

National Survey of Sexual Attitudes and Lifestyles II: Technical Report

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1 INTRODUCTION

This report describes the methods used in the second National Survey of Sexual Attitudes and Lifestyles (Natsal II), which was carried out between 1999 and 2001 by a collaborative research team from three organisations:

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Royal Free and University College Medical School (UCL): Anne Johnson, Kevin Fenton, Andrew Copas, Catherine Mercer, Angela McCadden, Caroline Carder, Geoff Ridgway

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Natsal II was very closely modelled on the first National Survey of Sexual Attitudes and Lifestyles (Natsal I), carried out by the same team of investigators, in 1990/91. The first ever nationally representative survey of sexual behaviour in Britain, Natsal I involved interviews with nearly 19,000 adults aged between 16 and 59 using a combination of face-to-face interview and pencil-and-paper self-completion questionnaire. The detailed methodology and response have been reported on in a number of academic papers and books.¹

The Natsal I data have been extensively used throughout the 1990s by academics and policy-makers – for example, to estimate the prevalence and distribution of high risk behaviours for HIV and sexually transmitted disease in the population and to help plan the provision of sexual health services.² However, towards the end of the decade it was becoming increasingly clear that the Natsal I results were becoming out-dated, and that repeat measures were needed not only to provide up-to-date information for estimating the likely extent of the HIV epidemic in Britain, but also to look at behaviour change over time and to include new questions to take account of current information needs in the field of sexual health.³

The main objectives of Natsal II were to:

- provide a detailed understanding of patterns of sexual behaviour in Britain (including, for example, numbers of sexual partners, frequency of different sexual practices, and homosexual experience)
- provide data for HIV/AIDS projections in Britain
- assess whether there have been changes in behaviour since Natsal I
- measure the prevalence of *Chlamydia trachomatis* infection from urine samples.

Given the importance of making comparisons with Natsal I data, Natsal II was largely a repeat of the earlier 1990 survey. However, it was also recognised that a number of methodological developments in survey research in the intervening period could lead to improvements in the data collection process for Natsal II. In particular, the use of computer assisted personal interview (CAPI) and computer assisted self-interview (CASI) techniques had the potential to improve on response rates and data quality, as well as maximise the disclosure of sensitive behaviours.⁴

Along with the changes in methodology, there were a number of other differences between Natsal I and Natsal II:

- Natsal II covered a younger age group (ages 16-44) than did Natsal I (ages 16-59) in order to focus survey resources on an age group at greater risk
- the sample was designed to over-sample people living in the greater London area
- a boost sample of people from four ethnic minority groups – Black Caribbean, Black African, Indian and Pakistani – was included
- new question modules were introduced on, for example, partnership formation, sexual mixing abroad, preferred sources of contraception and advice, history of sexually transmitted infections and sexual dysfunction
- a urine specimen was collected to test for *Chlamydia trachomatis*.

Even though it was designed to be largely a repeat of the 1990 survey (which had been preceded by a two year development and pilot phase),⁵ there was considerable development work carried out for Natsal II, which focused on the introduction of computerised interviewing and self-interviewing techniques. In winter 1997, a methodological experiment was carried out involving a split-run sample, with half of the sample being given a CASI questionnaire to complete and the other half using pen-and-paper self-completion. The aim was to test: the feasibility of the use of CASI among the general population; whether CASI would lead to improved data quality; and whether the difference in mode of data collection would be likely to affect reports of sexual behaviour. The results of this experiment are reported on elsewhere.⁶

There have been many changes in Britain over the past decade, both in people's awareness of sexual health issues such as HIV, as well as in their attitudes towards sexual practices and lifestyles. Natsal II was designed to examine these changes and to provide up-to-date estimates of sexual behaviour in Britain. This report describes the methods used for Natsal II and deals with sampling, data collection, response and data processing. Analysis of the data, including the survey results, is being carried out by members of the research team and will be reported on in academic journals. The first three papers are due for publication in *The Lancet* in December 2001.⁷

2 SAMPLING

2.1 Summary of the sample design for Natsal II

Natsal II aimed to interview a representative sample of men and women aged 16-44 living in private households in Britain. Given the increasing interest in understanding and reducing inequalities in health (including sexual health), and the relatively small proportion of ethnic minority respondents included in national general population surveys, Natsal II also included a boost sample of black and Asian adults. The target number of achieved interviews was 12,000 from the 'core' general population sample, and a further 735 black and Asian adults from the ethnic minority 'boost' sample.

The core and boost samples were independently designed. The general population sample involved a multi-stage stratified probability design, with postcode sectors selected as the primary sampling units (PSUs), addresses within them were selected at the second stage, and finally one eligible adult was randomly selected at the final stage. In all, 39,828 addresses were selected from the small user Postcode Address File (PAF). Addresses in greater London were over-sampled. The reason for over-sampling within London was that Natsal I showed that the prevalence of many HIV risk behaviours (such as homosexual contact and injecting drug use) was higher in London than elsewhere in Britain, yet still comparatively rare; thus, a more efficient strategy, which involved over-sampling residents in greater London, was designed in order to provide more precise estimates of the prevalence of risky sexual behaviours and to increase numbers within those groups most at risk of HIV.

Among a random half of the general population sample points, respondents were asked to provide a urine specimen in order to test for *Chlamydia trachomatis*.

The second sample, for the ethnic minority boost, was also multi-stage, and involved an initial selection of 15,000 addresses from PAF. They were all 'screened' in order to determine whether they contained residents from the target ethnic minority groups, using a combination of full screening and focused enumeration (see section 2.3.1). These addresses were not eligible for the survey unless they contained at least one adult aged 16-44 from the following ethnic minority groups: Black African, Black Caribbean, Indian and Pakistani. These groups were selected for inclusion in the ethnic minority boost both because they are sufficiently prevalent to be screened for cost effectively and because they are of public health concern with regard to sexual health epidemiology. Addresses for the sample for boosting ethnic minority groups were selected completely independently from the general population sample.

The sample design for Natsal II is described more fully below. Section 2.2 describes the core general population sample design. Section 2.3 describes the sample design for boosting ethnic minority respondents.

2.2 The general population sample

2.2.1 Selection of primary sampling units (PSUs) for the general population sample

For the core general population sample 466 postcode sectors were selected as PSUs. Postal sectors with fewer than 1,000 PAF 'delivery points' (addresses) were first combined with neighbouring sectors so as to avoid any tight clustering of sampled addresses.

Before selection, postcode sectors were stratified in order to maximise precision of the sample. They were first sorted into 11 standard regions, with a further distinction being made between inner and outer London. Within each of these 12 regions, they were then listed in increasing order of population density to create three roughly equal sized bands. Next, within each of these 36 region/density bands, they were listed in increasing order of the proportion of population aged under 30, and again divided into three roughly equal sized bands, giving a total of 108 region/density/age bands. Lastly, within these bands, they were listed in increasing order of the proportion of households with a head of household in a non-manual occupation (Socio-Economic Groups 1-6, 13). The data used to create these strata were taken from the 1991 Census of Population.

466 sectors were then selected systematically, with each postcode sector being given a probability of selection proportional to its total number of delivery points. Three different sampling fractions were used – for inner London, outer London and the rest of Britain – so that addresses in inner and outer London were over-represented in the final sample (by about 3.5 and 1.8 times respectively). The final sample was weighted to take account of the over-sampling of London addresses (see section 5.4.1). The total numbers of PSUs selected were 64 in inner London, 50 in outer London, and 352 in the rest of Britain.

2.2.2 Sampling delivery points (addresses) for the general population sample

84 delivery points (addresses) were systematically selected from each PSU, except for PSUs in inner and outer London where 90 delivery points were selected (this higher number was selected because surveys generally obtain a higher proportion of non-residential addresses and a lower response rate in London). The total selected sample was 39,828 addresses. In a random half of the delivery points selected within each PSU, respondents were asked to provide urine samples to test for *Chlamydia trachomatis*.

When visited by interviewers, 10% of the selected addresses were found to contain no private households. Examples include businesses and institutions, vacant properties, demolished addresses and those still in the process of being built. These addresses were counted as ineligible and were excluded from the survey sample.

A small proportion of addresses on PAF contain more than one household. Interviewers were instructed to include in the sample all households at addresses with one, two or three households. In the event of an address containing more than three households, the interviewer was given a special procedure to follow, using random selection digits provided. This procedure resulted in a random selection of three households from among all households at an address. The three selected households were included in the survey sample, and the others were omitted. The final sample was weighted to take account of the omitted households (see section 5.4.1). Altogether, an extra 695 households were included in the sample at multi-household addresses, giving a total of 40,523 sampled households.

2.2.3 Sampling individuals within addresses for the general population sample

At each residential address, interviewers listed all adults aged 16-44. Addresses without any residents in that age range were ineligible for the survey: 44% of selected addresses were excluded for this reason. At addresses where there was more than one person aged 16-44, one was randomly selected using a Kish grid technique. The application of weights is required to compensate for this sub-selection of eligible adults (see section 5.4.1).

2.3 The ethnic minority boost sample

2.3.1 Selection of primary sampling units (PSUs) for the ethnic minority boost sample

For the independently selected sample for boosting ethnic minority groups, an additional 150 postcode sectors were selected as the primary sampling units. As for the general population sample, postal sectors with fewer than 1,000 delivery points were combined with adjacent sectors to avoid too tight a clustering of sampled addresses.

Before this stage of selection, all postcode sectors in Britain were assigned to one of three strata (A to C) based on the proportion of residents (using data from the 1991 Census of Population) in the sector who were Black African, Black Caribbean, Indian or Pakistani. The strata were defined as follows:

Stratum

- A postcode sectors where more than 12% of the resident population were Black African, Black Caribbean, Indian or Pakistani
- B not in stratum A, but where at least 6% of the resident population were Black African, Black Caribbean, Indian or Pakistani
- C all other postcode sectors.

Within each of the three strata, the postcode sectors were sorted into region/density/age bands in a similar way to that described for selecting the PSUs for the general population sample (see section 2.2.1). Then, 150 sectors were selected systematically, with each postcode sector being given a probability of selection proportional to its total number of delivery points. The number of sectors selected for the boost sample varied by stratum, with 72 sectors selected in stratum A and 78 sectors in stratum B. Stratum C was not sampled. The final sample was weighted to take account of this variation in selection probabilities by stratum (see section 5.4.2). (As ethnic minority respondents living in stratum C were eligible for inclusion in the core general population sample, the combined sample of core plus boost is fully representative of these four ethnic minority groups.)

In postcode sectors in stratum A, a full screening operation was carried out. Interviewers were issued with a sample of 100 addresses and required to contact each address to determine whether there were any residents eligible for inclusion in the survey.

In sectors in stratum B, which have a lower density of residents from the relevant ethnic minority groups, the screening technique of 'focused enumeration' was used. In areas where there are relatively few ethnic minority residents, this technique provides a cost-effective way of screening a large number of addresses. Focused enumeration makes use of local knowledge by asking neighbours to identify members of ethnic minority groups living at

directly adjacent addresses. For Natsal II, interviewers working in postcode sectors in stratum B were issued with a sample of 20 addresses, and they screened for eligibility at the sampled address as well as determining (by asking at the sampled address) whether any potentially eligible persons lived at the two addresses either side of the sampled address. Thus, up to five addresses are covered by each sampled address. If any of the adjacent addresses was thought to include residents of the relevant ethnic minority groups (or there was any uncertainty as to whether they did), the interviewer made a personal visit to the relevant address to carry out the screening interview.

In theory, this procedure (of covering two addresses on either side) should increase the number of eligible respondents by a factor of five, but in practice the increase is lower for a number of reasons: although the technique has been shown to work well, there is inevitably some under-enumeration of the relevant ethnic minority groups; in a few cases, there are no adjacent addresses; and response tends to be lower at the adjacent addresses than at the main address.

The sample design aimed to obtain a minimum number of respondents within each of the four ethnic minority groups, while keeping the total number of respondents per group approximately the same. In order to achieve this, the higher prevalence groups, Black Caribbean and Indian, were not screened in a proportion of sample points in stratum A. Thus for screening purposes, the sampled sectors were grouped into three 'sample types' which determined for each sector both the ethnic minority groups that were being screened and the method of screening addresses. The three sample types were:

<i>Sample type</i>	<i>Screening procedure and eligible ethnic minority groups</i>
1	full screen for Black African, Black Caribbean, Indian and Pakistani (18 sectors in stratum A)
2	full screen for Black African and Pakistani only (54 sectors in stratum A)
3	screen for Black African, Black Caribbean, Indian and Pakistani at sampled address, and focused enumeration for these groups at two addresses on either side (all 78 sectors in stratum B).

By chance, three postcode sectors were selected for both the general population and the boost samples. The addresses selected within these were cross-checked in case of any sample overlap.

2.3.2 Sampling delivery points (addresses) for the ethnic minority boost sample

In stratum A, 100 addresses were selected per sector, giving a total of 7,200 stratum A addresses. One-quarter of these were sample type 1 and three-quarters were type 2. In stratum B, 20 addresses were selected within each sector (and all were sample type 3). The total number of sampled addresses in stratum B was 1,560. All the sampled addresses were fully screened, and a further 6,240 adjacent addresses were to be approached by focused enumeration. Thus, a total of 15,000 addresses were covered by the screening exercise.

As in the general population sample, at addresses with more than one household, all households up to a maximum of three were included; if there were more than three households, the interviewer randomly selected three for inclusion in the sample. The sample was weighted to take account of the omitted households (see section 5.4.2). An extra 41 households were included in the sample at multi-household addresses.

The test for *Chlamydia trachomatis* in urine samples was not carried out with respondents in the ethnic minority boost sample.

2.3.3 Sampling individuals within addresses for the ethnic minority boost sample

At each 'screened in' address - that is, an address which contained one or more residents from one of the ethnic minority groups eligible in that point - interviewers listed the ethnic minority adults aged 16-44. Addresses without any ethnic minority residents in that age range were ineligible for the survey. At addresses where there was more than one ethnic minority resident aged 16-44, one was randomly selected using a Kish grid technique. As for the general population sample, the application of weights is needed to compensate for this sub-selection of eligible ethnic minority adults (see section 5.4.2).

2.3.4 Ethnic minority groups in the general population sample

In addition to those identified in the boost sample, a number of residents from the eligible ethnic minority groups were interviewed as part of the core sample. To obtain the total ethnic minority group sample for Natsal II, respondents from eligible groups who were identified in the general population sample were included with those from the boost sample. As mentioned above, postcode sectors in stratum C were excluded from the boost sample. All of these sample points were however included in the general population sampling frame, so that the combined sample of respondents (from both the core and the boost samples) could be weighted to be fully representative of the target ethnic minority groups in Britain.

3 DATA COLLECTION

3.1 The questionnaire

3.1.1 Designing the questionnaire

The Natsal II questionnaire was largely the same as the questionnaire used for Natsal I. A full description of the development phase of the Natsal I questionnaire has previously been published, covering issues such as question wording, terminology, confidentiality, reliability, validity, etc, as well as the feasibility and piloting work that preceded the main stage of the 1990 survey.⁸

While the Natsal I questionnaire served as the starting point, several changes were introduced in the Natsal II questionnaire. Some new questions were added both in order to fill gaps that were not covered in the earlier survey as well as to address new interests arising from the research team's consultation with other interested researchers. New questions were added on: the number of new sexual partners in the last year; use of condoms in short-term and long-term relationships; sexual partnerships outside the UK and/or with visitors to the UK; previous diagnoses of sexually transmitted diseases; sexual dysfunction; and use of family planning/contraception services. These additions meant that some items from the original Natsal I questionnaire had to be dropped to keep the interview to a reasonable length; the questions excluded from Natsal II were those considered to be the least important for obtaining updated estimates since the 1990 survey.

The questionnaire used for the ethnic minority boost sample was the same as that for the general population sample, with a few additional questions on country of origin and languages spoken.

As in the 1990 survey, the interview format for Natsal II involved a combination of face-to-face and self-completion elements. The face-to-face interview included questions on general health, learning about sex, first sexual experience, attitudes to HIV and different types of personal relationships, and socio-demographic details including cohabitation history. The most sensitive questions were put in the self-completion questionnaire, which covered: experience of different types of sexual practices (vaginal, oral and anal intercourse); sex in the last 4 weeks and condom use; number of partners in different time periods (lifetime, 5 years, 1 year, 3 months); homosexual experience (types of sexual practices, sex in the last 4 weeks, number of partners in different time periods); details of most recent partners; having sex with people from other countries, either in the UK or while abroad; STD diagnoses and clinic attendance; infertility; abortion; paying for sex; and sexual dysfunction.

The mode of interview was changed, however, from a pen and paper survey in 1990 to the use of computer-assisted personal interview (CAPI) and computer-assisted self interview (CASI) techniques in Natsal II.

The CAPI and CASI questionnaires, including the new questions designed for Natsal II, underwent thorough development work beginning in 1997.

3.1.2 The 1997 feasibility study

After some small scale piloting, including cognitive interviewing, to test the new questions being added to Natsal II, a feasibility study of over 900 respondents was carried out in winter 1997. The main aims of this development work were to:

- develop and pilot CAPI and CASI questionnaires on sexual behaviour
- test the feasibility of using CASI for Natsal II by carrying out a randomised experiment which would compare results obtained from respondents using CASI with results from respondents using a standard pen and paper self-completion questionnaire; this experiment examined the effect of CASI on response, data quality, and disclosure of sensitive behaviours
- test the impact of using an advance letter on response rates, by carrying out a randomised split sample experiment where half the sampled addresses were sent a letter in advance of face-to-face contact, and in the other half of addresses a letter was given to the selected respondent by the interviewer on the doorstep
- test on a small scale the feasibility and potential benefits of using audio-CASI (where respondents listen to questions being read out to them through headphones, and they key their responses into a computer)
- assess the feasibility of collecting urine samples to test for *Chlamydia trachomatis*
- explore the experience of using CASI by carrying out follow-up depth interviews with a sub-sample of respondents.

The design and results of the 1997 feasibility study have been reported on elsewhere.⁹ The results of the feasibility work formed the basis of the application for funding the main stage of Natsal II.

3.1.3 Final piloting for Natsal II main fieldwork

Before starting the main stage of fieldwork, there was a final stage of piloting to test the final CAPI and CASI questionnaire programs, overall interview length, and the revised methods for obtaining urine samples and delivering them to the analysis laboratory. This pilot was carried out in March 1999, and involved interviews with a quota sample of 59 respondents in their own homes, and partial (i.e., CASI module only) interviews with an additional sample of 35 men and women at GUM clinics in London (which specifically aimed to test the new questionnaire modules on sexually transmitted diseases and sexual dysfunction).

3.1.4 The Natsal II questionnaire and field documents

The Natsal II interview began and ended with face-to-face interviewing, with the self-completion component coming in the middle of the interview. The questionnaire comprised five sections, as follows:

- health, family and learning about sex
- first sexual experiences, use of contraception and sexual lifestyle
- the self-completion questionnaire, covering the most sensitive questions on sexual behaviour: number of partners, sexual practices, sexual health, etc.
- attitudes towards sexual behaviour
- socio-demographic questions.

Health, family and learning about sex

The Natsal II interview began with neutral questions to allow time for good rapport to develop between respondent and interviewer. The first CAPI component asked about the respondent's general health, height, weight, smoking and drinking behaviour. It then moved on to family background, and having children of their own. The section ended with questions on learning about sex when growing up.

First sexual experiences, use of contraception and sexual lifestyle

The questionnaire then asked about memories of the respondent's first sexual experience, including age at first heterosexual intercourse. These questions were generally asked face-to-face. However, if interviewers felt that respondents might be inhibited from answering the questions (e.g., because of potentially being overheard by a third party), they had the option to give respondents a short paper self-completion form which contained the questions on first heterosexual intercourse. This was done in 2% of interviews.

This section then asked about types of contraception used (ever and in the last year) and use of family planning services. It ended with questions on sexual lifestyle, in the form of opposite-sex and same-sex attraction and experience scales.

The self-completion questionnaire

The most sensitive questions on sexual behaviour were asked in a self-completion questionnaire to reassure respondents of confidentiality and prevent embarrassment. Answers to the questions on early sexual experience determined whether respondents were given this questionnaire. The self-completion module was not given to respondents who said in the earlier section that they had never had any heterosexual or homosexual experience, or to those aged 16-17 who had no experience of heterosexual intercourse.

The self-completion questionnaire was to be completed by the respondent directly on the laptop computer. Respondents who refused CASI (computer assisted self-interview) were offered the option of a paper version of the questionnaire (there were separate versions for men and women). Respondents with literacy or eyesight problems (or who had difficulty reading English because it was not their first language) were asked whether they were willing to have the questions in the self-completion module read out to them by the interviewer.

The vast majority of respondents who opted for CASI were taken through a few simple practice questions by the interviewer to demonstrate how to use the laptop. They were asked to follow the instructions on the laptop screen and to enter their answers appropriately.

At the beginning of the self-completion questionnaire, a number of key terms were defined in order to ensure respondents interpreted questions in the same way. For example, many heterosexual respondents interpret the term 'having sex' or 'sexual intercourse' to refer only to vaginal intercourse. For the survey, however, 'sexual intercourse' was defined to include vaginal, oral and anal sexual intercourse. Interviewers emphasised that respondents must read these definitions before answering the self-completion module. If necessary, respondents could refer to these definitions again at relevant questions by pressing a key on the laptop which brought the definitions up on screen.

The module itself then began with questions on heterosexual practices (e.g., when last had vaginal, oral and anal intercourse), followed by similar questions on homosexual practices. The next section covered number of heterosexual and homosexual partners within different time periods (lifetime, last 5 years, year, and 3 months). The following set of questions covered having sex with people from other countries, either while travelling abroad or in the UK. Next, the three most recent sexual partners (in the last 5 years) were asked about in detail (first and last occasions of sex, where met, etc). Men were then asked about paying for sex, while women were asked about miscarriage and abortion. There then followed a series of questions on infertility, sexually transmitted diseases and sexual dysfunction. There were also questions on HIV testing and injecting drug use.

At the end of the CASI questionnaire, as a means of reassuring respondents of the confidentiality of their replies, their answers were 'locked' in the computer so that neither the respondent nor the interviewer could access the self-completion module once it had been finished. Respondents completing a paper booklet placed it in a sealed envelope containing only a serial number as a means of identification.

The CASI and paper self-completion questionnaires were similar, but not identical. Full advantage was taken of CASI to include much more complex filtering than is practical in a paper self-completion booklet, and so a number of questions could be included in CASI but not in the paper booklet. Another important difference is that CASI allows for consistency checks to be built-in to the programme. For example, when asking respondents for the number of sexual partners they had in the last year, the programme checks that the number keyed in is not greater than the number of partners they said they had in the last 5 years. When this did happen, the CASI programme would prompt the respondent to check that they had correctly keyed in their answers to the questions which were inconsistent. Respondents could then change their response to one of the questions or they could elect to leave their responses so the apparent inconsistency would be retained. As this type of check is not possible with a paper self-completion, the data obtained from CASI is generally of better quality than that from the paper booklets.

As well as the possibility of building in consistency checks, there are a number of other reasons why CASI tends to result in better quality data than paper self-completion booklets (e.g., respondents cannot accidentally skip questions in CASI and range checks prevent out-of-range numeric values). The extent of the improvement in the data was demonstrated by the feasibility study which compared CASI and paper self-completion methods (see section 3.1.2).

In case a respondent needed help with the laptop or with understanding the questions, interviewers stayed in the room with respondents while they answered the self-completion questionnaire. At the end of this module, interviewers recorded whether they gave any assistance: help or advice was given to 18% of respondents in the general population sample and 32% in the ethnic minority boost sample.

Attitudes towards sexual behaviour

At the end of the self-completion component, the interview reverted to face-to-face CAPI with a module of questions on attitudes to marriage and sexual relationships (e.g., views on sex before marriage, outside of marriage, homosexuality). These questions were deliberately asked after the questions on sexual behaviour so that respondents could report their own

behaviour before being asked to make moral judgements on different types of sexual relationships.

The module also asked respondents to judge how much they thought people with different sexual lifestyles and from different countries were at risk of HIV and AIDS.

Socio-demographic questions

The final part of the interview collected demographic information, including marriage and cohabitation details, economic status, occupation, education, religious and ethnic identity, and country of birth.

As can be seen from the above description, although the most sensitive questions were asked in the self-completion component, the face-to-face part of the interview also contained some personal questions, in particular those about sexual attraction and first sexual experiences. This was done partly to compare answers given in the face-to-face component with those given in the self-completion, but mainly to determine who was eligible for the self-completion module. The more sensitive questions which were asked face-to-face made use of show cards (included in Appendix A) to help preserve confidentiality (in case there was any chance of being overheard by other household members). It also meant that at no point in the interview did respondents have to verbalise any sexually explicit terms. There were separate versions of the show cards for men and women.

The CAPI and CASI questionnaires are fully documented in Appendix A, along with the other Field Documents.

3.1.5 Translating the questionnaire for the ethnic minority boost sample

For the ethnic minority boost sample, survey materials and the questionnaire were translated into Punjabi and Urdu. Interviewers who could speak and read these languages (as well as English) were recruited and trained in the survey procedures. Other people in the household were never used as interpreters for respondents who could not speak English sufficiently well to be interviewed in English. The procedure was to allocate an interviewer who could speak the appropriate language to a non-English speaking respondent, so that the interview could be conducted in the person's own language.

Although the translation was read out by the interviewer from a paper document, the interviewer keyed responses directly onto the laptop. Respondents who wanted a translated self-completion questionnaire were given a pen and paper version to complete.

3.2 Fieldwork procedures

3.2.1 Organisation of fieldwork

General population sample

As described in section 2.2, there were 466 postcode sectors selected as the PSUs, and then either 90 (in London) or 84 (rest of Britain) addresses were selected within each. Each of the sectors was divided in two, giving 932 'sample points' to be issued at different times of the

year. Fieldwork was issued in four batches, with each batch containing 233 sample points. Thus, each postcode sector was divided in half, with one half issued in batch 1 and the other half in batch 3, or with one half issued in batch 2 and the other half in batch 4.

The first batch of addresses was issued in May 1999, the second in August 1999, the third in November 1999, and the final batch in March 2000. Fieldwork was originally planned to last about one year, but took longer because of the importance of obtaining the best possible response rate (which was more difficult than in Natsal I because of the over-sampling of addresses in London where response tends to be lower). After twelve months, 78% of the interviews had been completed, and 96% by eighteen months. The last four months of fieldwork (November 2000 to February 2001) were needed to complete the final 4% of interviews, which largely consisted of re-issuing previously unproductive addresses in order to improve the final response rate (see section 4.1).

Ethnic minority boost sample

The ethnic minority boost sample consisted of 150 PSUs, each covering 100 addresses (see section 2.3). Since only a small proportion of addresses was anticipated to contain an eligible resident, screening and interviewing were conducted as separate field tasks to improve efficiency.

The screening work was carried out by specially trained screeners usually working in pairs or small teams, headed by a supervisor. The screeners' task was simply to establish the eligibility of selected addresses. Screening began in November 2000 and was completed in March 2001. Beginning in December 2000, interviewing followed soon after the screening within each PSU. While most fieldwork was completed by May 2001, respondents who required an interviewer to work in translation took longer to cover so that fieldwork was not entirely complete until August 2001.

3.2.2 Introductory letters

General population sample

Every address sampled for the general population sample was sent an advance letter which briefly introduced the survey and stated that an interviewer would be calling to seek permission to the interview. This procedure was not followed in Natsal I, because of worries that it might increase households opting out of the survey before an interviewer could contact an address and select a person at random. However, the 1997 feasibility work, which involved a split run experiment whereby only half of the sampled addresses were sent an advance letter, showed that the letter had no effect (positive or negative) on response rates. Advance letters are now standard practice on the majority of NatCen surveys, and interviewers are used to, and prefer, the use of these letters. Even though a proportion of households would be screened out as ineligible, it was decided to send advance letters to all addresses.

Ethnic minority boost sample

Due to the small proportion of addresses in the ethnic minority boost sample likely to contain an eligible resident, letters were not mailed out in advance of screener or interviewer contact. Instead, in eligible households, interviewers handed the introductory letter directly

to the selected respondent. If further information about the survey was insisted on at the screening stage, screeners would give a copy of the letter to a household member.

3.2.3 Making contact

General population sample

At first contact, the interviewer established the number of households living at an address. If there were three or fewer, all were included in the sample. If there were more than three, three were selected for inclusion in the survey using a random selection procedure.

For the general population sample, the interviewer then made contact with each household and established the number of residents aged 16-44. If there were no residents in that age range, the household was ineligible for interview. If there was one person aged 16-44, an interview was attempted with that person. If there was more than one resident aged 16-44, one was selected at random. Once the selection was made, no substitutions were allowed. The survey and its purposes were fully explained to the selected person, and a leaflet was provided which described the study in some detail and explained the confidentiality issues. If the selected person was aged 16 or 17 and living in the parental home, then the interviewer gave a parent information letter and agreement from one of the parents was also obtained. (In practice, this was occasionally necessary for older teenagers as well.)

Ethnic minority boost sample

The screening questions varied according to sample type, as this determined which ethnic minority groups were being screened for at a particular address (as described in section 2.3.1). For sample types 1 and 2, pre-selected addresses were issued to screeners to be screened directly. The screeners' task was only to identify which addresses contained at least one resident eligible to take part in the survey, not to introduce the survey fully or make any selections. The screener attempted contact at each sampled address, stated that they were identifying households eligible to take part in a study funded by the Medical Research Council, and asked if there was anyone aged 16-44 and of an eligible ethnic group in that sample point. All addresses where there was an eligible person, or where eligibility was not established because of refusal or non-contact, were issued to interviewers. If the resident said that there was no one eligible in the household, then the screener asked about eligibility at any other households there might be at the selected address. If told that another household at the address contained a potentially eligible resident, the screener checked this directly with the other household before issuing the address to an interviewer. Addresses with no eligible residents were screened out of the sample.

At addresses in sample type 3 (see section 2.3.1), the screening questions were also asked about the two adjacent addresses either side of the sampled address. If the person at the sampled address was certain that there were no residents of black or South Asian origin and aged less than sixty at a neighbouring address, that address was screened out of the sample. The screener attempted to make contact at any adjacent addresses where the person at the sampled address either knew (or thought) there was someone of black or South Asian origin and aged under sixty, or did not know if there were any such residents, or refused to answer the screening questions about the neighbouring addresses. At each adjacent address the appropriate screening questions were asked directly and, if a household was screened in at that stage, the address was allocated to an interviewer.

At all screened in addresses, interviewers asked the screening questions again to confirm eligibility and to randomly select the person to interview. Three households were randomly selected by the interviewer if there were four or more eligible households at an address. If there was more than one eligible person in a household, then one was selected at random (and no substitutions were allowed after the selection was made). If a household contained no members of the relevant ethnic minority groups aged 16-44, then it was screened out of the sample and no interview was attempted.

Definition of ethnicity

In PSUs where all four ethnic minority groups were eligible, the screening question for ethnicity asked whether any resident was of 'Black Caribbean, Black African, Indian or Pakistani origins.' If the meaning of 'origins' was queried, interviewers would read out the following definition:

'By someone of these ethnic origins, I mean someone whose family came originally from India or Pakistan or someone who is black and whose family came originally from the Caribbean or from Africa.'

Interviewers coded the respondent's self-perceived ethnicity. However, because the doorstep eligibility questions might not have been asked of the household member randomly selected for interview, eligibility was checked with the selected person before the interview was started.

3.2.4 Token of appreciation

In the first batch of general population fieldwork, a split run experiment was carried out to compare the relative impact on response rates of using a £5 gift voucher or a £5 donation to charity as a token of appreciation. It was found that, while the response rate achieved in the PSUs randomly allocated to the charitable donation was little different to that achieved in the 1997 feasibility pilot (when there was no voucher or donation), on average the response rate was slightly higher in areas offering the gift voucher. Use of the gift voucher was extended to all sample points for the remaining three batches of general population fieldwork. It was offered to all participating respondents, irrespective of whether they completed the CASI questionnaire or provided a urine sample. By the time fieldwork started for the ethnic minority boost sample, it was decided to increase the gift voucher to £10.

3.3 Quality control

3.3.1 Interviewer training and briefing for the general population sample

All interviewers working on Natsal II attended briefing meetings run by the Natsal researchers and field staff. All interviewers had already undergone standard NatCent training in interview techniques, including the use of CAPI. The first briefing session was held in May 1999, and the last was in October 2000. A total of 444 interviewers and 15 field managers attended the 37 briefing meetings around the country. Each day-long briefing session covered:

- the background and purpose of the survey

- instruction about sampling procedures and the importance of high response rates
- familiarisation with the questionnaire by carrying out a 'dummy' interview, and explanation of certain questions and topics
- guidance on how to handle the self-completion section of the interview
- training in the protocol for collecting urine specimens.

Full sets of written instructions on survey procedures were also provided to all interviewers, including a paper copy of the CAPI and CASI questionnaires.

3.3.2 Briefing for the ethnic minority boost sample

Screening briefings

Half day briefings were held to cover the screening part of the boost sample fieldwork. These sessions provided training in how to identify adjacent addresses (for the focused enumeration points) and carry out the doorstep screening interviews, as well as the procedures for team working. Additional guidance was given to the supervisors and more experienced interviewers who were co-ordinating a screening team. Eight screening briefings were held and 116 NatCen interviewers were briefed in screening techniques and supplied with appropriate written instructions.

Interviewer briefings

Since fieldwork for the ethnic minority boost sample began soon after interviewing for the general population sample had (largely) been completed, the majority of interviewers who worked on the boost sample had previous experience of interviewing on the general population sample. Those who had worked on the general population sample within the last six months were invited to a half day 'refresher' briefing session which covered a reminder of survey procedures and focused on what was new in the ethnic minority boost. In all, 74 interviewers and 16 field managers attended one of these refresher briefings (over eight sessions).

Interviewers who had not previously worked on the general population sample attended a full day interviewer briefing which covered all the topics mentioned in section 3.3.1 (except urine collection). Two such briefings were held and they were attended by 28 interviewers. This number includes four Punjabi and/or Urdu speaking interviewers who were specifically recruited to interview in translation on the boost sample (and who received additional instruction on the protocol for interviewing in translation).

The briefings for the ethnic minority boost sample were held between November 2000 and May 2001. Specially tailored written supplementary instructions were provided to all interviewers working on the ethnic minority boost sample.

A total of 102 interviewers carried out the 949 interviews achieved. Of these interviewers, 56 had also worked on screening for the ethnic minority boost sample, while 74 had previously worked on the general population sample (and 40 worked on all three).

3.3.3 Supervision and quality control

A range of quality control procedures were built into the survey at both data collection and subsequent stages. Interviewers new to NatCen are accompanied on their first day of working by an experienced interviewer. Moreover, all NatCen interviewers, whatever their level of experience, are supervised in the field every six months in a rolling programme – 92 interviewers were supervised while interviewing on the general population sample and 11 on the ethnic minority boost sample.

Screening backchecks were carried out face-to-face by field supervisors on the work of 64 interviewers working on the general population sample, at 1,215 (or 3% of) issued addresses. For the ethnic minority boost screening work, each screening team included a supervisor who monitored and back-checked work throughout the screening period.

For the general population sample recalls to check on the work of interviewers were successfully carried out at 1,189 (or 11% of) productive addresses: 1,046 by telephone and 143 by post. These recalls were carried out on the work of 154 interviewers, which is 35% of those who worked on the study (a higher proportion than is usual). For the ethnic minority boost sample, recalls were achieved at 90 (or 9% of) productive address: 86 by telephone and 4 by post. The work of 16 interviewers, which is 16% of those who interviewed on the ethnic minority boost sample, was recalled.

The computer program used by interviewers had in-built 'soft' and 'hard' checks, which included messages querying uncommon or unlikely answers, as well as consistency between answers (as described in section 5.1). Extensive consistency checks were also implemented during the data cleaning stage (see section 5.2).

3.4 Collecting urine specimens

3.4.1 Eligibility for providing a urine specimen

Urine specimens were collected to test for *Chlamydia trachomatis*, one of the most common sexually transmitted infections. Urine specimens were collected in a random half (i.e., 466) of the sample points. As every PSU was divided into two points, urine specimens were collected from all PSUs. In the eligible sample points, all men and women aged 18-44, except those without any sexual experience, were eligible for providing a urine specimen. (For legal and ethical reasons 16 and 17 year olds were excluded from this part of the study.)

Urine specimens were collected only from the general population sample; the ethnic minority boost was not included in this part of the study.

3.4.2 Collecting and testing the urine specimens

The urine test was explained to all eligible respondents at the end of the main interview. As well as a verbal explanation, respondents were given a leaflet describing the purpose of the urine test and what would be involved along with a Family Planning Association information leaflet about *Chlamydia trachomatis*. Written consent was obtained from respondents prior to their providing the urine specimen. The full protocol for urine sample collection is included in Appendix B.

The specimen was collected in a plastic sterile container marked to indicate 10ml. An improvement to the protocol was initiated part-way through fieldwork when 1mg of boric acid was added to each container, prior to being sent to interviewers, as a stabilising agent and to prevent the development of inhibitors. The specimens were packaged and posted back to University College Hospital laboratory for Ligase Chain Reaction (LCR) testing for *Chlamydia trachomatis*. On arrival at the laboratory, a 1 ml aliquot of each sample was centrifuged and processed according to the manufacturer's (Abbot LCx *Chlamydia trachomatis* Assay) instructions.

Respondents who tested positive for *Chlamydia trachomatis* were sent a letter by the study nurse and invited to discuss their results over the telephone. They were told about the different options for treatment, the need for partner notification, and asked for consent to pass their result on to their GP or a local GUM clinic to facilitate their treatment. They were followed up two weeks later to assess the outcome of treatment and partner notification.

3.4.3 Quality control

Upon receipt within the laboratory, the urine sample was immediately stored at 2-8°C and processed on the next available run. The sample was processed using the Abbott LCx Probe System assay according to the manufacturer's instructions. The assay consists of a sample preparation stage, an amplification stage and a detection stage. Good practice is essential when performing nucleic acid amplification tests, such as the LCR assay. A major problem is the need to avoid contamination of samples with foreign DNA, notably from post-amplification products. False positive results could occur if either the clinical specimen or the test reagents used in the amplification stage became contaminated by accidental introduction of amplified product. The laboratory and its practices were designed to reduce this risk of contamination.

The University College Hospital laboratory participates in the UK National External Quality Assessment Scheme (UK NEQAS). Simulated samples are sent to the laboratory quarterly for routine analysis. This scheme helps ensure that clinical laboratory test results are accurate, reliable and comparable wherever they are produced.

4 RESPONSE

4.1 The general population sample

4.1.1 Response to the interview

The sample design for the general population, described in section 2.2, required that one randomly selected adult aged 16-44 be interviewed in each sampled household. Table 1 shows the response rate calculations.

At the 39,828 issued addresses, an additional 695 households were selected at multi-occupied addresses, so that the total number of households covered was 40,523. Of these, nearly one in ten (9.6%) were not residential or were unoccupied. At over two in five addresses (43.6%), there were no residents in the eligible age range of 16-44. Removing these addresses from the base, leaves 18,968 potentially eligible addresses.

Of these remaining addresses, no contact was made at 471 (2.5%) after repeated calls (at least four), and at 954 (5.0%) of them insufficient information was obtained about whether there were any eligible residents to enable a selection of an individual to be made. Thus, eligibility was not established at 1,425 addresses, some of which would be ineligible due to being unoccupied or having residents outside the 16-44 age range. The best estimate is that 697 of these addresses would be ineligible. This is derived by using the known percentage of households that are either unoccupied or have residents outside the eligible age range (51.0%) to estimate the number of ineligible households where there was no contact (142) in combination with the known percentage of households with residents outside the eligible age range (48.3%) to estimate the number of ineligible households where contact was made but information about the residents was refused (555 addresses).

The estimate for the total number of eligible households is 18,271 (17,543 known eligibles plus 728 assumed), which forms the denominator for calculating the response rate. At these addresses, there was no contact with the selected person at 504 (2.8%), the selected person was ill or away at 273 (1.5%) and did not speak English at 272 (1.5%). At 4,909 (26.9%) addresses, the selected person refused to participate (including proxy refusals and broken appointments).

Interviews were completed with 11,161 respondents, giving an overall fieldwork response rate of 61.1%. This response rate, however, is not representative of the country as a whole (hence not comparable with response for Natsal I), because of the oversampling of inner and outer London compared with the rest of the country (see section 2.2). Because response in London tends to be lower than in the rest of Britain, after adjusting the response rate so that inner and outer London are in their correct proportions, the 'weighted' response rate becomes 63.9%. This is slightly below the 64.7% response rate achieved in Natsal I (after a similar estimation was made of the number of ineligibles at non-contactable addresses).¹⁰

Table 1 Response rate for the Natsal II general population sample

	N	%
Selected addresses	39828	
Extra households sampled	695	
Total issued	40523	100.0
Out of scope addresses:		
-Vacant/derelict	2174	5.4
-Non-residential	767	1.9
-Not traced/built/other	966	2.4
-No eligible (aged 16-44) residents	17648	43.6
Total known ineligible	21555	53.2
Unknown eligibility:		
-No-contact	471	
-All information refused	954	
Total unknown eligibility	1425	
-Estimated ineligible	697	
		%
Estimated eligible addresses	18271	100.0
No interview because:		
-No contact with selected person	504	2.8
-Refused (including proxy refusals)	4909	26.9
-Ill/away/no English	545	3.0
-Other reason	424	2.3
-No information about address	728	4.0
Total unproductive	7110	38.9
Completed interviews	11161	61.1
Weighted response rate*		63.9

*To compensate for over-sampling in London

Based as it is on the estimated number of eligible households, the response rate of 63.9% is the best national estimate of response in terms of coverage. Another way of estimating response is the method used by the Council of American Survey Research Organizations (CASRO) which excludes respondents who are ill, away from home or unable to speak English and then uses the observed proportion of ineligible households to adjust the denominator of estimated eligible households. As these individuals could not be interviewed, this provides a measure of the success rate of interviewers. Table 2 shows the response rate using CASRO rules.

Thus, as well as the 21,555 addresses which were non-residential, unoccupied or had no residents aged 16-44, there were a further 545 addresses where the selected respondent was ill, away or did not speak English – raising the total percentage of ineligible addresses to 54.5%.

The number of estimated ineligibles at the 1,425 addresses where eligibility was not established increases to 727, as it is also assumed that some of these addresses will contain ill, away and non-English speakers as well as being unoccupied or having no residents aged

16-44. Under the CASRO method, the total number of estimated eligible addresses is 17,696. With this as the denominator, the gross response rate is 63.1%, and the weighted response rate to compensate for the over-representation of London becomes 65.4%. This is slightly below the response rate obtained in Natsal I of 66.8% when calculated using CASRO rules.

Table 2 Response rate for the Natsal II general population sample (using the CASRO rules)

	N	%
Selected addresses	39828	
Extra households sampled	695	
Total issued	40523	100.0
Out of scope addresses:		
-Vacant/derelict	2174	5.4
-Non-residential	767	1.9
-Not traced/built/other	966	2.4
-No eligible (aged 16-44) resident	17648	43.6
-Ill/away/no English	545	3.0
Total known ineligible	22100	54.5
Unknown eligibility:		
-No-contact	471	
-All information refused	954	
Total unknown eligibility	1425	
-Estimated ineligible	727	
Estimated eligible addresses	17696	100.0
No interview because:		
-No contact with selected person	504	2.8
-Refused (including proxy refusals)	4909	27.7
-Other reason	424	2.4
-No information about address	698	3.9
Total unproductive	6535	36.9
Completed interviews	11161	63.1
Weighted response rate*		65.4

* To compensate for over-sampling in London

4.1.2 Response to the self-completion questionnaire

The self-completion module was asked about half-way through the interview. All respondents were eligible except those who had not had any sexual experience. As explained in section 3.1.4, there were several options available for completing this part of the interview. The first option offered, and taken by most respondents, was to answer the questions directly on the laptop computer (CASI). Those who did not wish to use CASI were offered the option of completing a paper booklet, while anyone with a literacy problem, eyesight problem or a problem reading English because it was not their first language, could have the questions read out to them by the interviewer. The response to the self-completion questionnaire is shown in Table 3.

Table 3 Response rate to the self-completion questionnaire for the general population sample

	Men	Women	All
Eligible for self-completion questionnaire	4569	6203	10772
Completed using CASI			
-without assistance	3711 (81%)	4866 (78%)	8577 (80%)
-with assistance	601 (13%)	994 (16%)	1595 (15%)
-partially completed	13 (<0.5%)	32 (1%)	45 (<0.5%)
Completed paper booklet	16 (<0.5%)	35 (1%)	51 (<0.5%)
Questions read out by interviewer	173 (4%)	225 (4%)	398 (4%)
Refused to complete	55 (1%)	51 (1%)	106 (1%)

Reasons given by the 1% of eligible respondents refusing the CASI, and/or the paper self-completion, questionnaire included not wishing to use the laptop, objections to the subject matter, having insufficient time, and having problems with literacy, eyesight or reading English.

4.1.3 Response to providing the urine specimen

In a random half of the sample points, respondents aged 18 and over (except for those with no sexual experience) were asked to provide a urine specimen. Response rates for collecting urine samples are shown in Table 4.

Table 4 Response rate for providing a urine specimen for the general population sample

	Men	Women	All
Eligible for urine specimen	2198	2950	5148
Provided urine specimen	1510 (69%)	2098 (71%)	3608 (70%)
Refused to provide	688 (31%)	852 (29%)	1540 (30%)

Reasons given by the 30% of eligible respondents refusing to provide a urine sample include that the test for *Chlamydia trachomatis* is perceived as irrelevant given the respondent's current lifestyle, having already had a test, being unable to urinate, and considering this part of the study too personal.

4.1.4 Presence of others during the interview

In briefing interviewers, great emphasis was placed on trying to carry out the interview in private. This was partly to reduce any potential embarrassment the respondent may feel, and also to encourage honest reporting of sensitive behaviours. It is not always possible, however, to arrange a completely private interview, so interviewers were asked to record if anyone else was present at any point during the interview. Table 5 shows the coding of this question.

Table 5 Whether anyone else was present during the interview for the general population sample

	Men	Women	All
Total sample	4762	6399	11161
No-one else present in home	2229 (47%)	2866 (45%)	5095 (46%)
No-one else present in room	1372 (29%)	1744 (27%)	3116 (28%)
Others present/passing through:			
-husband/wife/partner	621 (13%)	553 (9%)	1174 (11%)
-parents	157 (3%)	172 (3%)	329 (3%)
-child(ren) aged 0-5	266 (6%)	796 (12%)	1062 (10%)
-child(ren) aged 6-15	95 (2%)	285 (4%)	380 (3%)
-young adult aged 16-21	55 (1%)	109 (2%)	164 (1%)
-other adult aged 22+	167 (4%)	202 (3%)	369 (3%)

The interviewer and respondent were alone in the home for almost half of the interviews, and in a further quarter of interviews no-one else was present in the room while any of the interview was taking place. Where someone else was present during the interview, for male respondents this was most often a wife or partner (13%) and for women it was most likely to be a child under the age of five (12%).

Although one in four interviews were conducted when another child or adult was present in the house or room, in only 108 households (1%) was it coded by interviewers that the self-completion questionnaire was seen by another person in the household, and in another 140 households interviewers said the self-completion module was discussed with another household member.

4.2 The ethnic minority boost sample

4.2.1 Response to the interview

The sample design for the ethnic minority boost required that one randomly selected adult of an eligible ethnic minority group and aged 16-44 be interviewed in each sampled household. Table 6 shows the response rate calculations by the three sample types described in section 2.3.1.

The 15,000 addresses to be covered were made up of 8,760 issued addresses plus 6,240 to be generated through focused enumeration. Interviews were completed with 949 respondents in the ethnic minority boost sample, which significantly exceeded the research team's original target of 735 achieved interviews. The reason for this was that a higher proportion of ethnic minority adults were screened in as eligible than the original estimates suggested when the sample was being designed (based as it was on 1991 Census data that was nearly ten years out-of-date by the time of fieldwork). The row labelled 'Screened in' shows that 1593 addresses were known to contain an eligible adult. Using this as the denominator, the response rate is 59.6% of known eligible individuals.

Although eligibility was not established at only 129 of the issued addresses, it is likely that some of the addresses where there was no contact or where all information was refused will also have contained some individuals from the eligible ethnic minority groups. The number of non co-operating households estimated to contain an eligible ethnic minority adult aged 16-44 is shown in the row labelled 'Estimated eligible among households not screened' (and totals only 16 individuals). This estimate is based on the proportion of the eligible households at the screened addresses, and the row showing the 'Estimated eligible addresses' is the sum of the known plus the estimated eligible addresses. Based on the estimated number of eligible addresses, the overall fieldwork response rate was 59.0% (which is slightly below the unadjusted 61.1% fieldwork response rate for the general population sample shown in Table 1).

Table 6 Response rate for the Natsal II ethnic minority boost sample, by sample type

	Sample type 1		Sample type 2		Sample type 3		Total	
	N	%	N	%	N	%	N	%
Selected addresses	1800		5400		7800		15000	
Extra households sampled	12		17		12		41	
Total issued	1812	100	5417	100.0	7812	100	15041	100
Out of scope addresses:								
-Not residential/occupied	153	8.4	576	10.6	292	3.7	1021	6.8
-No eligible residents	1238	68.3	4300	79.4	6760	86.5	12298	81.8
Total known ineligible	1391	76.8	4876	90.0	7052	90.3	13319	88.6
Unknown eligibility:								
-No-contact	15		26		34		75	
-All information refused	12		12		30		54	
Total unknown eligibility	27		38		64		129	
Estimated eligible among households not screened	6		4		6		16	
Screened in	394		503		696		1593	
Estimated eligible addresses	400	100	507	100	702	100	1609	100
No interview because:								
-No contact with selected person	25	6.3	38	7.5	60	8.5	123	7.6
-Refused (incl. proxy refusal)	106	26.5	105	20.7	171	24.4	382	23.7
-Ill/away/language	38	9.5	34	6.7	28	4.0	100	6.2
-Other reason	15	3.7	8	1.6	16	2.3	39	2.4
-No information about address	6	1.5	4	0.7	6	0.9	16	0.9
Total unproductive	190	47.5	189	37.3	281	40.0	660	41.0
Completed interviews	210	52.5	318	62.7	421	60.0	949	59.0

Calculating response using the CASRO method, another 100 respondents who are ill, away from home or unable to speak one of the languages available for the interview (English, Urdu or Punjabi for the boost sample) are also classed as ineligible. This method, which provides a measure of the success rate of interviewers, gives a response rate for the boost sample of 62.9%. This is very similar to the (unadjusted) 63.1% response rate obtained for the general population sample using the CASRO method shown in Table 2.

Table 7 Response rate for the Natsal II ethnic minority boost sample, by sample type (using the CASRO rules)

	Sample type 1		Sample type 2		Sample type 3		Total	
	N	%	N	%	N	%	N	%
Selected addresses	1800		5400		7800		15000	
Extra households sampled	12		17		12		41	
Total issued	1812	100	5417	100.0	7812	100	15041	100
Out of scope addresses:								
-Deadwood	153	8.4	576	10.6	292	3.7	1021	6.8
-No eligible resident	1238	68.3	4300	79.4	6760	86.5	12298	81.8
-Ill/away/language	38	2.1	34	0.6	28	0.4	100	0.7
Total known ineligible	1429	78.9	4910	90.6	7080	90.6	13419	89.2
Unknown eligibility:								
-No-contact	15		26		34		75	
-All information refused	12		12		30		54	
Total unknown eligibility	27		38		64		129	
Estimated eligible among households not screened	6		4		6		16	
Screened in	356		469		668		1493	
Estimated eligible addresses	362	100	473	100	674	100	1509	100
No interview because:								
-No contact with selected person	25	6.9	38	8.0	60	8.9	123	8.2
-Refused (incl. proxy refusal)	106	29.3	105	22.2	171	25.4	382	25.3
-Other reason	15	4.1	8	1.7	16	2.4	39	2.6
-No information about address	6	1.7	4	0.8	6	0.9	16	1.1
Total unproductive	152	42.0	155	32.8	253	37.5	560	37.2
Completed interviews	210	58.0	318	67.2	421	62.5	949	62.9

4.2.2 Response to the self-completion questionnaire

Eligibility for the self-completion module was exactly the same in the boost sample as in the general population sample. The main difference was that respondents who could not read English, but could read Urdu or Punjabi, did not have the option of CASI; rather, they were given a paper booklet translated into one of those languages. The response rate to the self-completion questionnaire for the boost sample is shown in Table 8.

Among eligible ethnic minority respondents, 6% of men and 5% of women refused the CASI and the paper booklet (compared with only 1% of the general population sample, as shown in Table 3). A further 8% of ethnic minority respondents had the questions read out to them by the interviewer, which is twice as large as the percentage found in the general population sample.

Table 8 Response rate to the self-completion questionnaire for the ethnic minority boost sample

	Men	Women	All
Eligible for self-completion questionnaire	375	493	868
Completed using CASI			
-without assistance	238 (63%)	288 (58%)	526 (61%)
-with assistance	79 (21%)	137 (28%)	216 (25%)
-partially completed	5 (1%)	1 (<0.5%)	6 (1%)
Completed paper booklet	6 (1%)	1 (<0.5%)	7 (1%)
Questions read out by interviewer	23 (6%)	43 (9%)	66 (8%)
Refused to complete	24 (6%)	23 (5%)	47 (5%)

4.2.3 Presence of others during the interview

Table 9 shows the extent to which interviews in the boost sample were carried out in private. About half of the time, interviewers and respondents were alone in the home, and in another quarter of interviews no-one else was present in the room. This is very similar to what was found among respondents in the general population sample. The biggest difference is that over one-third of men in the boost sample had their wife/partner present at some point during the interview compared with only 13% of men in the general population sample.

Table 9 Whether anyone else was present during the interview for the ethnic minority boost sample

	Men	Women	All
Total sample	406	543	949
No-one else present in home	217 (53%)	256 (47%)	473 (50%)
No-one else present in room	98 (24%)	120 (22%)	218 (23%)
Others present/passing through:			
-husband/ wife/partner	138 (34%)	61 (11%)	199 (21%)
-parents	25 (6%)	30 (6%)	55 (6%)
-child(ren) aged 0-5	32 (8%)	90 (17%)	122 (13%)
-child(ren) aged 6-15	27 (7%)	48 (9%)	75 (8%)
-young adult aged 16-21	8 (2%)	23 (4%)	31 (3%)
-other adult aged 22+	22 (5%)	36 (7%)	58 (6%)

5 DATA PREPARATION

5.1 The CAPI and CASI programs

NatCen uses Blaise software for its CAPI and CASI questionnaires. Virtually all the questions used in Natsal II were pre-coded, so that a list of answer categories is shown to the interviewer on the screen (or to the respondent when completing the CASI module). The appropriate response is selected by entering a numeric code, which is then highlighted on the screen to help confirm that the interviewer has selected the correct value. In this situation, the computer assigns a single variable to the question. For questions which allow more than one response, the interviewer can enter a list of values separated by spaces. In this case, Blaise creates a series of variables, corresponding to the number of response categories available. Each of these variables has a name which appears on the laptop screen.

Blaise is also very efficient at handling dates and numeric values, which are assigned a range of 'columns' for the number of digits required. 'Hard' and 'soft' checks can be included for numeric entries, which query potentially out-of-range responses with the interviewer. With a 'hard' check, the response is definitely out-of-range and must be altered to an acceptable value before proceeding with the interview; with a 'soft' check, the interviewer must either alter the value or confirm that it is correct before proceeding.

The default position during the interview is that at any question with a numeric code, the interviewer can enter CTRL-K for 'don't know' or CTRL-R for 'refused'. Blaise translates this into a numeric value, corresponding with the number of columns allocated to the variable. A single column variable with pre-coded answers will be assigned 8 for 'refused' and 9 for 'don't know'. If the variable has values greater than 9, the Blaise program allows two or more columns, as appropriate, and adds 9, 99, 999, etc as a prefix to the 8 or 9. This default behaviour was occasionally modified in the CAPI and CASI questionnaires, in some cases to prevent the use of CTRL-K and CTRL-R answers for essential questions, and in others to include explicit codes on the screen for 'don't know' or 'refused' (especially in CASI).

Another feature of Blaise is that it allows 'textfills' within the question text to appear on the screen, which adapts the exact question wording to the context of a particular respondent. Given the importance of gender differences for questions which ask about sexual practices, this facility was particularly useful for Natsal II and was used throughout the CASI questionnaire, where question wordings were often slightly different for male and female respondents. The CAPI and CASI questionnaires included in Appendix A show many of these features of Blaise.

5.2 Editing and coding

A computer edit program is produced based on the CAPI and CASI programs, but incorporating additional checks and editing instructions. All completed interviews were given a full computer edit on receipt in the office. With the use of CAPI and CASI, there tends to be very little missing data, but the verbatim 'other' answers to questions were coded at this stage (and are included on the CAPI documentation in Appendix A), and the small number of paper self-completion questionnaires were also keyed and edited. Any

comments entered by interviewers as notes during the interview are also examined. Seven coders were involved in the edit, all of whom were fully trained in the edit program before beginning the edit process.

The major part of the editing process involved checking the data for internal consistency between responses to different questions. With CASI, of course, it is possible to program the interview so that respondents are filtered past questions which do not apply given their response at earlier questions. Also, as mentioned in section 3.1.4, with the use of CASI it is possible to build consistency checks within the program so that respondents can rectify any problems immediately. Of course, the extent to which such consistency checks can be built into the questionnaire itself is limited both by the degree to which respondents are willing to put up with reminders that they are being inconsistent as well as by the reason for the inconsistency, of which there may be several. For example, a respondent may have reported having a higher number of sexual partners in the last year than the number reported for lifetime partners. This may be a simple keying error which could be easily corrected when drawn to the respondent's attention. Alternatively, it may be memory error, with the respondent remembering an additional partner when answering the subsequent question, and such cases can also be rectified if it is pointed out during the interview. Clearly, the capacity for respondents to correct such inconsistencies on the spot results in better quality data than can be obtained when using a paper self-completion questionnaire. However, there are also instances when the inconsistency may have been deliberate. For example, respondents were asked, using show cards, whether they had any homosexual experience during the face-to-face interview as well as at various points in the self-completion questionnaire. An inconsistency could arise if the respondent felt more confident about reporting homosexual experiences in the more anonymous CASI questionnaire than in the face-to-face interview. Pointing out such an inconsistency to the respondent would not have been appropriate, nor would programming the interview in such a way to ensure this sort of inconsistency could not arise.

A programme checking for inconsistencies was carried out during the data cleaning stage. Coders, trained by a researcher, checked the majority of cases where there were between one and three inconsistencies. The more problematic cases of four or more inconsistencies were referred to a researcher for checking. In some instances, the inconsistencies could be resolved, although in the majority of cases no action was taken except to 'flag' the inconsistency on the data file.

In all, 137 potential inconsistencies were checked for each respondent. Table 10 shows the number of inconsistencies identified, for both the general population and ethnic minority boost samples, prior to any editing taking place.

Table 10 **Number of consistency checks triggered**

	General population sample	Ethnic minority boost sample
None	7631 (68%)	553 (58%)
One	2019 (18%)	201 (21%)
Two or three	1192 (11%)	131 (14%)
Four or more	319 (3%)	64 (7%)

About a third of the general population sample registered an inconsistency, although the majority of these triggered just one. For the ethnic minority boost sample, the proportion registering an inconsistency was slightly higher (42%), with half of these having triggered only one check.

Overall, the majority of consistency checks had no or very few cases recorded against them (see Appendix C for a full description). The highest number of inconsistencies had to do with condom use (with respondents saying that condoms had not been used in the last year but then reporting condom use with a specific partner) and reporting of homosexual experience (with respondents more likely to report in the self-completion section than in the face-to-face interview).

Men and women (in both the general population and boost samples) had very similar rates of consistency check failures, as shown in Table 11.

Table 11 Number of consistency checks triggered, by sex

	Men	Women
General population sample		
None	3245 (68%)	4386 (69%)
One	856 (18%)	1163 (18%)
Two or three	496 (10%)	696 (11%)
Four or more	165 (3%)	154 (2%)
Ethnic minority boost sample		
None	240 (59%)	313 (58%)
One	83 (20%)	118 (22%)
Two or three	58 (14%)	73 (13%)
Four or more	25 (6%)	39 (7%)

It appears that respondents who were less familiar with using a computer were more likely to trigger consistency checks (Table 12).

Table 12 Number of consistency checks triggered, by whether respondent had used a computer before*

	Never used a computer before	Had used a computer before
General population sample		
None	880 (57%)	5960 (69%)
One	333 (22%)	1593 (18%)
Two or three	245 (16%)	897 (10%)
Four or more	87 (6%)	222 (3%)
Ethnic minority boost sample		
None	342 (53%)	45 (46%)
One	155 (24%)	27 (28%)
Two or three	104 (16%)	18 (19%)
Four or more	50 (8%)	7 (7%)

*This table includes only respondents who completed CASI

5.3 Occupation coding

The only open-ended questions in the interview asked for respondents' (and their partners') occupations. Details were collected about current occupation, or the most recent occupation for those not currently in work. These were coded in the office to the 1990 Standard Occupational Classification at full three digit level,¹¹ from which social class and socio-economic group classifications were derived.

To derive Registrar General's social class, occupations are assigned to six social class categories:

<i>Social class</i>	<i>Occupations</i>
I	Professional occupations
II	Managerial and technical occupations
IIINM	Skilled occupations (non-manual)
IIIM	Skilled occupations (manual)
IV	Partly skilled occupations
V	Unskilled occupations

Respondents' socio-economic group was also derived, using the following categories:

1	Employers and managers in central and local government, industry, commerce, etc. - large establishments
2	Employers and managers in industry, commerce, etc. - small establishments
3	Professional workers - self-employed
4	Professional workers - employees
5	Intermediate non-manual workers
6	Junior non-manual workers
7	Personal service workers
8	Foremen and supervisors - manual
9	Skilled manual workers
10	Semi-skilled manual workers
11	Unskilled manual workers
12	Own account workers (other than professional)
13	Farmers - employers and managers
14	Farmers - own account
15	Agricultural workers
16	Members of armed forces
17	Inadequately described and not stated

In order to estimate social class when respondents were growing up, interviewers asked about the type of work their father did (or mother, if the father was not in the household) and whether he had any managerial or supervisory responsibilities, when respondents were aged 16. These answers were used to derive a proxy measure of social class.

5.4 Weighting

5.4.1 Weighting the general population sample

Selection probability weighting

As described in section 2.2, respondents in the general population sample selected for inclusion in the survey did not have equal chances of selection for three reasons: people living in London had a greater chance of selection than residents elsewhere in Britain; at multiple occupancy addresses containing 4 or more households, 3 were selected at random for inclusion in the survey; similarly, in households with 2 or more adults aged 16-44, only one was randomly selected.

Before the data can be used as a representative sample of the general population in Britain, the imbalances created by the use of different probabilities of selection must be removed, otherwise the sample would over-represent residents living in London, in single dwelling addresses, and those living alone. This was done by applying three sets of weights: the first to correct for the unequal probabilities of selection of postcode sectors; the second to correct for unequal probabilities of selection of households at multi-occupancy addresses; and the third to correct for the varying probabilities of selection of adults within households. These corrections were made by applying weights which were inversely proportional to the selection probabilities for the relevant postcode sectors, addresses and number of adults. The selection probability weight was calculated as:

$SEL_WT = WEIGHT_1 * WEIGHT_2 * WEIGHT_3$ where,

WEIGHT_1	is the weight due to disproportionate sampling per stratum h ($h=1$ - inner London, $h=2$ - outer London and $h=3$ - rest of GB)
WEIGHT_2	is the weight due to selection of up to 3 households per sampled address
WEIGHT_3	is the weight due to selection of 1 eligible (16-44) adult per household

Specifically:

$$WEIGHT_1 = \frac{1}{\text{probability of selecting an address}} = \frac{1}{P(\text{sector})} * \frac{1}{P(\text{address within sector})}$$

where

$$P(\text{sector}) = \min\left(\frac{\text{number of sectors selected}_h * \text{total addresses in sector}}{\text{total addresses}_h}, 1\right)$$

and

$$P(\text{address}) = \frac{\text{number of addresses selected per sector}_h}{\text{total addresses in sector}}$$

$$WEIGHT_2 = \max\left(1, \frac{\text{number of households at the address}}{3}\right)$$

WEIGHT_2 was trimmed to a maximum of 2 (6 households at an address) to avoid variance inflation due to few very large weights (32 respondents out of 11,161 were in addresses with more than 6 households).

$$WEIGHT_3 = \text{number of eligible adults in selected household}$$

WEIGHT_3 was trimmed to a maximum of 4 (4 eligible adults per household) to avoid variance inflation due to few very large weights (71 respondents out of 11,161 were in households with 5 or more eligible adults).

Non-response weighting

After application of the selection probability weights, the distribution of the Natsal II sample was compared to mid-1999 population estimates on three key demographic variables (age, sex and government office region). The comparison is shown in Table 13, in columns (a) and (b). As can be seen, women are over-represented in the achieved Natsal II sample, while men aged 25-29 are under-represented, as are respondents in London. These differences could be due to differential non-response as well as random sampling variation. To correct for these differences in age, sex and region, a non-response weight (NR_WT) was calculated as follows:

$$NR_WT = \frac{\text{proportion of total eligible population within sex / age group / region}}{\text{weighted (by SEL_WT) sample proportion within sex / age group / region}}$$

Extreme weights below the 2.5th and above the 97.5th percentiles were trimmed to the values at these percentiles.

The total weight (FINAL_WT) is: $FINAL_WT = SEL_WT * NR_WT$

The total weight (FINAL_WT) was then finally scaled to have a mean of 1. This gives a weighted sample size equal to the unweighted sample size of 11,161.

The distribution of key demographic variables after final weighting is shown in the 'black' column in Table 13. After applying the non-response weight, the distributions of age, sex and region for the Natsal II sample closely reflect the general population. There are still some differences on other variables (such as social class and marital status) but these were thought too small to warrant any additional weighting.

Table 13 Comparison of Natsal II general population sample with population estimates

Age	(a) Natsal II sample After selection weighting			(b) POPULATION ESTIMATES			(c) Natsal II sample After final weighting		
	Men	Women	All	Men	Women	All	Men	Women	All
	%	%	%	%	%	%	%	%	%
16-19	13.6	11.0	12.1	12.2	12.0	12.1	12.1	12.0	12.0
20-24	14.3	13.4	13.8	14.5	14.4	14.4	14.6	14.4	14.5
25-29	15.6	17.1	16.5	17.6	17.4	17.5	17.6	17.4	17.5
30-34	19.6	20.7	20.2	19.8	19.8	19.8	20.0	19.9	19.9
35-39	18.6	20.0	19.4	19.4	19.5	19.4	19.3	19.4	19.4
40-44	18.2	17.8	17.9	16.4	16.9	16.7	16.5	16.9	16.7
Row %	43.5	56.5		51.0	49.0		50.9	49.1	
Government Office Region	Men	Women	All	Men	Women	All	Men	Women	All
	%	%	%	%	%	%	%	%	%
North East	5.7	5.4	5.5	4.3	4.4	4.4	4.4	4.5	4.5
North West	11.4	12.7	12.1	11.7	11.7	11.7	11.7	11.7	11.7
Yorkshire & Humberside	9.2	9.1	9.2	8.7	8.6	8.6	8.8	8.6	8.7
East Midlands	7.8	7.9	7.9	7.1	7.1	7.1	7.1	7.1	7.1
West Midlands	8.7	8.1	8.4	9.0	9.0	9.0	9.1	9.0	9.0
South West	9.0	7.8	8.3	7.8	7.8	7.8	7.9	7.8	7.8
Eastern	8.0	9.7	9.0	9.2	9.2	9.2	9.1	9.2	9.1
Inner London	4.7	4.3	4.5	6.1	6.1	6.1	5.9	6.0	6.0
Outer London	7.1	7.4	7.2	8.5	8.3	8.4	8.5	8.3	8.4
South East	14.1	13.6	13.8	13.9	13.9	13.9	14.0	13.9	14.0
Wales	5.0	5.0	5.0	4.8	4.8	4.8	4.6	4.7	4.7
Scotland	9.3	9.0	9.1	8.9	9.2	9.0	8.9	9.1	9.0
Marital status*	Men	Women	All	Men	Women	All	Men	Women	All
	%	%	%	%	%	%	%	%	%
Single	39.5	28.2	33.1	38.8	31.3	35.2	39.3	29.9	34.7
Married	40.1	45.7	43.3	42.4	45.7	44.1	39.8	44.2	42.0
Separated	1.5	2.8	2.2	1.9	3.1	2.5	1.6	2.8	2.2
Divorced	2.8	4.7	3.9	2.6	5.5	4.0	2.8	4.6	3.7
Widowed	0.1	0.3	0.2	0.1	0.5	0.3	0.1	0.3	0.2
Cohabiting	16.0	18.2	17.3	14.1	13.8	14.0	16.5	18.2	17.3
Social class*	Men	Women	All	Men	Women	All	Men	Women	All
	%	%	%	%	%	%	%	%	%
Professional	7.2	3.3	5.0	6.2	2.7	4.5	7.5	3.3	5.5
Managerial and technical	28.8	27.3	28.0	26.2	22.8	24.6	29.2	27.2	28.2
Skilled non-manual	13.2	37.8	26.9	14.5	38.5	26.1	13.3	38.0	25.1
Skilled manual	30.9	8.5	18.5	30.0	7.6	19.2	30.5	8.4	19.9
Partly skilled manual	15.0	18.3	16.9	17.1	22.4	19.6	14.7	18.3	16.4
Unskilled manual	4.8	4.8	4.8	6.0	6.1	6.0	4.9	4.7	4.8
% in households:*	%			%			%		
With no children	46.1			51.4			48.2		
With children	53.9			48.6			51.8		

*Estimates based on the 1998 Health Survey for England

5.4.2 Weighting the ethnic minority boost sample

The ethnic minority boost sample also did not have equal chances of selection for similar reasons to the general population sample: the selection of postcode sectors and/or addresses varied by strata, and the number of households and adults selected was limited to 3 per address and 1 per household respectively. Moreover, respondents from the four ethnic minority groups who were interviewed as part of the general population sample were added to those interviewed as part of the boost sample, and their chances of selection were different still.

Therefore, in order to obtain representative (unbiased) estimates of the four ethnic minority groups, the data needs to be weighted to adjust for these varying probabilities of selection. The selection weights required are inversely proportional to the overall probability of selection, which is dependent upon the probabilities of selection for: the sector, addresses within sectors, households at addresses, and individuals within households. The weights were calculated as:

ETH_WT = WEIGHT_A * WEIGHT_B * WEIGHT_C where,

WEIGHT_A is the weight due to disproportionate sampling per stratum h ($h=1$ - stratum A, $h=2$ - stratum B - $h=3$ - stratum C)
 WEIGHT_B is the weight due to selection of up to 3 households per sampled address
 WEIGHT_C is the weight due to selection of 1 eligible adult per household (i.e. aged 16-44 and in one of the four ethnic minority groups included in the boost)

Specifically:

$$WEIGHT_A = \frac{1}{\text{probability of selecting an address}} = \frac{1}{P(\text{sector})} * \frac{1}{P(\text{address within sector})}$$

where

- $P(\text{sector}) = \min([P(\text{sector selection for boost}) + P(\text{sector selection for core})], 1)$
 $= \min([nb_{h,e} \frac{\text{size}}{\text{total size}_h} + P(\text{sector selection for core})], 1)$

where,

$nb_{h,e}$ = number of sectors in boost within stratum h for ethnic minority group e
 size = number of PAF addresses in the sector
 total size _{h} = total number of PAF addresses in stratum h

(see section 5.4.1 for the calculation of $P(\text{sector selection for core})$)

- $P(\text{address}) = \frac{nb_{h,e}}{nb_{h,e} + nc_h} * \frac{mb_h}{\text{size}} + \frac{nc_h}{nb_{h,e} + nc_h} * P(\text{address selection for core})$

where,

nc_h = number of sectors in core sample within stratum h
 mb_h = number of addresses selected per sector in ethnic boost within stratum h
 (see section 5.4.1 for the calculation of $P(\text{address selection for core})$)

$$WEIGHT_2 = \max\left(1, \frac{\text{number of households at the address}}{3}\right)$$

WEIGHT_2 was trimmed to a maximum of 2 (6 households at an address) to avoid variance inflation due to a few very large weights (1 respondent out of 1,786 was in an address with more than 6 households).

$$WEIGHT_3 = \text{number of eligible adults in selected household}$$

WEIGHT_3 was trimmed to a maximum of 4 (4 eligible adults per household) to avoid variance inflation due to a few very large weights (36 respondents out of 1,786 were in households with 5 or more eligible adults).

(Unlike for the general population sample, there was no additional non-response weighting for the ethnic minority sample, as there is no reliable data currently available to estimate differential non-response by age and sex within ethnic minority groups.)

5.4.3 Weighting Natsal I

In order to facilitate comparison between Natsal I and Natsal II, the earlier 1990 dataset (for those aged 16-44) was post-stratified to 1991 Census estimates following the procedures outlined in section 5.4.1 (on non-response weighting). This weighting of Natsal I data corrected for any differences (due to differential non-response and/or random sampling variation) in the age, sex and regional distributions of Natsal I respondents compared with the 1991 Census. This weighting of Natsal I differs slightly from the weighting scheme described in earlier Natsal I publications,¹² and estimates using these weights may vary somewhat from those previously published for this age group using Natsal I data.

5.5 Standard errors

Natsal II used an unequal probability stratified multi-stage sample design, clustered within postal sectors (see section 2.2). One of the effects of using this complex design is that standard errors for survey estimates are generally higher than the standard errors that would be derived from a simple random sample of the same size. Analysis of the survey data is being carried out using the software package STATA which gives approximately correct standard errors.

Endnotes

- ¹ Johnson AM, Wadsworth J, Wellings K, Field J. *Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press, 1994; Wellings K, Field J, Johnson AM, Wadsworth J. *Sexual behaviour in Britain*. Penguin, 1994; Johnson AM, Wadsworth J, Wellings K, Bradshaw S, Field J. Sexual lifestyles and HIV risk. *Nature* 1992;**360**:410-412; Wadsworth J, Field J, Johnson AM, Bradshaw S, Wellings K. Methodology of the National Survey of Sexual Attitudes and Lifestyles. *J R Statist Soc* 1993;**156**:407-21.
- ² Giesecke J, Johnson AM, Hawkins A, et al. An estimate of the prevalence of human immunodeficiency virus infection in England and Wales by using a direct method. *J R Statist Soc* 1994;**157**(1):89-103.
- ³ Report of an Expert Group convened by the Director of the Public Health Laboratory Service on behalf of the Chief Medical Officer. The incidence and prevalence of AIDS and prevalence of other severe HIV disease in England and Wales for 1995-1999: projections using data to the end of 1994. *CDR* 1996;**6**:R1-R24.
- ⁴ Weeks MF. Computer assisted survey information collection: a review of CASIC methods and their implications for survey operations. *Journal of Official Statistics* 1992;**8**:445-465; Zimmerman DP. The psychological effects of computers upon youth: a selective review. *Advances in Social Science and Computers* 1993;**3**:99-138. Couper MP, Rowe B. Evaluation of computer assisted self-interview component in a computer-assisted personal interview survey. *Public Opinion Quarterly* 1996;**60**:89-105. Erens B, Korovessis C, Field J, Johnson AM, Copas AJ, Fenton K, Wellings K. The impact of computer assisted self-interviewing on the National Survey of Sexual Attitudes and Lifestyles. *Proceedings of the Third ASC International Conference 1999*, The Association for Survey Computing; Johnson AM, Copas AJ, Erens B, Mandalia S, Fenton K, Korovessis C, Wellings K, Field J. Effect of computer-assisted self-interviews on reporting of sexual HIV risk behaviours in a general population sample: a methodological experiment. *AIDS* 2001;**15**(1):111-115.
- ⁵ For a description of the development work for Natsal 1990, see Johnson AM, Wadsworth J, Wellings K, Field J. *Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press, 1994.
- ⁶ Erens B, Korovessis C, Field J, Johnson AM, Copas AJ, Fenton K, Wellings K. The impact of computer assisted self-interviewing on the National Survey of Sexual Attitudes and Lifestyles. *Proceedings of the Third ASC International Conference 1999*, The Association for Survey Computing; Johnson AM, Copas AJ, Erens B, Mandalia S, Fenton K, Korovessis C, Wellings K, Field J. Effect of computer-assisted self-interviews on reporting of sexual HIV risk behaviours in a general population sample: a methodological experiment. *AIDS* 2001;**15**(1):111-115.
- ⁷ The first three papers from Natsal II will be published in *The Lancet* 2001;**358**:1835-1854, and include the following: Johnson, Anne M. *et al* Sexual behaviour in Britain: partnerships, practices and risk behaviour. Wellings, Kaye *et al* Sexual behaviour in Britain: early heterosexual experience. Fenton, Kevin A. *et al* Sexual behaviour in Britain: sexually transmitted infections and prevalent genital *Chlamydia trachomatis* infection.
- ⁸ See Chapter 2 in Johnson AM, Wadsworth J, Wellings K, Field J. *Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press, 1994.
- ⁹ Erens B, Korovessis C, Field J, Johnson AM, Copas AJ, Fenton K, Wellings K. The impact of computer assisted self-interviewing on the National Survey of Sexual Attitudes and Lifestyles. *Proceedings of the Third ASC International Conference 1999*, The Association for Survey Computing; Johnson AM, Copas AJ, Erens B, Mandalia S, Fenton K, Korovessis C, Wellings K, Field J. Effect of computer-assisted self-interviews on reporting of sexual HIV risk behaviours in a general population sample: a methodological experiment. *AIDS* 2001;**15**(1):111-115.
- ¹⁰ See Chapter 2 in Johnson AM, Wadsworth J, Wellings K, Field J. *Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press, 1994.
- ¹¹ Office of Population Censuses and Surveys. *Standard Occupation Classification*. London: HMSO, 1990.
- ¹² Johnson AM, Wadsworth J, Wellings K, Field J. *Sexual Attitudes and Lifestyles*. Oxford: Blackwell Scientific Press, 1994.