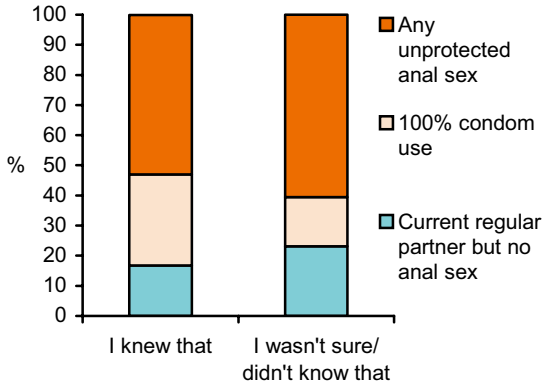
Note: P=0.001.

Figure 81. Any unprotected sex with a regular partner by "your anus can both absorb HIV and transmit HIV" (2006)



Note: P=0.05.

Figure 82. Any unprotected sex with a regular partner by "HIV cannot pass through an undamaged latex condom" (2006)



Note: P=0.05.

Sex with casual partners

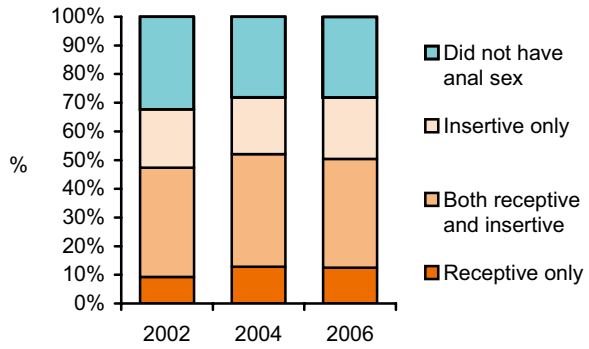
This chapter reports findings on anal sex and condom use with casual partners. As described earlier, casual partners were defined on the questionnaire as “men you’ve had sex with once, twice, or three times in the last six months”.

Of the whole 2006 GAPSS sample, 62.9% of the 1228 respondents had a casual sex partner or partners in the previous six months, the same proportion as in 2002 (63.9% in 2002 and 63.4% in 2004). Of these 772 respondents, 744 provided sufficient information for the analysis of sexual practices.

Anal sex with a casual partner

Of the 744 respondents who reported information about their casual partner/s in 2006, 538 (72.3%) reported having anal sex with this partner in the six months prior to interview (Fig 85). This was similar to the previous survey (72.4% in 2004) and proportionately higher than 2002 (68.2%).

Figure 83. Had anal sex with casual partner in previous six months by survey



Note: Out of respondents who had a casual partner/s.

Consistent with 2004, most MSM who had anal sex with a casual partner had engaged in both insertive and receptive anal sex with their partner/s. A larger proportion of men reported being only insertive in the previous six months with casual partners than reported being only receptive (Fig 83).

As Table 34 shows, in 2006 16.9% of respondents who had anal sex were receptive only and 29.0% were insertive only, with half having both insertive and receptive anal sex with their casual partner/s (51.5%).

Table 34. Modality of anal sex with casual partner/s in previous six months by survey

	2002		2004		2006	
	n	%	n	%	n	%
Insertive anal sex only	98	29.1	138	26.5	156	29.0
Both receptive and insertive anal sex	185	54.9	275	52.9	277	51.5
Receptive anal sex only	45	13.4	90	17.3	91	16.9
Not stated	9	2.7	17	3.3	14	2.6
Total	337	100.0	520	100.0	538	100.0

There were no differences in the modality of anal sex with a casual partner over time.

Any unprotected anal sex with casual partner/s

Table 35 presents data on anal sex and condom use with casual partners across the three GAPSS surveys. Table 35 and the Figures on the right display results for "any" unprotected anal sex, and Table 36 (overleaf) displays results for High, Medium and Low condom use.

Of the respondents who had any anal sex with a casual partner in the previous six months, 33.2% and 33.5% reported any non-condom use in the 2002 and 2004 surveys respectively. In 2006, this proportion was 34.9% (Fig 84).

Examining all those who had casual sex, 22.7% and 24.2% reported engaging in any unprotected anal sex in the previous six months in 2002 and 2004. In 2006 the proportion of respondents having casual sex who reported this was 25.3%.

Finally, looking at rates of "any" unprotected anal sex with a casual partner out of the total sample, Table 35 shows that 15.3% of the 2006 survey respondents at least once did not use a condom, compared to 13.8% in 2002 and 14.3% in 2004.

Table 35. Any unprotected anal sex with casual partner/s: whole sample

	2002		2004		2006	
	n	%	n	%	n	%
No casual partners	252	31.0	404	33.1	386	31.4
Casual partners but no anal sex	157	19.3	198	16.2	206	16.8
Casual partners and anal sex:						
Always used a condom	225	27.7	346	28.4	350	28.5
At least once did not use a condom	112	13.8	174	14.3	188	15.3
Not stated	66	8.1	98	8.0	98	8.0
Total	812	100.0	1220	100.0	1228	100.0

Rates of anal sex with a casual male sex partner were steady between 2004 and 2006, although a very small increase in non-condom use when anal sex did occur was evident (from 33.5% to 34.9%).

Looking at the group of men in each survey who reported any casual sex, rates of any unprotected sex show a slight upward trend (from 22.7% to 24.2% to 25.3%). The constituent components of this slight increase were a rise in the proportion reporting anal sex in 2004 from 2002 while condom use remained stable, and a slight rise in non-condom use in 2006 from 2004 while anal sex remained stable. None of these increases were dramatic, and the trend over time was not statistically significant.

Taking the samples as a whole, very little change in the basic rate of any unprotected sex has occurred (Fig 86).

Figure 84. Any unprotected anal sex in previous six months by survey: of those having anal sex with casual partner/s

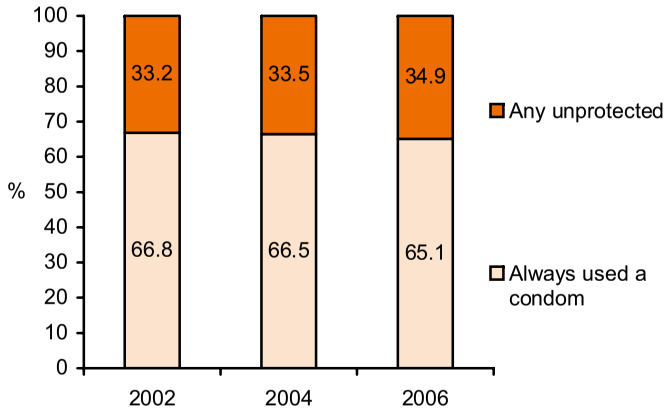


Figure 85. Had anal sex with casual partner/s in previous six months by survey

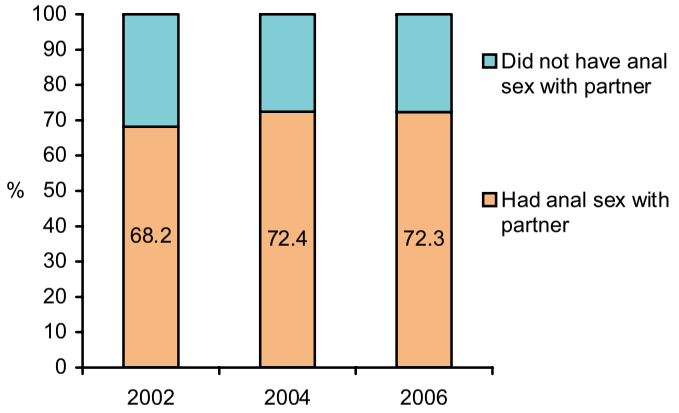


Figure 86. Any unprotected anal sex with casual partner/s in previous six months by survey: of whole sample

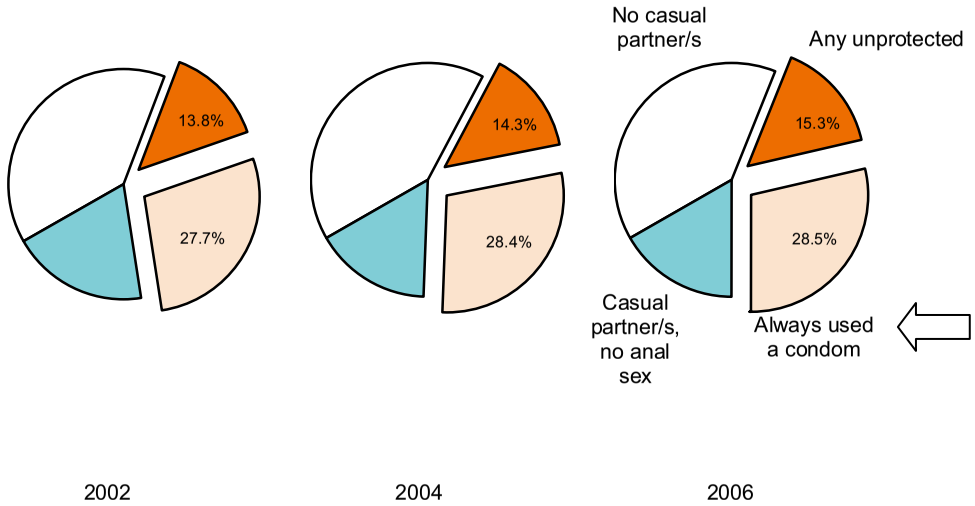
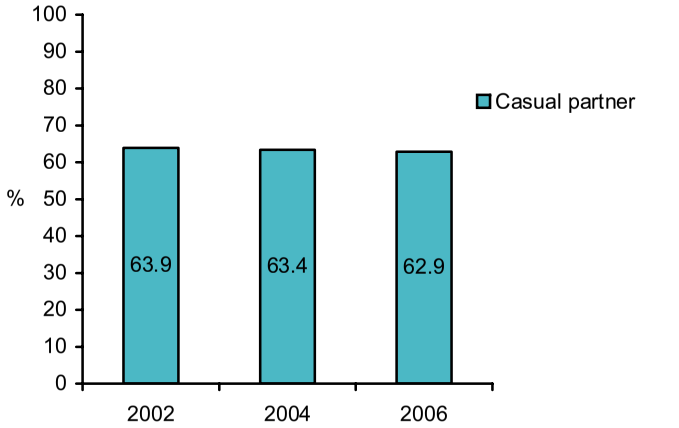


Figure 87. Had casual sex partner/s in previous six months by survey



High, Medium, Low condom use with casual partner/s

Investigating unprotected sex in terms of High, Medium and Low frequency condom use allows us to distinguish between men who are generally engaging in anal sex with casual partners protectively and those who are placing themselves and other people at high risk of infection.

Despite a third of men who had anal sex not using a condom at least once in the previous six months (see previous page), most men having anal sex indicated they used condoms "always or almost always", suggesting that many of the former group slip up only occasionally as opposed to being regular non-condom users.

Of those having anal sex with a casual partner, 85.4% and 85.7% were "High" condom users in 2002 and 2004 respectively. In 2006, the same proportion (85.6%) reported condom use that placed them in this category. In contrast, just 4.5%, 2.1% and 5.0% of respondents having anal sex with casual partners in 2002, 2004 and 2006 reported condom use that was categorised as "Low" (i.e. either "never" or "very rarely" using condoms for any insertive or receptive anal sex they had) (Fig 88).

Expressing this information as a proportion of those who had any casual sex, 58.1%, 62.0% and 62.1% were High condom users 2002-2006, and 3.0%, 1.5% and 3.6% were Low users.

Table 36 and Fig 90 report these findings expressed in terms of the total GAPSS samples.

Table 36. High, Medium, Low condom use with casual partner/s: whole sample

	2002		2004		2006	
	n	%	n	%	n	%
No casual partners	252	31.0	404	33.1	386	31.4
Casual partners but no anal sex	157	19.3	198	16.2	206	16.8
Casual partners and anal sex:						
High condom use	286	35.2	444	36.4	465	37.9
Medium condom use	34	4.2	63	5.2	51	4.2
Low condom use	15	1.8	11	0.9	27	2.2
Not stated	68	8.4	100	8.2	93	7.6
Total	812	100.0	1220	100.0	1228	100.0

Note: 'Not stated' in 2004 differs from Table 35 due to the different condom use classification.

Looking at unprotected sex by High, Medium and Low frequency condom use provides a different perspective on condom use than "any" unprotected sex, but one that is consistent with those findings. Condom use among those sampled in 2002-2006 has been relatively stable; High condom use has remained high at around 85% of those having anal sex with a casual partner, with only small fluctuations in the proportion of men reporting Medium and Low condom use.

Figure 88. High, Medium, Low condom use in previous six months by survey: of those having anal sex with casual partner/s

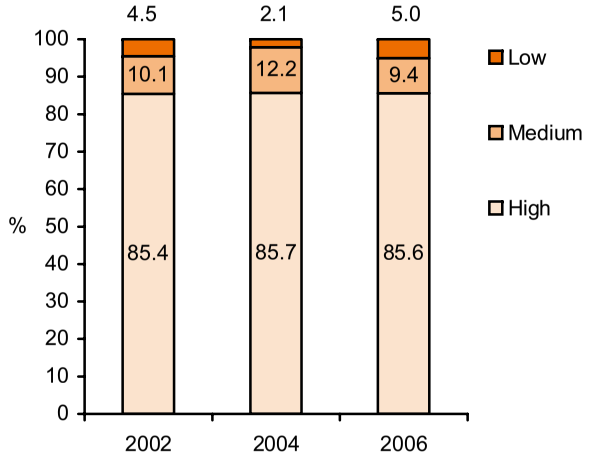


Figure 89. Had anal sex with casual partner/s in previous six months by survey

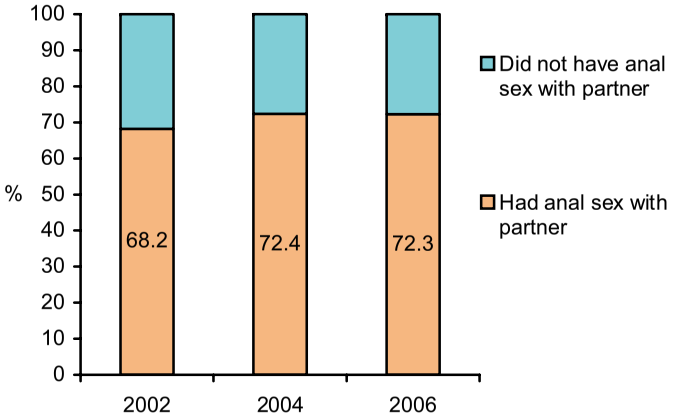


Figure 90. High, Medium, Low condom use with casual partner/s in previous six months by survey: of whole sample

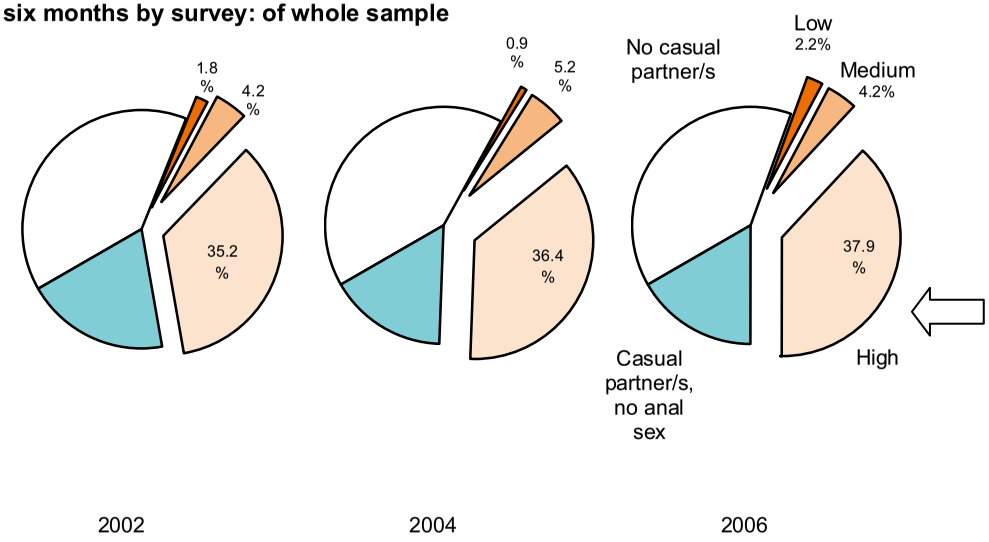
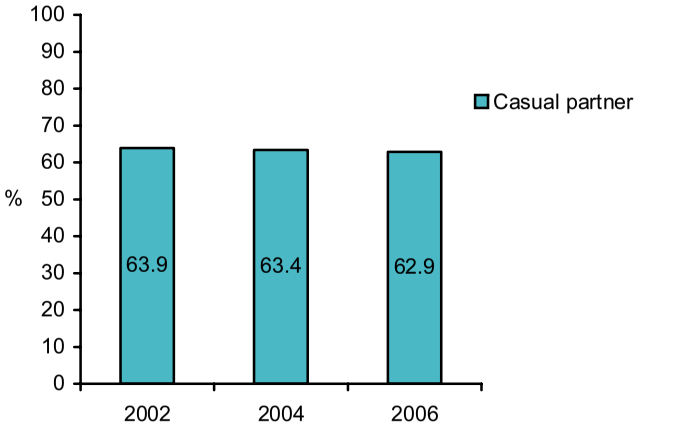


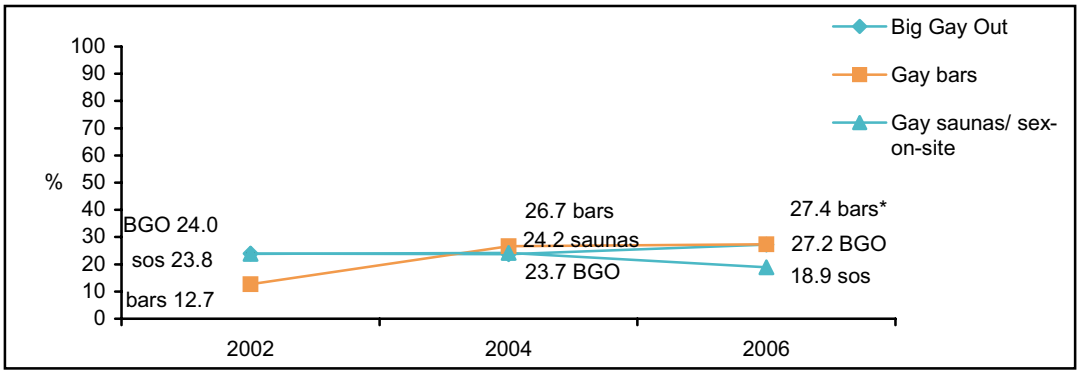
Figure 91. Had casual sex partner/s in previous six months by survey



Changes over time among key groups

As with the analysis of regular sex partners, GAPSS also examines changes over time in any unprotected anal sex with casual partners among key HIV health promotion target groups for MSM: site of recruitment, age group, ethnicity and HIV test status. The average rate of any unprotected for the whole sample was 25.3% in 2006.

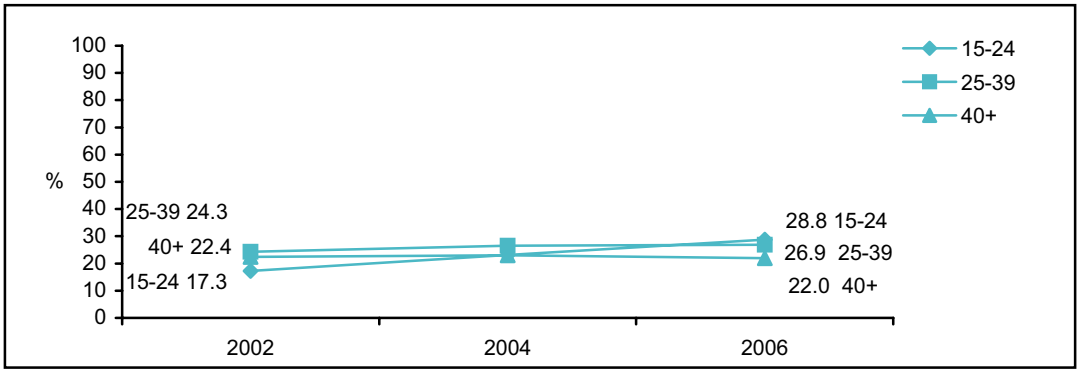
Figure 92. Changes in rate of "any" unprotected anal sex with a casual partner/s by site of recruitment 2002-2006



* Statistically significant trend p<0.05.

The increase reported among respondents recruited from gay bars in 2004 stabilised in 2006, with the overall rise (from 12.7% to 26.7% to 27.4%) being the only statistically significant change over time (Fig 92). Men recruited at gay saunas/sex-on-site venues reported slightly lower rates of unprotected sex in 2006, although this decrease was not significant.

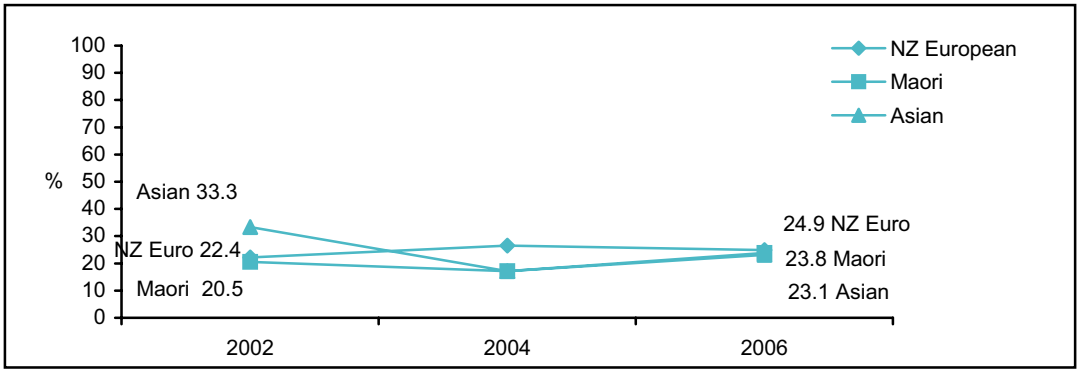
Figure 93. Changes in rate of "any" unprotected anal sex with casual partner/s by age group 2002-2006



Note: No statistically significant trends by age group between 2002 and 2006.

Respondents aged 15-24 reported a further proportional increase in unprotected casual sex in 2006 (from 17.3% to 23.1% to 28.8%), which was comprised of an increase in non-condom use rather than an increase in anal sex with a casual partner. However, this was not a statistically significant trend and neither of the other age groups showed changes in the rate of any unprotected anal sex with casual partners since 2002 (Fig 93).

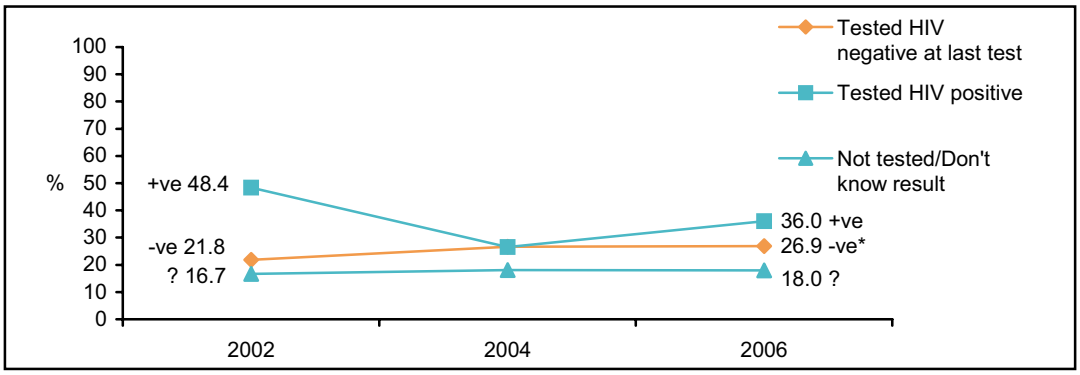
Figure 94. Changes in rate of "any" unprotected anal sex with casual partner/s by ethnicity 2002-2006



Note: No statistically significant trends by ethnicity between 2002 and 2006. Pacific and "other" ethnicities not included due to small numbers.

There were no statistically significant trends in unprotected sex by ethnicity between 2002 and 2006. In GAPSS 2006, NZ European, Maori and Asian respondents all reported similar rates of unprotected sex with a casual partner (Fig 94).

Figure 95. Changes in rate of "any" unprotected anal sex with a casual partner/s by HIV test status 2002-2006



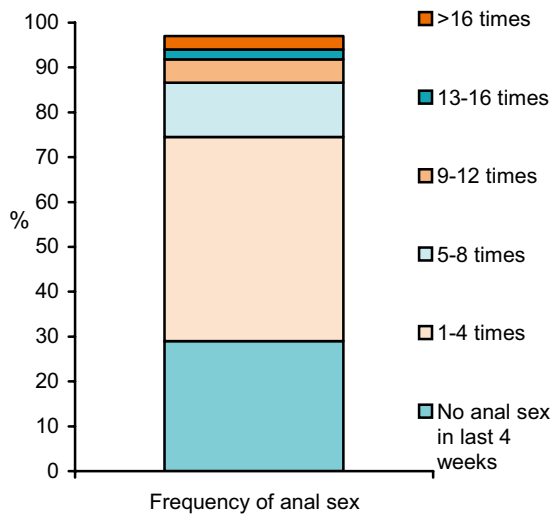
* Statistically significant trend p=0.05.

Respondents who had tested HIV negative at their last test showed a statistically significant upward trend in unprotected sex with a casual partner, although this appeared to have levelled off between 2004 and 2006 (rising from 21.8% in 2002 to 26.9% in 2006). Lower proportions of men who had never tested for HIV reported any unprotected sex at each survey, due both to lower rates of anal sex and lower rates of non-condom use when anal sex occurred. Rates of unprotected sex among men who had tested HIV positive increased in 2006, however this may be due to fluctuations caused by low numbers of diagnosed positive men in the sample (n=31, 34 and 25 who reported casual sex).

Frequency of anal sex in last four weeks with a casual partner

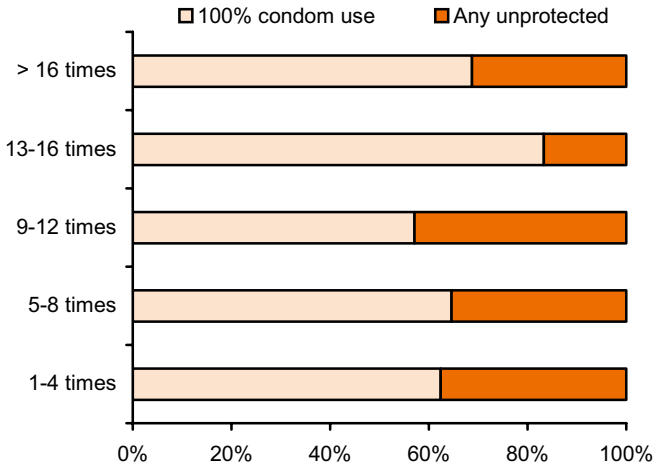
Men who reported having anal sex with a casual male partner in the previous six months were also asked how often they had engaged in anal sex over the last four weeks. Of respondents who had anal sex with casual partners, 29.0% reported no anal sex in the last four weeks, 45.5% reported 1-4 episodes of anal sex (less than one a week), 12.1% reported 5-8 episodes (about one to two a week), 5.2% reported 9-12 episodes (up to three a week), 2.2% reported 13-16 episodes (up to four a week) and 3.0% reported more than 16 episodes of anal sex (more than four a week) (Fig 96).

Figure 96. Frequency of anal sex in last four weeks of those who had anal sex with a casual partner in last six months (2006)



Note: Only includes men who reported anal sex with a casual partner in last six months (n=538).

Figure 97. Any unprotected sex by frequency of anal sex in last four weeks (2006)



Note: Fig 97 only includes men who reported anal sex with a casual partner in last four weeks. P=ns.

Fig 97 shows the rate of condom use for each of the five casual anal sex frequency categories. Although there was some variation in non-condom use, this was not statistically significant, and complete condom use remained high for most respondents regardless of how often anal sex occurred with casual partners (the average rate of 100% condom use for the 2006 sample was 65.9% of those who had anal sex with casual partners).

Unprotected sex with men whom the respondent thought were the same HIV status as themselves

Respondents who reported any unprotected casual anal sex were asked whether this had always happened with a man they believed was the same HIV status as themselves, or whether at least once it had occurred with a man whose HIV status was different to their own or was unknown to them.

Fig 98 reports the findings for this question according to the HIV test status of the respondent.

Figure 98. Any unprotected anal sex with a casual partner whose HIV status was unknown or different to the respondent (2006)

Note: Not stated not shown. Only includes respondents who had any unprotected anal sex with a casual male partner (n=353). The number of men who had tested positive was very low (n=9) (n=142 for last tested –ve and n=29 for never tested). P=ns.

Of the men reporting any unprotected anal sex with a casual partner, one in five of the respondents who had last tested HIV negative (20.4%) or who had never tested for HIV (20.7%) stated that at least once this had occurred with a man whose HIV status they were unsure about or was different to their own. The remaining men stated that they believed it had only occurred with a man whose HIV status they believed was the same as theirs (we assume this meant HIV negative). It is important to note, however, that of the men who had tested negative at their last test and who claimed that any unprotected anal sex with a casual partner had occurred with someone of the same HIV status, the majority had last tested negative more than six months ago (55.3%, or 47 men out of the 85 reporting this).

Given that anyone who had never tested for HIV before should always assume that they could potentially be HIV positive (unless they had never engaged in any unprotected anal sex with any male at all), all respondents who had never tested for HIV logically ought to have indicated that their unprotected anal sex had occurred with someone whose HIV status *may* have been different to their own. It is interesting to note only 20% did so, suggesting that although they had never tested for HIV, many still assumed that they were themselves HIV negative.

The number of respondents reporting any unprotected anal sex with a casual partner in the previous six months and who were themselves HIV positive was small (n=9, constituting 4.8% of all respondents reporting non-condom use with casual partners). Of these nine, four stated that non-condom use had always occurred with someone of the same HIV status as themselves (which we assume meant other HIV positive men). Five reported that this had at least once occurred with a man whose HIV status was unknown to them, or which they knew was different to theirs (i.e. HIV negative). It is important to state that the questionnaire did not ask whether these men disclosed their positive HIV status to their casual sexual partner/s before engaging in unprotected anal sex. The five men comprised just 12.5% of all diagnosed HIV positive respondents in GAPSS 2006.

Condom use with casual partners by sexual partnering variables

In 2006, we found no differences in rates of unprotected anal sex by demographic variables such as site of recruitment, age group, ethnicity, sexual identity or education.

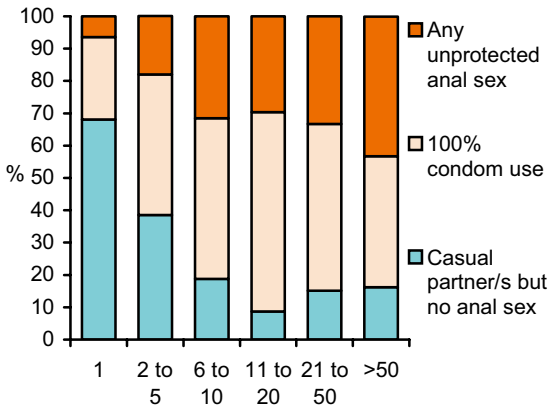
Variation in the occurrence of "any" unprotected sex with a casual partner was however found for three sexual partnering variables, including number of male partners in the previous six months (Fig 99). While just 6.4% of men who had just one sexual partner reported any non-condom use during casual sex, this increased to 18.1% of those with 2 to 5 partners, 31.5% of those with 6 to 10 partners, 33.3% of those with 21 to 50 partners and 43.2% of those with greater than 50 male partners in the previous six months.

In part, this was due to increases in the rate of any anal sex as partner numbers grew, although differences in unprotected sex were still evident when only men who reported anal sex were considered.

In 2006, acquiring at least one sexual partner via the Internet was also associated with any unprotected sex (Fig 100), with 28.5% of men who hooked up online reporting any non-condom use compared to 20.7% of men who only hooked up offline. Interestingly, this difference was almost entirely accounted for by the fact that men who acquired a partner online at least once were more likely to report having anal sex with a casual partner (though we are not able to tell whether this occurred with the men who were acquired online).

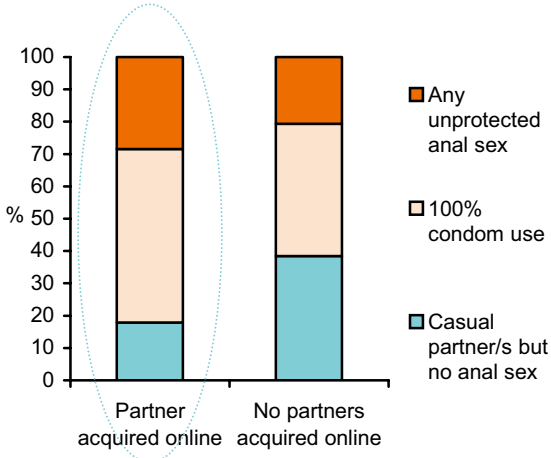
The number of male sexual partners who were acquired online was also related to the occurrence of unprotected anal sex with a casual partner (Fig 101).

Figure 99. Any unprotected sex with a casual partner by number of partners (2006)



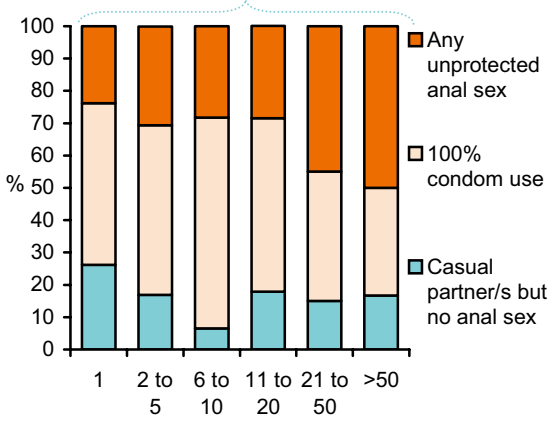
P<0.001.

Figure 100. Unprotected sex with a casual partner by sex with men acquired via Internet (2006)



P<0.001.

Figure 101. Any unprotected sex with a casual partner by number of partners met online (2006)



P<0.05. Only includes men who had met a partner online

Condom use with casual partners by attitude and knowledge variables

Attitudes to condoms and knowledge of HIV were significantly related to non-condom use in 2006.

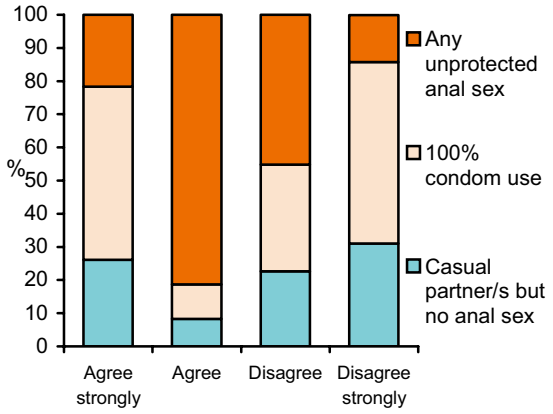
As Fig 102 shows, rates of "any" unprotected sex with a casual partner were 14.2% of those who strongly disagreed with the statement "I would sometimes rather risk HIV transmission than use a condom during anal sex" (n=506), compared to 45.2% of those who disagreed (n=146) and 81.3% of those who agreed (n=48) (note that the inconsistent result for "agree strongly" may be based on the small number of respondents (n=23)).

A similar association was found for the statement "I don't like wearing condoms because they reduce sensitivity" (Fig 103). Just 9% of those who disagreed strongly with this statement (n=244) reported any non-condom use with a casual partner, compared to 25.2% of those who disagreed (n=230), 40.0% of those who agreed (n=185) and 45.0% of those who agreed strongly with this statement (n=60).

Two knowledge statements were related to reports of any unprotected sex with a casual partner (Figs 104 and 105) (note that the responses "I wasn't sure" and "I didn't know that" are combined for this analysis).

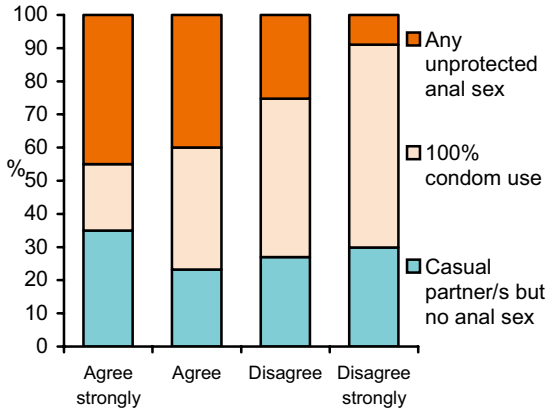
Respondents who stated that they "knew" that "HIV is more easily transmitted to others in the first few weeks after infection" were less likely to report any unprotected sex with casual partners (22.7%) than were respondents who stated that they weren't sure or "didn't know" this (26.8%) (Fig 104).

Figure 102. Any unprotected sex with a casual partner by "I'd sometimes rather risk HIV than use a condom during anal sex" (2006)



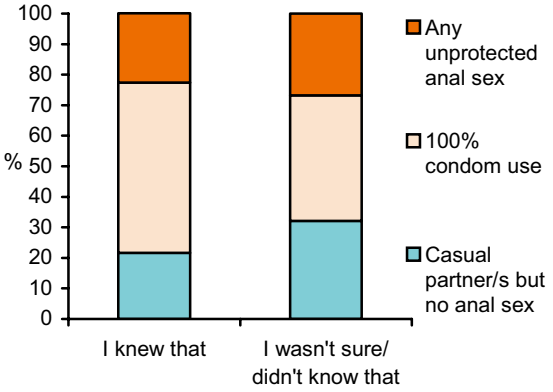
P<0.001.

Figure 103. Any unprotected sex with a casual partner by "I don't like wearing condoms" (2006)



P<0.001.

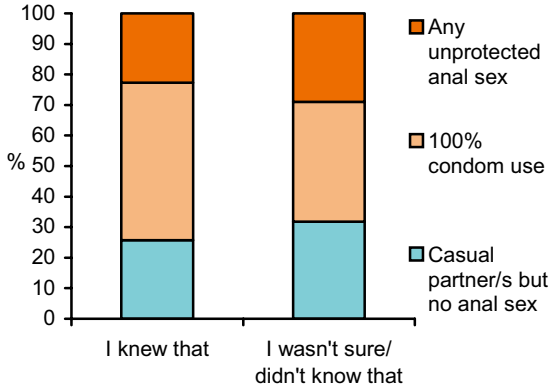
Figure 104. Any unprotected anal sex with a casual partner by "HIV is more easily transmitted to others in first few weeks after infection" (2006)



P<0.001.

Respondents who stated that they knew that "the lining inside your anus (bum) can both absorb HIV and transmit HIV" were also less likely to report any unprotected sex with a casual partner (22.7%) than were men who stated that they were not sure of this or who stated that they didn't know this (29.0%) (Fig 105).

Figure 105. Any unprotected anal sex with a casual partner by "your anus can both absorb HIV and transmit HIV" (2006)



P<0.01.

Sexual health check-ups and sexually transmitted infections

There is currently very little data on the frequency of sexual health checkups and the incidence of sexually transmitted infections (STIs) among MSM in New Zealand (Baker et al. 2005). Routine national surveillance of STIs for males does not collect information on same-sex sexual contact, and data on the experience of STIs among this population is mostly derived from cross-sectional surveys collected some time ago (Saxton, Hughes & Robinson, 2002) or initiatives taken from individual sexual health clinics (Azariah, 2005).

The GAPSS questionnaire included items on sexual health check-ups and experiences of STIs in 2006. Respondents were asked to indicate if they had been for a sexual health check-up in the previous 12 months, if so, where they had gone, and all respondents were asked whether they had a history of each of seven STIs.

Sexual health check-up

Over two out of every five respondents (n=530) stated they had been for a sexual health check-up in the last 12 months (Fig 106). Going for a check-up was associated with certain demographic characteristics. Of the whole sample, respondents who were younger (49.7% of men aged 15-24 vs 46.3% of those aged 25-39 and 39.0% of those aged 40 and over), who were Maori (53.7% vs 43.7% of NZ European, 40.0% of Pacific and 31.6% of Asian respondents), and who identified as bisexual (50.5% vs 42.2% of gay identified respondents) were more likely to have been for a check-up in the previous year (Fig 107).

Figure 106. Been for a sexual health check-up in the last 12 months (2006)

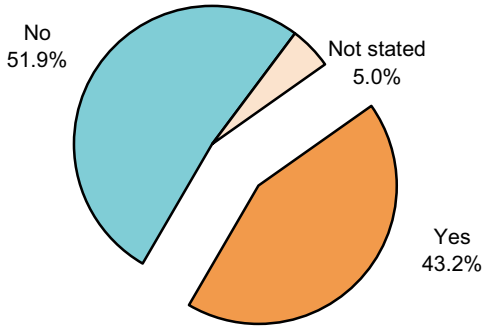
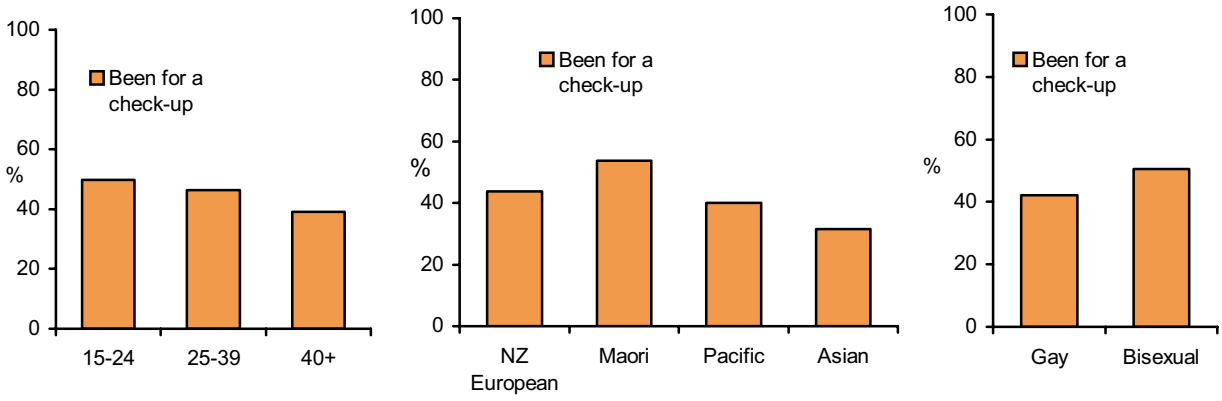


Figure 107. Been for a sexual health check-up in the last 12 months by selected characteristics (2006)



Note: P<0.05 for each variable.

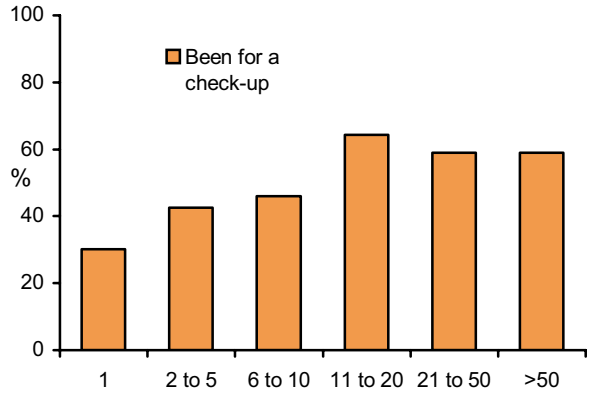
As expected, going for sexual health check-up was also associated with number of sexual partners in the previous six months (Fig 108).

Respondents with one male sex partner were least likely to have gone for a check-up (30.1%), increasing to 42.6% for those with 2 to 5 partners, 45.9% for men with 6 to 10 partners, 64.3% for men with 11 to 20 partners, 59.0% for those with 21 to 50 partners and 59.5% for men with greater than 50 partners.

Of the respondents who went for a check-up in the last year (n=530), the majority went to either a GP (54.5%) or a free sexual health clinic (48.1%) (Fig 109) (note that some respondents will have gone to both places in the course of 12 months, hence the total being greater than 100%).

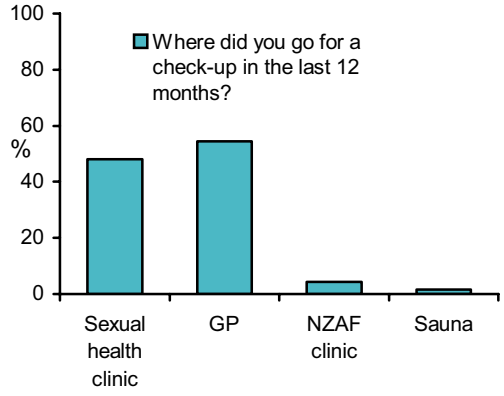
The NZAF clinic in Auckland and gay saunas have also provided STI check-ups on set times of the week. However, few of the GAPSS respondents in 2006 had used these services recently (4.3% and 1.5% respectively).

Figure 108. Been for a sexual health check-up in the last 12 months by number of sexual partners in last six months (2006)



Note: P<0.001

Figure 109. Where respondents went for check-ups in the last 12 months (2006)



Sexually transmitted infections

Of the seven STIs in the questionnaire, gonorrhoea (3.3%) and chlamydia (3.3%) were the most commonly reported in the previous 12 months (Table 37). Gonorrhoea was also the most common STI reported over the lifetime of respondents (17.3%), with around 1 in 8 of all respondents reporting a lifetime history each of chlamydia, NSU or warts.

Table 37. Reported experiences of sexually transmitted infections (2006)

	In the last 12 months		Not in the last 12 months but at least once in lifetime		Any lifetime experience	
	n	%	n	%	n	%
Gonorrhoea	40	3.3	172	14.0	212	17.3
Chlamydia	40	3.3	108	8.8	148	12.1
NSU	17	1.4	136	11.1	153	12.5
Warts	20	1.6	149	12.1	169	13.8
Herpes	15	1.2	60	4.9	75	6.1
Syphilis	11	0.9	38	3.1	49	4.0
Giardia	12	1.0	69	5.6	81	6.6

Of the whole sample, 40.8% reported a lifetime history of any of these seven STIs (Fig 110), and 8.0% of respondents reported at least one of these STIs in the previous 12 months (Fig 111).

Figure 110. Reported an STI at least once in lifetime (2006)

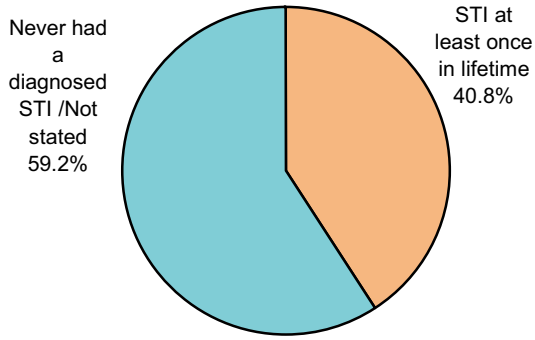
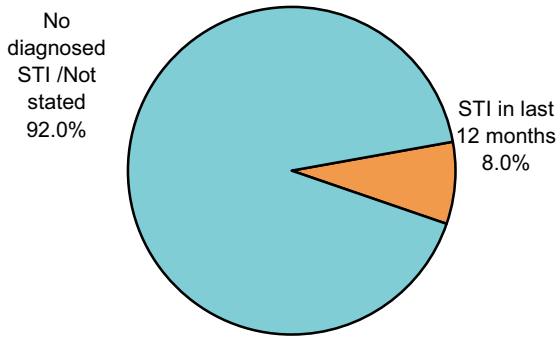


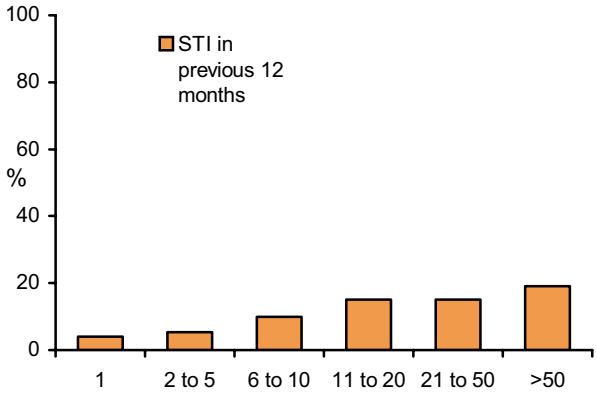
Figure 111. Reported an STI in previous 12 months (2006)



Reports of an STI in the previous 12 months were strongly associated with the number of sexual partners in the last six months (Fig 112).

Whereas 4.0% of respondents with one partner reported an STI, this was true for 5.4% of men with 2 to 5 partners, 9.9% for those with 6 to 10 partners, 15.1% for those with 11 to 20 partners, 15.0% for those with 21 to 50 partners, and almost 1 in 5 (19.0%) of men with greater than 50 male sexual partners in the previous six months.

Figure 112. STI in previous 12 months by number of partners in previous six months (2006)



Note: P<0.001.

Viagra and recreational drug use

In 2006, the GAPSS questionnaire also included items on the use of Viagra©[6] and various recreational drugs. As this was the first time these items have been included, it is not possible to assess whether or how much the use of these prescription and non-prescription drugs has increased over time within the population sampled, although it will provide baseline data for future estimates.

Viagra

Viagra use has both personal and public health implications. For individuals who find condoms problematic during anal sex because they increase erection difficulties, Viagra is a potentially useful prescription drug as it could dramatically decrease interpersonal risk of HIV transmission if it resulted in greater levels of condom use. By increasing the duration of erections, Viagra may also facilitate multiple sexual partner change by prolonging sexual performance. If condoms are not used for anal sex in such circumstances, this alternatively presents heightened risks of HIV transmission. The availability of erection aids such as Viagra can also impact on norms and expectations surrounding sexual performance (Potts et al. 2006), and the timing and duration of sexual acts, which may be agreeable to one but not necessarily both sexual partners.

Figure 113. Used Viagra in the previous six months? (2006)

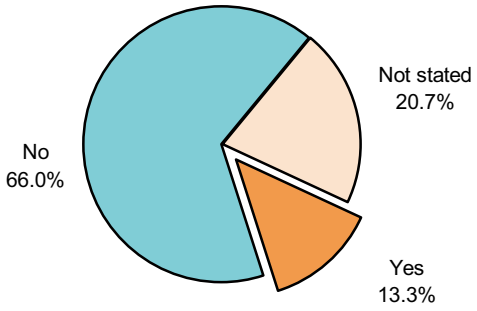
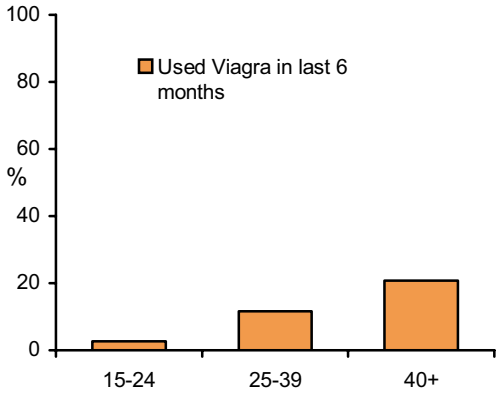


Figure 114. Viagra use in the previous six months by age group (2006)



P<0.001

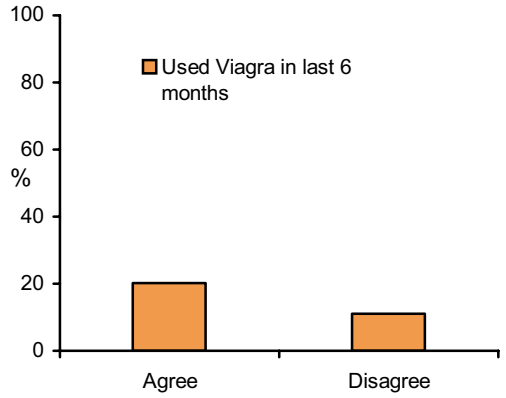
More than 1 in 8 respondents (13.3%) reported that they had used Viagra in the last six months (Fig 113). There was also an unusually high proportion of "not stated" for this question (20.7%) (note that respondents weren't asked whether they acquired Viagra on prescription or through other means e.g. friends, Internet). Fig 114 shows that Viagra use in the last six months was associated with age group. One in five respondents (20.8%) aged forty and over had used Viagra, compared to 11.7% of those aged 25-39 and 2.7% of those aged under 25.

[6] Throughout the rest of the discussion we use "Viagra" to refer to sildenafil, tadalafil or vardenafil-based drugs used to treat erection difficulties, including Viagra©, Cialis© and Levitra©.

Fig 115 shows that respondents who agreed with the statement "I don't like wearing condoms because they reduce sensitivity" were significantly more likely to have recently used Viagra (20.2%) than had respondents who disagreed with this statement (11.0%).

Other groups who may occasionally experience erection difficulties - due to the side effects of medication for example - include men who have tested HIV positive. However, the proportion of diagnosed positive men in the sample who had used Viagra recently (15.0%) was the same as that for those who had last tested negative (15.6%).

Figure 115. Viagra use in the previous six months by "I don't like wearing condoms because they reduce sensitivity" (2006)



P<0.001.

Recreational drug use

Nine non-prescription recreational drugs were included in the questionnaire (amyl, cannabis, GHB, ecstasy, amphetamines, methamphetamines, cocaine, ketamine and LSD) and respondents were asked to state how often in the previous six months they had used each one. A supplementary set of questions asked if respondents had used any of these drugs in conjunction with sex with a regular or with a casual partner.

Two other types of recreational drugs, legal party pills (commonly containing benzylpiperazine or BZP) and alcohol, were considered but not included in GAPSS 2006. Although a 2006 national household survey of legal party pill use in New Zealand found that 15.3% of people aged 13-45 had taken a party pill in the preceding 12 months (Wilkins et al. 2006), the uncertain association of party pills with decisions about sexual practice compared to other drugs listed may have resulted in any relationships between safe sex and the other seven substances being disguised during analysis. Also, the association between alcohol use and unsafe sex among MSM is well-established in the literature, and other studies were thought better placed to track changes in alcohol consumption over time given the limited space available on the GAPSS questionnaire.

Table 38. Recreational drug use in the previous six months (2006)

	How many times in the last six months											
	Once in last 6 months		2-5 times in last sixmonths		Once a month		Twice or more a month		No, not in the last 6 months		Missing	
	n	%	n	%	n	%	n	%	n	%	n	%
Amyl/poppers	118	9.6	110	9.0	39	3.2	224	18.2	638	52.0	99	8.1
Cannabis/dope	132	10.7	111	9.0	26	2.1	193	15.7	656	53.4	110	9.0
GBH/GHB	26	2.1	16	1.3	5	0.4	20	1.6	964	78.5	197	16.0
Ecstasy/E	106	8.6	72	5.9	33	2.7	49	4.0	813	66.2	155	12.6
Amphetamine/speed	57	4.6	40	3.3	7	0.6	46	3.7	911	74.2	167	13.6
Methamphetamine/P	40	3.3	21	1.7	8	0.7	27	2.2	948	77.2	184	15.0
Cocaine	41	3.3	31	2.5	5	0.4	14	1.1	959	78.1	178	14.5
Ketamine	36	2.9	16	1.3	6	0.5	12	1.0	972	79.2	186	15.1
LSD	33	2.7	20	1.6	6	0.5	17	1.4	976	79.5	176	14.3

The most frequently used substances were found to be amyl/poppers (18.2% reported using this at least twice a month) and cannabis (15.7% reporting use at twice or more a month). Of the other drugs, Ecstasy (used twice or more a month by 4.0%) and amphetamines/speed (used twice or more a month by 3.7%) were the next most frequently reported (Table 38).

Figure 116. Total use and frequency of use of nine recreational drugs in previous 6 months (2006)

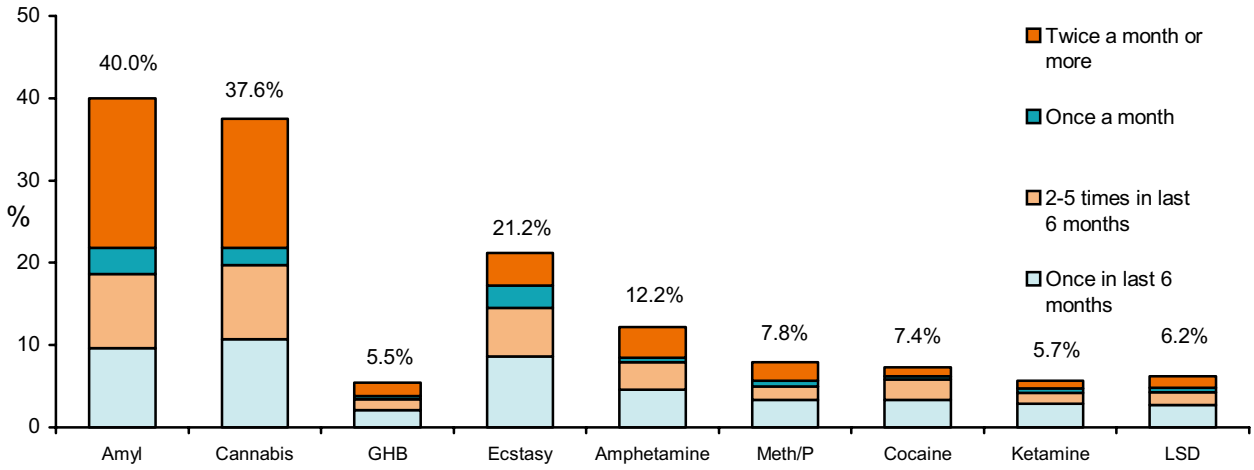


Figure 116 illustrates these data to show total use and the relative frequency of use among those who used each substance in the last six months. Any use was highest again for amyl (40.0%) and cannabis (37.6%). The proportion of "any" users in the last six months who were "high frequency" users (i.e. consumed the substance twice or more a month) was also highest for amyl (45.6% of those who had used it at all in the last six months used it twice or more a month) and cannabis (41.8% of those who had used it in the last six months were high frequency users), with amphetamine (30.7% of any users being high frequency) and methamphetamine (28.1% of any users being high frequency) also demonstrating a high translation rate of "any" recent use into regular use.

Figs 117 and 118 below show that 56.9% of the total 2006 GAPSS sample reported any substance use at all in the previous six months, and around half (48.8%) of these, or 27.8% of the total sample reported any high frequency use of at least one recreational drug.

Figure 117. Any recreational drug use in last six months (2006)

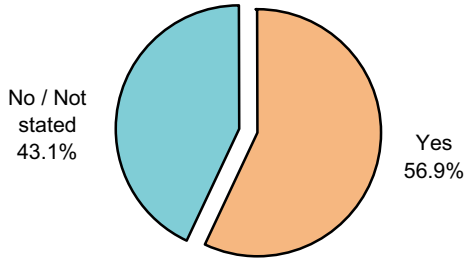
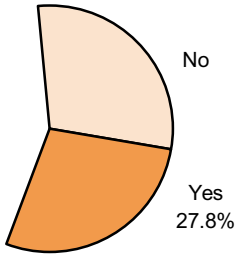
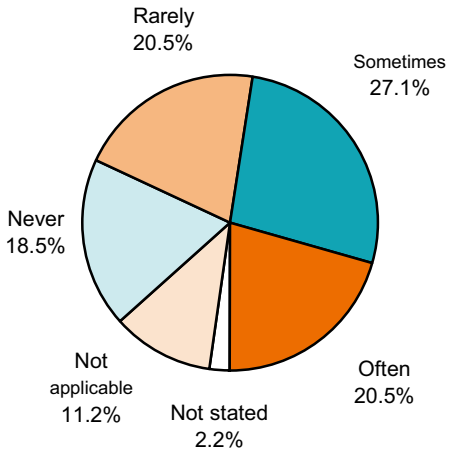


Figure 118. Any high frequency drug use in last six months (2006)



The use of recreational drugs was not always connected with sex. Of the men in the sample who had casual sex in the previous six months and who also reported any drug use (n=487), just 20.5% stated that they had "often" used drugs during sex with casual partners in the previous six months (Fig 119).

Figure 119. Frequency of using drugs during sex with casual partners, of respondents who had casual sex and who reported any drug use (2006)



When drugs were used in conjunction with casual sex, the frequency of recreational drug during sex use was associated with both the rate of anal sex and the rate of unprotected sex. Respondents who stated they "often" (85.1%) or "sometimes" (82.8%) used drugs during casual sex were more likely to report anal sex than other respondents (Fig 120), and when anal sex occurred, men reporting "often" using drugs during sex were more likely to report any unprotected anal sex (44.8%) than others (Fig 121). Conversely, respondents who reported some drug use in the previous six months, but never used drugs during casual sex, reported rates of anal sex and unprotected anal sex that were similar to respondents who did not report drug use.

Figure 120. Any anal sex with casual partner/s by frequency of drug use during casual sex

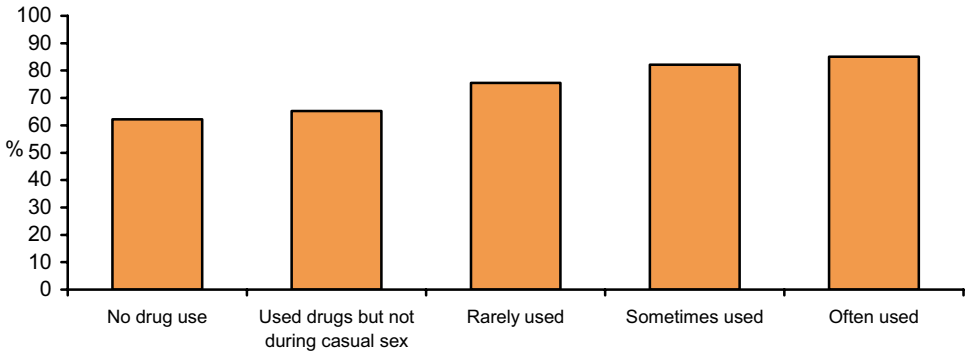
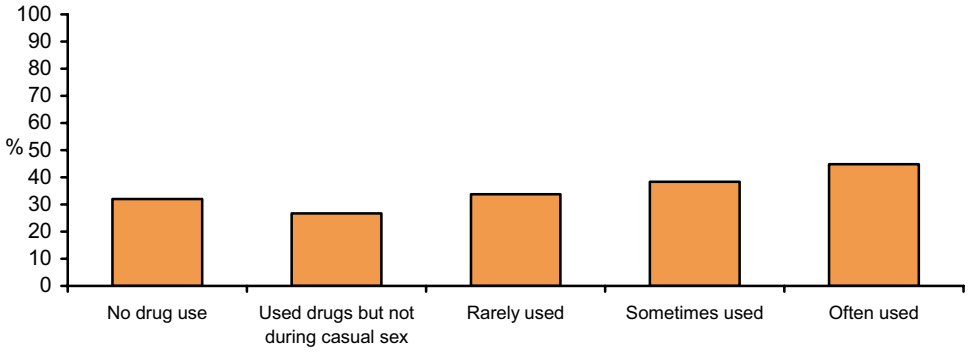


Figure 121. Any unprotected anal sex with casual partners by frequency of drug use during casual sex



Summary and discussion

Sample

The 2006 GAPSS survey attracted 1228 completed questionnaires from men who have sex with men (MSM), which was similar to 2004 (1220 questionnaires) and higher than 2002 (812 questionnaires). The researchers consider this to be a very good result for a study conducted over only one week in a city with a total population of around 1.3 million.

In comparison to the last survey, the response rates in 2006 were steady at the Big Gay Out, declined slightly at the gay saunas and were lower than previously experienced at the gay bars. It is not possible to know whether the men who declined to participate differed in some way to those who did, nor whether there were different reasons for doing so at different sites, or in different years. Feedback from members of the recruitment team who had also recruited in 2002 or 2004 suggested that they found it more difficult to recruit men at the gay bars and gay saunas/ sex-on-site venues into the 2006 survey than it had been in previous years. Otherwise, the GAPSS samples have been composed of similar proportions from each recruitment site at all three surveys: on average 69.5% of participants were recruited from the Big Gay Out, 12.6% from the gay bars and 17.9% from the saunas/ sex-on-site venues.

The GAPSS survey recruits men at the Big Gay Out, gay bars and saunas/sex-on-site venues in order to obtain both a broad cross section of MSM but also to sample MSM who may be of strategic importance to the transmission of HIV. One way to assess the similarity between the samples collected, and hence the ability to confidently interpret changes in behaviour over time, is by examining the demographic characteristics of participants. There were some differences in the composition of the 2002, 2004 and 2006 samples by age group (being younger in 2004), ethnicity (proportionately fewer NZ European/Pakeha over time), sexual identity (2004 and 2006 were more gay-identified) and the amount of free time spent with gay men (lower community attachment in 2006), but none of these were of great magnitude.

It is possible that the population of MSM who participate in the social and sexual settings that we recruit from has changed subtly since 2002, and therefore that the slightly different GAPSS samples collected every two years have accurately reflected these shifts. Given that the venues included in the GAPSS recruitment strategy constitute the main dedicated commercial offline social and sexual sites available to MSM in Auckland, a plausible hypothesis explaining these differences is that certain MSM have disproportionately chosen to locate their sexual (and possibly also social) networking online and that this has removed them from the offline GAPSS catchment. Several findings in this 2006 GAPSS survey support this initial speculation, which are highlighted in the following summaries of each section of the report. The combined analysis of the offline GAPSS surveys and the inaugural GOSS online survey in 2006 (not reported here) will enable us to explore some of these issues in more detail.

Methodologically, the GAPSS survey is a non-random opportunistic community survey designed to generate a large sample of sexually-active MSM from the Auckland region (i.e. those believed to be at greatest risk from HIV in New Zealand), and care should be exercised when seeking to generalise the findings from this survey to the population of MSM and/or gay men as a whole. The ways in which the respondents were recruited inevitably bias the sample and therefore the findings. As such this is not a representative survey of all gay men. Having said this, and given the typical difficulties encountered when sampling rare, stigmatised, and geographically clustered populations (Hughes and Saxton, 2006), it is a method of HIV behavioural surveillance that is common internationally (Dodds et al. 2004; Hart and Williamson, 2005; Hull et al. 2006; Sanchez et al. 2006; Weatherburn et al. 2005) and provides valuable and reliable data when interpreted with the usual cautions.

Experiences of first anal sex with a male

Experiences of first anal sex are of research interest for several reasons: there is scarce information on timing of first anal sex among MSM in New Zealand; the last twenty years have been associated with various community and pharmaceutical developments in relation to HIV and we were interested in exploring the context in which anal sex was initiated; and condom use at first sex may be associated with the age at which first sex occurred.

Respondents were invited to state the year they first had anal sex with another male and whether condoms had been used on this occasion. Condom use at first anal sex increased steadily over time; 7.8% of men whose first anal sex occurred in 1975 had used condoms on this occasion, 81.0% of men whose first anal sex occurred in 2006 had done so. This is a considerable achievement by gay and bisexual men in response to HIV.

The modal age at which first anal sex occurred was 17 (i.e. this was the most frequently cited age by respondents in the 2006 survey), closely followed by 18 and 19. Condom use at first anal sex was associated with the age at which first sex occurred, being lowest among respondents who first had anal sex before the age of 16. More men had been receptive (the “bottom”) on the first occasion of anal sex than had been insertive (the “top”), with a quarter of respondents indicating that they had engaged in both receptive and insertive anal sex on the first occasion.

HIV testing and serostatus

Diagnoses of HIV infection have increased dramatically among MSM in New Zealand since 2002. Detecting HIV infections relies on patterns of HIV testing, thus it is possible that the rise in HIV diagnoses merely reflects increases in rates of testing among MSM. We found no evidence that this was true. The proportion of respondents who reported ever having had an HIV test remained stable over time (71.1%, 72.5%, 72.2% in 2002, 2004 and 2006), and the proportion of all respondents who had tested for HIV recently (in the last six months - which will be more effective at uncovering recent infections) also remained stable (23.9%, 25.9%, 25.8%). Our testing results therefore support the HIV epidemiological data which are strongly suggestive of an increase in locally-acquired HIV infections in New Zealand.

Conversely, lower rates of HIV testing can conceal HIV infections occurring among sub-populations of MSM. Testing rates were lower among younger MSM, MSM who were of Pacific or Asian ethnicity, and men who identified as bisexual.

In contrast to the rise in HIV diagnoses across the country, but particularly in Auckland, a lower proportion of GAPSS respondents in 2006 stated that they had been diagnosed with HIV than in previous surveys (4.7%, 4.3%, 3.3% of all respondents). This is unusual given the epidemiological circumstances, particularly as the actual number of diagnosed positive men declined from 53 in 2004 to 40 in 2006 despite the overall sample size remaining the same in both surveys (1220 in 2004, 1228 in 2006). The small number of diagnosed positive men in 2006 means that results for this group must be interpreted cautiously.

Men were invited to rate their perceptions about their own HIV status at the time of completing the survey. There were no changes in these reports over time. Men who had tested negative at their latest HIV test showed similar rates of believing they were currently "definitely HIV negative" (66.1%, 66.5%, 69.1%), as did men who had never tested for HIV (59.0%, 58.3%, 61.1%).

The number of people who know they have HIV at any one time will underestimate the number of people who have acquired HIV infection. In recent years, we have used data from the United Kingdom to estimate the proportion of MSM who are unaware that they are infected with HIV, which suggested that around a third of MSM who are HIV positive do not know this (Rogers et al. 2002; Dodds et al. 2004). This rate has been found to be higher among a study of young MSM in the United States (MacKellar et al. 2005), in which 77% of HIV positive MSM were unaware of their infection.

In New Zealand, a national unlinked anonymous study of blood collected at sexual health clinics was conducted in 2005, and initial findings have been recently released (Dickson et al. 2006). The study found an HIV prevalence of 4.4% among MSM, being higher in Auckland than in other areas. Of the MSM with HIV positive blood samples, 44% were previously undiagnosed infections. However, as most of these men were requesting an HIV test at the time their blood sample was taken at the sexual health clinic, the actual proportion of MSM who are likely to be living with undiagnosed HIV infection will be lower than this. A full report of this study will be available shortly (Sue McAllister, personal communication).

Sexual relationships

The pattern of sexual partner change in a population is a key determinant of the spread of HIV (Anderson and May, 1992). With the recent increase in HIV diagnoses among MSM in Auckland, it would not be surprising if we found evidence of increases in sexual partner numbers, changes in sexual partner types or sexual partner combinations, or decreases in condom use across the three GAPSS surveys. However, ongoing increases in HIV infections could continue to occur if these behaviours remained stable at a level above the threshold required for HIV infections to spread in a population.

However, few trends over time were found. Rates of regular sexual partnering (68.2%; 71.9%; 71.8%) and casual partnering (63.9%; 63.4%; 62.9%) in the six-month period prior to survey have been remarkably stable; rates of "current" regular partnering had risen between 2002 (49.0%) and 2004 (54.8%) but then remained steady in 2006 (54.1%); concurrent sexual partnering (overlapping sexual relationships) remained high (19.5%; 22.5%; 21.1% of each sample) but constant; the number of regular male partners in the last six months was steady; and no increase in the rate of "fuckbuddy" regular sexual partnerships was witnessed over time (comprising 20.4%, 19.2% and 21.5% of current regular partnerships).

Among all respondents who had a current regular relationship, no consistent trends over time occurred in participants' awareness of their partner's HIV test status. This was also true among those with "newer" sexual relationships (of less than six months duration), who demonstrated similar rates of "I don't know his HIV test status" or "I haven't asked him" at each survey (39.8%; 42.3%; 38.9%). Respondents whose current regular partner had last tested HIV negative demonstrated stable rates of believing that their partner was "definitely HIV negative" at the time of survey (81.1%; 81.1%; 81.4%) as opposed to being "probably HIV negative", and no consistent trends in perceptions of a partner's HIV status were observed among respondents whose partner had never tested for HIV. The proportion of respondents who had themselves last tested HIV negative and who reported having a current regular partner who had also last tested HIV negative ("sero-negative concordant" partnerships based on each individual's last HIV test) was also stable in each sample (69.7%; 71.8%; 69.7%).

The proportion of each GAPSS sample that reported having over 20 male sexual partners in the previous six months decreased slightly over time (16.6%; 14.0%; 11.6%). This is unusual given the increased opportunities for acquiring sexual partners now afforded by Internet dating sites, and in particular the growing popularity in New Zealand of such sites compared to 2002. Another unexpected result was that the proportion of the sample that had had sex with a man they acquired via the Internet in the previous six months had increased dramatically from 25.1% in 2002 to 42.0% in 2004, but then declined to 38.3% in 2006. Although it is possible that MSM have constrained their sexual behaviour in response to media coverage of the increase in HIV diagnoses, these findings may also suggest that a proportion of the most sexually active MSM are no longer participating as frequently in the offline venues where GAPSS recruitment occurs, and that a proportion of MSM who have tried finding sexual partners online now prefer it to offline options.

Within the 2006 sample, there was variation in many of the sexual partnering findings. Predictably, the number of sexual partners differed across the three sites of recruitment, with respondents at the Big Gay Out reporting fewer partners over the previous six month period than those recruited at the gay bars and saunas, and a higher proportion of men recruited at the saunas reporting large numbers of sexual partners. MSM who were younger (aged under 25) were least likely to report very high numbers of male sexual partners in the last six months, with the rate of rapid sexual partner change being almost twice as high among men aged 25 and over. Alternatively, younger men were more likely to report any recent sexual activity with women than were men aged over 25.

Men with "new" regular sexual relationships or who were in "fuckbuddy" relationships were less likely to be aware of their partner's HIV testing history than were men in more durable partnerships or who described their partner as a "boyfriend" or "long-time lover". Respondents who had never asked their partner about their HIV test history were less likely to believe that their current partner was "definitely HIV negative", and this was even lower among men with fuckbuddy partnerships, demonstrating than men do often rationally incorporate information about their partners into assumptions about their HIV status.

Simultaneous or "concurrent" sexual partnering (having a regular sexual relationship of at least six months duration and also reporting sex with at least one other man within the last six months) was higher among men recruited at the saunas/ sex-on-site venues and also increased with age. However, in part the latter finding is influenced by the fact that fewer younger men were in longer-term relationships and thus were less likely to fit our definition of concurrent sex; when we examined younger men who were in relationships of over six months duration they reported rates of sex with other men that were similar to men aged 25-39.

Knowledge

Ensuring that accurate information about HIV transmission risks is available to MSM is an ongoing task, as each successive generation of gay and bisexual men needs to be offered relevant information, some men become sexually active with other men later in life, and HIV knowledge is itself continually being extended. HIV incidence and prevalence also changes over time within sexual networks, and disseminating this information to men in these networks is important since risk reduction approaches that may have resulted in men remaining uninfected in previous years may no longer be as protective now.

Although early research on responses to HIV in New Zealand examined knowledge regarding HIV and safe sex among MSM (e.g. Parkinson, 1989) the last time a large-scale survey included items on gay and bisexual men's knowledge was Project Male Call/Waea Mai, Tane Ma in 1996 (Saxton et al. 1997; Saxton et al. 1998). The GAPSS project inserted knowledge items for the first time in 2006, covering a range of issues concerning HIV transmission and the HIV epidemic in New Zealand. The 2006 results will therefore provide a new baseline against which progress can be measured, and will also help identify HIV prevention targets by revealing which MSM sub-populations have benefited least from recent knowledge raising initiatives.

The overall results for 2006 were encouraging, with virtually all MSM reporting that they knew unprotected anal sex was high risk for HIV transmission and that HIV is a permanent infection. High rates of knowledge were also recorded regarding the low HIV risk of oral sex, and regarding the protectiveness of condoms for anal sex. A not-insignificant minority of men however still displayed uncertainty or lack of knowledge on these latter items, and these should continue to be targets for HIV education. A larger proportion of respondents reported uncertainty on other, more complex epidemic-related knowledge items designed to personalise the risk involved in anal sex without a condom.

Importantly, men who demonstrated knowledge of the statements "HIV is more easily transmitted to others in the first few weeks after infection", "the lining of your anus (bum) can both absorb HIV and transmit HIV", and "HIV cannot pass through an undamaged latex condom" were more likely to report condom use with a current regular partner than men who were unsure or didn't know these items, and men who knew that "HIV is more easily transmitted to others in the first few weeks after infection" and that "the lining of your anus (bum) can both absorb HIV and transmit HIV" were more likely to use condoms during anal sex with a casual partner. These initial results suggest that investing in HIV education does achieve measurable improvements in protective practices among MSM.

Differences in knowledge were also observed between groups of MSM. For example, men who were younger (aged under 25) were less knowledgeable about the low HIV risk of oral sex, that the anus both absorbs and transmits HIV, and that intact condoms are fully protective for HIV transmission. Pacific MSM were less knowledgeable on oral sex, the rate of new HIV diagnoses occurring among MSM in New Zealand, and on the transmission potential of the anus. On the other hand, men who had been diagnosed with HIV now demonstrated the highest knowledge on every indicator included in the survey. Given the association between condom use and knowledge found for three of the knowledge items, improving access to such knowledge should be a health promotion target.

Attitudes

Several recent campaigns run by organisations such as NZAF have sought to change men's attitudes surrounding the epidemic, approaches to safe sex and/or condom use (www.nzaf.org.nz/campaigns.php). Evaluating the impact of attitudes on unsafe sex can be problematic because the outcome measured (e.g. whether men had at least one episode of unprotected anal sex with a casual partner in the last six months) may not fully capture the subtle decisions men make that could result in less risky encounters. Nevertheless, altering men's attitudes can work in conjunction with other factors to improve condom use, and in some cases the GAPSS study has found direct associations between attitudes and unprotected sex. Aiming to improve MSM's attitudes is thus an appropriate target for HIV health promotion.

The three samples demonstrated a shift towards more positive attitudes for the statements "HIV/AIDS is a less serious threat than it used to be because of new treatments" (45.9%, 47.9% and 54.6% strongly disagreed in 2002, 2004 and 2006), "I would sometimes rather risk HIV transmission than use a condom during anal sex" (12.6%, 9.4% and 8.8% agreed or strongly agreed over time), and "I don't like wearing condoms because they reduce sensitivity" (40.1%, 35.1% and 30.2% agreed or strongly agreed over time). However, a negative shift occurred for the statement "a man who knows he has HIV would tell me he was positive before we had sex", for which a third (32.5%) agreed or strongly agreed in 2006 compared to 22.2% in 2004.

If the shift towards more positive attitudes for the first three statements reflects actual changes in the MSM population, rather than a decrease in the participation of individuals who

may hold more negative attitudes, then this would be compatible with the desired outcome of social marketing campaigns delivered in New Zealand between 2002 and 2006 such as the *Toolbox*, *End the Silence* and *Horny As* resources. Alternatively, the increase in the proportion of MSM who assumed that a diagnosed HIV positive man would disclose his sero-status before sex coincided with a Court case in October 2005 (*NZ Police v Dalley*) concerning the legal duties of HIV positive people prior to sex. Although the decision found that condom use by an HIV positive man during vaginal sex constituted a "reasonable precaution" and did not place an individual at legal risk, it inferred that no condom use along with a failure to disclose HIV status did carry legal risk. Discussion of the practical implications of this decision for sexually active individuals occurred in various fora (Banks, 2005; Hughes and Saxton, 2005; Saxton, 2005; Stevens, 2005), however it is possible that some MSM misinterpreted it to mean that HIV positive men were now legally obliged to disclose their HIV status to all sexual partners (or that positive men would be more inclined to do so post this decision).

Differences in attitudes were witnessed across the sample in 2006. For example, younger men were less likely to agree that "I would sometimes rather risk HIV transmission than use a condom during anal sex", less likely to agree that "I don't like wearing condoms because they reduce sensitivity", but more likely to agree that "a man who knows he has HIV would tell me he was positive before we had sex". Conversely, men who had greater than 50 male sexual partners in the previous six months were more likely to agree that "I would sometimes rather risk HIV transmission than use a condom during anal sex", but were less likely to agree that "a man who knows he has HIV would tell me he was positive before we had sex".

Measuring condom use among MSM in New Zealand

Different measurements of condom use rates should be used for different research questions. Health promotion organisations in New Zealand such as NZAF primarily seek to increase the use of condoms when anal sex occurs between men, rather than encourage men to avoid anal sex altogether or not have sex with other men. Thus the rate of condom use (either any non-condom use vs always used a condom, or High vs Medium vs Low condom use) during anal sex is the relevant measure of progress on this goal.

Since rates of anal sex can fluctuate, or exhibit consistent increases or decreases over time for a variety of reasons, we also measure the rate of condom use as a proportion of all those having sex with a casual partner or current regular partner. Changes in the rate of condom use in the casual partnering context can therefore occur even if the likelihood of men using condoms when they engage in anal sex with a casual partner remains the same, since the base rate of anal sex with casual partners may have increased among the study sample. Measuring condom use by partner type is still important because it signals the context in which non-condom use is occurring and may have different implications for the spread of HIV.

Thirdly, the rate of non-condom use is also expressed out of the total survey sample. This also takes into account changes in the rate of casual or regular sexual partnering, which

again may be independent of changes in condom use during anal sex and changes in the rate of anal sex within a given sexual partnering context. It helps measure the overall potential exposure to HIV transmission among respondents, but may not be a relevant indicator of the success or otherwise of more focused health promotion programmes.

Sex with a current regular male partner

Regular sexual partners were defined in the GAPSS survey as men whom the respondents had had sex with more than three times in the previous six months. Questions on sexual behaviour focussed on respondents who had a regular partner at the time of survey. In the event that respondents had more than one current regular partner, they were asked to think of the one they had the most sex with.

There were few consistent trends in sex with a regular partner over the three surveys. Rates of anal sex in the last six months with a current regular partner remained steady (79.9%, 80.5%, 82.5%), and there was no change in the proportion of men who had engaged in receptive or insertive anal sex.

Rates of any non-condom use had declined slightly in 2004, but in 2006 this had returned to the levels found in 2002 (65.1%, 62.6%, 65.9% of those who had any anal sex with a current regular partner). Similarly, rates of “Low” condom use (recorded if a respondent “never” or “very rarely” used condoms for any receptive or insertive anal sex) remained stable (45.4%, 47.6%, 47.8% of those having anal sex with a current regular partner).

A slightly higher proportion of respondents reporting anal sex with a current regular partner in 2006 (82.5%) resulted in respondents to the 2006 survey reporting slightly higher rates of any non-condom use out of all those with current regular partners (52.0%, 50.4%, 54.3% of men with a current regular partner).

The increase in rates of current regular partnering in 2004 and 2006 also meant that the rate of any non-condom use with a current regular partner expressed as a proportion of all survey respondents was also highest in 2006 (25.2%, 26.2%, 28.7% of all respondents).

Statistically significant changes in non-condom use over time were found for men recruited at gay bars and men who were aged under 25, with both groups exhibiting increasing rates of unprotected sex with a current regular partner between 2002 and 2006.

Within the 2006 sample, the rate of any unprotected anal sex was higher among men who were recruited from gay bars, who were aged 15-24, who were NZ European/Pakeha, who described their regular partner as a “boyfriend” as opposed to a “fuckbuddy”, who had been with their “boyfriend”-type partner for longer, and whose knowledge about various aspects of HIV and condoms was lower than other respondents (see the knowledge section in this summary for more details). Respondents who had tested HIV negative at their last HIV test, and who stated that their regular partner had also tested negative at their last HIV test, were also more likely to report non-condom use in the last six months.

Sex with a casual male partner

Casual sex partners were defined in the GAPSS study as men whom the respondent had had sex with just once, twice or three times in the six months prior to survey. Questions about anal sex and condom use related to all male casual sex partners in the last six months. As mentioned in the summary section on sexual partnering, rates of casual partnering have remained the same between 2002, 2004 and 2006.

The rate of anal sex with a casual sex partner had increased slightly between 2002 and 2004, and respondents in 2006 maintained this higher level of anal sex (68.2%, 72.4%, 72.3% of those with casual partners). As with sex with regular partners, there was no change in the proportion of men having receptive or insertive anal sex with their casual partners.

Of those who had anal sex with a casual partner, a similar proportion of respondents reported any non-condom use over the survey period (33.2%, 33.5%, 34.9%). Rates of "Low" condom use remained very small (4.5%, 2.1%, 5.0%) and rates of "High" condom use (those who reported either "always" or "almost always" using a condom during any anal sex) were very similar across the three samples (85.4%, 85.7%, 85.6%).

A slightly higher proportion of men who had casual sex reported any unprotected sex over time (from 22.7% to 24.2% to 25.9%) but this rise was neither dramatic nor statistically significant. The constituent components of this slight increase were a rise in the proportion reporting anal sex in 2004 from 2002 while condom use remained stable, and a small proportional rise in non-condom use in 2006 from 2004 while anal sex remained stable.

These small changes across various behaviours resulted in a very slight increase in the overall proportion of respondents reporting any non-condom use with a casual partner (13.8%, 14.3%, 15.3% of the entire survey samples).

Likewise, when the whole sample was divided into different health promotion target groups, only two groups displayed evidence of changing condom use over time. Respondents recruited at the gay bars reported higher rates of non-condom use between 2002 and 2004, and this rate was maintained in 2006. Respondents having casual sex who had tested negative at their last HIV test also demonstrated increasing non-condom use over time, rising from 21.8% in 2002 to 26.9% in 2006.

Across the 2006 sample, the rate of any unprotected anal sex was higher among respondents who had higher numbers of male sex partners, who had had sex with a man they met online, who had greater numbers of male sex partners who they had met online, who agreed that "I would sometimes rather risk HIV transmission than use a condom during anal sex", who agreed that "I don't like wearing condoms because they reduce sensitivity", and who were less knowledgeable than other respondents on two issues related to HIV transmission (see the knowledge section in this summary).

Despite finding that rates of any unprotected sex increased with higher numbers of sexual partners, non-condom use was not found to be associated with the number of *times* a respondent had engaged in anal sex recently. This suggests that condom use is possibly more associated with *who* men have casual sex with, not necessarily how often it occurs.

Men who reported any non-condom use with a casual partner were asked whether this had at least once occurred with a man whose HIV status the respondent didn't know, or which was different to their own. Of the men who had not tested HIV positive (i.e. men who had last tested HIV negative or who had never tested for HIV before), one in five (around 20%) of those reporting any unprotected sex stated that this had occurred. Since men are unlikely to be able to verify whether a casual sex partner is in fact HIV negative, the remaining men who believed they had engaged in unprotected sex with someone of the same HIV status present as a possible target for HIV prevention education.

A small number of respondents who were HIV positive reported unprotected anal sex with a casual partner. Five out of these nine men stated that at least once this had occurred with someone whose HIV status was different to theirs (i.e. HIV negative) or was unknown to them. Although the questionnaire did not ascertain whether HIV positive men also disclosed their HIV status to the casual partners who engaged in unprotected anal sex with them, this highlights the fact that having unprotected anal sex on the basis of assumptions about someone's HIV status is a potentially risky approach.

Sexual health check-ups and sexually transmitted infections (STIs)

Over two out of every five respondents (43.2%) had been for a sexual health check-up in the year prior to survey. This is considerably higher than what was found in the national Male Call/Waea Mai, Tane Ma survey of MSM in 1996 (26.2%) (Saxton, Hughes & Robinson, 2002). It is not possible to tell whether the higher rate found in GAPSS 2006 is due to an increase in the transmission of STIs, to improved sexual health service promotion or accessibility, or to differences in the survey samples. However, the magnitude of the difference makes it unlikely that sampling issues can account for it alone.

Younger respondents, MSM who were Maori, who identified as bisexual, or who had higher numbers of sexual partners were more likely to report having been for sexual health check-up in the previous year than other respondents. The most popular place to go for a sexual health check-up was a GP, though only narrowly more so than a free sexual health clinic. A small proportion of respondents reported taking advantage of STI screening available via NZAF clinics and certain saunas.

Around forty percent (40.8%) of the 2006 sample reported that they had ever been diagnosed with an STI in their lifetime, and 8.0% reported that they had been diagnosed with an STI in the previous year. Gonorrhoea (3.3%) and chlamydia (3.3%) were the STIs most commonly reported in the previous year, with just 0.9% reporting syphilis. Men who reported higher numbers of sexual partners were more likely to report an STI in the previous year. The lifetime rate of STIs reported by this GAPSS sample was slightly higher than that found in the

1996 nationwide Male Call study (37.1%) (Saxton, Hughes & Robinson, 2002), but no comparable data on annual incidence of STIs among MSM is available.

Viagra and recreational drug use

More than 1 in 8 respondents (13.3%) stated that they had taken Viagra or Cialis in the previous six months, although this varied significantly by age, reported by just 2.7% of men under 25, 11.7% of men aged 25-39, and 20.8% of men aged 40 and over. Men who agreed that "I don't like wearing condoms because they reduce sensitivity" were more likely to report Viagra use than men who disagreed with this statement.

Over half the 2006 GAPSS sample (56.9%) reported any drug use in the previous six months. The most commonly reported drugs were amyl (40.0%) and cannabis (37.6%), followed by ecstasy (21.2%) and amphetamines (12.2%).

No comparative data is available on recreational drug use among MSM in New Zealand, although the high rate of any drug use (56.9%) is not inconsistent with the high frequencies found in samples collected in similar ways among Sydney MSM (69.9%) and Melbourne MSM (63.2%) in 2005 (Richters, 2006). Likewise, Viagra use among a sample of Sydney MSM was found to be 20.0% in 2005, having increased from 15.1% in 2001 (Hull et al. 2006).

Not all respondents who reported recreational drug use indicated that this was always in conjunction with casual sex. Men who had used drugs but never in conjunction with casual sex reported rates of anal sex and unprotected anal sex that were similar to men who reported no drug use at all. Respondents who reported "often" using drugs in conjunction with casual sex however reported the highest rate of anal sex and the highest rates of non-condom use. Further analysis will investigate poly drug use and the effect of individual drugs on selected outcomes.

Conclusion

With data now available on the 2002, 2004 and 2006 surveys, the 2006 GAPSS report can highlight a number of key messages for HIV health promotion among MSM in New Zealand:

- The overwhelming majority of respondents who participated in GAPSS 2006 had not taken part in previous GAPSS surveys. The large number of results that were very consistent across each survey therefore suggest that the data are robust for the populations sampled.

- The characteristics of men who have participated in GAPSS over the study period have changed somewhat. Either certain types of men are increasingly locating their sexual and social networking elsewhere such as the Internet (e.g. men who have high numbers of sexual partners), or this reflects actual changes in the population of MSM (e.g. men are becoming less gay community-affiliated over time) - or both.

- Men recruited at the Big Gay Out, gay bars, and gay saunas/ sex-on-site venues each display different needs, and should continue to be targeted in addition to men who are now preferentially using online dating sites.

- There has been no increase in HIV testing patterns across the sample, suggesting that the recent increase in HIV diagnoses among MSM in New Zealand is real. Some MSM report lower rates of HIV testing than others however, and should be encouraged to increase their testing levels.

- Certain attitudes to HIV and safe sex are associated with condom use. Attitudes also appear to be changing over time, and differ between MSM. Thus it is important to continue to influence attitudes through social marketing and peer-based interventions.

- Knowledge about HIV and condoms is positively associated with condom use. Knowledge also differs between MSM. Increasing men's access to knowledge about HIV and condoms is an important health promotion activity.

- Expectations that an HIV positive man will disclose his status before sex have increased between 2004 and 2006. Many MSM who report unprotected sex with a casual partner do not acknowledge this is occurring with men who could have a different HIV status to themselves. It is troubling that many MSM appear to believe that all HIV positive men are aware they are infected, that they will disclose their HIV status to a stranger before sex, or that it is possible to continually verify a sexual partner's HIV status before sex occurs. Addressing each of these misunderstandings is an important health promotion goal.

The GAPSS project is providing ongoing insights into why HIV diagnoses continue to rise among MSM in NZ, by identifying factors that are associated with HIV testing, sexual partner formation, anal sex and condom use. It is essential that these results are considered in conjunction with detailed data on new HIV diagnoses, HIV sero-prevalence studies that

identify the proportion of MSM with HIV (and the fraction of these who are unaware of their infection), and data from the GOSS study of MSM who use online dating sites (Saxton and Hughes, 2006).

Furthermore, explanations for the number of new HIV diagnoses in New Zealand must also take into account concepts from infectious disease epidemiology such as HIV prevalence driving HIV incidence, meaning that the number of infected people in a population will influence the number of new infections. Because recently acquired HIV infections are considerably more transmissible to others - and are also more likely to be undiagnosed - a sudden spike in new HIV infections in a population can itself also lead to further increase in the rate of new infections (Dickson and Davidson, 2006). How such phenomena apply to different sexual networks among New Zealand MSM deserves further research.

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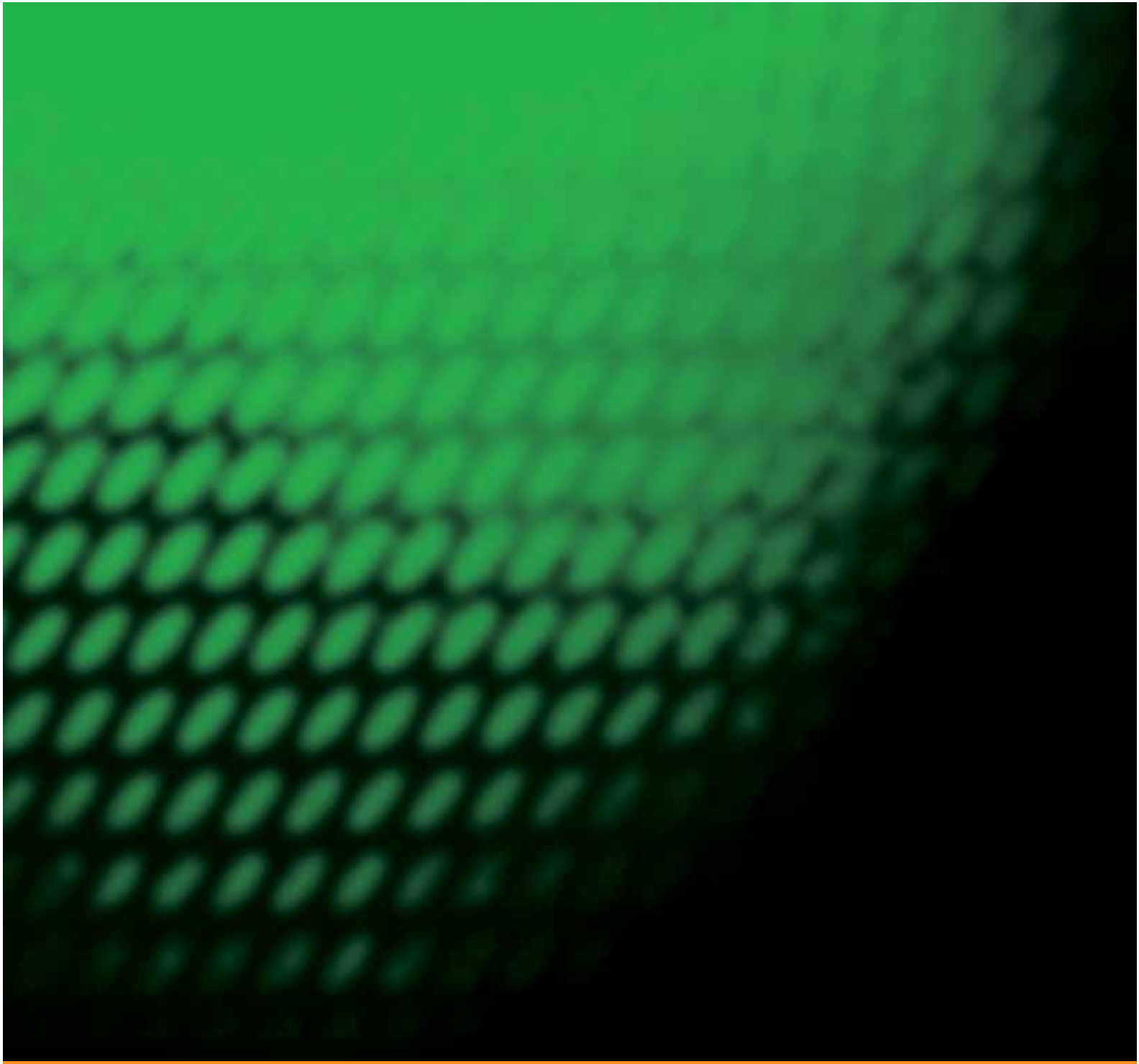

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