



Health & Social Care
Information Centre

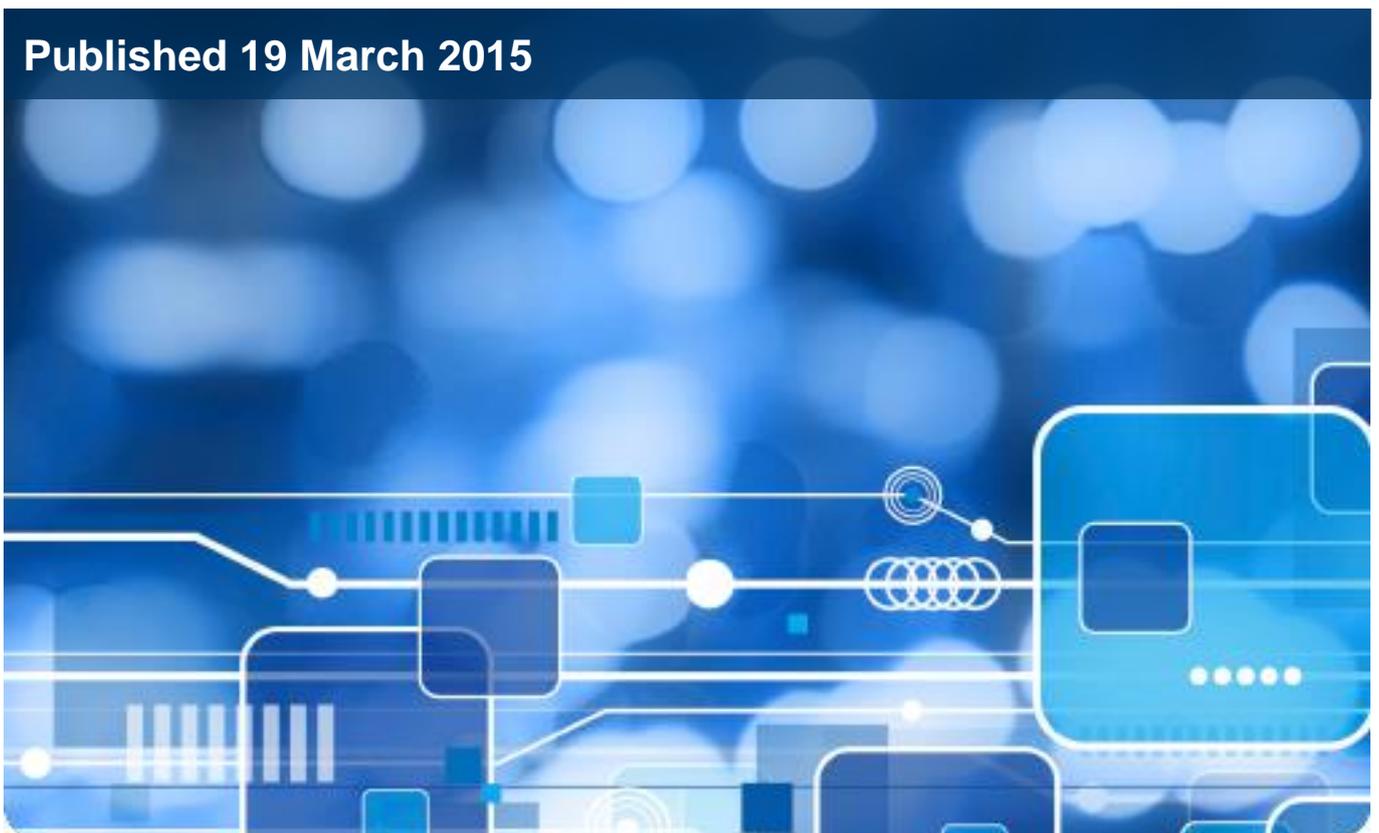


Children's Dental Health Survey 2013

Data Quality Statement

England, Wales and Northern Ireland

Published 19 March 2015



Introduction

The 2013 Children's Dental Health (CDH) Survey, commissioned by the Health and Social Care Information Centre (HSCIC), (www.hscic.gov.uk), is the fifth in a series of national children's dental health surveys that have been carried out every 10 years since 1973.

The 2013 survey provides information on the dental health of children in England, Wales and Northern Ireland. The survey measures changes in oral health since the last survey in 2003 and provides information on children's experiences, behaviours and attitudes relevant to their oral health.

One of the strengths of the Children's Dental Health Survey is the range of behavioural and attitudinal information collected about the children taking part in the dental examinations. This information not only allows the clinical findings to be placed in wider context, but is valuable in its own right. It helps dentists and others working in public health to see oral health and dental care from the perspective of children and their parents in 2013.

Data collection

Data for the CDH Survey were collected from a representative sample of children aged 5, 8, 12 and 15 years of age attending state and independent schools, including academies and free schools in England but excluding special schools were selected to take part in this survey. A parallel survey of children educated in special needs schools has been conducted as part of the NHS epidemiology programme in England and the results are expected to be published in 2015.

The survey included three data collection instruments:

- A dental examination, carried out by a qualified dentist and nurse. The content of the examination varied by age, with 12 and 15 year olds receiving a longer examination than 5 and 8 year olds. The data was recorded on a paper form by the nurse.
- A paper self-completion questionnaire, completed by the 12 and 15 year olds. This was a new addition for the 2013 survey, and all children aged 12 and 15 years who agreed to a dental examination were asked to complete this questionnaire at the same appointment as their examination. Collecting data from older children gives us their perspective on their own oral health; enabled comparisons between pupil and parent responses; and provided an opportunity to ask sensitive questions about smoking or drinking behaviours.
- A parental self-completion questionnaire completed by the parent or guardian most responsible for the dental health of the participating child. A questionnaire was sent in all cases where a child took part in the dental examination. New for the 2013 survey was the option for parents to complete the questionnaire online.

Further information on the survey design and implementation can be found in this document and the technical report published alongside this report¹.

¹ <http://www.hscic.gov.uk/pubs/ChildDentalHealth>

Relevance

The intended users of these publications are members of the dental profession, health policy officials, epidemiologists, academics and members of the public interested in children's dental health.

The needs of users were identified through a comprehensive consultation, which took place between January and early March 2013. The consultation adopted a range of methodologies and included a diverse range of people including dental professionals, school teachers, parents and young people. The aims of this consultation were to generate views on the procedures and format of the CDH survey and to determine the most relevant and appropriate information to collect, during the dental examination and within the questionnaires. A full summary of the findings from the user consultations is included in the Technical Report².

Decisions on the collection of information within the clinical dental examination and questionnaires were based on outcomes from this consultation process, and were as follows:

- Data collected within the dental examination remained largely consistent with previous CDH surveys, to allow for comparisons and the establishment of trends in oral diseases, with the addition of the Pulp-ulcer-fistula-abscess (PUFA) index for the measurement of excessive disease and symptoms and the introduction of the measurement of initial stage tooth decay confined to the enamel layer of teeth. The modified Basic Periodontal Examination (BPE) was used in 15 year olds to assess children for the presence of pocketing in the gums.
- Information collected within the parental and older children's questionnaires included the assessment of issues around dental attendance, access to services, dental anxiety, subjective perceptions of oral health, quality of life, and dental health-related behaviours.

The reporting of data from the CDH survey was based on the needs of users, which were highlighted through this consultation, and were decided by a steering group comprising dental health professionals, academics, information analysts, and government representatives.

Accuracy and reliability

Like all estimates about a population based on a sample from that population, the results of the 2013 CDH survey are subject to error.

The CDH survey used a clustered, stratified, multi-stage sample design. Regions and school clusters were selected by random sampling with probability proportional to size, schools within school clusters were selected by simple random sampling, and children within schools were selected by sequential random sampling.

The size of the 2013 sample was divided between children aged 5, 8, 12 and 15 on August 31, 2013, so that approximately 2,500 dental examinations would be achieved in each age cohort (and therefore 10,000 in total). Northern Ireland, Wales, and schools with more than 30% of children eligible for free school meals³ were oversampled to

² <http://www.hscic.gov.uk/pubs/ChildDentalHealth>

³ In 2013 when this survey took place, a free school meal was a statutory benefit available **only** to school aged children from families who received other qualifying benefits (such as Income Support)

ensure the resulting sample size was large enough to allow for separate analysis by country, and for analysis by measures of relative deprivation

A set sample of 20,922 pupils was selected to achieve 10,000 dental examinations. The following assumptions were made before determining set sample size by age and country:

- school response would be higher in primary schools compared to secondary schools;
- response rates would be higher in Wales and Northern Ireland compared to England;
- pupil response rates in participating schools would be lower in the younger cohorts due to the introduction of the positive written parental consent procedure;
- pupil response rates would be lower in 15 year olds than 12 year olds, primarily because 15 year olds would include pupils in the GCSE⁴ year group and it was assumed that this would impact negatively on that cohort's propensity to respond.

School non-response was 27% for five year olds, 28% for eight year olds, 39% for 12 year olds and 40% for 15 year olds.

A total of 13,628 children were sampled in participating schools, with 9,866 dental examinations completed. Response rates (i.e. participation in the dental examination) varied across the age cohorts as follows: 5 year olds 70%, 8 year olds 65%, 12 year olds 83% and 15 year olds 74%. The requirement for positive written parental consent led to an approximate 20% reduction in response from 5 and 8 year olds (in participating schools) compared to the 2003 survey.

The pupil questionnaire response rate for children aged 12 and 15 years who agreed to a dental examination was 99.6%. The overall parental questionnaire response rate for parents or guardians of children who were examined was 43%. Response rates were higher amongst the parents of 5 and 8 year olds, all of whom had already provided written consent for the dental examination.

The sample design provides a sufficient sample size in the group eligible for free school meals for comparative analysis to other children within each age cohort; however, children in these two socio-economic groups may be diverse in terms of other demographic characteristics, such as ethnicity and country of birth, and the composition of the more deprived group by such characteristics may vary substantially in different areas

Data capture, editing and validation were carried out by NatCen's Data and Research departments. Different procedures were followed for the questionnaire and examination data.

- The examination forms were entered manually by a specialist agency. Each form was entered twice and any anomalies checked. Persons entering the forms were instructed to enter only valid codes; missing or invalid codes were coded as missing. Examinations were included in the final data set if the tooth condition section was completed. Any missing or inconsistent data (e.g. a tooth coded missing in one place and present in another) was investigated by referring to the original forms. Where possible, missing data were imputed following rules consistent with the examination protocols and any queries were resolved by the clinical academics

⁴ General Certificate of Secondary Education

within the consortium. Missing data were coded as 'not applicable' or 'not coded', as appropriate.

- The paper questionnaire data (parent and pupil) were captured by scanning. The paper questionnaire data were edited by trained coders using an editing programme based on Quantum. The research team carried out checks and edits of the paper and online based questionnaire data following a protocol agreed in advance by the consortium.

Item non-response was generally low in both the dental examination and questionnaires. For the dental examination item non-response was highest in the record of trauma to permanent teeth, which ranged from 1.0% to 2.1% of cases. For the parental and pupil questionnaires item non-response was below 2% for straightforward question formats. Questions using a yes/no grid had the highest item non-response for both parents and pupils.

Weighting factors were applied to all standard errors around survey estimates to adjust for the complex survey design and unequal selection probabilities. Applying weighting factors to standard errors generally results in larger standard errors than would be derived from an unweighted simple random sample.

The comparisons that feature in the report have all been tested at a 95% significance level. Where two figures are described as being different (e.g. higher/lower or increase/decrease) the result of the test has been determined as a statistically significant difference.

Full adjustment methodology and factors are published in the technical report that accompanies this publication.

Timeliness and punctuality

This publication is classed as Official/National Statistics and the publication date was pre-announced. Publication was delayed from the 24th February due to operational reasons until the 19th March. There was no gap between the planned and actual publication date. All examinations and questionnaire data were collected during the 2013-14 school year. As soon as the data were collated in spring/summer 2014, the results were validated by NatCen and the Office for National Statistics (ONS).

Once validation was complete, the reports were drafted and quality assurance took place over the autumn and winter of 2014. Publication took place in March 2015.

Accessibility and clarity

This publication combines data in table format, commentary and supporting information. The data are freely available via the HSCIC internet⁵.

Additional information is provided in Excel format, including flat files (.csv files), which are suitable for further analysis.

An anonymised and non-disclosive survey dataset will be published on the UK Data Service website, (<http://ukdataservice.ac.uk/>) by the end of May 2015 enabling further

⁵ <http://www.hscic.gov.uk/pubs/ChildDentalHealth>

analysis to be undertaken by those who have that interest. There is no fee to use the UK Data Service.

HSCIC and the ONS have planned a further release of data in May/June 2015. The following are possible inclusions in this data release:

- A four to five page "short story" or a podcast to accompany the visualisation
- An easy read (or similar) version of the Executive Summary or extract of the summary report, which we can use to disseminate the survey results to schools/pupils
- A one day stakeholder symposium to allow the profession to debate the meaning of the published results

The reports have been specifically designed to be accessible to the lay reader including full descriptions of terminology and symbols used throughout the reports, and explanations in plain English to aid those without dental expertise.

Coherence and comparability

Comparisons between countries, sex, age, deprivation and dental health outcomes were made within the reports, when appropriate to do so.

The ten year gap in data collection between CDH surveys makes comparisons over time more difficult relative to other surveys which are repeated more frequently. Although this does not make it impossible to compare over time, the lack of data between surveys means there is little information about how the trend has developed in the intervening period, and changes in the data over time become more difficult to explain.

Changes to the 2013 CDH survey which have influenced the scope of the trend analysis included in the reports are described below. Further details about these changes can be found in the technical report and in Report 2.

- The 2013 survey covers only England, Wales and Northern Ireland. Previous CDH surveys also included Scotland, and trends were usually reported at the United Kingdom level. To enable comparability between 2003 and 2013, combined estimates for England, Wales and Northern Ireland were produced for the 2003 data.
- In previous CDH surveys negative (opt out) parental consent was obtained for the dental examination. Since 2006 the Department of Health have required positive written consent from parents for the dental examination of young children in epidemiological surveys. Consequently, for the 2013 CDH survey, 5 and 8 year old dental examinations required positive (opt-in) parental consent. The latest 2013 survey results showed not only a reduction in the response rates for 5 and 8 years old compared to the 2003 survey, but also a reduction in obvious decay experience in primary teeth. When the same methodological changes were made within the NHS dental epidemiology programme surveys for England (<http://www.nwph.net/dentalhealth/caveat.htm>) similar changes were observed. They concluded that the extent of the change could not be wholly attributable to a real improvement and recommended not conducting comparisons with previous years as it is also not possible to differentiate genuine change from systematic bias. For this reason, trends in tooth decay in the primary dentition for 5 and 8 year olds are not presented.

- The parental questionnaire response rate has reduced from 84% in 1993, to 61% in 2003, to 43% in 2013. Substantial reductions in response of this nature increase the risk of bias associated with non-response. Non-response adjustment was applied to the data to reduce non-response bias by giving a greater weight to those with characteristics which had lower response rates. However, the analysis of the data suggested that the likelihood of responding to the questionnaire may not be random and parents of children with poor health may have been less likely to respond. Some trends based on parent questionnaire data have been reported because of the relative stability of the estimates between 2003 and 2013, however, it is possible that bias exists and the trends presented should be interpreted with caution as a result. If a bias exists it is likely that it is in the direction of overestimating desirable behaviours such as tooth brushing frequency and attendance at the dentist for a check-up.
- The criteria used to assess dental caries and other non-decay dental conditions has evolved over time to reflect changes in the presentation of decay, the increasing focus on the prevention and control of initial stage decay, and to facilitate international comparisons. As a result trend comparisons could only be made for dental health classifications which had been used in previous CDH surveys.
- The 2013 parent questionnaire included a smaller number of questions compared to 2003, partly in response to feedback from the consultations and as a result of removing attitudinal questions and questions considered to be highly subjective. These small changes meant that some questions were not directly comparable over time.
- The pupil questionnaire was included for the first time in the 2013 CDH survey.

Results from the dental examination and the parent and pupil questionnaires are presented in topic specific reports, and country specific reports. Further results will be available from the UK Data Service (www.ukdataservice.ac.uk)

The CDH survey provides information that cannot be obtained from other sources on a range of aspects concerning children's dental health. Other data sources which include dental health outcomes for children include can be found at HSCIC (<http://www.hscic.gov.uk/primary-care>) and Public Health England (<http://www.nwph.net/dentalhealth/>)

Trade-offs between output quality components

The data are collated and quality assurance takes place on the raw data, then reports are produced and quality assurance takes place on those reports. The data are therefore published as soon as possible after collation allowing for validation and quality assurance.

Assessment of user needs and perceptions

The needs of users were identified through a comprehensive consultation, which took place between January and early March 2013. Please see the 'Relevance' section on page 3 for more detailed information.

The aims of this consultation were to generate views on the procedures and format of the CDH survey and to determine the most relevant and appropriate information to collect, during the dental examination and within the questionnaires.

The full summary of findings from user consultations is included in the Technical Report.

After publication, comments can be received through various media modes; email: enquiries@hscic.gov.uk; telephone: 0300 303 5678; and all HSCIC publications encourage on line feedback via a 'Have Your Say' link on the publication page.

This feedback is used to assess users' needs and determine whether or not this report meets them.

Performance, cost and respondent burden

Within this survey there are different aspects of burden that needed to be managed throughout the survey, examination and collection periods.

The schools that were selected were invited to take part. In the event of non-response, then substitute schools were invited. The schools that chose to take part were informed fully of the needs of the survey and questionnaires and the burden this would pose for the school. This way, schools could make an informed decision on whether to take part or not.

The survey and examinations were designed to minimise burden for the pupils involved. The examination was designed to take approximately ten minutes for the older children and five minutes for the younger children; the pupil questionnaire was designed to be filled in whilst waiting for the examination.

Pupils were involved during calibration of examiners in the training preparation for the examinations within schools. Although eight five year olds took part in the first calibration session, the consortium subsequently decided that this was an unnecessary burden on such young children. In the second calibration session only eight year olds were included from among primary school pupils.

For parents, the only burden was in the parental questionnaire. Parents did not have to complete this, but were encouraged to do so. There are a small number of differences between the 2003 parent questionnaire and the final 2013 questionnaire including fewer questions in 2013. For example, the 2013 questionnaire asked for only one parent of the child taking part in the dental examination to complete the questionnaire, to make the approach less burdensome on the family unit.

This survey and its findings provide a wealth of information to the dental and public health communities that was considered when determining the level of burden to all involved parties.

Confidentiality, transparency and security

The survey was subject to ethical review by the University ethics committee at University College London (Project ID 2000/003). Approval was gained for the materials and procedures used in the pilot study. An amendment was submitted and approved for the changes to materials and procedures arising from the pilot and cognitive testing for the main stage survey.

To ensure confidentiality children selected were assigned a unique serial number and were only identifiable through this unique serial number on the dental examination form and the pupil and parental questionnaires. Further details of the procedures used to ensure confidentiality can be found in the technical report published alongside this report.

The data contained in this publication are Official Statistics. The code of practice is adhered to from collecting the data to publishing:

<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/>

All publications are subject to a standard HSCIC risk assessment prior to issue. Disclosure control is implemented where judged necessary.

For more detailed descriptions of datasets used in the HSCIC dental publications see the beginners guide to dental data at:

http://www.hscic.gov.uk/Primary_Care/Dental_Services

Please see links below to the relevant HSCIC policies.

Statistical Governance Policy:

http://www.hscic.gov.uk/media/1350/Publications-Calendar-Statistical-Governance-Policy/pdf/The_HSCIC_Statistical_Governance_Policy_v3.1.pdf

Freedom of Information:

<http://www.hscic.gov.uk/foi>