



Health Survey for England

2014

Volume 1

**Health, social care
and lifestyles**

A survey carried out on behalf of the Health and
Social Care Information Centre

Joint Health Surveys Unit

NatCen
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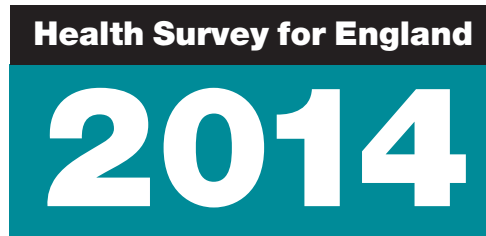
Department of Epidemiology and Public Health, UCL

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THE HEALTH AND SOCIAL CARE INFORMATION CENTRE



Health & Social Care
Information Centre

Published by the Health and Social Care Information Centre.
www.hscic.gov.uk

The summary booklet and full text of this publication are available at
www.hscic.gov.uk/pubs/hse2014

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First published 16 December 2015.

Designed by Davenport Associates

Foreword

This report presents the findings of the twenty-fourth annual Health Survey for England. I am pleased to present this important research which has been undertaken on behalf of the Health and Social Care Information Centre (HSCIC).

The Health Survey for England is an authoritative source of statistics about the health of the population, and the results are widely used within government and the health service, as well as by researchers and academics. Information from the Health Survey is used to inform policy making, monitor progress towards goals in public health and to look at changes over time.

The survey collects information about a new representative sample of the general population living in private households each year, both adults and children. It includes people, whether or not they are patients being treated by the NHS. As well as collecting comprehensive details about people's health and health related behaviours like smoking and drinking alcohol, the survey includes objective measures of health, such as height and weight, and blood pressure measurements. This means we can look at how a person's health is related to their characteristics and circumstances, and we can identify cases where people have problems that have not been picked up by a doctor.

The 2014 survey covered some important new topics; hearing loss and the prevalence of mental illness. Updates on regular topics are available too within this report including obesity, alcohol and social care.

I would like to thank everyone who has contributed to this report: colleagues in the HSCIC and our counterparts in the Joint Health Surveys Unit of NatCen Social Research and UCL; the dedicated and skilled team of interviewers and nurses; and finally the anonymous participants from across England who kindly gave up their time to take part in the survey and various health tests. All of these contribute to produce a source of public health information of enormous value and benefit to protect and improve the health of every one of us.

John Varlow



Director of Information Analysis
Health and Social Care Information Centre

Editors' acknowledgements

We wish to thank, first of all, all those who gave up their time to be interviewed and who welcomed interviewers and nurses into their homes. We should also like to acknowledge the debt the survey's success owes to the commitment and professionalism of the interviewers and nurses who worked on the survey throughout the year.

We should like to thank all those colleagues who contributed to the survey and this report. In particular we would like to thank:

- The authors of all the chapters: Sally Bridges, Robin Darton, Sara Evans-Lacko, Elizabeth Fuller, Claire Henderson, Nevena Ilic, Natalie Maplethorpe, Jennifer Mindell, Alison Moody, Linda Ng Fat, Keeva Rooney, Nina Sal, Rachel Scantlebury, Shaun Scholes, Graham Thornicroft, Raphael Wittenberg.
- Nick di Paolo and Claire Deverill whose hard work and support have been crucial in preparing and managing the survey data.
- The programmers, Sandra Beeson, Malisha Beg and Sven Sjodin.
- Other research colleagues, especially Vicki Hawkins, Varunie Yaxley, David Hussey, Klaudia Lubian, Emma Fenn, Chloe Robinson, Barbara Carter-Szatynska, Kevin Pickering, Alice Ryley, Rachel Whalley, Franziska Marcheselli and Lucy Ferguson.
- Operations staff, especially, Sue Roche, Megan Hodges and the Field Area Managers.

We should also like to express our thanks to Linda Wilson, Julie Day and the staff at the Department of Blood Sciences at the Royal Victoria Infirmary, Newcastle University Hospitals Trust, and to Colin Feyerabend, Mira Doig and the staff at ABS Laboratories, Welwyn Garden City, for their helpfulness and efficiency.

Last, but certainly not least, we wish to express our appreciation of the work of many staff at the Health and Social Care Information Centre at all stages of the project, and in particular the contributions made by Vicky Cooper, Robert Dobson, Clare McConnell, Alison Neave, Paul Niblett and Steve Webster.

Rachel Craig, Elizabeth Fuller, Jennifer Mindell

Notes

- 1 The data used in the report have been weighted. The weighting is described in Volume 2, Chapter 7 of this report, *Methods and documentation*. Both unweighted and weighted sample sizes are shown at the foot of each table. The weighted numbers reflect the relative size of each group in the population, not numbers of interviews made, which are shown by the unweighted bases.
- 2 Children's data each year have been weighted to adjust for the probability of selection, since a maximum of two children are selected in each household. This ensures that children from larger households are not under-represented. Since 2003, as for adults, non-response weighting has also been applied.
- 3 Six different non-response weights have been used: for the interview stage, for the planning for future care question module (adults aged 30+), for the nurse visit, and for the blood, urine and cotinine samples.
- 4 Apart from tables showing age breakdowns, data for adults have been age-standardised for men and for women separately. This allows comparisons between groups (such as different regions or household income categories), after adjusting for the effects of any differences in their age distributions. When comparing data for the two sexes, it should be remembered that no standardisation has been introduced to remove the effects of the sexes' different age distributions. See Volume 2, Chapter 8.4 of this report.
- 5 The following conventions have been used in tables:
 - no observations (zero value)
 - 0 non-zero values of less than 0.5% and thus rounded to zero
 - [] used to warn of small sample bases, if the unweighted base is less than 50. If a group's unweighted base is less than 30, data are normally not shown for that group.
- 6 Because of rounding, row or column percentages may not add exactly to 100%.
- 7 A percentage may be quoted in the text for a single category that aggregates two or more of the percentages shown in a table. The percentage for the single category may, because of rounding, differ by one percentage point from the sum of the percentages in the table.
- 8 Values for means, medians, centiles and standard errors are shown to an appropriate number of decimal places. Standard Error may sometimes be abbreviated to SE for reasons of space.
- 9 'Missing values' occur for several reasons, including refusal or inability to answer a particular question; refusal to co-operate in an entire section of the survey (such as the nurse visit or a self-completion questionnaire); and cases where the question is not applicable to the participant. In general, missing values have been omitted from all tables and analyses.
- 10 The group on which the figures in each table are based is stated at the upper left corner of the table.
- 11 The term 'significant' refers to statistical significance (at the 95% level) and is not intended to imply substantive importance.

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1.1 The Health Survey for England series

The Health Survey for England (HSE) comprises a series of annual surveys, of which the 2014 survey is the twenty fourth. All surveys have covered the adult population aged 16 and over living in private households in England. Since 1995, the surveys have also covered children aged 2-15 living in households selected for the survey. Since 2001, infants aged under 2 have been included as well as older children.

The series of Health Surveys for England was designed to:

1. provide annual data from nationally representative samples to monitor trends in the nation's health;
2. estimate the proportion of people in England who have specified health conditions;
3. estimate the prevalence of certain risk factors associated with these conditions;
4. examine differences between subgroups of the population (e.g. by age, sex or income) in their likelihood of having specified conditions or risk factors;
5. assess the frequency with which particular combinations of risk factors are found, and in which groups these combinations most commonly occur;
6. monitor progress towards selected health targets;
7. (since 1995) measure the height of children at different ages, replacing the National Study of Health and Growth; and
8. (since 1995) monitor the prevalence of overweight and obesity in children.

Each survey in the series includes core questions, and measurements such as blood pressure, height and weight measurements and analysis of blood and saliva samples. In addition there are modules of questions on specific issues that vary from year to year. In some years, the core sample has also been augmented by an additional boosted sample from a specific population subgroup, such as minority ethnic groups, older people or children; there was no boost in 2014.

The Health Survey for England has been designed and carried out since 1994 by the Joint Health Surveys Unit of NatCen Social Research and the Research Department of Epidemiology and Public Health at UCL.

1.2 The 2014 survey: topics and sample size

1.2.1 Topics

Core topics include general health and longstanding illness, key lifestyle behaviours that influence health, and social care. Details of the core topics included in 2014 can be found in Volume 2 of this report, *Methods and documentation*, Section 3.¹ In 2014 there were two major additional topics supplementing the core survey: mental illness and hearing.

Mental ill health presents a significant and complex public health problem; in the UK, mental ill health is the leading cause of disability, accounts for 28% of the national burden of disease and carries estimated economic costs of between £70-100 billion per year.²

The mental illness questions asked about self-reported and doctor-diagnosed mental

health conditions, and recent experience and treatment. Participants were also asked about their attitudes to mental health. Details of the questions used, and the results, are presented in Chapters 2 and 3 in Volume 1 of this report.³

In 2015, WHO estimated that 360 million people worldwide (more than 5% of the global population) have disabling hearing loss.⁴ Before the HSE 2014 covered this topic, there has been relatively little up to date information about hearing loss in the UK. The HSE hearing modules included questions about self-reported hearing difficulties, and an objective test of hearing loss was also carried out on adults during the nurse visit, using the HearCheck screener. This screener device produces a series of three sounds at high frequency and three at mid-frequency which have been identified as being the most useful frequencies for screening for hearing loss that would benefit from a hearing aid. More details about the module and hearing test are given in the Methods and definitions section of Chapter 4 in Volume 1 of this report.⁵

Other additional modules of questions included in 2014 were:

- planning for future care needs
- average weekly alcohol consumption
- well-being
- the short International Physical Activity Questionnaire (IPAQ).

1.2.2 Sample size

Data collection involved an interview, followed by a visit from a specially trained nurse for all those who agreed. The nurse visit included measurements and collection of blood and saliva samples, as well as additional questions.

A total of 8,077 adults and 2,003 children were interviewed. A household response rate of 62% was achieved. 5,491 adults and 1,249 children had a nurse visit. It should be noted that, as in the last three years, there was no child boost sample in 2014. Thus the scope for analyses of some data for children may be limited by relatively small sample sizes.

1.3 Ethical approval

Ethical approval for the 2013 and 2014 surveys was obtained from the Oxford A Research Ethics Committee (reference number 12/SC/0317).

1.4 2014 survey design

1.4.1 The sample

The survey was designed to yield a representative sample of the general population living in private households in England. More detailed information about survey design is presented in Volume 2 of this report, Chapters 2-7.

Those living in institutions were outside the scope of the survey. This should be borne in mind when considering survey findings since the institutional population is likely to be older and, on average, less healthy than those living in private households.

A random sample of 9,024 addresses was selected from the Postcode Address File (PAF), using a multi-stage sample design with appropriate stratification. One stratification variable was region (former Government Office Region). Addresses in the smallest region (North East) were over-sampled to provide a minimum sample size (of approximately 700 adults) to provide a robust basis for regional analyses. 564 postcode sectors were selected, and 16 addresses were issued in each.

Where an address was found to have multiple dwelling units, one was selected at random. Where there were multiple households at a dwelling unit, a single household was selected at random.

Each individual within a selected household was eligible for inclusion. Where there were more than two children in a household, two were randomly selected for inclusion, to limit the burden on any household.

Addresses were issued over 12 months from January to December 2014, and fieldwork was completed in early March 2015.

1.4.2 Fieldwork

Interview

A letter stating the purpose of the survey was sent to each sampled address before the interviewer visited. The interviewer sought the permission of each eligible selected adult in the household to be interviewed, and both parents' and children's consent to interview selected children aged up to 15.

Computer-assisted interviews were conducted. The content of the interview is detailed in Volume 2, Chapter 3; full documentation is provided in the Appendices to Volume 2.

Adults were asked core modules of questions on general health, social care, alcohol consumption and smoking. Additional questions were included about planning for future care needs; and about usual alcohol consumption to supplement core questions about frequency of drinking alcohol and drinking in the last week. Self-reported height and weight was established early in the interview, to provide a comparison with the height and weight measurements which were taken later.

Children aged 13-15 were interviewed themselves, and parents of children aged 0-12 were asked about their children, with the interview including questions on general health and fruit and vegetable consumption.

Adults and children aged 8-15 were asked to fill in a self-completion booklet during the interview. For adults this covered the Warwick-Edinburgh mental well-being scale (WEMWBS), overall health (EQ-5D), general health questionnaire (GHQ-12), short International Physical Activity Questionnaire (IPAQ), perception of own and (if appropriate) child's weight, sexual orientation and religion. For children and some young adults details of drinking and smoking were also collected by self-completion, and children aged 13-15 were asked to complete the GHQ-12.

Interviewers measured the weight of all participants, and the height of all aged 2 and over.

Nurse visit

Nurse visits were offered to all participants. At the nurse visit, questions were asked about prescribed medication, and among adults aged 16 and over, use of nicotine replacement products. Adults were also asked an additional module of questions about mental illness, covering self-reported and diagnosed conditions

Nurses took waist and hip measurements for those aged 11 and over and measured the blood pressure of those aged 5 and over. Adults had a hearing test, using a HearCheck screener.

Adults were also asked to provide non-fasting blood samples for the analysis of total and HDL cholesterol and glycated haemoglobin, and urine samples for the analysis of dietary sodium. Samples of saliva were taken from children aged 4-15 for the analysis of cotinine (a derivative of nicotine that shows recent exposure to tobacco or tobacco smoke). Written consent was obtained for these samples. Details of the analysis of these samples are provided in Volume 2, Chapter 9.

Interview length

Interviews could be conducted with between one and four persons per session; the most common session types were with one or two individuals. Interview length for a single adult averaged around 50 minutes, and for two people (including at least one adult) interview length averaged around 60-65 minutes. Nurse visits were conducted with a single individual

at a time, and the nurse visit for adults who took part in all the measurements averaged 30 minutes.

Interviews with children were shorter than with adults, and the interview length varied with age as some modules were only asked of older children. When children were interviewed without adults, the average interview length was around 10-15 minutes for a single child aged 8-15, and around 20 minutes for two children of this age.

Obtaining informed consent

It is important to ensure that participants aged 16 and over give informed consent for all stages of the interview and nurse visit process. For some elements of the survey, verbal consent was sought: for taking part in the survey at all, for answering modules of questions (and any individual question), for completing the self-completion booklet, and for measurements such as height, weight, blood pressure and waist and hip. Verbal consent was not recorded; it is assumed that those who took part in the survey, and answered individual questions or provided physical measurements had consented to do so. A proportion of participants did decline to take part in some of these survey elements, although they had consented to take part in the study and complete other elements.

Written consent was required for:

- taking biological measurements (blood and saliva samples)
- passing on information to others, for instance sending biological sample results to the participant's GP
- storing blood samples for future use
- using personal details for matching to administrative data.

1.5 Survey response

Interviews were held in 5,051 households with 8,077 adults aged 16 and over, and 2,003 children aged 0-15. 5,491 adults and 1,249 children had a nurse visit. More detailed information on survey response can be found in Volume 2, Chapter 6.

Response to the survey can be calculated in two ways: at a household level and at an individual level. Interviews were carried out at 62% of sampled eligible households (after removing vacant addresses etc). Interviews were obtained with 85% of adults and 92% of (sampled) children in 'co-operating' households (where at least one person was interviewed).

The assumption is made that households where the number of adults and children was not known contained, on average, the same number of adults and children as households where it was known. On this basis, the individual response rate, based on all eligible households, was estimated to be 55% among adults and 59% among (sampled) children.

Table 1A shows individual response rates to the different stages of the survey for adults. The first column gives the individual response rates based on all adults in all eligible households, and the second column gives individual response rates for adults in co-operating households.

Table 1B shows the equivalent response rates to the different stages of the survey for children, with response rates based on all children in all eligible households in the first column, and response rates in co-operating households in the second column. Note that it is not possible to estimate response rates based on all eligible children for saliva samples, waist and hip and blood pressure measurements, as only certain age groups are eligible for these.⁶ The response rates for these measures in co-operating households are based on the appropriate age groups.

Table 1A		
Individual response for adults aged 16 and over		
	Adults in all eligible households	Adults in co-operating households
	%	%
Interviewed	55	85
Height measured	49	77
Weight measured	48	75
Saw a nurse	37	58
Waist and hip measured	36	56
Blood pressure measured	36	57
Gave blood sample	27	43
Gave saliva sample	32	49

Table 1B		
Individual response for children aged 0-15		
	Children in all eligible households	Children in co-operating households
	%	%
Interviewed	63	92
Height measured (aged 2 and over)	45	74
Weight measured	50	73
Saw a nurse	39	58
Gave saliva sample (aged 4 and over)	n/a	48
Blood pressure measured (aged 5 and over)	n/a	52
Waist and hip measured (aged 11 and over)	n/a	54

1.6 Data analysis

1.6.1 Introduction

The HSE is a cross-sectional survey of the population. It examines associations between health states, personal characteristics and behaviour. However, such associations do not necessarily imply causality. In particular, associations between current health states and current behaviour need careful interpretation, as current health may reflect past, rather than present, behaviour. Similarly, current behaviour may be influenced by advice or treatment for particular health conditions.

1.6.2 Weighting the samples

The overall sample

Weights were calculated at the household level and at the individual participant level. The household weight corrected for the probability of selection where additional dwelling units or households were identified at a selected address. Calibration weighting was also used for adults to reduce non-response bias resulting from differential non-response at the household level, based on the age and sex profile of the residents and the region in which the household was situated. In participating households with more than one adult, 83% of adults responded, and weights were therefore also calculated at an individual level to correct for non-response within participating households; participants in single adult households were given a non-response weight of 1.

Weights for the child sample adjust for the probability of selection for children in larger households, and ensure that the profile of children selected for the survey matches the profile of all children. As the level of response for obtaining a child interview in participating households was relatively high (92%), no additional non-response weighting was undertaken for the sample of children.

A final interview weight was created, combining the adult and child weights.

Non-response weighting for the nurse visit and samples

Further weights were calculated, as well as weights to allow for non-response at the interview stage. These were to adjust for non-response to the nurse visit, and for obtaining a blood, urine or saliva sample. Questions about planning for future care were asked only of

one adult aged 30 or more in each household (when such a person was available); and weights were also calculated to correct for any bias in selection of this subsample.

Further details on the weighting procedures are given in Volume 2, Chapter 7.

1.6.3 Weighted and unweighted data and bases in report tables

All 2014 data in this report are weighted (apart from response tables). Both weighted and unweighted bases are given in each table in the report. The unweighted bases show the number of participants involved. The weighted bases show the relative sizes of the various sample elements after weighting, reflecting their proportions in the population in England, so that data from different columns can be combined in their correct proportions.

Non-response weighting was introduced to the HSE in 2003, and has been used in all subsequent years. In this report, chapters focus on 2014 results, but in a small number of chapters trend tables are presented. In tables for adults, results from 2003 onwards are weighted. For tables showing trends in children's data, results for years up to and including 2002 have selection weighting only, and results for 2003 onwards have both selection and non-response weighting.

1.6.4 Age as an analysis variable

Age is a continuous variable but results are presented in this report by age groups. Age in HSE reports always refers to age at last birthday.

1.6.5 Age standardisation

Adult data have been age-standardised throughout the 2014 report to allow comparisons between groups after adjusting for the effects of any differences in their age distributions. When different sub-groups are compared in respect of a variable on which age has an important influence, any differences in age distributions between these sub-groups are likely to affect the observed differences in the proportions of interest.

It should be noted that all analyses in the report are presented separately for men and women. All age standardisation has been undertaken separately within each sex, expressing male data to the overall male population and female data to the overall female population. When comparing data for the two sexes, it should be remembered that no age standardisation has been introduced to remove the effects of the sexes' different age distributions.

Details of the direct standardisation method used are given in Volume 2, Chapter 8.

1.6.6 Standard analysis breakdowns

For most tables in this report, three standard analysis breakdowns have been used as well as age. These are region, equivalised household income and Index of Multiple Deprivation.

Region

Analysis by region is provided throughout the report. The former Government Office Regions have been used.

Both observed and age-standardised data are provided by region in the tables. Observed data can be used to examine actual prevalence or mean values within a region, needed, for example, for planning services. Age-standardised data are required for comparisons between regions to exclude age-related effects, and are discussed in the report text.

It should be noted that base sizes for regions are often relatively small, and caution should be exercised in examining regional differences. In 2014, the smallest region (the North East) was over-sampled to provide a minimum unweighted sample size of approximately 700 adults; the weighting process adjusted for this.

Equivalised household income

Household income was established by means of a show card (see field documents in Appendix A) on which banded incomes were presented. This can be used as an analysis variable, but there has been increasing interest recently in using measures of equivalised income that adjust income to take account of the number of persons in the household. To derive this, each household member is given a score. For adults, this is based on the number of adults apart from the household reference person, and for dependent children, it is based on their age. The total household income is divided by the sum of the scores to provide the measure of equivalised household income. All individuals in each household were allocated to the equivalised household income quintile to which their household had been allocated.

It should be noted that around 19% of adults live in households where no information is provided on income, and are therefore excluded from the breakdowns by equivalised household income.

Further details about equivalised household income are given in the Glossary at the back of this volume, Appendix C.

Index of Multiple Deprivation

The Index of Multiple Deprivation 2010⁷ combines a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each small area in England. This allows each area to be ranked relative to others according to their level of deprivation.⁸ Seven distinct domains have been identified in the English Indices of Deprivation:

- Income Deprivation
- Employment Deprivation
- Health Deprivation and Disability
- Education Skills and Training Deprivation
- Barriers to Housing and Services
- Living Environment Deprivation
- Crime.

Individual domains can be used in isolation as measures of each specific form of deprivation, as well as using the single overall Index of Multiple Deprivation (IMD).⁹

The Index is used widely to analyse patterns of deprivation, identify areas that would benefit from special initiatives or programmes and as a tool to determine eligibility for specific funding streams. In this report quintiles of IMD are used to give an area-level measure of socio-economic status, as opposed to the household-level measure of equivalised household income.

1.6.7 Significance testing

Significance testing is carried out on the results in the 2014 report. The term 'significant' refers to statistical significance at the 95% level and is not intended to imply substantive importance.

The significance tests are carried out in order to test the relationship between variables in a cross tabulation, usually an outcome variable nested within sex, cross-tabulated with an explanatory variable such as age (in categories), income groups or region. The test is for the main effects only (using a Wald test¹⁰). For example the test might examine whether there is a statistically significant relationship between smoking prevalence and age (after controlling for sex) and between smoking prevalence and sex (after controlling for age).

It is worth noting that the test does not establish whether there is a statistically significant difference between any particular pair of subgroups (e.g. the highest and lowest subgroups). Rather it seeks to establish whether the variation in the outcome between groups that is observed could have happened by chance or whether it is likely to reflect some 'real' differences in the population.

A p-value is the probability of the observed result occurring due to chance alone. A p-value of less than 5% is conventionally taken to indicate a statistically significant result ($p < 0.05$). It should be noted that the p-value is dependent on the sample size, so that with large samples differences or associations which are very small may still be statistically significant.

Using this method of statistical testing, differences which are significant at the 5% level indicate that there is sufficient evidence in the data to suggest that the differences in the sample reflect a true difference in the population.

A second test of significance looks at the interaction between sex and the variable under consideration. If the interaction is statistically significant ($p < 0.05$) this indicates that there is likely to be an underlying difference in the pattern of results for men and women, and this will normally be commented on in the report text.

1.6.9 Statistical information

The HSE 2014 used a clustered, stratified multi-stage sample design. In addition, weights were applied when obtaining survey estimates. One of the effects of using the complex design and weighting is that standard errors for survey estimates are generally higher than the standard errors that would be derived from an unweighted simple random sample of the same size. The calculations of standard errors shown in tables, and comments on statistical significance throughout the report, have taken the clustering, stratification and weighting into account. Full details of the sample design and weighting are given in Volume 2, *Methods and documentation*.

The ratio of the standard error of the complex sample to that of a simple random sample of the same size is known as the design factor. Put another way, the design factor (or 'deft') is the factor by which the standard error of an estimate from a simple random sample has to be multiplied to give the true standard error of the complex design. The true standard errors and defts for the HSE 2014 have been calculated for selected survey estimates presented in the topic chapters, and are shown in Volume 2, Tables 15-25.

1.6.10 Presentation of results

Commentary in the report highlights differences that are statistically significant at the 95% level. It should be noted that statistical significance is not intended to imply substantive importance.

A summary of findings is presented at the beginning of each chapter. Following the chapter introduction and details of methods and definitions, the results are outlined and illustrated in graphs. A discussion section at the end of most chapters sets the results in a broader context. Tables show the results discussed in the chapter, and as well as prevalence percentages, means and standard errors are presented when appropriate.

1.6.11 Availability of datasets and trend tables

Copies of the anonymised datasets for each survey since 1993 are available through the UK Data Service. These include all questions asked, not just those covered in the reports. A copy of the anonymised HSE 2014 dataset will be deposited with the UK Data Service in 2016. Full documentation is available in the archive, including a list of all the variables and definitions for derived variables. For further information go to:
<http://discover.ukdataservice.ac.uk/series/?sn=2000021>

Trend tables for key statistics for adults and children, up to and including 2014, are published with a commentary at www.hscic.gov.uk/pubs/hse2014trend. These include health measures and lifestyle behaviours such as smoking and alcohol consumption.

1.7 Content of this report

This volume contains chapters with selected results from the HSE 2014. It is published at www.hscic.gov.uk/pubs/hse2014 as part of the *Health Survey for England 2014*, which includes a summary of findings and a methods volume.

Volume 2 gives full details of the survey methods and documentation. This includes a description of the survey design and response rates; sampling errors; analysis of non-response; description of weighting procedures; and information on laboratory techniques and quality control of analysis of blood and saliva samples. Appendices to Volume 2 are as follows:

Appendix A: Questions asked by interviewers and nurses and copies of other key fieldwork documents

Appendix B: Protocols for measurements

Appendix C: Glossary.

Appendix D: Previous and new questions on longstanding illnesses/conditions.

References and notes

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- 6 The base for all eligible children has to be estimated from information gathered as interviewers attempt to make contact with each selected household. There are some households where no information can be obtained, and assumptions have to be made to estimate the total number of eligible people living in them, to provide a denominator to calculate the overall response rate. While further assumptions can be made about the sex breakdown of adults and children in such households, no attempt has been made to estimate the age profiles. See Volume 2, Chapter 6, sections 6.3.1 and 6.4.1 for more details of how the overall response rate is calculated.
- 7 An updated version of IMD was published in September 2015, too late for use in analyses for the 2014 report.
- 8 McLennan D, Barnes H, Noble M et al. *The English Indices of Deprivation 2010*. Department for Communities and Local Government, London, 2011.
- 9 See McLennan D et al, 2011, (reference 28); Chapter 3.
- 10 The Wald test is statistical test used to calculate the significance of parameters in a statistical model. The Wald test is used in analysis of HSE data in this report to establish whether the association among particular variables is statistically significant. For example the test might help to establish whether there is a statistically significant relationship between smoking prevalence and age (after controlling for sex) and between smoking prevalence and sex (after controlling for age). The test calculates the statistical significance of parameters in a logistic regression model of smoking prevalence in order to establish whether age and sex are significantly associated with smoking prevalence.

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Research Department of Epidemiology and Public Health, UCL

The Research Department of Epidemiology and Public Health, chaired by Professor Richard Watt, is a leading centre for research into the social determinants of health, and has a strong interdisciplinary structure. The Department houses 180 staff in 10 main research groups, including the Joint Health Surveys Unit, part of the Health and Social Surveys Research Group (HSSRG). The group is multidisciplinary, with epidemiology, sociology, statistics, public health, demography and geography all represented.

The **Joint Health Surveys Unit** has been created by NatCen Social Research and the Health and Social Surveys Research Group within the Research Department of Epidemiology and Public Health at UCL. The JHSU enables collaborative working, combining the strengths and talents of each organisation, to carry out major health surveys such as the Health Survey for England.