

<b>Institution:</b> University College London
<b>Unit of Assessment:</b> 2 - Public Health, Health Services and Primary Care
<b>Title of case study:</b> The National Surveys of Sexual Attitudes and Lifestyles (Natsal)
<p><b>1. Summary of the impact</b></p> <p>The National Surveys of Sexual Attitudes and Lifestyles (Natsal) have made major contributions to sexual health policy in Britain, and are widely regarded as among the most reliable sources of scientific data in the field, not replicated with such frequency, detail or sample size in a single country anywhere in the world. Since 2008 they have influenced (amongst other things) HIV services, HPV vaccination policy, the national chlamydia screening programme, teenage pregnancy strategy and health education campaigns for young people and gay men. Our data are widely used in the NHS and third sector. We have disseminated the results of our research through public engagement activities including extensive media work, podcasts, and science festivals.</p>
<p><b>2. Underpinning research</b></p> <p>The first National Survey of Sexual Attitudes and Lifestyles (Natsal-1) was undertaken in 1990-1991 in response to the emerging HIV epidemic. It examined, through probability samples of 18,876 men and women aged 16-59, the distribution of sexual behaviours to determine the likely spread of HIV in the population. Analysis work was undertaken in 1993, and the results were published in 1994 [1].</p> <p>Natsal-2 was undertaken in 2000-1. It surveyed 12,110 men and women aged 16-44 and provided extensive data in the broad context of sexual and reproductive health and pioneered computer-assisted methodologies that we demonstrated could produce more accurate reporting of sexual behaviours. Key findings from Natsal-2 included evidence of:</p> <ol style="list-style-type: none"> <li>1. increasing risk behaviour between 1990 and 2000 consistent with rising incidence of sexually transmitted infections (STIs) [2];</li> <li>2. increases in both the proportion of men reporting same-sex activity and their risk behaviours, informing prevention for gay men and service planning for HIV [also 2];</li> <li>3. similar prevalence of asymptomatic <i>Chlamydia trachomatis</i> infection in men and women, providing the first population-based estimates [3];</li> <li>4. a strong relationship between age at onset of sex, competence at the time, and poor sexual health outcomes, informing education for young people and teenage pregnancy strategy [4];</li> <li>5. Population estimates of sexual behaviour and the distribution of different human papillomavirus subtypes to inform HPV vaccination programs [5];</li> <li>6. Data on sexual function problems and their duration to inform the DSM-V [6].</li> </ol> <p>Natsal-3 was undertaken in 2010 to 2012 interviewing 15,162 men and women aged 16 to 74. Key findings will be published in a series of papers in the Lancet in November 2013. While it is too early to assess the impact on transmission, the papers provide population estimates showing considerable uptake of interventions including, HIV testing and HPV vaccination and chlamydia screening, interventions that were influenced by Natsal-2.</p> <p>The Natsal surveys were undertaken in collaboration with colleagues at the London School of Hygiene and Tropical Medicine, and NatCen Social Research and the Health Protection Agency (Natsal-3). All three studies were led from UCL by Johnson as Principal Investigator. UCL scientists led in particular the epidemiological and STI analyses, with all statistical analysis led by Mercer with Copas.</p>
<p><b>3. References to the research</b></p> <p>The results of the first Natsal study have been widely disseminated through publication of books and papers, while the key findings from Natsal-2 were published as a series of high-profile papers</p>

in the Lancet and over 50 subsequent papers: see <http://www.natsal.ac.uk/natsals-12/publications>

- [1] Johnson AM, Wadsworth J, Wellings K, Field J *Sexual Attitudes and Lifestyles*. Blackwell, 1994
- [2] Johnson AM, Mercer CH, Erens B *et al* Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *Lancet*, 2001, 358: 1835-1842. <http://doi.org/dwzhp5>
- [3] Fenton KA, Korovessis C, Johnson AM *et al* Sexual behaviour in Britain: reported sexually transmitted infections and prevalent genital Chlamydia Trachomatis infection. *Lancet*, 2001, 358: 1851-1854. [http://dx.doi.org/10.1016/S0140-6736\(01\)06886-6](http://dx.doi.org/10.1016/S0140-6736(01)06886-6)
- [4] Wellings K, Nanchahal K, Macdowall W *et al* Sexual behaviour in Britain: early heterosexual experience. *Lancet*, 2001, 358: 1843-1850 [http://dx.doi.org/10.1016/S0140-6736\(01\)06885-4](http://dx.doi.org/10.1016/S0140-6736(01)06885-4)
- [5] Johnson AM, Mercer CH, Beddows S *et al*. Epidemiology of, and behavioural risk factors for, sexually transmitted human papillomavirus infection in men and women in Britain. *Sex Transm Infect*. 2012;88(3):212-7. <http://dx.doi.org/10.1136/sextrans-2011-050306>
- [6] Mercer CH, Fenton KA, Johnson AM, *et al*. Sexual function problems and help seeking behaviour in Britain: national probability sample survey. *BMJ*. 2003 Aug 23;327(7412):426-7. <http://doi.org/fjzxkw>

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#### 4. Details of the impact

Our studies were initially established to understand the potential spread of HIV, but have informed many aspects of sexual health policy and practice over 20 years, becoming a primary source of information about sexual behaviour in Britain. They are used widely by policy makers and service planners in both setting and monitoring strategy. We provide key examples of impact since 2008.

**Impact on HIV service planning.** Natsal data are used by the Health Protection Agency (HPA) (now Public Health England [PHE]) in their annual estimates of the population burden of HIV, combining anonymous prevalence surveillance data with Natsal estimates of the size of the population at risk, to estimate the number infected and the proportion who remain undiagnosed [a]. These data have underpinned national campaigns to increase and expand HIV testing, for example those run by the Terence Higgins Trust [b], and to assess the impact of these campaigns [c]. Estimates of HIV distribution and other Natsal data are used to plan HIV services locally and nationally, for example in a sexual health needs assessment for London in 2008 [d], enabling NHS resource distribution for effective service delivery. Johnson served as a Specialist Adviser to the House of Lords Select Committee on HIV/AIDS in the UK (2011; Chair Lord Fowler) which emphasised the need to re-invigorate HIV Prevention Services [e]. Among their recommendations, the final report of the Select Committee argued for the ban on HIV home-testing kits to be repealed, an outcome which is being processed following announcement by the Chief Medical Officer in August 2013.

**Impact on the National Chlamydia Screening Programme (NCSP)** Natsal-2 data were used in mathematical models to assess the impact of a screening programme on chlamydia prevalence in men and women. This contributed to the evidence base for establishing the NCSP [f], which has opportunistically screened young people aged 15-24 for chlamydia since 2003. Our data showing similar chlamydia prevalence in men and women were used to support inclusion of men in the programme, rather than women only, as originally recommended and cited as evidence for the importance of increasing testing in men in the NCSP strategy *Men too*. To date, NCSP has delivered around 7.5 million tests, diagnosing over 470,000 infections in young adults aged 15-24 (The vast majority of this impact occurred within the REF period – the 2008 NCSP annual report stated that by that time only 700,000 tests had been carried out). Although both the design and cost-effectiveness of the programme have been criticised [see case study **UCL02-STE**], the NCSP report that “*modelling suggests that the substantial increases in the number of diagnoses made in England between 2000 and 2010/11 has probably decreased the prevalence of chlamydia among*

*sexually active under 25 year olds*". In 2010, Natsal questions were included for the first time in the Health Survey for England, and this survey demonstrated a high uptake of the programme (44% of women and 27% of men aged 16-24), greatest in those at highest risk [g].

**Impact on HPV vaccination policy:** In 2008, Natsal-2 data on sexual behaviour and age at first intercourse were used by the Joint Committee on Vaccination and Immunisation (JCVI) in models which showed the cost effectiveness of introducing bivalent HPV vaccine in Britain for girls aged 12 to 14 at 80% coverage with a catch-up to age 18 [h]. A vaccination programme commenced in 2008 and by 2012, 6 million doses of the vaccine had been delivered in schools [i]. It is estimated that about 400 lives could be saved every year in the UK as a result of vaccinating girls [j]. Data from Natsal-3 show high uptake of the catch-up programme (61.5%). The JCVI is undertaking an HPV immunisation review and our data on prevalence of HPV vaccine and non-vaccine subtypes have been submitted as evidence which is under consideration (outcome awaited).

**Impact on young people's sexual health:** Natsal-2 data on teenage sexual partnerships and contraceptive use were used in a modelling project for the Departments of Health and Education in 2009 to contribute to a new approach to sexual health communications recommended in the Teenage Pregnancy and Sexual Health Marketing Strategy in 2009 [k]. It was implemented in the 2009 *Sex: Worth Talking About* campaign by NHS choices. This print, radio, digital, and television campaign was designed to help young people make more informed choices about their sexual health and contraception, and to promote honest discussions about sex, relationships, and contraception between 16 to 24 year olds and their parents [l]. Natsal data on early sexual experiences have been used as part of the evidence base for improved provision of sexual health services in schools and further education settings, including a guidance document produced by the Sex Education Forum for commissioners and practitioners in 2010 [m]. Data from the survey are used on a number of public information websites as a reliable source of information about sex. Examples include: NHS Choices sex myth buster; Brook; one-plus-one; the Family Planning Association [n].

**Contributing to Health Technology Assessments:** Natsal-2 data were used in three Health Technology Assessments in the period 2008-13 [o]: 1) Natsal data on sexual behaviour were used to set the parameters for economic evaluation models assessing behavioural interventions for STI prevention STIs in young people; 2) Natsal data on the age-specific prevalence of men who have sex with men (MSM) were used in models to assess the cost-effectiveness of screening HIV positive men and women, and MSM, for anal cancer; 3) Natsal data were cited as part of the existing evidence base for school-linked sexual health services.

**Impact on the Diagnostic and Statistical manual of mental disorders:** Natsal data were used to define the minimum duration for sexual dysfunction in the latest American Psychiatric Association Diagnostic and Statistical manual of mental disorders (DSM V) [p].

**Public Engagement:** Our public engagement work from 2008-2013 has included media interviews, for example an interview by Johnson on Radio 4's *Am I Normal?* (2011, Series 8, Episode 1), in which the Natsal results on sexual behaviour were contrasted to less reliable impressions often given by the media. Natsal has been used in two public lectures which are available via YouTube: a mini-lecture on the Natsal study in 2010 (Johnson; over 4,400 views) and a UCL lunchtime lecture in 2011 (Johnson; over 1,800 views). Johnson gave a lecture about HIV at the Cheltenham Science Festival in 2010. Natsal was included as one of 14 case studies for its impact at the Wellcome Trust 75th anniversary celebrations (2011) [q], and for an oral history recorded and available on open access from Wellcome Trust Witness seminar series [r].

## 5. Sources to corroborate the impact

- [a] Natsal data are used in a model to estimate the population burden of HIV in the annual *HIV in the United Kingdom* report. See reference 1 in the latest report (link below): [http://www.hpa.org.uk/webc/HPAwebFile/HPAweb\\_C/1317137200016](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317137200016)
- [b] <http://www.tht.org.uk/our-charity/Campaign/Our-health-policies/Testing-for-HIV>
- [c] *Time to test*, a report by the HPA in 2011 (Natsal data used on page 6): [http://www.hpa.org.uk/webc/HPAwebFile/HPAweb\\_C/1316424799217](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1316424799217)

## Impact case study (REF3b)

- [d] MedFASH report on London needs assessment (see section 8):  
<http://www.medfash.org.uk/uploads/files/p17abkmkdk1eggac18ul18lpqo5h.pdf>
- [e] <http://www.parliament.uk/hivselect>
- [f] NCSP website: <http://www.chlamydia-screening.nhs.uk/ps/index.asp>. A model using Natsal data is cited under the 'evidence' section of the NCSP website (REF 16, under 'mathematical modelling'): <http://www.chlamydia-screening.nhs.uk/ps/evidence.asp>. The *Men too* strategy can be found at:  
[http://www.chlamydia-screening.nhs.uk/ps/resources/guidelines/NCSPMens\\_strat.pdf](http://www.chlamydia-screening.nhs.uk/ps/resources/guidelines/NCSPMens_strat.pdf) Numbers of patients screened so far are on the front page. Numbers to 2008 are in annual report for that year: [http://www.chlamydia-screening.nhs.uk/ps/resources/annual-reports/NCSPa-rprt-07\\_08.pdf](http://www.chlamydia-screening.nhs.uk/ps/resources/annual-reports/NCSPa-rprt-07_08.pdf)
- [g] Health Survey for England 2010: data on Chlamydia Screening uptake can be found in tables 6.10-6.12: <https://catalogue.ic.nhs.uk/publications/public-health/surveys/heal-surv-resp-heal-eng-2010/heal-surv-eng-2010-resp-heal-ch6-sex.pdf>
- [h] JCVI statement on HPV vaccines to protect against cervical cancer. See page 6 for use of Natsal data in modelling:  
[http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@ab/documents/digitalasset/dh\\_094739.pdf](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@ab/documents/digitalasset/dh_094739.pdf)
- [i] <http://www.mhra.gov.uk/home/groups/pl-p/documents/websitesresources/con213228.pdf>
- [j] <http://www.nhs.uk/conditions/vaccinations/pages/hpv-human-papillomavirus-vaccine.aspx>
- [k] Teenage Pregnancy & Sexual Health Marketing Strategy:  
[http://www.nhs.uk/sexualhealthprofessional/Documents/Sexual\\_Health\\_Strategy\\_2009.pdf](http://www.nhs.uk/sexualhealthprofessional/Documents/Sexual_Health_Strategy_2009.pdf)
- [l] Sex: Worth Talking About (NHS choices): <http://www.nhs.uk/worthtalkingabout/Pages/sex-worth-talking-about.aspx>
- [m] Sex Education Forum Briefing Paper for sexual health service commissioners, FE senior leaders and professionals working in FE-based sexual health services.  
[http://www.ncb.org.uk/media/238893/taking\\_a\\_strategic\\_approach\\_to\\_sexual\\_health\\_service\\_development\\_in\\_further\\_education.pdf](http://www.ncb.org.uk/media/238893/taking_a_strategic_approach_to_sexual_health_service_development_in_further_education.pdf)
- [n] Public information sources:
- NHS Choices: <http://www.nhs.uk/Tools/Pages/sex-myths.aspx>
  - Sex worth Talking about campaign: [www.nhs.uk/Livewell/STIs/Pages/oral-sex-and-cancer.aspx](http://www.nhs.uk/Livewell/STIs/Pages/oral-sex-and-cancer.aspx)
  - Brook: <http://www.brook.org.uk/index.php/sex-and-relationship/sex/ready-for-sex>
  - One-plus-one: [http://www.oneplusone.org.uk/content\\_topic/having-problems/key-facts-on-having-problems/](http://www.oneplusone.org.uk/content_topic/having-problems/key-facts-on-having-problems/)
  - Family Planning Association: <http://www.fpa.org.uk/factsheets/teenagers-sexual-health-behaviour>
- [o] Health Technology Assessments available from the HTA website ([www.hta.ac.uk](http://www.hta.ac.uk))
- The effectiveness and cost-effectiveness of behavioural interventions for the prevention of STIs in young people aged 13–19 [www.hta.ac.uk/fullmono/mon1407.pdf](http://www.hta.ac.uk/fullmono/mon1407.pdf)
  - Cost-effectiveness of screening high-risk HIV-positive men who have sex with men (MSM) and HIV-positive women for anal cancer <http://www.hta.ac.uk/fullmono/mon1453.pdf>
  - School-linked sexual health services for young people [www.hta.ac.uk/fullmono/mon1430.pdf](http://www.hta.ac.uk/fullmono/mon1430.pdf)
- [p] Recommendation for minimum duration of six months for sexual dysfunctions based on Mercer et al (2003): Segraves RT. Considerations for Diagnostic Criteria for Erectile Dysfunction in DSM V. Journal of Sexual Medicine, 2010; 7:654-660, which was used in the final DSM-V criteria: <http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsm-5.pdf>
- [q] <http://www.wellcome.ac.uk/About-us/75th-anniversary/WTVM051253.htm>
- [r] [http://www2.history.qmul.ac.uk/research/modbiomed/wellcome\\_witnesses/vol41/index.html](http://www2.history.qmul.ac.uk/research/modbiomed/wellcome_witnesses/vol41/index.html)