Original article

Surveillance of sexual behaviour among homosexual men in a central London health authority

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Objective: To establish a surveillance mechanism of high risk sexual behaviour among homosexual and bisexual men living, socialising and using services in a central London health authority.
Design: Baseline survey for a system of repeatable behavioural surveillance using a self-completed questionnaire delivered by healthcare providers.
Setting: Genitourinary medicine clinics, gay bars, clubs, community groups and a cruising ground in the defined geographical area of a central London health authority.
Participants: Five hundred and fifty three homosexual and bisexual men.
Main outcome measures: Self-reported behaviours including unprotected anal intercourse (UAI), HIV status of unprotected anal intercourse partners, uptake of HIV testing and use of condoms at first time of anal intercourse.
Results: Five hundred and sixty questionnaires were returned (response rate 76%) from 553 men. A third (35%) of men surveyed had had UAI in the previous year. Nearly a fifth (19%) of the sample had had UAI with one or more partners of a discordant or unknown HIV status. A total of 343 (63%) men had had an HIV test. The proportion of men using condoms on the occasion of first anal intercourse has risen from 6% before 1980 to 88% after 1993.
Conclusions: We have demonstrated that a surveillance programme to monitor high risk sexual behaviour among homosexual men can be easily established. The results can be employed to assess progress towards risk reduction targets and also inform future policy development. Our baseline data demonstrate that a large proportion of homosexual men are continuing to engage in high risk sexual behaviour, although there is some evidence of improvement in condom use at first anal intercourse over time. There is a need for continuing health promotion with evaluation among homosexual men.
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Keywords: surveillance; homosexual men; risk factors

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Introduction

Homosexual men have been most severely affected by the HIV/AIDS epidemic in the United Kingdom. Two thirds of all AIDS cases reported to the Communicable Disease Surveillance Centre (CDSC) between 1993 and June 1995 were thought to have been acquired through sex between men.[1] Furthermore, it has been demonstrated that the prevalence of HIV is higher among homosexual men living in and around London than elsewhere in the United Kingdom.[2 3]

In the mid to late 1980s, in response to the HIV/AIDS epidemic, there appeared to be a reduction in the level of high risk sexual behaviour and in the transmission of HIV among homosexual men.[4 5] However, in the early 1990s, data from behavioural surveys[6] and notifications of acute STDs[7] indicated a possible reversal in these trends.[8] Evidence for the continued transmission of HIV infection has been obtained from four London genitourinary medicine clinics where the incidence of HIV between January 1988 and April 1994 has remained unchanged (at approximately 4% per annum) among homosexual/bisexual men having repeat voluntary named HIV testing.[9]

The continuing transmission of HIV, despite health promotion work, has raised the need for an active behavioural surveillance programme.[8] We report here on the methodology and baseline data of such a system which has been recently established within a central London health authority. This study has anticipated recent recommendations both from government health departments[10] and scientific advisory bodies.[8] A questionnaire was developed to monitor high risk sexual behaviour among homosexual men in which measures that are repeatable and sensitive to changes over time were included. A representative sample of "gay" venues in the area was selected in which the questionnaire was distributed by health workers. The results obtained from the survey are used to inform local health purchasers and providers with the targeting and evaluation of health promotion within the homosexual population.

Methods

Homosexual men who either lived, used services, worked or socialised in the defined geographical area of the health authority were

eligible for inclusion in the survey. A sampling frame was constructed by listing all venues known to be used particularly by homosexual men in the health authority which included genitourinary medicine (GUM) clinics, bars, clubs, community youth groups and public sex environments (PSE) such as "cruising grounds". Sites in which the questionnaires were to be distributed were selected to be representative on three counts: by geography, by the type of venue (for example bar or club) and by the presence of health promotion initiatives. This sample included two of four GUM clinics, five of 11 bars, two of four clubs, two of six community youth groups and one of three PSEs.

The selected venues were visited by health promotion workers as part of their routine work between July and August 1995. All men present in the above locations (except in the PSE) were offered a brief, self-completed and anonymous questionnaire. The questionnaire required less than five minutes to answer and consisted of 15 questions asking demographic details, use of sexual health services and sexual behaviour. They were returned to the health worker once completed. In the PSE, the questionnaires were included in a safer sex pack distributed from a stall and completed forms were returned using reply paid envelopes.

High risk sexual behaviour among homosexual men surveyed was assessed using the following four measures which are both repeatable and sensitive to changes over time:

(1) The number of men with whom the individual had had unprotected anal intercourse (UAI) in the previous year. Men were asked to divide their partners into those with whom they had had UAI only once (casual) or more often (regular).

(2) HIV status of UAI partners: whether the partners with whom an individual has had UAI were of the same, discordant or unknown HIV status.

(3) Time of last HIV test.

(4) The use of condoms at the time of first anal intercourse by year that the event occurred.

Data were entered into EPI INFO and analysed using both EPI INFO and SPSS software programs. Bivariate analyses were undertaken using χ^2 tests for categorical variables and either Student's t tests or Mann–Whitney U tests for continuous variables. The multivariate analysis employed was an unconditional logistic regression performed using SPSS software in which continuous variables were grouped into categories reflecting quartile ranges.

Results

The overall response rate of the survey was 75% and ranged from 97% (community groups) to 11% (PSE). A total of 560 forms were returned from the selected locations within the health authority (see table 1).

Two questions (regarding the last time of unprotected anal intercourse) were posed to check the internal consistency of responses. The vast majority of responders (87%) gave concordant responses to the two questions, indicating substantial consistency among responses. Subjects were asked whether they had already completed the questionnaire. Of the 560 questionnaires returned, seven individuals had already completed the questionnaire and so were excluded from further analysis.

Of the 550 responses which included complete data regarding age, 121 men (22%) were under 24 years old and the largest age group was between 25 and 29 (33%). Three men did not state their age. The median age of responders was 29 years old (range 15–70). The sample was predominately white (91%), employed (75%) and living in London (88%).

All subjects recruited were homosexual (93%) or bisexual (7%). Thirty two (6%) men surveyed had never had anal intercourse with a man and a further 13 (3%) stated that they had not had sex with a man in the past year.

Unprotected anal intercourse

Of the 499 men who supplied the relevant data, 323 (65%) had not engaged in UAI in the previous year (table 2). Of the 176 (35%) men who had had UAI, 116 had had only one partner (66%), 49 (28%) had had between two and four partners and 11 (6%) had had five or more partners (table 2). There was no association between having had UAI with one or more men in the past year and any of the variables collected which included: age, ethnicity, area of residence, employment status, site of recruitment, having had an HIV test, attendance at a GUM service in the past year, number of sexual partners in the past year and number of years since first anal intercourse.

Data regarding both the HIV status (see below) and the nature of the relationship (casual versus regular) of UAI partners were collected. In order to avoid possible misinterpretation, casual partners were defined in the questionnaire as men with whom the individual had had UAI once only. One hundred and sixty four men (93% of those having UAI) had provided data about the type of relationship they had with their UAI partners. Seventy men had had UAI in the past year with one or more

Table 1 Sites from which completed questionnaires were returned (n = 560)

Site of recruitment	*No of forms distributed*	*No of forms returned (%)*	*Response rate (%)*
GUM clinic	180	135 (24)	75
Bars/pubs	304	252 (45)	83
Clubs	151	137 (25)	91
Other sites (community groups and PSE)	104	36 (6)	35
Total	739	560 (100)	76

Table 2 The proportion of men who had engaged in unprotected anal intercourse (UAI) in the previous year and number of such partners (n = 499)

Number of UAI partners in the past year	*Number (%)*
0	323 (65)
1	116 (23)
2–4	49 (10)
5 or more	11 (2)
Total	499 (100)

Table 3 The proportion of men who had engaged in unprotected anal intercourse (UAI) with partners once only (casual partners) in the previous year and number of such partners (n = 487)

Type of UAI partner in the past year	*Number (%)*
No UAI partners	323 (65)
Had UAI but not with casual partners	94 (19)
UAI with one or more casual partners	70 (14)
Total	487 (100)

Table 4 The proportion of men who had engaged in unprotected anal intercourse with partners of unknown or discordant HIV status in the previous year (n = 477)

HIV status of UAI partners in the past year	*Number (%)*
No UAI partners	323 (68)
UAI with partners of concordant HIV status	62 (13)
UAI with partners of discordant or unknown HIV status	92 (19)
Total	477 (100)

casual partners, which represents 43% of all men who had had UAI or 14% of all men surveyed (table 3).

HIV status of UAI partners

One hundred and fifty four men (88% of men having UAI) provided data about the HIV status of their UAI partners. Ninety two (60%) men did not know whether all their UAI partners were of the same HIV status as themselves. This represents 19% of all men surveyed (table 4).

There was no association between known HIV seroconcordance of UAI partner and any of the demographic and service using variables collected. However, men who, in the past year, had engaged in UAI with partners of unknown or discordant HIV status were more likely to have had UAI with a higher number of partners and with casual rather than regular partners. UAI with casual partners was the only independent indicator of UAI with partners of discordant or unknown HIV status.

Previous HIV test

Of the 546 men who responded to this question, 203 (37%) had never had an HIV test (table 5). Five variables significantly associated with HIV testing were included in a multiple logistic regression model: ethnic group, age, attendance at GUM service in past year, number of male sexual partners in past year and years since first anal intercourse. However, of these only two variables were significantly associated with having had an HIV test (table 5): attendance at a GUM service (OR, 1·56; 95% CI 1·28–1·96) and increasing years since first anal intercourse (OR, 2·07; 95% CI 1·36–3·15).

Condom use at time of first anal intercourse

The proportion of men using condoms on the occasion of first anal intercourse has risen from 6% before 1980 to 90% after 1993 (fig).

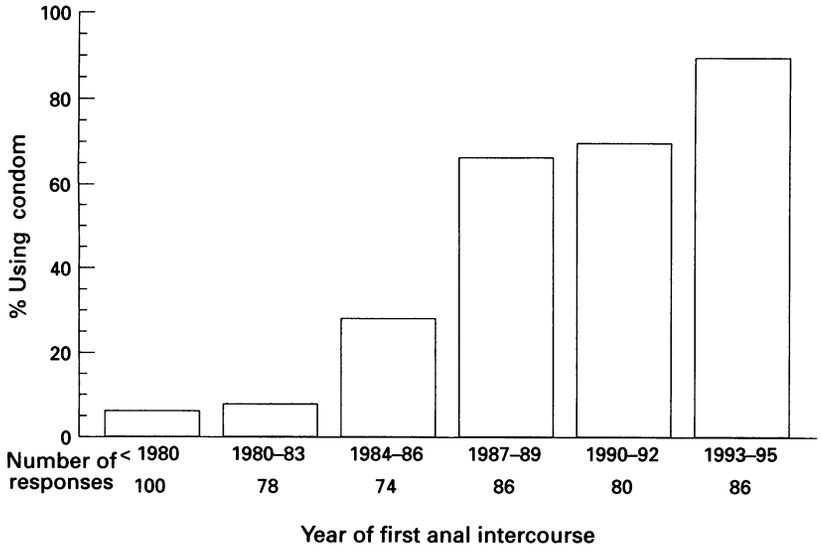
Discussion

The primary aim of this study was to establish a system of active surveillance which can be used to monitor changes in high risk sexual behaviour, over time, among homo/bisexual men living, working, socialising and/or using services in a central London health authority. We report here on the baseline survey which will supply local public health specialists with

Table 5 Unadjusted and adjusted odds ratio of ever having had an HIV test. A multivariate logistic regression was performed in which all variables that were significantly associated with ever having had an HIV test were incorporated into the model

		Ever tested for HIV	*Never tested for HIV*	*Unadjusted odds ratio (95% CI)*	*Adjusted odds ratio (95% CI)*
All men surveyed		343	203	—	—
Attending a GUM clinic in past year	Yes	223	79	2·89* (1·99–4·21)	1·56* (1·28–1·96)
	No	120	123		
Years since first anal intercourse	0–4	50	66	1·00	1·00
	5–9	82	57	1·90* (1·12–3·23)	2·54* (1·36–3·15)
	10–14	96	24	5·28* (2·85–9·84)	1·38* (1·09–2·27)
	⩾ 15	99	32	4·08* (2·29–7·30)	0·42* (0·35–0·81)
Age group	⩽ 25	50	68	1·00	1·00
	26–29	92	53	2·36* (1·39–4·01)	1·52 (0·82–2·80)
	30–33	108	40	3·67* (2·13–6·36)	1·76 (0·89–3·47)
	⩾ 34	91	42	2·95* (2·29–7·30)	0·87 (0·39–1·91)
No of male sexual partners in past year	⩽ 3	66	68	1·00	1·00
	4–10	80	44	1·87* (1·10–3·19)	1·61 (0·90–2·88)
	11–25	80	47	1·75* (1·04–2·97)	1·14 (0·64–2·04)
	⩾ 26	98	34	2·97* (1·72–5·15)	1·92 (1·05–3·50)
Ethnic group	White	317	178	1·94† (1·03–3·65)	1·85 (0·91–3·85)
	Non-white	23	25		

*p < 0·05.
†p < 0·001.



Demonstrates, by year of first anal intercourse, the proportion of men who used a condom on that occasion.

the necessary information to assess the health promotion needs and possible future impact of HIV/AIDS in the local community of homosexual men.

The two fundamental specifications in the design of the questionnaire were that it should be brief and include repeatable measures of sexual risk behaviour. Therefore, many variables of interest (such as reasons for unsafe behaviour and/or other sexual practices) were excluded owing to lack of space. Furthermore, clearly defined and easily understood terms were used to avoid possible changes in or misinterpretation of their meaning (for example specifying that casual partners are those with whom intercourse had been engaged in once only).

These needs have imposed constraints on the number and types of questions that could be included in the survey and, thus, limited the types of analysis that could be performed. However, the aim of the survey was to provide surveillance data that could be studied over time and not an in depth analysis of sexual behaviour among homosexual men.

We have minimised selection biases by drawing our sample of homosexual men from a variety of sources, both in the community and from clinic settings. Furthermore, by using a defined sampling strategy we have ensured that the sites in which the questionnaires were distributed were representative, by type and geography, of those in the area. This enables the survey to be repeated as data will in future be collected from similar venues thus allowing data to be compared from one year to the next.

The overall response rate of this survey was 76%, despite the low return obtained from the PSE, which compares well with other surveys of homosexual men recruited from community settings.[11 12] The high response rate diminishes the effect of any non-response bias and also demonstrates that using health workers in the normal course of their work to distribute the questionnaire is both efficient and effective.

A number of studies have confirmed the reliability and validity of self-reported sexual behaviour in homosexual men.[13 14] These studies have used an external check (such as second interview[13] or interviews with sexual partners[14]) to ascertain the validity of survey responses. However, an alternative approach to ensuring the validity of responses is to employ internal consistency checks within the questionnaire.[15] This methodology emerged as the most appropriate for this survey and provided evidence for substantial consistency among the responses.

Data from this survey have demonstrated that the majority of homosexual men have not, in the past year, engaged in high risk sexual behaviour (two thirds not having had UAI in the previous year). However, a significant minority are still engaging in high risk sexual behaviour. A third of men (34%) surveyed had had UAI with one or more male partners in the previous year, an observation consistent with other studies.[16] However, the use of UAI as the only index of unsafe sexual behaviour has been criticised for not acknowledging the full range of strategies utilised by homosexual men to protect themselves from HIV infection.[17]

Of the sample of men surveyed, 19% had within the past year engaged in sexual behaviour that carried the highest risk of HIV transmission, that is UAI with partners of unknown or discordant HIV status. If this observation is combined with that of high prevalence of HIV among homosexual men noted in many different surveys,[3 18] then the conditions are suitable for the continued transmission of HIV. It has been reported that in London, between 1988 and 1994, the incidence of HIV among homosexual men having a repeat voluntary HIV test has remained unchanged at 3·8 per 100 person years.[9] These observations confirm the need for continued health promotion among homosexual men rather than the relaxing of efforts feared by some commentators.[19]

Many studies have demonstrated that homosexual men are well informed in the modes and prevention of transmission of HIV infection.[20] None the less, this survey has found, as have others,[6 16] that significant proportions of men continue to engage in high risk behaviour. Thus, health promotion must include innovative safer sex strategies for homosexual men such as ensuring that all UAI partners are of the same HIV status. However, although this approach may reduce the chances of HIV transmission, it is often a difficult strategy to employ and less suitable for casual partners.[17]

Testing for HIV is a component of a number of safer sex strategies including that of negotiated safety.[17] In agreement with other studies,[6 16] the majority of homosexual men surveyed (63%) have had an HIV test sometime in the past. However, having had an HIV test did not predict the sexual behaviour of individuals. The efficacy of including HIV testing as a part of an HIV prevention strategy is yet to be properly evaluated.[21]

A number of studies in the UK and USA have suggested that young homosexual men have higher levels of risk behaviour than their

older counterparts.[7 22] In contrast, a survey of homosexual men attending a Gay Pride event in London did not demonstrate any relation between age and sexual behaviour.[16] This observation is consistent with our data which demonstrate a lack of an association between age and any of the indices of high risk sexual behaviour used in this survey. However, there may be a possible selection bias in that older homosexual men who continue to go to commercial venues may also be those that are more sexually active.

Since the early 1980s, there has been an increase in the proportion of homosexual men using condoms on the occasion of first anal intercourse, also noted by other surveys.[16] This demonstrates that it is possible to achieve major changes in sexual behaviour. The trend in condom use may represent the establishment of new community norms which have been proposed as the most effective strategy of preventive medicine.[23]

The study has demonstrated that a surveillance programme can be effectively and efficiently established. We intend to repeat this work in future years to obtain trends in behaviour which will be used to guide local health promotion strategy. The majority of homosexual men in a central London health authority, in the past year, have had only safer sex. None the less, a large and significant minority have, in the same period of time, engaged in some form of high risk sexual behaviour. The combination of both HIV infection and high risk behaviour among homosexual men indicates the likelihood of continued transmission of HIV. Thus, there is a need for continued and innovative approaches to health promotion among homosexual men.

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