hscic Health & Social Care Information Centre

Children's Dental Health Survey 2013

Report 5: Contemporary Challenges in Children's Dental Health

England, Wales and Northern Ireland

Published 19 March 2015

We are the trusted national provider of high-quality information, data and IT systems for health and social care.

www.hscic.gov.uk

enquiries@hscic.gov.uk

@hscic

This report may be of interest to members of the public, health policy officials, Consultants in Dental Public Health and other members of the dental profession, epidemiologists and other academics interested in children's health.

Author:	**Professor Richard Watt (UCL), Tom Anderson (ONS), Elizabeth Fuller (NatCen) and the CDH consortium for the Health and Social Care Information Centre**
Responsible statistician:	**Gemma Ramsay, Section Head, Primary Care**
Version:	**Final V1.0**
Date of publication:	**19th March 2015**

Contents

This is a National Statistics publication

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Find out more about the Code of Practice for Official Statistics at www.statisticsauthority.gov.uk/assessment/code-of-practice

5.1 Introduction

The 2013 Children's Dental Health (CDH) Survey, commissioned by the Health and Social Care Information Centre (www.hscic.gov.uk), is the fifth in a series of national children's dental health surveys that have been carried out every ten 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 the distribution of disease as well as children's experiences, behaviours and attitudes relevant to their oral health.

Reports 1 to 4 have provided a very detailed and comprehensive account of the survey findings. It is important to pull together the main issues emerging from each report to provide an overview of the survey to guide debate and discussion amongst interested stakeholders.

The aim of this final report is to provide an overall summary of the main survey findings and to present a discussion of the meaning and significance of the results. Implications for the development of dental services and oral health improvement strategies are also highlighted.

Note on text and tables

Differences cited in the text are statistically significant ($p<0.05$) unless otherwise stated. This means that there is approximately a 1 in 20 risk that the difference does not exist in reality in the population when sampling error is taken into account.

A dash in a table indicates a zero value, while an asterisk indicates a proportion of less than 0.5% or a mean of less than 0.05.

The statistics in the tables are produced using weights that adjust for selection probabilities, non-response bias and population totals. The unweighted bases shown in each table indicate the number of valid responses on which the estimates are based. Weighted bases are presented for some estimates alongside standard errors and confidence intervals in Annex A of reports 1 to 4. The weighted and unweighted bases may vary slightly across tables due to item non-response.

Figures presented in parentheses [ ] indicate a low base number of respondents and results are indicative only.

Where tables are not included but figures are presented, table and report numbers have been noted as references.

Further information on methodological considerations relevant to the survey can be found in section 5.5.

Figures in brackets after table names i.e. '5.1 (1.12)' represent table numbers from other reports in the CDH survey publication. Those without figures in brackets are unique to this report.

5.2 Headline findings

This section describes headline findings from Reports 1 to 4.

5.2.1 Oral health attitudes and behaviours (Report 1)

A comprehensive range of information on perceptions and oral health related behaviours were collected in the parental and children's questionnaires. In particular, the innovative children's questionnaire gathered valuable insights into older children's subjective views of their oral health and related behaviours.

Subjective views of oral health

Over two thirds of the 12 year olds (66%) and 15 year olds (74%) rated their overall oral health as very good or good. About half of 12 year olds (51%) and three fifths of 15 year olds (60%) were satisfied with the appearance of their teeth. Under half (44%) of the 12 year olds said that they would like treatment to straighten their teeth.[1]

Despite their generally positive ratings of their oral health, a considerable proportion of children reported specific problems with their teeth or mouths in the past 3 months. Overall, 69% of 12 year olds and 66% of 15 year olds reported at least one oral health problem in the past 3 months (Table 5.1).

Table 5.1 (1.12) Self-reported problems with dental health in the last 3 months, by age and country

England, Wales and Northern Ireland, 2013 — Percentages

Children aged 12, 15		England	Wales	Northern Ireland	Total
12 year olds	Any problem	68	71	72	68
	Sensitive tooth	32	32	34	32
	Mouth ulcers	19	23	19	20
	Bad breath	20	22	20	20
	Toothache	19	18	14	18
	Bleeding or swollen gums	16	12	18	16
	Broken tooth	8	8	7	8
15 year olds	Any problem	66	68	67	66
	Sensitive tooth	34	40	34	34
	Mouth ulcers	20	23	20	20
	Bad breath	18	18	16	18
	Toothache	15	17	14	15
	Bleeding or swollen gums	17	17	20	17
	Broken tooth	4	9	8	5
Unweighted bases					
12 year olds		*1,422*	*611*	*482*	*2,515*
15 year olds		*1,305*	*546*	*550*	*2,401*

The base reported is for the 'any problem' item. Other item bases may vary due to non-response.
Items are placed in descending order of prevalence for 12 year olds, then in the same order for 15 year olds

[1] Tables 1.1, 1.3 and 1.7 in Report 1

The parents of 5 and 8 year olds also identified high levels of oral health problems[2] with 37% of 5 year olds and 55% of 8 year olds reported to have experienced some problems over the last 6 months (Table 5.2).

Table 5.2 (1.15) Parent reported problems with children's dental health in the last 6 months, by country

England, Wales and Northern Ireland, 2013					Percentages
Children aged 5, 8		England	Wales	Northern Ireland	Total
5 year olds	Any problem	37	39	33	37
8 year olds	Any problem	56	50	46	55
Unweighted bases					
5 year olds		*689*	*242*	*321*	*1,252*
8 year olds		*623*	*245*	*303*	*1,171*

Approximately three fifths of the 12 year olds (58%) and under half of the 15 year olds (45%) reported experiencing at least one impact of oral disease in the last 3 months (Table 5.3). The most common difficulty reported was being embarrassed to smile or laugh (35% of 12 year olds and 28% of 15 year olds), a major psychological and social impact on children. Around a fifth (22% of 12 year olds and 19% of 15 year olds) also reported that they had experienced difficulty eating.

Table 5.3 (1.18) Percentage of children with difficulties in the last 3 months, by age

England, Wales and Northern Ireland, 2013	Percentages
Children aged 12, 15	12 years	15 years
Any difficulty in last 3 months	58	45
Embarrassed smiling or laughing	35	28
Difficulty eating	22	19
Difficulty cleaning teeth	22	14
Felt different	14	10
Difficulty relaxing	10	9
Difficulty enjoying being with people	9	8
Difficulty speaking	9	8
Difficulty doing schoolwork	6	3
Unweighted bases	*2,497*	*2,389*

The bases reported here are based on 'Any difficulty in the last 3 months'. Item bases may vary due to non-response

[2] Problems were: Toothache, Other pain in mouth, bad breath, problems with appearance, broken tooth, bleeding or swollen gums, other problems with teeth or mouth, problems caused by dental treatment.

Oral diseases also had an adverse impact on the wider family. Between one fifth and a third of parents reported that the dental health of their child had a negative impact on the life of the family in the past 6 months (Table 5.4). The most common family impacts reported included time off work and parents feeling stressed or anxious. Time off from work was reported more often by parents of older children.

Table 5.4 (1.21) Percentage of parents reporting that their child's oral health had an impact on the life of the family in the last 6 months, by age

England, Wales and Northern Ireland, 2013				Percentages
All parents	5 years	8 years	12 years	15 years
Any family impact	21	32	32	35
Time off work	7	12	19	23
Child needed more attention	11	16	14	15
Parent felt stressed or anxious	11	18	15	13
Parent felt guilty	8	13	11	11
Family activities interrupted	5	5	6	8
Parent's sleep disrupted	7	10	7	6
Financial difficulties	2	2	3	4
Unweighted bases	*1,227*	*1,156*	*955*	*810*

The bases reported here are based on 'any family impact'. Item bases may vary due to non-response

Use of dental services

Overall, just over four fifths[3] of 12 and 15 year olds reported attending the dentist for a check-up although this varied considerably by level of deprivation (measured by eligibility for free school meals)[4]. Amongst those eligible for free school meals only 66% of 12 year olds and 74% of 15 year olds reported attending for a check-up (Table 5.5).

[3] Table 1.24 in Report 1

[4] 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)

Table 5.5 (1.25) Self-reported dental attendance pattern, by sex and free school meal eligibility

England, Wales and Northern Ireland, 2013 — Percentages

Children aged 12, 15	12 years			15 years		
	Check-up	Only when have trouble	Never been	Check-up	Only when have trouble	Never been
Male	80	16	4	80	18	2
Female	83	15	2	85	14	2
Eligible for free school meals	66	27	7	74	23	3
Not eligible	86	12	2	85	13	2
Unweighted bases						
Male	*1,203*			*1,137*		
Female	*1,288*			*1,243*		
Eligible for free school meals	*622*			*499*		
Not eligible	*1,732*			*1,735*		

Parents reported that 89% of 5 year olds and 94% of 8 year olds visit the dentist for a check-up (Table 5.6).

Table 5.6 (1.27) Parent reported pattern of child dental attendance, by age

England, Wales and Northern Ireland, 2013 — Percentages

Parents of children aged 5, 8	5 years	8 years
For a check-up	89	94
Only when have trouble with teeth	5	5
Never been to the dentist	6	1
Unweighted bases	*1,233*	*1,161*

There was a consistent relationship between how parents reported their own dental attendance compared with that of their children. Children whose parent reported being a regular attender were also more likely to self-report attending on a regular basis.

More than 80% of parents reported that they had never experienced any difficulty finding an NHS dentist for their child, although the percentage of parents that reported ever having experienced a difficulty did increase marginally between 2003 and 2013, from 9% to 12%[5]. There were generally very high levels of satisfaction with services.

One in ten parents of 12 and 15 year olds reported that their child had dental treatment under a general anaesthetic at some point in their lives.

[5] Table 1.35 in Report 1

Dental anxiety

Overall one in ten[6] 12 and 15 year olds were classified as having extreme dental anxiety, based on their self-reported anxiety about visiting the dentist.

Levels of dental anxiety were significantly higher amongst girls than boys (Table 5.7). For example nearly a fifth (19%) of 12 year old girls reported extreme levels of anxiety. There was no relationship between free school meal eligibility and levels of dental anxiety.

Table 5.7 (1.46) Self-rated anxiety about visiting the dentist, by sex and free school meal eligibility

England, Wales and Northern Ireland, 2013		Percentages	
Children aged 12, 15		12 years	15 years
Male			
	Low/no anxiety	31	44
	Moderate anxiety	59	50
	Extreme anxiety	9	6
Female			
	Low/no anxiety	16	28
	Moderate anxiety	65	57
	Extreme anxiety	19	15
Eligible for free school meals			
	Low/no anxiety	27	36
	Moderate anxiety	62	52
	Extreme anxiety	11	12
Not eligible			
	Low/no anxiety	23	37
	Moderate anxiety	62	54
	Extreme anxiety	15	9
Unweighted bases			
Male		*1,171*	*1,117*
Female		*1,231*	*1,226*
Eligible for free school meals		*597*	*490*
Not eligible		*1,673*	*1,708*

[6] Table 1.45 in Report 1

Oral health related behaviours

Overall, 77% of 12 year olds and 81% of 15 year olds[7] reported that they brushed their teeth twice daily or more often. Girls and children not eligible for free school meals were more likely to report that they brushed their teeth twice a day or more (Table 5.8).

Table 5.8 (1.53) Percentage of children reporting brushing their teeth at least twice a day, by sex and free school meal eligibility

England, Wales and Northern Ireland, 2013	Percentages	
Children aged 12, 15	12 years	15 years
Male	69	73
Female	85	89
Eligible for free school meals	71	72
Not eligible	78	82
Unweighted bases		
Male	*1,200*	*1,131*
Female	*1,287*	*1,246*
Eligible for free school meals	*627*	*495*
Not eligible	*1,725*	*1,738*

More than eight in ten parents of 5 and 8 year olds said that their child brushed their teeth, or had them brushed, at least twice a day (Table 5.9).

Table 5.9 (1.54) Parent report of percentage of children brushing their teeth twice or more a day, by age and country

England, Wales and Northern Ireland, 2013	Percentages	
Parents of children aged 5, 8	5 years	8 years
England	82	84
Wales	84	87
Northern Ireland	83	83
Total	82	84
Unweighted bases		
England	*672*	*603*
Wales	*237*	*238*
Northern Ireland	*317*	*296*
Total	*1,226*	*1,137*

[7] Table 1.52 in Report 1

Almost a third of parents of 5 year olds and a fifth of parents of 8 year olds reported that their child did not start brushing their teeth until they were over 1 year of age (Table 5.10). Free school meal eligibility was associated with a higher likelihood of 5 year old children starting tooth brushing later compared to children who were not eligible for free school meals.[8]

Table 5.10 Age started tooth brushing, by age

England, Wales and Northern Ireland, 2013		Percentages
All parents of children aged 5, 8	5 years	8 years
Under 6 months	21	27
Between 6 months and 1 year of age	50	52
Over 1 year of age	29	20
Unweighted bases	*1,222*	*1,140*

Sugar consumption, smoking and drinking alcohol are all associated with risk of oral health problems. A minority of older children, 16% of 12 year olds and 14% of 15 year olds, said that they consumed sugary drinks four or more times a day. Consumption of sugary drinks was highest amongst children eligible for free school meals. Prevalence of smoking was very low amongst 12 year olds (2%) but 11% of 15 year olds reported being a current smoker. Again amongst the 12 year olds very few reported being a current alcohol drinker (3%), but by age 15 years, 39% were current drinkers[9].[10]

Behavioural risk factors were strongly associated with subjective oral health outcomes. Children that brushed twice a day or more often had better perceptions about their dental health and reported lower prevalence of oral impacts than those that brushed less often. Children that had excessive consumption of sugary drinks (4 or more daily), experienced toothache in the last 3 months in much higher proportions than those consuming fewer sugary drinks. Additionally current smokers fared considerably worse than non-smokers in every subjective oral health outcome. Confirming the importance of appropriate dental attendance, those claiming to attend for a check-up also reported better oral health, lower prevalence of toothache and better oral health related quality of life.

5.2.2 Dental disease and damage in children (Report 2)

Dental caries is a progressive but initially reversible condition that, like many diseases, can be conceptually 'staged'. For the first time in the CDH Survey series a comprehensive assessment of the continuum of caries has been undertaken. This provides detailed population estimates of both restorative and preventive care needs while at the same time allowing for retrospective comparisons to be made for older children using parts of the caries criteria which are compatible with those used in previous decades. Section 2.1 in Report 2 contains details of how the concepts of a continuum of caries is utilised in this survey.

[8] Table 1.57 in Report 1

[9] As part of the pupil questionnaire, the 12 and 15 year olds were asked to report their usual daily frequency of consumption for a small range of food and drink indicators, including those that are relatively high in sugar content. Although the data from this survey does not represent a comprehensive measurement of such behaviours, it has been used to create indicators of daily consumption of different types of drink (including sugary drinks and alcohol)

[10] Tables 1.61, 1.62, 1.63 and 1.65 from Report 1

In this report, the caries results are presented for 'decay into dentine', 'obvious decay experience' and 'clinical decay experience' thresholds in both the primary and permanent dentitions.

- Where the term **"decay into dentine"** is used, it represents obvious established disease which has spread through the outer tooth enamel to significantly involve the inner dentine beneath. This includes lesions where the decay can be visualised through the enamel as well as lesions where it has advanced to form a frank cavity. The latter estimates (where only the frank cavities are reported) are referred to as "decay into dentine *excluding* visual dentine caries". Obvious decay into dentine has been the traditional measure used in dental epidemiology surveys seeking to establish the number of "cavities" to be "filled".
- The term **"obvious decay experience"** incorporates untreated decay into dentine, and decay that has previously been subject to restorative treatment (fillings) or tooth extraction. It includes both cavitated and "visual" decay into dentine. For the purposes of trend analysis, estimates of obvious decay experience were also produced using the less sensitive cavitated decay measure (*excluding* visual lesions) going back to 1983. For the period 2003 to 2013, we can report at the more sensitive "obvious decay experience" level, which includes visual dentine caries.
- The term **"clinical decay experience"** incorporates obvious decay experience, as defined above, but also includes initial stage lesions that are judged by the examining dentists to be confined to the tooth enamel. Enamel decay does not usually require a filling but may indicate the need for interventions to prevent decay progressing into dentine. This threshold is closer to the criteria used now by clinicians examining and providing care for children. Untreated decay into dentine and initial stage enamel decay are referred to as **"clinical decay"**.

Unavoidable changes in survey consent methodology[11] may have introduced significant bias in the data collected for 5 and 8 year olds, which therefore limits assessment of certain disease trends over time. Trend data is therefore restricted to the condition of permanent teeth, particularly amongst the 12 and 15 year olds.

[11] For more information, see section 2.1.5 in Report 2.

Trends in obvious tooth decay experience in permanent teeth

In 2013, nearly a half (46%) of 15 year olds and a third (34%) of 12 year olds had obvious decay experience in permanent teeth (Table 5.11). This was a reduction from 2003 when the comparable figures were 56% and 43% respectively. In particular, the proportion of children with decay into dentine reduced, from 32% of 15 year olds and 29% of 12 year olds in 2003 to 21% of 15 year olds and 19% of 12 year olds in 2013.

Table 5.11 (2.1) Percentage of children with obvious decay experience in permanent teeth, by age

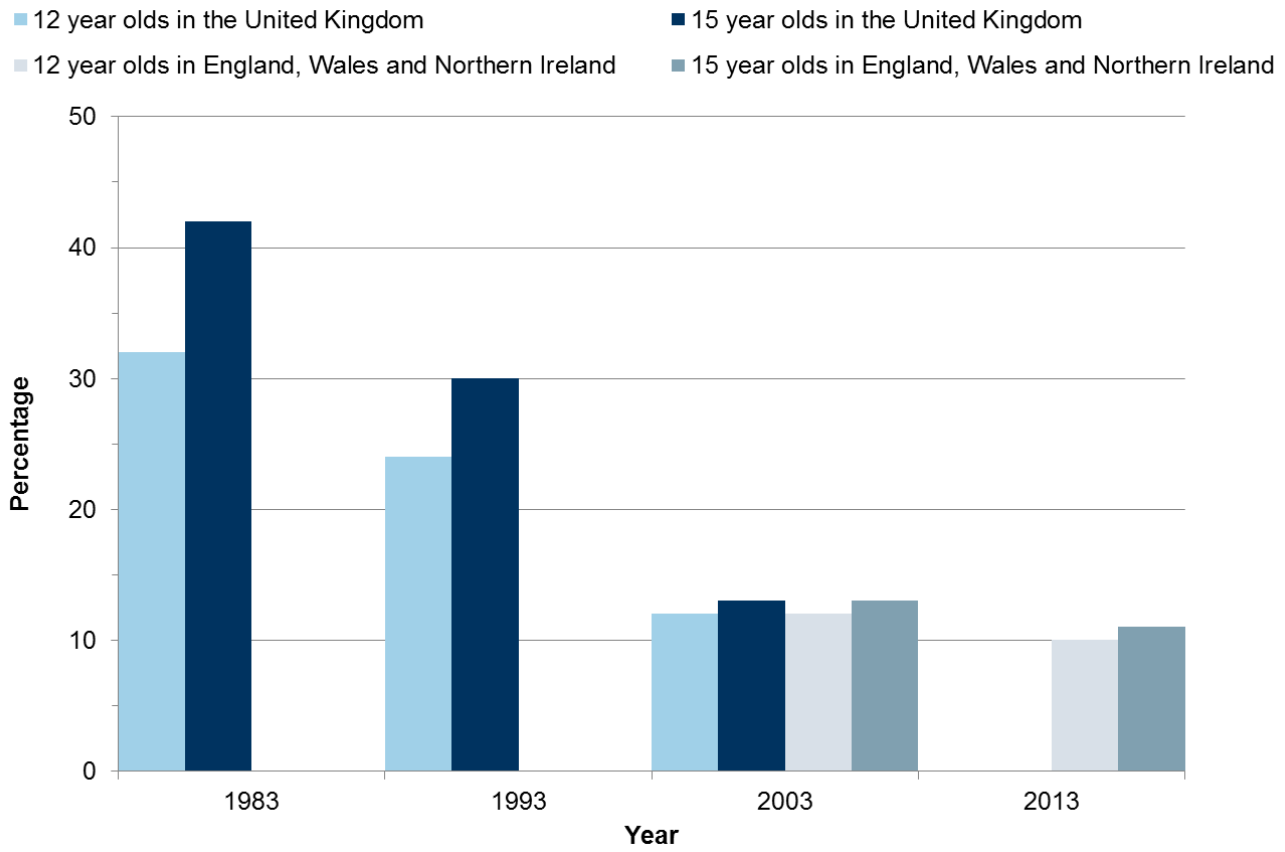
England, Wales and Northern Ireland, 2003-2013 — Percentages

Children aged 12, 15	12 years		15 years	
	2003	2013	2003	2013
Decay into dentine	29	19	32	21
- decay into dentine *excluding* visual dentine caries	12	10	13	11
Filled (otherwise sound)	23	20	40	35
Missing due to decay	3	4	6	6
Obvious decay experience	43	34	56	46
- obvious decay experience *excluding* visual dentine caries	33	28	48	42
Unweighted bases	*2,377*	*2,532*	*1,978*	*2,418*

The reduction in disease prevalence is illustrated in Figure 5.1 which shows the trend in the percentage of 12 and 15 year old children with any decay into dentine *excluding* visual dentine caries between 1983 and 2013. The figure presents the United Kingdom level estimates between 1983 and 2003, and estimates for England, Wales and Northern Ireland for 2003 and 2013.

- The trend in the percentage of children affected at this threshold of decay, which includes only the untreated decay into dentine that has progressed into a frank cavity, has been downwards over the thirty year period between 1983 and 2013;
- The rate of reduction in the prevalence of this threshold of decay into dentine, however, has continued to slow in the last decade compared to that achieved in the preceding twenty years, to the extent that there was no statistically significant change in the percentage of children affected between 2003 and 2013;
- The difference in disease prevalence between 12 and 15 year olds was much reduced by 2003, and this difference has remained consistent between 2003 and 2013.

Figure 5.1 (2.5) Percentage of children with any decay into dentine *excluding* visual dentine caries in permanent teeth (United Kingdom 1983-2003; England, Wales and Northern Ireland 2003-2013)



The pattern of change in the prevalence over time for the two measures of tooth decay in permanent teeth should be considered together. The proportion of 12 and 15 year olds with obvious decay experience, including untreated decay into dentine, has reduced between 2003 and 2013.

Yet there is no evidence that the smaller proportion of children with untreated cavities into the dentine layer of their permanent teeth has changed. It is difficult to know for sure why this should be the case, but it may imply the existence of a small, but particularly problematic, subsection of the population of children that are in particular need for preventive support delivered in both clinical and community settings.

Tooth decay experience in primary teeth in 2013

Nearly a third (31%) of 5 year olds and nearly a half (46%) of 8 year olds had obvious decay experience in their primary teeth in 2013 (Table 5.12). Untreated decay into dentine was found in 28% of 5 year olds and 39% of 8 year olds. Levels of decay into dentine were lower in 5 year olds in England (28%) compared to those in Wales and Northern Ireland (39% and 37% respectively).

Table 5.12 (2.3) Percentage of children with obvious decay experience in primary teeth, by age and country

England, Wales and Northern Ireland, 2013		Percentages
Children aged 5, 8	5 years	8 years
	Visual dentine caries *included*	Visual dentine caries *included*
Decay into dentine		
England	28	38
Wales	39	48
Northern Ireland	37	46
Total	28	39
Filled (otherwise sound)		
England	8	19
Wales	12	22
Northern Ireland	10	25
Total	8	19
Obvious decay experience		
England	31	45
Wales	41	55
Northern Ireland	40	56
Total	31	46
Unweighted bases		
England	*1,526*	*1,369*
Wales	*493*	*490*
Northern Ireland	*530*	*508*
Total	*2,549*	*2,367*

Around a third of 5 year olds (36%) and 8 year olds (32%) had initial stage (enamel) decay on otherwise sound primary teeth[12].

The mean number of primary teeth affected by obvious decay experience (caries included) (dmft)[13] in 5 year olds was 0.9, and in 8 year olds it was 1.4.[14]

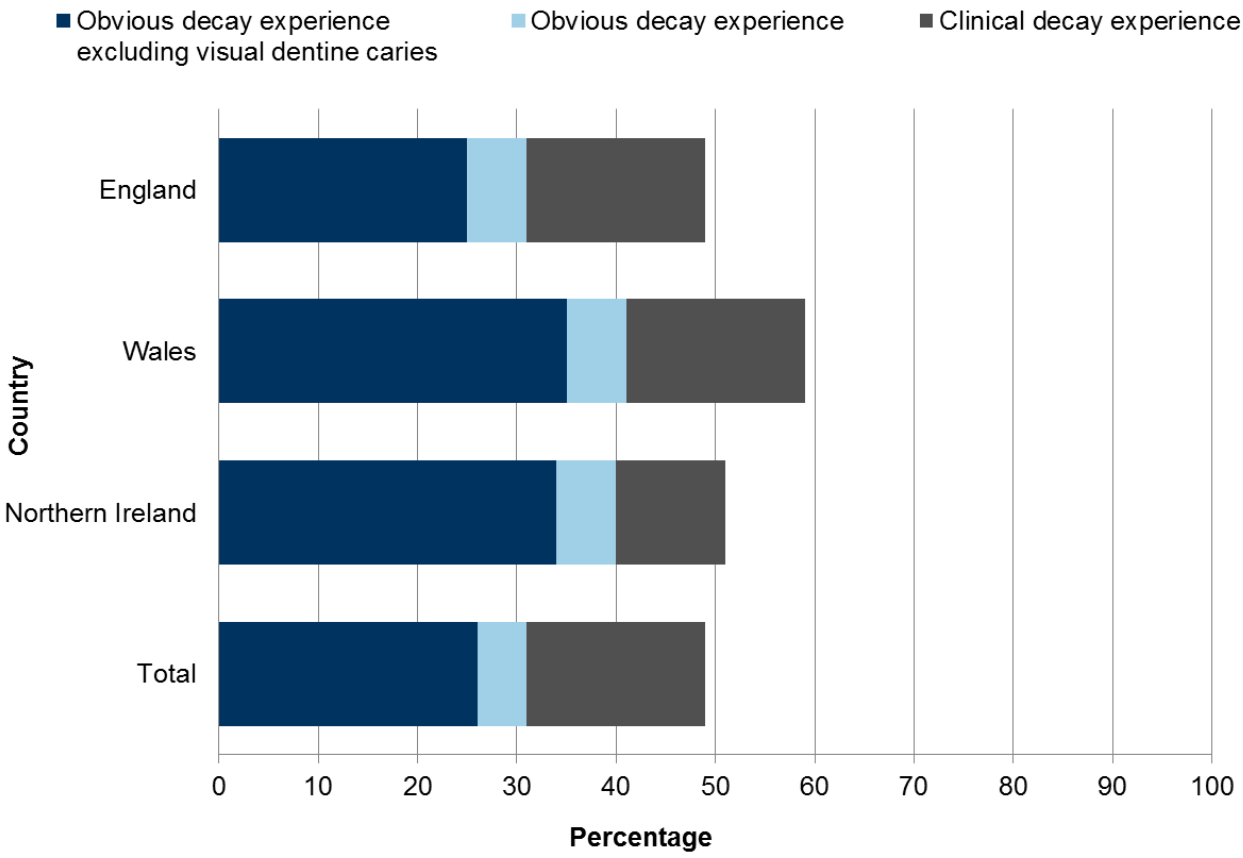
There was some variation by country, with 5 year olds in Wales (1.5) and Northern Ireland (1.4) having more obvious decay experience in their primary teeth than 5 year olds in England (0.9). In 8 year olds, the average number of teeth affected was higher in Wales (2.0)

[12] Table 2.5 in Report 2
[13] The total number of Decayed, Missing (due to decay) or Filled Teeth is widely used as an index of a child's decay experience. This is abbreviated to the acronyms "dmft" for primary teeth and "DMFT" for permanent teeth
[14] Table 2.4 in Report 2

than in England (1.4), but the difference between Northern Ireland (1.6) and England was not statistically significant.[14]

When enamel decay is included as decay along with decay into dentine, 49% of 5 year olds and 59% of 8 year olds had clinical decay experience[15]. Figure 5.2 summarises the percentage of 5 year old children affected by obvious decay experience and clinical decay experience by country.

Figure 5.2 (2.10) Percentage of 5 year old children with decay experience in primary teeth at different thresholds of decay, 2013



[15] Table 2.10 in Report 2

Although this section focuses on decay into dentine and clinical decay, the 2013 survey examination criteria allow the thresholds of decay to be broken down further. Table 5.13 shows the average number of primary teeth with untreated decay at four thresholds. The range in values from the average number of teeth with untreated decay needing restorative care to the average number of teeth at the clinical decay threshold is substantial, with twice the number of teeth affected once enamel decay is included as clinical decay. These estimates quantify the extra risk in the population associated with enamel decay in primary teeth for the first time at a national level, and indicate the likely burden on members of the dental profession in relation to providing preventative care to 5 and 8 year olds. Further information can be found in Report 2[16].

Table 5.13 (2.4/2.11) Mean number of primary teeth with decay into dentine and clinical decay in 5 and 8 year olds

England, Wales and Northern Ireland, 2013		Means
Children aged 5, 8	5 years	8 years
Mean number of teeth with		
Decay into dentine *excluding* visual dental caries	0.6	0.7
Decay into dentine	0.8	1.1
Clinical decay *excluding* visual enamel caries	0.9	1.1
Clinical decay	1.7	1.7
Unweighted bases	*2,549*	*2,367*

[16] http://www.hscic.gov.uk/pubs/ChildDentalHealth

Tooth decay experience in permanent teeth in 2013

At age 12, just over a third (34%) had obvious decay experience. At age 15, the proportion affected was 46% (Table 5.14). Around a fifth of 12 and 15 year olds (19% and 21% respectively) had decay into dentine requiring treatment. At age 12, a fifth (20%) had otherwise sound fillings, and at age 15 this was more than a third (35%). Generally children in England had lower levels of decay experience than those in Wales and Northern Ireland.

Table 5.14 (2.16) Percentage of children with obvious decay experience in permanent teeth, by age and country

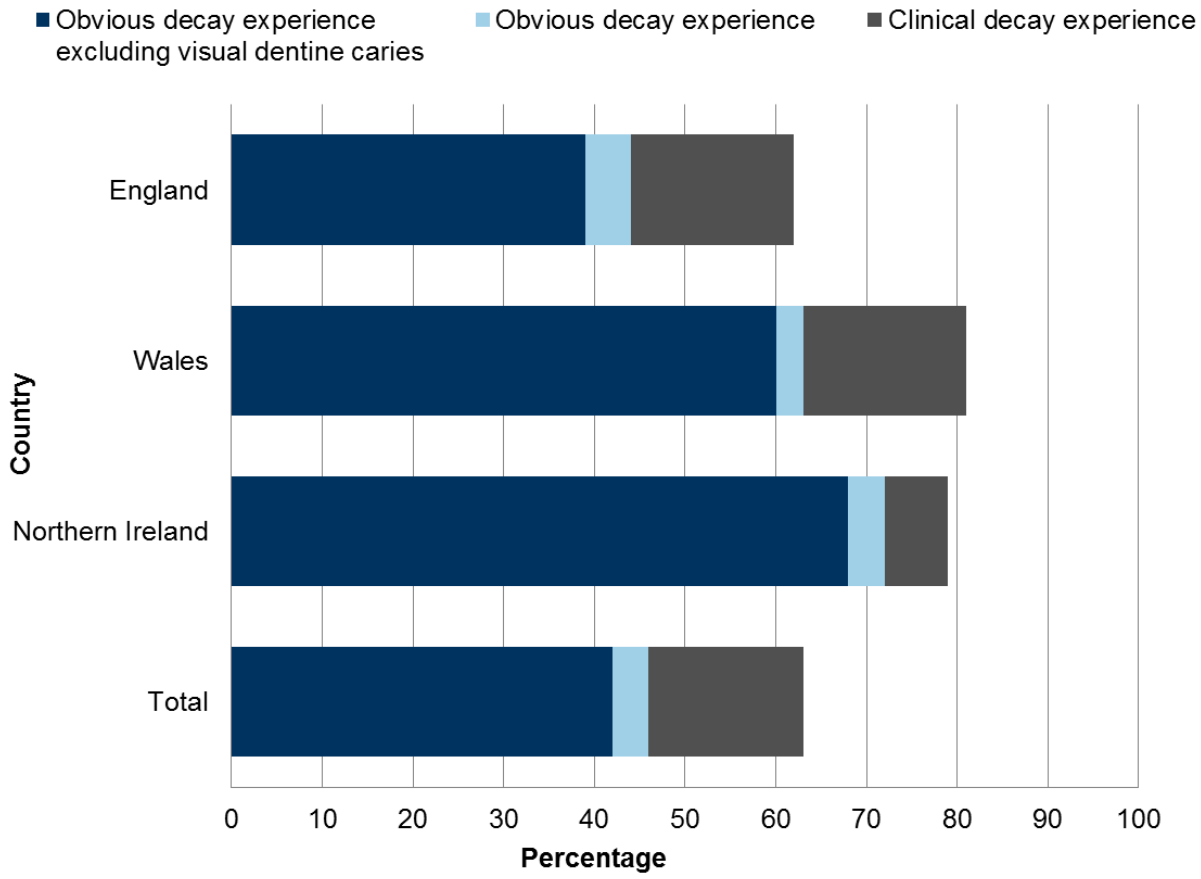
England, Wales and Northern Ireland, 2013			Percentages
Children aged 8, 12, 15	8 years Visual dentine caries *included*	12 years Visual dentine caries *included*	15 years Visual dentine caries *included*
Decay into dentine			
England	8	17	21
Wales	15	35	28
Northern Ireland	8	27	30
Total	9	19	21
Missing due to decay			
England	2	3	6
Wales	3	7	11
Northern Ireland	3	6	13
Total	2	4	6
Filled (otherwise sound)			
England	4	18	33
Wales	4	28	52
Northern Ireland	11	42	61
Total	4	20	35
Obvious decay experience			
England	13	32	44
Wales	19	52	63
Northern Ireland	20	57	72
Total	13	34	46
Unweighted bases			
England	*1,369*	*1,434*	*1,313*
Wales	*490*	*614*	*554*
Northern Ireland	*508*	*484*	*551*
Total	*2,367*	*2,532*	*2,418*

The mean number of permanent teeth affected by obvious decay experience (caries included) (DMFT) in 12 year olds was 0.8 and in 15 year olds it was 1.4[17].

More than 40% of 12 and 15 year olds had initial stage enamel decay (42% and 46% respectively) on otherwise sound teeth[18].

When enamel decay was treated as decay, 57% of 12 year olds and 63% of 15 year olds had clinical decay experience in permanent teeth[19]. Figure 5.3 summarises the percentage of 15 year old children affected by obvious decay experience and clinical decay experience in permanent teeth by country.

Figure 5.3 (2.16) Percentage of 15 year olds with decay experience in permanent teeth at different thresholds of decay, by country, 2013



[17] Table 2.17 in Report 2
[18] Table 2.18 in Report 2
[19] Table 2.25 in Report 2

Just as with the primary dentition, the 2013 survey examination criteria allow these thresholds of decay to be broken down further. Table 5.15 shows the average number of permanent teeth with untreated decay at four thresholds in 12 and 15 year olds. The range in values from the average number of teeth with untreated decay needing restorative care to the average number of teeth with clinical decay is even more substantial than in primary teeth. This represents the extra risk in the population associated with enamel decay in permanent teeth and provides information about the likely burden on members of the dental profession in relation to providing preventative care to 12 and 15 year olds. Further information can be found in report 2.

Table 5.15 (2.17/2.26) Mean number of permanent teeth with decay into dentine and clinical decay in 12 and 15 year olds

England, Wales and Northern Ireland, 2013		Means
Children aged 12, 15	12 years	15 years
Mean number of teeth with		
Decay into dentine *excluding* visual dental caries	0.2	0.2
Decay into dentine	0.4	0.5
Clinical decay *excluding* visual enamel caries	0.5	0.6
Clinical decay	1.6	1.9
Unweighted bases	*2,532*	*2,418*

Severity of obvious decay experience in those with disease

In the 31% of 5 year olds and 46%[20] of 8 year olds with any obvious decay experience in primary teeth, the average number of teeth with decay into dentine was 2.6 and 2.3 respectively (Table 5.16). The average number of teeth with obvious decay experience was 3.0 in each age group.

Table 5.16 (2.9) Mean number of primary teeth with obvious decay experience in children with obvious decay experience, by age

England, Wales and Northern Ireland, 2013					Means
Children aged 5 and 8 with obvious decay experience	5 years		8 years		
	Visual dentine caries *included*	Visual dentine caries *excluded*	Visual dentine caries *included*	Visual dentine caries *excluded*	
Decay into dentine	2.6	2.2	2.3	1.8	
Filled (otherwise sound)	0.4		0.7		
Obvious decay experience	3.0	2.8	3.0	2.7	
Unweighted bases	*935*	*792*	*1,206*	*1,080*	

[20] Table 2.3 in Report 2

Similarly in the 34% of 12 year olds and 46% of 15 year olds with obvious decay experience in permanent teeth (including visual dentine caries), 12 year olds had an average of 1.3 teeth with decay into dentine and 2.5 teeth with obvious decay experience (Table 5.17). Those 15 year olds with obvious decay experience had an average of 1.1 teeth with decay into dentine and 3.1 teeth with obvious decay experience.

Table 5.17 (2.24) Mean number of permanent teeth with obvious decay experience, in children with obvious decay experience, by age

England, Wales and Northern Ireland, 2013 — Means

Children aged 8, 12, 15 with obvious decay	8 years		12 years		15 years	
	Visual dentine caries *included*	Visual dentine caries *excluded*	Visual dentine caries *included*	Visual dentine caries *excluded*	Visual dentine caries *included*	Visual dentine caries *excluded*
Decay into dentine	0.9	0.7	1.3	0.6	1.1	0.5
Filled (otherwise sound)	0.5		1.0		1.8	
Missing due to decay	0.5		0.2		0.2	
Obvious decay experience	2.0	1.9	2.5	2.2	3.1	2.9
Unweighted bases	*396*	*325*	*1,136*	*967*	*1,422*	*1,305*

In 2013 the burden of disease for those that have disease is more extensive than average population estimates suggest. As such it is inadvisable to look solely at the mean values for decay into dentine or decay experience across the entire population of children.

Tooth surface loss

A quarter of 12 year olds and nearly a third of 15 year olds were found to have any Tooth Surface Loss (TSL) on their molars or the buccal surface of their incisors[21].

The proportion of children with TSL that had progressed through the tooth enamel to affect the dentine or pulp layers of the tooth was low, with only 4% of 15 year olds having TSL into dentine or pulp on lingual surfaces of the incisors and 3% having TSL in dentine or pulp on the occlusal surfaces of molars[22]. Whilst low proportions of children were affected by TSL into dentine or pulp, this does represent very substantial damage to have at the age of 15. The levels of TSL affecting dentine and pulp did not vary by country or over time.

Developmental defects of enamel

For 12 year olds over a quarter (28%) had one or more teeth with an enamel defect (opacity), with the most common defects being demarcated or diffuse opacities: 19% and 15% of 12 year olds respectively had these on one or more teeth. Compared to 2003, the observed proportion of 12 year olds presenting with any enamel defect was lower by seven percentage points. A higher proportion of 12 year olds were found with any enamel defect in England (29%) than in Wales or Northern Ireland (21%)[23].

[21] Table 2.32 in Report 2
[22] Table 2.33 in Report 2
[23] Table 2.36 in Report 2

Dental trauma

At the age of 12, 12% had traumatic damage to their permanent incisors, at age 15 years this was 10% (Table 5.18). Since 2003 rates of trauma have remained relatively similar across age groups. There was however a significant decline in 15 year old boys: in 2003 17% were affected, falling to 11% in 2013. The main causes of dental trauma are related to injuries in the home and school environment. It is unclear however why there should be such a decline in dental trauma amongst 15 year old boys.

Table 5.18 (2.40) Percentage of children with any traumatic damage to permanent incisors, by age and sex

England, Wales and Northern Ireland, 2003-2013				Percentages
Children aged 12, 15	12 years		15 years	
	2003	2013	2003	2013
Male	14	16	17	11
Female	7	8	10	8
Total	11	12	13	10
Unweighted bases				
Male	*1,261*	*1,222*	*1,019*	*1,155*
Female	*1,116*	*1,310*	*959*	*1,263*
Total	*2,377*	*2,532*	*1,978*	*2,418*

Periodontal status

The prevalence of gum (gingival) inflammation ranged from 22-60% and was highest amongst the 12 year olds (Table 5.19). Almost half the children examined had plaque with the highest levels found amongst the 8 year olds (71%). The prevalence of calculus increased with age, and was highest amongst the 15 year olds (46%). There were some significant reductions in the prevalence of gum inflammation (in 8 year olds) and plaque (in 12 and 15 year olds) between 2003 and 2013, although the prevalence of calculus remained stable.

Table 5.19 (2.43) Percentage of children with gum inflammation, plaque and calculus, by age

England, Wales and Northern Ireland, 2003-2013								Percentages
All children	5 years		8 years		12 years		15 years	
	2003	2013	2003	2013	2003	2013	2003	2013
Gum inflammation	32	22	64	46	66	60	53	52
Plaque	50	46	77	71	74	64	64	50
Calculus	6	9	24	28	32	39	40	46
Unweighted bases	*2,658*	*2,549*	*2,592*	*2,367*	*2,377*	*2,532*	*1,978*	*2,418*

The percentage of 15 year olds with gingivitis (bleeding) has remained stable between 2003 and 2013, at around four in ten children[24] at that age. There is some evidence that periodontal condition varies by social factors including behaviour relevant to oral hygiene. More than half of the 15 year olds who brushed their teeth less than twice a day had gingivitis (53%), compared to two in five children (39%) who brushed their teeth twice or more a day[25]. Also 15 year old children who reported that they brushed their teeth twice or more a day were less likely to have gum inflammation (49%) than children who brushed less than twice a day (64%, Table 5.20). It is apparent that children who brushed their teeth twice a day or more were substantially less likely to suffer from periodontal conditions than those who reported that they brushed their teeth less frequently. The relationship between periodontal health and tooth brushing behaviour is particularly strong in 12 and 15 year olds, when parents may be less likely to be involved in daily dental hygiene behaviour such as tooth brushing, compared to the younger children.

Table 5.20 (2.47) Percentage of children with gum inflammation, plaque and calculus, by age and tooth brushing frequency[1]

England, Wales and Northern Ireland, 2013				Percentages
All children	5 years	8 years	12 years	15 years
Gum inflammation				
Twice a day or more	20	47	57	49
Less than twice a day	37	49	70	64
Plaque				
Twice a day or more	43	72	61	46
Less than twice a day	65	73	74	66
Calculus				
Twice a day or more	8	29	36	42
Less than twice a day	7	32	48	58
Unweighted bases				
Twice a day or more	*1,018*	*946*	*1,878*	*1,879*
Less than twice a day	*204*	*189*	*606*	*497*

[1]Tooth brushing data for 5 and 8 year olds from the parent questionnaire; for 12 and 15 year olds from the pupil questionnaire
Bases reported here are for "gum inflammation". Item bases may vary due to non-response

Those 15 year olds with plaque and gingivitis present in their mouths were also more likely to have decay into dentine and obvious decay experience, which implies a consistent association between social factors, including oral hygiene behaviour, and good and bad oral health.

[24] Table 2.48 in Report 2
[25] Table 2.5 in Report 2

5.2.3 Good oral health in children (Report 3)

It is important to identify children with good oral health. This can be defined separately as no obvious decay experience; good periodontal health (absence of gum inflammation and calculus, and no more than one sextant of the mouth with plaque); and no signs of tooth surface loss.

Although a majority of children had no obvious decay experience in either primary or permanent teeth, this varied with age and by country. The proportions with no obvious decay experience declined with age. At the age of 15 years, marked differences were found by country, with 56% of children in England having no obvious decay experience in permanent teeth, compared with 37% in Wales and 27% in Northern Ireland (Table 5.21).

Table 5.21 (3.4) Percentage of children with no obvious decay experience in primary or permanent teeth, by age and country[1]

England, Wales and Northern Ireland, 2013					Percentages
All children	5 years	8 years	12 years	15 years	Total
England	69	51	63	56	60
Wales	59	41	44	37	45
Northern Ireland	60	38	41	27	41
Total	68	50	61	54	58
Unweighted bases					
England	*1,526*	*1,369*	*1,434*	*1,313*	*5,642*
Wales	*493*	*490*	*614*	*554*	*2,151*
Northern Ireland	*530*	*508*	*484*	*551*	*2,073*
Total	*2,549*	*2,367*	*2,532*	*2,418*	*9,866*

[1] *Totals include small proportions of 5 year olds with decay experience recorded in permanent teeth and of 12 and 15 year olds with decay experience recorded in primary teeth.*

A composite indicator of good overall oral health combined an absence of obvious decay experience, no calculus and no tooth surface loss into dentine. Using this combined measure, nearly two fifths (38%) of children had good overall oral health (Table 5.22). Good overall oral health was more common in England than in Wales or Northern Ireland, and was also more common for 5 year olds than older children.

Table 5.22 (3.13) Percentage of children with good overall oral health, by age and country

England, Wales and Northern Ireland, 2013					Percentages
All children	5 years	8 years	12 years	15 years	Total
England					
No obvious decay experience	69	51	63	56	60
No calculus	91	71	60	53	69
No tooth surface loss into dentine	84	97	97	93	92
Good overall oral health	**52**	**34**	**37**	**31**	**39**
Wales					
No obvious decay experience	59	41	44	37	45
No calculus	94	77	73	66	77
No tooth surface loss into dentine	82	99	97	94	93
Good overall oral health	**47**	**29**	**32**	**24**	**33**
Northern Ireland					
No obvious decay experience	60	38	41	27	41
No calculus	94	81	71	65	78
No tooth surface loss into dentine	75	98	97	95	91
Good overall oral health	**44**	**31**	**30**	**19**	**31**
Total					
No obvious decay experience	68	50	61	54	58
No calculus	91	72	61	54	70
No tooth surface loss into dentine	83	97	97	93	92
Good overall oral health	**52**	**34**	**37**	**30**	**38**
Unweighted bases					
England	*1,526*	*1,369*	*1,434*	*1,313*	*5,642*
Wales	*493*	*490*	*614*	*554*	*2,151*
Northern Ireland	*530*	*508*	*484*	*551*	*2,073*
Total	*2,549*	*2,367*	*2,532*	*2,418*	*9,866*

Good overall oral health was also associated with other factors, including family deprivation, area characteristics, tooth brushing frequency, dental attendance, consumption of sugary drinks and consumption of water. Once relationships between each of these factors had been taken into account, 15 year olds were less likely to have good overall oral health if they lived in Northern Ireland (compared to England); were eligible for free school meals; lived in areas classified as Hard-pressed living (compared to Suburbanites); attended a dentist only when there was trouble; or consumed sugary drinks at least once a day. Each of these characteristics was independently associated with reduced chances of good overall oral health.

5.2.4 The burden of dental disease (Report 4)

As oral diseases are not equally or evenly distributed across the population it is important to identify populations of children with very poor oral health and to determine the factors associated with high levels of disease[26].

For 5 year olds four specific conditions were identified as indicating the presence of severe or extensive decay:

- the presence of five or more teeth with experience of decay into dentine (dmft of 5+, also categorised as high dmft, an indicator of extensive decay)[27]
- the presence of three or more teeth with obvious dental decay lesions (new or recurrent, an indicator of extensive decay)
- the presence of any very severely decayed teeth that are deemed 'unrestorable' (severe decay)
- the presence of any evidence of sepsis as part of the PUFA[28] examination (severe decay)

For 15 year olds the same conditions apply, but an additional severe decay condition was added, the loss of any permanent tooth due to decay.

Approximately 1 in 7 of the 5 and 15 year old children were classified as having either extensive or severe caries or both conditions (13% and 15% respectively, Tables 5XXIII and 5XXIV). Differences were found by country, with Wales (22% at ages 5 and 15) and Northern Ireland (19% at age 5 and 36% at age 15) showing a higher proportion with a decay burden than England (13% at age 5 and 14% at age 15). Amongst the 15 year olds the very high figure (36%) with severe or extensive decay in Northern Ireland was largely because of the high numbers of older children in Northern Ireland with 5 or more teeth with obvious decay experience.

Table 5.23 (4.1) Percentage of 5 year olds with severe or extensive dental decay, by country

England, Wales and Northern Ireland, 2013 — Percentages

Children aged 5	England	Wales	Northern Ireland	Total
5+ teeth with obvious decay experience (high dmft)	6	11	13	6
3+ teeth with decay into dentine	10	19	18	11
Any unrestorable teeth	5	7	5	5
Any PUFA signs	4	6	5	4
Any of these	**13**	**22**	**19**	**13**
Unweighted bases	*1,526*	*493*	*530*	*2,549*

[26] This analysis was restricted to 5 and 15 year olds. Children of these ages do not generally have the mix of primary and permanent teeth that can mask the overall impact of dental decay.
[27] The total number of Decayed, Missing (due to decay) or Filled Teeth is widely used as an index of a child's decay experience. This is abbreviated to the acronyms "dmft" for primary teeth and "DMFT" for permanent teeth
[28] PUFA is an acronym for referring to four signs of sepsis: open Pulp, obvious Ulceration, Fistula and Abscess. The PUFA examination looked for signs of serious infection (sepsis) that usually occur where a tooth has been affected by very advanced decay or extensive treatment.

Table 5.24 (4.2) Percentage of 15 year olds with severe or extensive dental decay, by country

England, Wales and Northern Ireland, 2013				Percentages
Children aged 15	England	Wales	Northern Ireland	Total
5+ teeth with obvious decay experience (high dmft)	8	14	28	9
3+ teeth with decay into dentine	5	11	10	6
Any unrestorable teeth	2	2	3	2
Any PUFA signs	2	2	3	2
Loss of any permanent teeth due to decay	6	11	13	6
Any of these	**14**	**22**	**36**	**15**
Unweighted bases	*1,313*	*554*	*551*	*2,418*

There was a strong and consistent relationship between levels of deprivation as measured by eligibility for free school meals and severe or extensive decay (Table 5.25). For example, 26% of the 15 year olds who were eligible for free school meals had severe or extensive decay compared to just 12% of the 15 year olds not eligible for free school meals (Table 5.26).

Table 5.25 (4.4) Percentage of 5 year olds with severe or extensive dental decay, by eligibility for free school meals

England, Wales and Northern Ireland, 2013		Percentages
Children aged 5	Eligible	Not eligible
5+ teeth with obvious decay experience (high dmft)	11	5
3+ teeth with decay into dentine	19	9
Any unrestorable teeth	11	4
Any PUFA signs	8	3
Any of these	**21**	**11**
Unweighted bases	*584*	*1,897*

Table 5.26 (4.6) Percentage of 15 year olds with severe or extensive dental decay, by eligibility for free school meals

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Eligible	Not eligible
5+ teeth with obvious decay experience (high DMFT)	17	7
3+ teeth with decay into dentine	10	5
Any unrestorable teeth	5	1
Any PUFA signs	5	1
Loss of any permanent teeth due to decay	10	5
Any of these	**26**	**12**
Unweighted bases	*508*	*1,761*

A number of factors were identified as being independently associated with an increased risk of severe or extensive dental decay among 15 year olds once other relationships were taken into account. These risks included:

- country of residence (living in Wales and Northern Ireland);
- deprivation (eligibility for free school meals);
- pattern of dental attendance (only when have trouble or never);
- frequent consumption of sugary drinks (four times a day or more); and
- infrequent consumption of water (less than once a day).

Unlike dental decay, orthodontic treatment need is not the product of behaviour. At the age of 15, the proportion who still had unmet orthodontic treatment need (and who were not receiving treatment) was higher amongst the more deprived group, those eligible for free school meals, than for those not eligible (35% compared to 17%, Table 5.27).

Table 5.27 (4.38) Percentage of 12 and 15 year olds with unmet orthodontic treatment need (dental health component), by eligibility for free school meals

England, Wales and Northern Ireland, 2013		Percentages
Children aged 12, 15, not undergoing orthodontic treatment	12 years	15 years
Eligible	40	32
Not eligible	35	17
Unweighted bases		
Eligible	*584*	*409*
Not eligible	*1,560*	*1,449*

5.3 Overarching themes

From the findings of the survey three overarching themes can be identified to enable interpretation of contemporary challenges in children's oral health: trends in disease and relevant behaviours; social inequalities in the distribution of disease; as well as relevant attitudes and behaviours and the impact that oral health has on children and their families.

5.3.1 Trends in selected oral health behaviours and diseases since 2003

Assessing comparisons over time is very important in gaining an understanding of trends in population oral health behaviours and dental disease patterns. Ideally it would be interesting to look at long-term trends over the decades back to 1973 when the first CDH Survey was conducted. The scope of comparisons is limited in this 2013 survey, however, by three methodological issues: change in survey coverage from the UK to England, Wales and Northern Ireland in 2013, declining response rates to the parent questionnaire in 2003 and 2013, and changes in the consent process in 2013 which is highly likely to have introduced some bias into the clinical examination results for 5 and 8 year olds.

A summary of trend data will therefore be restricted to changes between 2003 and 2013 in dental attendance and tooth brushing practices as reported in the parental questionnaire, obvious decay experience in permanent teeth and dental injury amongst 12 and 15 year olds, and periodontal bleeding amongst the 15 year olds.

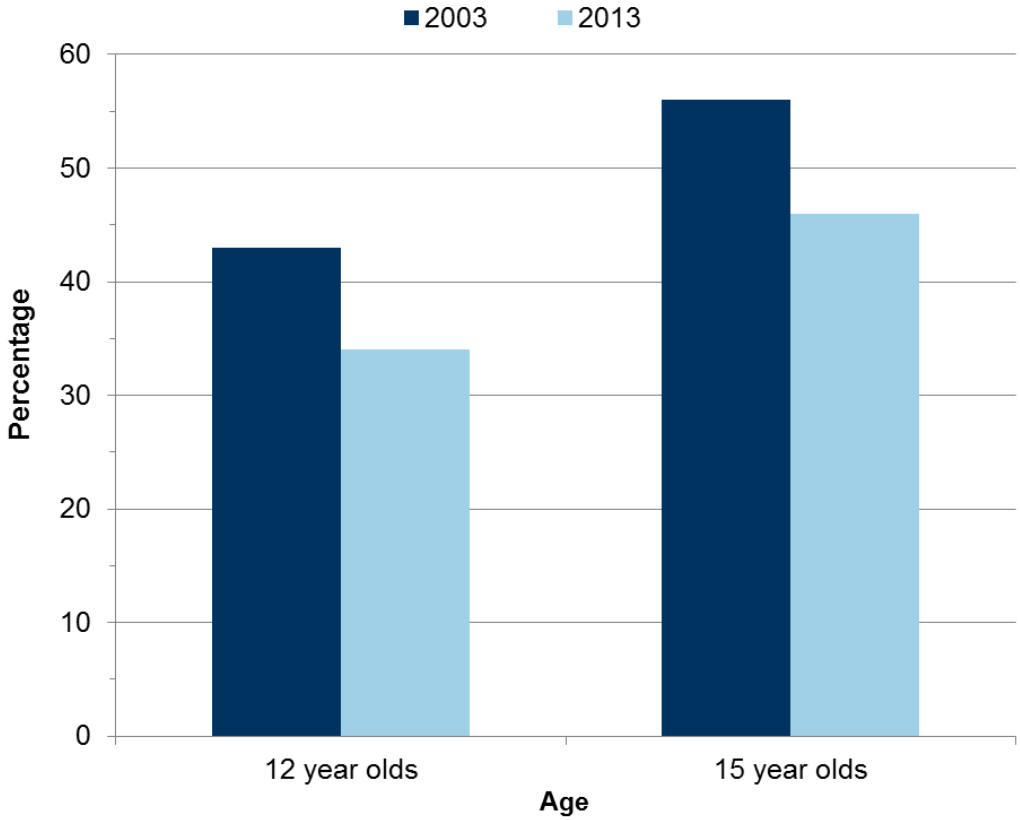
Overall there has been little change in dental attendance patterns across England, Wales and Northern Ireland since 2003. According to parental reports approximately 9 out of 10 children across all age groups and countries attended for a regular check-up in both 2003 and 2013[29]. Little change had also occurred in the reported age of first visit to the dentist since 2003 with around a third of 5 and 8 year old children having visited the dentist by the age of two in 2013[30]. Despite high profile publicity about problems in accessing NHS dentistry, more than 8 out of 10 parents in both 2003 and 2013 reported that they had never experienced any difficulty finding an NHS dentist for their children[31]. However, there was a marginal increase in the proportion of parents that reported that they had experienced a problem, from 9% in 2003 to 12% in 2013[29].

Since 2003 there was a small but consistent increase across all age groups in parental reports of children (approximately 8 out of 10) brushing their teeth twice or more a day in 2013[32].

Between 2003 and 2013 there has been a significant and notable reduction in the proportion of children with obvious decay experience in their permanent teeth. In 2013, 34% of 12 year olds and 46% of 15 year olds had obvious decay experience (including visual dentine caries) in permanent teeth[33]. The comparable figures in 2003 were 43% and 56% respectively (Figure 5.4)[34].

[29] Table 1.27 in Report 1
[30] Table 1.31 in Report 1
[31] Table 1.35 in Report 1
[32] Table 1.54 in Report 1
[33] Table 2.30 in Report 2
[34] Table 2.1 in Report 2

Figure 5.4 (2.4) Percentage of children with obvious decay experience in permanent teeth, England Wales and Northern Ireland, 2003-2013



In particular there was a considerable reduction in the proportion of children with decay into dentine (untreated decay). This reduced from 29% of 12 years olds and 32% of 15 year olds in 2003, to 19% and 21% respectively in 2013[35]. The significant decrease in prevalence of obvious decay experience has also resulted in a significant reduction in the average number of teeth per child affected by caries. For example, amongst 15 year olds, in 2003 1.9 teeth had obvious decay experience, and by 2013 this had dropped to 1.4 teeth[36].

Compared to 2003 the proportion of children with dental trauma to permanent incisor teeth remained relatively stable. There was, however, a significant decline in trauma amongst 15 year old boys: in 2003 17% were affected, failing to 11% in 2013[37]. In general, there was an overall improvement in periodontal status over the last 10 years. For example amongst 15 year olds in 2003, 45% had gingival bleeding on probing and this had reduced to 40% by 2013[38].

[35] Table 2.1 in Report 2
[36] Table 2.2 in Report 2
[37] Table 2.40 in Report 2
[38] Table 2.48 in Report 2

5.3.2 Inequalities in selected oral health attitudes, behaviours and diseases

Oral health is not evenly distributed across the population. It is therefore important to highlight patterns of inequalities for selected attitudes, behaviours and clinical conditions in relation to socioeconomic status. In this survey we were able to use eligibility for free school meals as a measure of socioeconomic status across the countries involved in the survey.

Overall there were consistent and significant socioeconomic inequalities in the subjective impact of oral diseases on children and their families. For example, parental reports of toothache amongst 5 years showed substantial differences by social group with 27% of those eligible for free school meals reporting toothache in the last 6 months, against 11% for those not eligible[39]. Among 12 year olds, 39% of those eligible for free school meals but only 28% of those non-eligible reported two or more oral difficulties in the past 3 months, while the respective figures among 15 year olds were 32% and 23% (Table 5.28). Although oral difficulties varied across the countries, these differences were not consistent.

Table 5.28 (1.20) Number of difficulties in the last 3 months, by free school meal eligibility

England, Wales and Northern Ireland, 2013 — Percentages

Children aged 12, 15	12 years			15 years		
	Any difficulty	One difficulty	2 or more difficulties	Any difficulty	One difficulty	2 or more difficulties
Eligible for free school meals	62	23	39	53	21	32
Not eligible	56	27	28	43	20	23
Unweighted bases						
Eligible for free school meals	*626*			503		
Not eligible	*1,734*			1,740		

The bases reported here are based on 'any difficulty in the last 3 months'. Item bases may vary due to non-response

Self-reported dental anxiety did not vary by level of deprivation or consistently by country, however, girls were significantly more likely to be classified as having extreme dental anxiety than boys. For example, amongst 15 years, 6% of boys compared to 15% of girls were found to have extreme anxiety[40].

Patterns of oral health behaviours varied considerably by socioeconomic status. For example, 12 year olds eligible for free school meals were far less likely (66%) to report regular dental check-ups than those not eligible for free meals (86%)[41]. Tooth brushing practices were also directly related to deprivation. Amongst 15 year olds only 72% of those eligible for free school meals reported brushing at least twice a day, in contrast to 82% of those not eligible for free meals (Table 5.29).

[39] Table 1.16 in Report 1
[40] Table 1.46 in Report 1
[41] Table 1.25 in Report 1

Table 5.29 (1.53) Percentage of children reporting brushing their teeth at least twice a day, by sex and free school meal eligibility

England, Wales and Northern Ireland, 2013	Percentages	
Children aged 12, 15	12 years	15 years
Male	69	73
Female	85	89
Eligible for free school meals	71	72
Not eligible	78	82
Unweighted bases		
Male	*1,200*	*1,131*
Female	*1,287*	*1,246*
Eligible for free school meals	*627*	*495*
Not eligible	*1,725*	*1,738*

Substantial differences were also evident in terms of sugar consumption with children eligible for free school meals being around twice as likely to report consuming sugary drinks four or more times a day than other children (Table 5.30).

Table 5.30 (1.62) Percentage of children consuming water, sugary drinks or fruit juice four or more times a day, by sex and free school meal eligibility

England, Wales and Northern Ireland, 2013						Percentages
Children aged 12, 15	12 years			15 years		
	Water	Sugary drinks	Fruit juice and smoothies	Water	Sugary drinks	Fruit juice and smoothies
Male	33	19	8	35	15	3
Female	32	13	7	38	14	5
Eligible for free school meals	37	26	12	30	26	7
Not eligible	32	13	7	37	12	4
Unweighted bases						
Male	*1,177*	*1,193*	*1,177*	*1,129*	*1,135*	*1,129*
Female	*1,272*	*1,287*	*1,278*	*1,244*	*1,251*	*1,248*
Eligible for free school meals	*607*	*621*	*614*	*496*	*498*	*496*
Not eligible	*1,708*	*1,724*	*1,706*	*1,732*	*1,741*	*1,735*

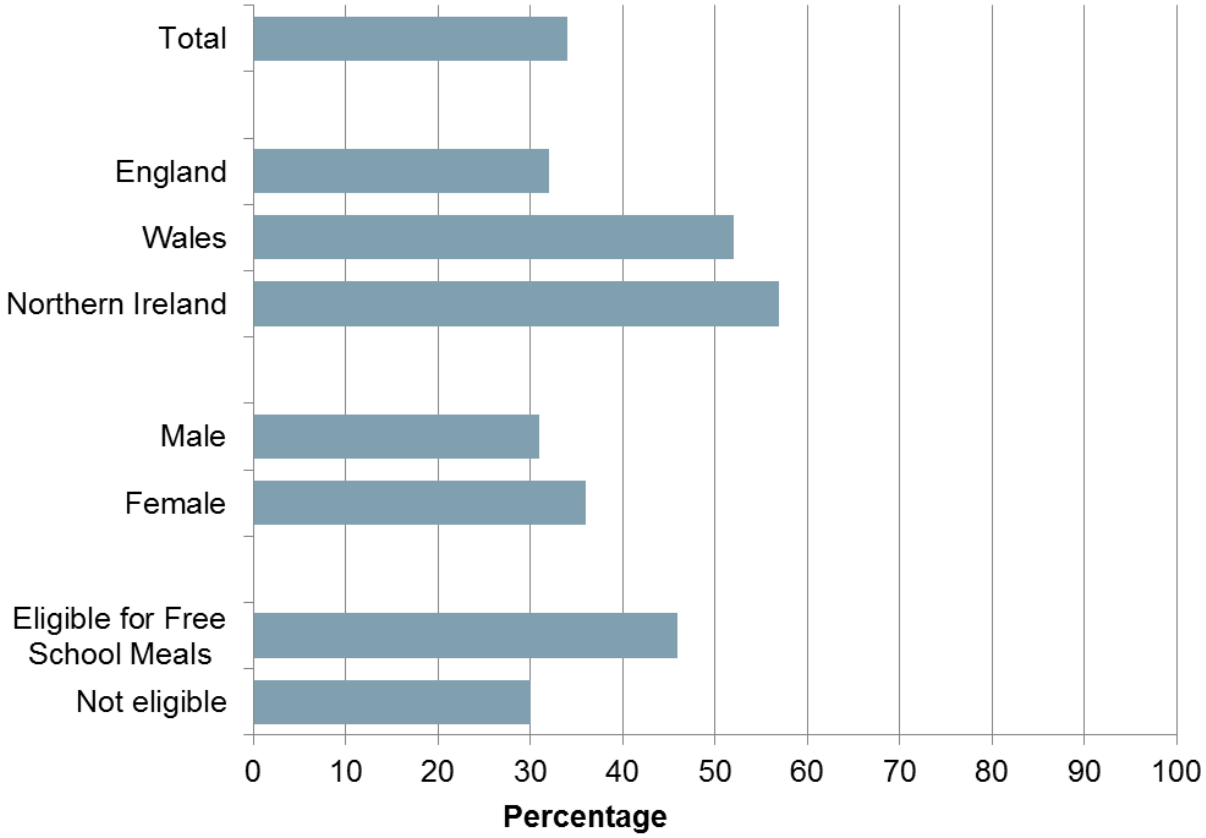
Some variation in patterns of attendance by country was evident with a tendency for lower proportions of children attending dental services in England compared to Wales and Northern Ireland. Other behaviours did not vary significantly and consistently across the countries.

Consistent with findings from previous studies, the 2013 survey showed that clinical outcomes were directly related to markers of social status. For example, pronounced

differences by deprivation were found in obvious decay experience in permanent teeth amongst the 12 and 15 year olds: amongst those eligible for free school meals 46% and 59% of 12 and 15 year olds respectively had obvious decay experience compared to 30% and 43% of those not eligible[42].

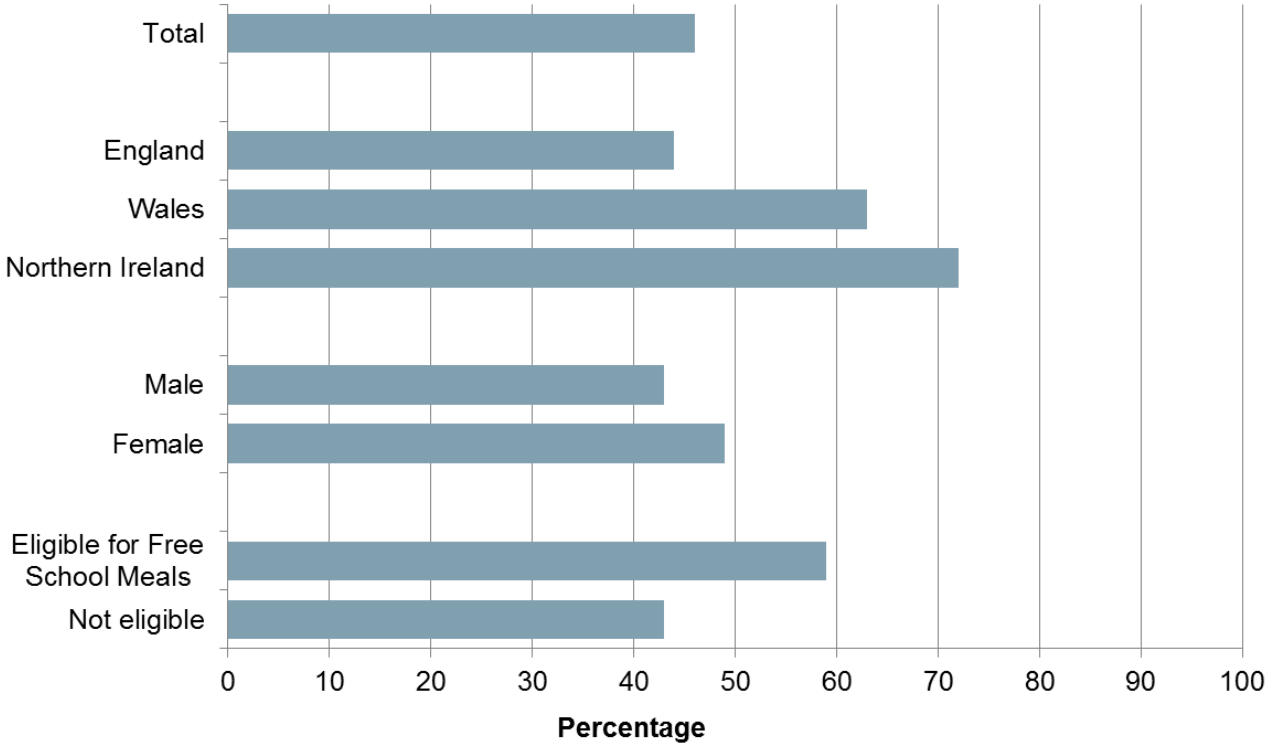
The proportion affected by decay into dentine in primary teeth was significantly lower in 5 year olds in England (28%) than children of the same age in Wales and Northern Ireland (39% and 37% respectively)[43].

Figure 5.5 (2.12) Percentage of 12 year olds with obvious decay experience in permanent teeth by country, sex and free school meal eligibility status, 2013



[42] Table 2.23 in Report 2
[43] Table 2.3 in Report 2

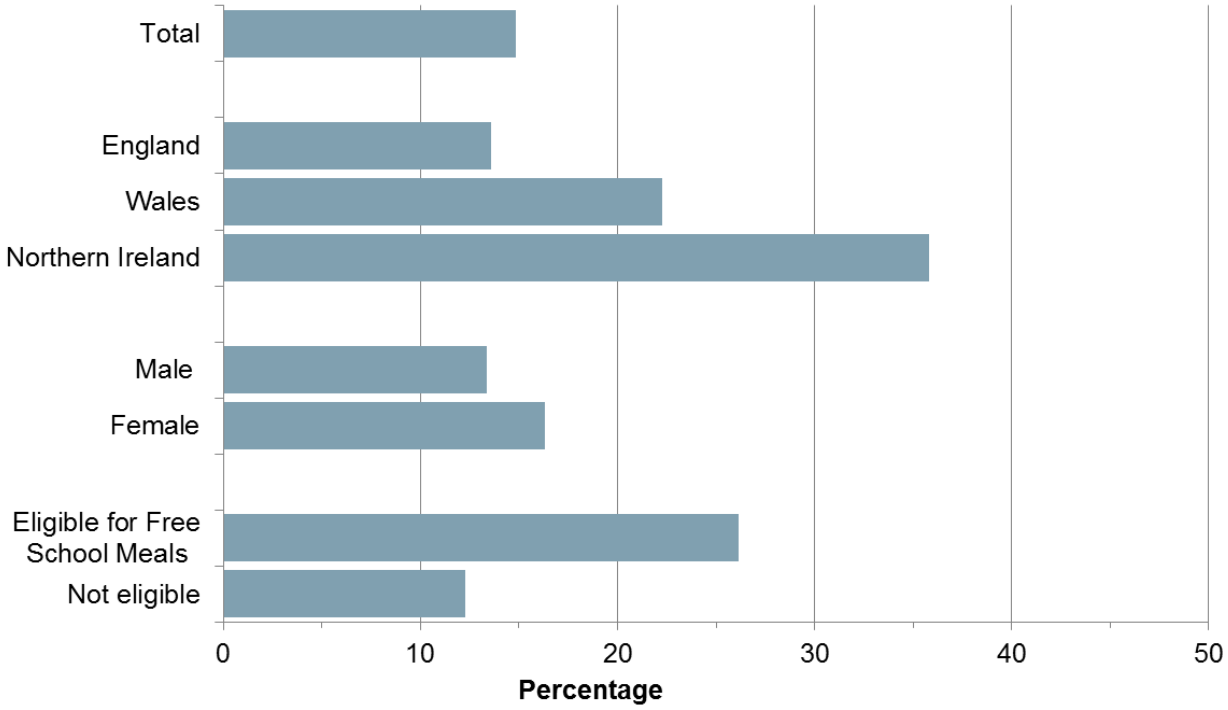
Figure 5.6 (2.13) Percentage of 15 year olds with obvious decay experience in permanent teeth by country, sex and free school meal eligibility status, 2013



Of particular concern was the strong and consistent relationship between deprivation and different measures of severe or extensive dental decay (disease burden) in both 5 and 15 year olds. For example, amongst the 15 year olds 26% of those entitled to free school meals had one or more of the caries burden markers, compared to only 12% amongst the other children[44]. Rates of severe or extensive decay were consistently higher in Wales and Northern Ireland compared to England.

[44] Table 4.6 in Report 4

Figure 5.7 (4.2) Percentage of 15 year olds with severe or extensive decay experience in permanent teeth by country, sex and free school meal eligibility status, 2013



5.3.3 How children's oral health affects their lives

A state of good or bad oral health in a child is not an end in itself. As described in Report 1[45], children's oral health has impacts on their quality of life and a wider impact on their family.

This section presents some additional analysis using the indicators of good and bad oral health, as well as unmet orthodontic treatment need, described in Reports 3 and 4 to further explore the impact of oral health on children and their families[46].

These analyses are restricted to 15 year olds whose cumulative experience is longest; they are also on the threshold of adulthood and at a point where they will be taking responsibility for their own health-related behaviours, for example diet, tooth brushing and dental attendance.

5.3.3.1 Good oral health

Overall 30% of 15 year olds[47] could be described as having **good overall oral health:** no obvious decay experience, no tooth surface loss into dentine, and no calculus. This encompasses a background of good oral health as well as no immediate treatment need[48].

Self-assessed dental health

Individuals' assessments of their own health are necessarily subjective. Though based on experience, they are likely to be mediated by factors such as expectations and emotional wellbeing. Almost three quarters (74%) of 15 year olds rated their overall dental health as good or very good, with the remainder saying that it was fair, poor or very poor[49].

Table 5.31 highlights how 15 year olds with **good overall oral health** self-rated their own oral health. Unsurprisingly those with **good overall oral health** were more likely than others to self-rate their oral health as good or very good; 86%, compared with 70%. Around one in seven of those with **good overall oral health**, however, felt that their oral health was fair, poor or very poor[50].

Table 5.31 Self-assessed dental health in 15 year olds, by presence of good oral health

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Good overall oral health	Not good overall oral health
Very good	29	15
Good	57	55
Fair	13	27
Poor/very poor	1	3
Unweighted bases	*543*	*1,849*

[45] See sections 1.3.3 and 1.3.4
[46] http://www.hscic.gov.uk/pubs/ChildDentalHealth
[47] Table 3.13 in Report 3
[48] This definition excludes any orthodontic treatment need, focusing instead on a range of conditions affected by an individual's behaviour and circumstances.
[49] Table 1.1 in Report 1
[50] Some of these may have been experiencing other problems concerned with the health of their teeth and gums, for example mouth ulcers or orthodontic problems.

Difficulties due to oral health

Just under half (45%) of 15 year olds had experienced some difficulty due to the condition of their teeth and mouth in the past three months[51]. Table 5.32 shows that 15 year olds with good overall oral health were less likely than others to have experienced any difficulties due to the condition of their teeth and mouth: 39% of those with good overall oral health had experienced at least one of eight problems asked about, compared with 48% of others of their age. Those with good overall oral health were less likely to have had any problems eating in the last three months, but otherwise differences for specific problems were small.

Table 5.32 Difficulties due to oral health in the last 3 months in 15 year olds, by presence of good oral health

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Good overall oral health	Not good overall oral health
Embarrassed smiling or laughing	24	29
Difficulty in eating	14	21
Difficulty cleaning teeth	11	15
Felt different	12	10
Difficulty relaxing or sleeping	6	9
Difficulty speaking	7	8
Difficulty enjoying being with people	7	9
Difficulty doing school work	3	3
Any of these	39	48
Unweighted bases	*543*	*1,846*

[51] Table 1.18 in Report 1

5.3.3.2 Bad oral health

The measure of poor health focuses on **severe or extensive decay** experience. Among 15 year olds, 15% had at least one of the criteria: five or more teeth with obvious decay experience, three or more teeth with decay into dentine, any unrestorable teeth, any PUFA signs, or any teeth extracted because of decay[52]. These are children who have an accumulated burden of poor oral health, often including fillings or extractions, as well as current symptoms.

Self-assessed dental health

Within the group with severe or extensive decay, more than half (57%) still thought that their oral health was good or very good. This compares with 78% of 15 year olds with no severe or extensive decay[53].

Table 5.33 Self-assessed dental health in 15 year olds, by presence of severe or extensive decay

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Not severe or extensive decay	Severe or extensive decay
Very good	21	8
Good	57	48
Fair	21	33
Poor/very poor	1	9
Unweighted bases	*1,788*	*607*

Impact of oral health on everyday life

The questionnaire completed by children themselves included a general question about how much in the past three months oral health had affected their everyday life. Around a quarter (24%) of 15 year olds reported some negative impact of oral health on their everyday lives in the past three months[54].

[52] Table 4.2 in Report 4
[53] Numbers in the text may not match the sum of the numbers in the tables due to rounding.
[54] Table 1.17 in Report 1

Those 15 year olds with severe or extensive decay were more likely than others to say that their oral health had affected their everyday life in the past three months; 30%, compared with 23% respectively, although most of those said that their everyday lives were only affected a little (Table 5.34)[55].

Table 5.34 Overall impact of oral health in the last 3 months in 15 year olds, by presence of severe or extensive decay

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Not severe or extensive decay	Severe or extensive decay
Not at all	77	70
A little	18	24
Somewhat	3	3
A fair amount/ a great deal	1	2
Unweighted bases	*1,788*	*599*

Problems due to oral health

Table 5.35 shows that 15 year olds with severe or extensive decay were more likely than others of their age to report difficulties in the past three months as a result of the condition of their teeth and mouth. More than half (54%) of 15 year olds who had severe or extensive decay had at least one problem in the last three months, compared with 44% of those with no severe or extensive decay. In particular, they were more likely to have been embarrassed smiling or laughing, or to have had difficulties with eating and cleaning teeth[56].

Table 5.35 Problems due to oral health in the last 3 months in 15 year olds, by presence of severe or extensive tooth decay

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Not severe or extensive decay	Severe or extensive decay
Embarrassed smiling or laughing	26	36
Difficulty in eating	18	25
Difficulty cleaning teeth	13	18
Felt different	10	12
Difficulty relaxing or sleeping	8	13
Difficulty speaking	8	7
Difficulty enjoying being with people	8	11
Difficulty doing school work	3	5
Any of these	44	54
Unweighted bases	*1,786*	*606*

[55] Numbers in the text may not match the sum of the numbers in the tables due to rounding.
[56] Other differences were not statistically significant.

Impact on the family

Parents were asked whether the health of their child's teeth and mouth had affected their family life in the past six months. It is notable that just over a third (35%) of parents of 15 year olds reported that it had. The most frequent impacts were a parent having to take time off work (23%), the child needing more attention (15%), the parent feeling stressed or anxious (13%) or the parent feeling guilty (11%). These figures demonstrate the major impact of poor oral health on families[57].

Experience of a general anaesthetic

Among 15 year olds, oral health was strongly related to whether or not they had been given a general anaesthetic during dental treatment. Parents of 15 year olds with severe or extensive decay experience reported that their child had been given a general anaesthetic as part of dental treatment more often than parents of children with healthier teeth (Table 5.36)[58].

Table 5.36 Experience of a general anaesthetic in 15 year olds, by presence of severe or extensive decay

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15	Not severe or extensive decay	Severe or extensive decay
GA at least once	8	37
GA, no orthodontic extractions	6	28
GA, some orthodontic extractions	2	9
Unweighted bases	*664*	*144*

[57] Table 1.21 in Report 1

[58] It was not possible to distinguish whether children had received general anaesthetics when having teeth extracted for orthodontic reasons. Children who had some teeth extracted for orthodontic reasons were more likely to have received general anaesthetics, whatever their general state of oral health.

5.3.3.3 Unmet orthodontic treatment need

Report 4 explores the prevalence of unmet orthodontic treatment need among 15 year olds. As shown in section 5.2.4, presence of this condition was associated with relative income deprivation, as children eligible for free school meals were more likely to have a remaining treatment need at the age of 15 than other children.

Unmet treatment need was defined as having either an aesthetic Index of Orthodontic Treatment Need (IOTN)[59] score of 8 or above and/or having a positive score for the IOTN dental health component. There was a substantial overlap between these two. Once 15 year olds currently undergoing orthodontic treatment were excluded from this analysis, 20% of this age group had some unmet orthodontic treatment need.

Self-assessed dental health

Table 5.37 shows that 15 year olds with unmet orthodontic treatment need rated their dental health much more poorly than did other 15 year olds. Just over half (51%) thought that their dental health was good or very good, compared with more than three quarters (76%) of other 15 year olds not currently undergoing treatment. Those with unmet treatment needs were twice as likely as others to say that their dental health was fair or poor (49%, compared with 24%).

Table 5.37 Self-assessed dental health amongst 15 year olds, by presence of unmet orthodontic treatment need

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15 not currently undergoing orthodontic treatment	No unmet treatment need	Unmet treatment need
Very good	21	9
Good	55	42
Fair	22	41
Poor	2	8
Unweighted bases	*1,537*	*427*

Perceptions of treatment need

The 15 year olds were asked whether they were satisfied with the appearance of their teeth and whether they would prefer to have their teeth straightened. It is worth noting that the question concerned appearance, not function. Older children may have a number of reasons to be dissatisfied with the appearance of their teeth that are not susceptible to orthodontic remedies (for example, their colour or size). Moreover, the definition of unmet orthodontic need used here is based on either a very high aesthetic threshold or dental health need, and the latter is not necessarily related to appearance.

Table 5.38 shows that 15 year olds with unmet treatment need were more likely than others to be dissatisfied or very dissatisfied with the appearance of their teeth. Just over a third (34%) reported this. One in ten (10%) of those with no unmet treatment need were dissatisfied or very dissatisfied with the appearance of their teeth.

[59] Brook PH, Shaw WC. The development of an index of orthodontic treatment priority. European Journal of Orthodontics, 1989; 11: 309-320

Over a third (36%) of those with unmet orthodontic treatment need at 15 were still satisfied or very satisfied with the appearance of their teeth.

Table 5.38 Self-assessed dental health amongst 15 year olds, by presence of unmet orthodontic treatment need

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15 not currently undergoing orthodontic treatment	No unmet treatment need	Unmet treatment need
Very satisfied	17	3
Satisfied	48	33
Neither satisfied nor dissatisfied	25	30
Dissatisfied	9	24
Very dissatisfied	1	11
Unweighted bases	*1,535*	*425*

The majority (59%) of 15 year olds with unmet treatment need said that they would prefer to have their teeth straightened, as did a sizeable minority (28%) of those classified as having no unmet treatment need (but see the remarks above). Of those with unmet treatment need, 29% felt that their teeth were all right (Table 5.39).

Table 5.39 Self-assessed treatment need amongst 15 year olds, by presence of unmet orthodontic treatment need

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15 not currently undergoing orthodontic treatment	No unmet treatment need	Unmet treatment need
My teeth are all right	64	29
I would prefer to have them straightened	28	59
Don't know	9	12
Unweighted bases	*1,486*	*401*

Problems due to oral health

It was found that 15 year olds with unmet orthodontic treatment need were much more likely than those with no unmet need to have experienced some difficulty due to the condition of their teeth and mouth in the past three months; 57%, compared with 40% respectively.

Those with unmet treatment need were more likely to have been embarrassed smiling or laughing, or to have had difficulty eating or cleaning teeth.

Table 5.40 Problems due to oral health in the last 3 months in 15 year olds, by presence of unmet orthodontic treatment need

England, Wales and Northern Ireland, 2013		Percentages
Children aged 15 not currently undergoing orthodontic treatment	No unmet treatment need	Unmet treatment need
Embarrassed smiling or laughing	25	40
Difficulty in eating	15	22
Difficulty cleaning teeth	10	21
Felt different	8	15
Difficulty relaxing or sleeping	6	7
Difficulty speaking	4	10
Difficulty enjoying being with people	7	14
Difficulty doing school work	2	4
Any of these	40	57
Unweighted bases	*1,535*	*427*

5.4 About the survey

5.4.1 Survey design and response

A representative sample of children aged 5, 8, 12 and 15 years attending state and independent schools, including academies and free schools in England but excluding special schools, were selected to take part in this survey. Schools with more than 30% of pupils eligible for free school meals were treated as "deprived" and oversampled, so that around a third of selected schools were "deprived".

A total of 13,628 children were sampled in participating schools, and 9,866 dental examinations were completed. Participation rates varied across the age cohorts, broken down as follows:

- 5 year olds 70%
- 8 year olds 65%
- 12 year olds 83%
- 15 year olds 74%

The requirement for positive written parental consent for dental examinations with 5 and 8 year olds is likely to have reduced response from those cohorts relative to the older children.

This is also likely to have reduced the response achieved compared to these cohorts during the 2003 CDH survey, which used opt-out parental consent procedures.

Those 12 and 15 year olds that were examined were asked to complete a questionnaire at the same appointment as their examination; 99.6% of them completed it.

Parents of children who were examined were invited to complete a questionnaire; the overall response rate was 43%, with response being higher amongst the parents of 5 and 8 year olds who had already provided written consent for the dental examination.

Levels of missing data within productive cases were generally low. Item non-response on the dental examination was generally below 1% of eligible cases, with the highest non-response recorded in relation to trauma to permanent teeth (up to 2.1% of cases). For straightforward question formats, item non-response in the pupil and parent questionnaires was generally below 2%. Questions using a yes/no grid format for items on a list had the highest item non-response from both pupils and parents. As the majority of this non-response represented failure to tick the 'no' codes relevant to the individual, it was assumed that this was the case in the production of the derived variables associated with these questions.

5.4.2 Strengths and weaknesses of the survey statistics

It is important to consider the respective strengths and limitations of this survey for users of children's dental statistics. The survey methodology has developed and changed over the 40 years in which it has been run. It is also important to also acknowledge other sources of epidemiological data on children's oral health, including the different local epidemiological programmes run across England, Wales and Northern Ireland, and their respective value and limitations.

Strengths of the CDH survey

- The comparable questionnaire and clinical data across England, Wales and Northern Ireland is a unique feature of this survey relative to other sources of evidence.
- The breadth of the questionnaire and clinical data provides significant potential for analysis of the demographics, attitudes, experiences and behaviours associated with oral health conditions in children.
- The new questionnaire completed by 12 and 15 year olds achieved nearly full response from children who also completed the dental examination. This instrument provides a strong source of information on the attitudes and behaviours of older children, as well the impact of their oral health on them.
- The clinical data includes measurement of both severe and extensive oral health diseases and early stage conditions at tooth surface and tooth level.
- There is good evidence that the measurement of the presence or absence of progressed or severe diseases and conditions, such as decay into the dentine layer of teeth, is reliable.
- The expansion of caries measurement to incorporate early stage enamel decay allows the progression of dental caries to be better understood, and the risks associated with enamel decay to be quantified.
- Continued high response from older children in participating schools allows for analysis of trends in disease and conditions in 12 and 15 year olds.
- The oversampling of pupils in deprived schools, and the collection of free school meal eligibility and other classification information at child level, allows for substantial analysis of the social distribution of disease and conditions.

Limitations of the CDH survey

- The impact of the introduction of positive parental consent procedures for dental examinations with 5 and 8 year old children limits analysis of trends in disease in those age groups.
- The response rate for the parental questionnaire risks non-response bias remaining in some survey findings after the survey weights, which adjust for non-response, are applied.
- The dentition, dental health, attitudes and behaviours of children in the four age groups can all be expected to differ, and this limits the ability to pool the sample for sub-national analysis. A number of area classifications based on the home address of children will, however, be made available on the survey dataset.

- Reliable measurement of early stage disease and conditions - such as tooth surface loss in enamel, presence of plaque and enamel caries – is more difficult when conducting dental examinations in a school environment, and there is a greater chance of variability by examiner in the estimates of in particular tooth surface loss in enamel and presence of plaque.
- The England, Wales and Northern Ireland coverage of the 2013 survey prevents the production of trends for the United Kingdom.
- 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.

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

5.5 Implications for dental services and oral health improvement strategies

The comprehensive and detailed questionnaire and clinical data gathered in this national survey have important implications to consider for a range of issues including delivery and organisation of dental services; development of community based preventive strategies; conduct of epidemiological and surveillance systems, and the future research agenda. In essence, how should clinicians and policy makers respond to the majority of healthy children who have generally good oral health but are still at risk of future oral diseases, and how they should respond to a minority of the population who already have severe levels of disease which are very likely to progress further and become more complex in nature. Added to the clinical data, the results of questionnaire survey also demonstrate the significant impact oral diseases have on children and their families, the high levels of dental anxiety that exists amongst older children, and how certain behaviours such as sugars consumption are a cause for concern for both oral and general health.

5.5.1 Delivery and organisation of dental services for children

It is vitally important that NHS dental services are appropriate and responsive to the oral health needs of children. Services need to provide both evidence based preventive care and treatment services for their child patients. The 'healthy majority' of child patients need on-going preventive support from dental professionals to ensure that they maintain their good oral health status. The wide scale adoption of evidence based clinical preventive interventions such as *Delivering Better Oral Health*[60] is therefore essential. Primary dental care teams need to have the appropriate knowledge, attitudes and skills to implement preventive guidelines. In particular the recommended use of topical fluorides (varnishes) in a clinical setting is essential to prevent the progression of early carious lesions. Based on the

[60] Delivering better oral health: an evidence based toolkit for prevention, third edition (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/367563/DBOHv32014OCTMainDocument_3.pdf)

principles of the Common Risk Factor Approach[61], dental professionals also have a key role to play in supporting their child patients in adopting healthy diets, and in not smoking or drinking alcohol. These preventive messages are important for both oral and general health.

It is also very important that clinical teams provide up to date treatment for the minority of children (around 1 in 7) who have more advanced and severe dental disease. Treating young children can be challenging and require particular clinical skills. Socioeconomic status has a major influence on dental disease amongst children. Clinical teams therefore need to consider how best to improve access and quality of care for children and families from more deprived social backgrounds. Reducing barriers to care and providing socially acceptable care to different social groups requires careful planning.

High levels of reported impact of dental disease on children and their family's quality of life highlight the importance of good communication between children and dental professionals. Understanding and responding appropriately to children's subjective needs requires a range of well-developed communication skills. In addition, the surprisingly high levels of dental anxiety, particularly amongst girls also highlights the importance of providing a responsive, understanding and caring dental service to children.

The diversity of oral health needs of children also highlights the importance of adopting a skill mix approach in NHS dentistry. Much of routine preventive care and simple treatments can be easily provided by appropriately trained dental care professionals through direct access arrangements. Dentists have however an important role in leading and managing the dental team and in the diagnosis and management of more complex needs.

5.5.2 Community based oral health improvement strategies

The major public health challenge is how best to deal with the oral health inequalities that are so strongly evident from both the clinical and questionnaire surveys. Universal population wide health promotion programmes need to ensure that children are equipped with the necessary knowledge and skills to maintain and protect their oral health but also have access to a health promoting environment conducive to sustained good health. The promotion of healthy public policies in relation to diet including sugar consumption, tobacco and alcohol, is important for both oral and general health. A fluoride policy also needs to be developed to ensure the safe, effective and efficient use of this caries preventive measure.

In addition to a universal approach, there is a strong case for a more intense targeted population approach (proportionate universalism) to address high levels of dental disease amongst the socially disadvantaged sections of the child population. Addressing oral health inequalities is a complex challenge – there are no simple solutions. Evidence based preventive guidelines such as *Commissioning Better Oral Health*[62] provides a toolkit of intervention options for adoption within local communities. Success of both the universal and targeted approaches are dependent upon effective partnership working with relevant local and national agencies and sectors, and community engagement with the local populations.

The impact of orthodontic need and aesthetics on adolescents was very apparent. The difference, by age 15, in unmet orthodontic need therefore is a concern. There are many

[61] Watt RG, Sheiham A. (2012). Integrating the common risk factor approach into a social determinants framework. Community Dentistry and Oral Epidemiology, 40, 289-296.
[62] Local authorities improving oral health: commissioning better oral health for children and young people (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321503/CBOHMaindocumentJUNE2014.pdf)

reasons why this difference may exist but this is an area where we need a better understanding of the reasons for such differences.

5.5.3 Epidemiology and surveillance

The UK is extremely fortunate to have such a well-developed local and national dental epidemiological programme. Oral diseases remain a significant public health problem with an increasingly complex and dynamic prevalence pattern across the child population. It is essential that the nationally coordinated NHS Epidemiological Programme continues to collect clinical data at a local level to inform local decision making and the evaluation of local initiatives. It is also very important that national child dental health epidemiological surveys are continued to assess and compare oral health over time and between countries. Methodological innovations in national surveys such as the comprehensive assessment of the continuum of caries across the population provide valuable estimates of both restorative and preventive care needs. In addition, national data provides a much more detailed overview of population oral health inequalities and their determinants.

5.5.4 Research

The CDH Survey 2013 provides a wealth of questionnaire and clinical data that provides a wide range of opportunities for further research on child dental health. The robust methodology and diverse data set will enable researchers to undertake various options for secondary analysis to further explore in greater depth the oral health and disease patterns of children in England, Wales and Northern Ireland and the nature of oral health inequalities. A full anonymised data set will be deposited in the Data Archive and available for researchers in 2015.

5.6 Conclusions

Overall this survey has shown that the majority of children in England, Wales and Northern Ireland have good oral health and generally positive oral health behaviours. Despite this the detailed results have highlighted a more complex and nuanced picture. A minority of children have high levels of disease burden, and a significant proportion have early stage of caries and are at risk of further disease progression. Major inequalities in disease experience are evident by both levels of deprivation and across countries. A high proportion of children and their parents report oral impacts, and levels of dental anxiety are surprisingly high. The results of this survey have important implications for the future development of dental services and oral health policy.

Published by the Health and Social Care Information Centre

Part of the Government Statistical Service

Responsible Statistician

Gemma Ramsay, Section Head, Primary Care

ISBN 978-1-78386-323-5

This publication may be requested in large print or other formats.

For further information

www.hscic.gov.uk

0300 303 5678

enquiries@hscic.gov.uk