Children's Dental Health in Northern Ireland 2003

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Notes on the tables and text

Proportionately larger samples were selected in Wales and Northern Ireland than in England to provide estimates for these three countries within the UK. The data needed to be reweighted in order to produce representative figures for the UK as a whole. Weighted bases are provided for UK estimates and unweighted sample sizes are provided for individual country comparisons.

There was no oversampling in Scotland relative to England as a separate analysis for Scotland was not required by the Scottish Executive.

Differences cited in the text are statistically significant ($p<0.05$) unless otherwise stated.

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

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

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Introduction

The 2003 Children's Dental Health Survey, commissioned by the four United Kingdom Health Departments, is the fourth in a series of national children's dental health surveys that have been carried out every 10 years since 1973 in England and Wales and in the whole of the UK since 1983.

The survey provides information on the dental health of children in the United Kingdom, measures changes in oral health since the last survey in 1993 and provides information on children's experiences of dental care and treatment and their oral hygiene.

Overview of survey design

The 2003 survey was based upon a representative sample of children aged five, eight, 12 and 15 years of age attending government maintained and independent schools in the UK. As in the three earlier surveys, dental examiners were recruited to carry out examinations on the sampled children in participating schools.

Schools were sampled by obtaining lists of maintained and independent schools from the relevant education departments. Sampled schools were asked to participate in the survey and those that agreed forwarded lists of children in the eligible age groups at their school to ONS. These lists were used to randomly select an appropriate number of children for each school. A total of 12698 children were sampled within participating schools and asked to take part in a dental examination at school.

Dental examinations were carried out in schools between October and December 2003. In total 10381 children were examined, a response rate of 82 per cent. Background data on children's oral hygiene and dental care were requested by questionnaire from the parents of a random sub-sample of 5480 examined children. In total, 3342 questionnaires were returned, a response rate of 61 per cent.

In Northern Ireland, 2088 children were sampled within participating schools and 1770 of these children were examined, a response rate of 85 per cent. Questionnaires were sent to a random sub-sample of 946 parents and 429 questionnaires were returned, a response rate of 45 per cent.

Complete details of the survey methodology can be found in the Children's Dental Health in the United Kingdom 2003 Technical Report available at

http://www.statistics.gov.uk/children/dentalhealth

This report highlights findings for the dental health of five, eight, 12 and 15-year-olds in Northern Ireland in 2003. Where appropriate comparisons are made with the dental health of children in England and Wales.

Proportionately larger samples were selected in Wales and Northern Ireland than in England to provide estimates for these three countries within the UK. There was no oversampling in Scotland relative to England as a separate analysis for Scotland was not required by the Scottish Executive.

1 Obvious decay experience

A major part of the survey dental examination was an assessment of the obvious decay experience of children's teeth. Obvious decay experience is the sum of teeth which, at the time of the examination, had decay into dentine (including teeth that were filled in the past but which needed further treatment), filled teeth, or teeth that were missing due to decay. However, in primary teeth an assessment of teeth missing due to decay is complicated by the natural exfoliation of the teeth, making it difficult to determine whether a tooth was lost due to dental decay or whether it exfoliated naturally. Therefore, as in previous surveys, dental examiners were not asked to assess the reason for the absence of primary teeth.

In the 2003 survey the criteria for assessing dental caries were changed from those used in the earlier surveys to reflect changes in the presentation of dentine decay. In order to compare the data on the condition of teeth in 2003 with those from 1983 and 1993, the 2003 data were re-classified according to the pre-2003 criteria. Where this report refers to trends in decay over time the conditions of children's teeth are assessed according to the pre-2003 criteria (d_{3c}mft/D_{3c}MFT, d_{3c}/D_{3c}). Results reporting the overall condition of children's teeth in 2003 use the revised 2003 criteria, which include visual dentine caries (d_{3cV}mft/D_{3cV}MFT, d_{3cV}/D_{3cV}). In all cases clinical caries in enamel was excluded. Full details of the 2003 and pre-2003 criteria can be found in the report covering Obvious Decay Experience available at http://www.statistics.gov.uk/children/dentalhealth

Trends in the condition of the primary ('milk') teeth

In 2003, over half of five-year-olds (56 per cent) had obvious decay experience (d_{3c}mft) in the primary teeth. Forty seven per cent of five-year-olds had at least one primary tooth with decay into dentine (d_{3c}) and 17 per cent had at least one filled primary tooth. Among eight-year-olds, 71 per cent had obvious decay experience (d_{3c}mft) in the primary teeth. Over half of eight-year-olds (62 per cent) had a least one primary tooth with decay into dentine (d_{3c}) and over a third (35 per cent) had a least one filled primary tooth. There were no statistically significant changes between the 1993 and 2003 surveys in the proportion of five and eight-year-olds with decay into dentine (d_{3c}), filled teeth or obvious decay experience (d_{3c}mft) in the primary teeth.

Table 1.1

Table 1.1 Proportion of children with obvious decay experience (d_{3c}mft) in primary teeth by age (Northern Ireland 1983, 1993, 2003)

Tooth condition	Age	
	5	8
	Percentage of children:	
Decay into dentine		
1983	68	70
1993	51	62
2003+	56	69
Filled (otherwise sound)		
1983	26	47
1993	20	37
2003+	21	38
Obvious decay experience		
1983	74	84
1993	60	75
2003+	61	76

+ Criteria used for 1993 survey (d_{3c}mft does not include visual caries)

There were no statistically significant changes between 1993 and 2003 surveys in the average number of filled primary teeth, teeth with decay into dentine (d_{3c}) or with obvious decay experience (d_{3c}mft).

Table 1.2

Table 1.2 Mean number of primary teeth with obvious decay experience (d_{3c}mft) by age (United Kingdom, 1983, 1993, 2003)

Tooth condition	Age	
	5	8
	Percentage of children:	
Decay into dentine		
1983	3.0	1.8
1993	1.8	1.8
2003+	2.1	2.0
Filled (otherwise sound)		
1983	0.7	1.2
1993	0.5	0.8
2003+	0.4	0.8
Obvious decay experience		
1983	3.7	3.0
1993	2.3	2.6
2003+	2.6	2.8

+ Criteria used for 1993 survey (d_{3c}mft does not include visual caries)

The condition of the primary teeth in Northern Ireland 2003

In the primary dentition, use of the contemporary 2003 criteria for obvious decay experience (d_{3cv}mft) and decay into dentine (d_{3cv}) had little impact on estimates of the proportion of children, or the mean number of teeth, affected by decay. In Northern Ireland, over 6 out of 10 five-year-olds (61 per cent) showed signs of obvious decay

experience (d_{3cv}mft), while over three quarters (76 per cent) of eight-year-olds had obvious decay experience (d_{3c}mft). There were differences in the proportion of children affected by decay in the primary teeth between countries of the United Kingdom. Among five-year-olds, a higher proportion of children in Northern Ireland compared with England and Wales were affected by obvious decay experience (d_{3cv}mft), decay into dentine (d_{3cv}) or fillings in the primary teeth. For example, 61 per cent of five-year-olds in Northern Ireland had obvious decay experience (d_{3cv}mft) in the primary teeth, compared with 41 per cent in England and 52 per cent in Wales. Among eight-year olds, a higher proportion of children in Northern Ireland compared with were affected by obvious decay experience (d_{3cv}mft), decay into dentine (d_{3cv}) or fillings in the primary teeth. For example, 70 per cent of eight-year-olds in Northern Ireland had decay into dentine (d_{3cv}) compared with 48 per cent in England and 76 per cent had obvious decay experience (d_{3cv}mft) compared with 54 per cent in England. The proportion of the total obvious decay experience (D_{3c}MFT) represented by filled primary teeth was identical in Northern Ireland and England (13 per cent), while the proportion in Wales (17 per cent) did not differ significantly from England or Northern Ireland.

Table 1.3

Table 1.3 Proportion of children with obvious decay experience (d_{3cv}mft) in primary teeth by country and age (United Kingdom, 2003)

	Country			
	England	Wales	Northern Ireland	United Kingdom
	Percentage of children			
Decay into dentine				
5 year olds	38	48	57	40
8 year olds	48	64	70	51
Filled (otherwise sound)				
5 year olds	10	15	19	11
8 year olds	22	32	34	24
Obvious decay experience				
5 year olds	41	52	61	43
8 year olds	54	71	76	57
Filled teeth as a percentage of obvious decay experience*				
5 year olds	13	17	13	13
8 year olds	24	25	24	25
Unweighted sample size				
5 year olds	1620	582	456	2538!
8 year olds	1547	573	462	2599!

! Weighted based presented for UK

* Total number of filled teeth divided by total number of teeth with obvious decay experience

A similar pattern was observed in the average number of primary teeth affected by decay. The average number of primary teeth with obvious decay experience (d_{3cv}mft), decay into dentine (d_{3cv}) or fillings was higher in Northern Ireland than in England and Wales among five-year-olds and was higher in Northern Ireland than in England among eight-year-olds. children.

Table 1.4

Table 1.4 Mean number of primary teeth with obvious decay experience (d_{3cv}mft) by country and age (United Kingdom, 2003)

	Country			
	England	Wales	Northern Ireland	United Kingdom
	Mean number of teeth:			
Decay into dentine				
5 year olds	1.3	1.6	2.2	1.4
8 year olds	1.3	1.8	2.1	1.4
Filled (otherwise sound)				
5 year olds	0.2	0.3	0.3	0.2
8 year olds	0.4	0.6	0.7	0.4
Obvious decay experience				
5 year olds	1.5	1.9	2.5	1.6
8 year olds	1.7	2.5	2.8	1.8

Trends in the condition of the permanent teeth

Using comparable criteria to the 1993 survey, among eight-year-olds in 2003, 26 per cent had obvious decay experience (D_{3c}MFT) in the permanent dentition, 12 per cent had decay into dentine (D_{3c}), 16 per cent had filled teeth, while 1 per cent had at least one tooth missing due to decay. In twelve-year-olds, 66 per cent had obvious decay experience (D_{3c}MFT) in the permanent dentition, 24 per cent had decay into dentine (D_{3c}), 56 per cent had at least one filled tooth and 14 per cent had at least one tooth missing due to decay. Seventy four per cent of 15-year-olds had obvious decay experience (D_{3c}MFT) in the permanent dentition, 23 per cent had decay into dentine (D_{3c}), 67 per cent had at least one filled tooth and 17 per cent had at least one tooth missing due to decay.

Table 1.5

Table 1.5 Proportion of children with obvious decay experience (D_{3c}MFT) in permanent teeth by age (Northern Ireland, 1983, 1993, 2003)

	Age		
	8	12	15
	Percentage of children		
Decay into dentine			
1983	38	57	64
1993	19	40	44
2003+	12	24	23
Filled (otherwise sound)			
1983	39	66	83
1993	13	60	73
2003+	16	56	67
Missing due to decay			
1983	7	31	53
1993	*	14	21
2003	1	14	17
Obvious decay experience			
1983	68	94	100
1993	27	76	85
2003+	26	66	74

+ Criteria used for 1993 survey (d3cmft does not include visual caries)

Among 12 and 15-year-olds, the proportion of children with obvious decay experience ($D_{3c}MFT$) and decay into dentine (D_{3c}) and the proportion with at least one filled permanent tooth decreased since the previous surveys. The decrease was particularly pronounced in the proportion of 15-year-olds with obvious decay experience ($D_{3c}MFT$) in the permanent teeth 100 per cent in 1983, 85 per cent in 1993 and 74 per cent in 2003.

Table 1.5

Between the 1993 and 2003 survey the average number of permanent teeth with decay into dentine (D_{3c}) more than halved in 15-year-olds (from 1.0 to 0.4). The average number of permanent teeth with obvious decay experience ($D_{3c}MFT$) fell from 3.0 teeth in 1993 to 2.2 teeth in 2003 in 12-year-olds and from 5.3 to 3.8 teeth in 15-year-olds. Among 15-year-olds the average number of filled permanent teeth decreased from 3.8 teeth in 1993 to 3.0 teeth in 2003 in 15-year-olds.

Table 1.6

Table 1.6 Mean number of permanent teeth with obvious decay experience ($D_{3c}MFT$) by age (Northern Ireland, 1983, 1993, 2003)

	Age		
	8	12	15
		Percentage of children	
Decay into dentine			
1983	0.7	1.5	2.1
1993	0.3	0.8	1.0
2003+	0.2	0.4	0.4
Filled (otherwise sound)			
1983	1.0	2.6	5.8
1993	0.2	1.9	3.8
2003+	0.3	1.5	3.0
Missing due to decay			
1983	0.1	0.7	1.3
1993	*	0.3	0.5
2003	*	0.3	0.4
Obvious decay experience			
1983	1.9	4.8	9.2
1993	0.6	3.0	5.3
2003+	0.5	2.2	3.8

+ Criteria used for 1993 survey (d3cmft does not include visual caries)

The condition of the permanent teeth in Northern Ireland 2003

Use of the contemporary 2003 criteria obvious decay experience ($D_{3cv}MFT$) and decay into dentine (D_{3cv}) increased the prevalence decay into dentine among all age groups and the prevalence of obvious decay among eight-year-olds. When visual criteria were included in the assessment, the proportion of children with decay into dentine increased from 12 per cent to 25 per cent in eight-year-olds, from 24 per cent to 44 per cent in 12-year-olds and from 23 per cent to 46 per cent in 15-year-olds. Obvious decay experience increased from 26 per cent to 34 per cent among eight-year-olds, while changes among 12 and 15-year-olds were not statistically significant.

Table 1.7

Table 1.7 Proportion of children with obvious decay experience measured by pre-2003 ($D_{3c}MFT$) and 2003 ($D_{3cv}MFT$) criteria by age (Northern Ireland, 2003)

	Pre-2003 ($d_{3c}MFT$)	2003 ($d_{3cv}MFT$)
	Percentage of children:	
Decay into dentine		
8 year olds	12	25
12 year olds	24	44
15 year olds	23	46
Obvious decay experience		
8 year olds	26	34
12 year olds	66	73
15 year olds	74	78

Estimates of the average number of teeth affected by decay also increased using the revised 2003 criteria. When using the revised criteria, the average number of teeth with decay into dentine increased from 0.2 to 0.5 in eight-year-olds and from 0.4 to 1.1 in 12 and 15-year-olds. The average number of teeth with obvious decay experience more than trebled (to 1.8) in eight-year-olds, increased from 2.2 to 2.5 in 12-year-olds and from 3.8 to 4.4 in 15-year-olds.

Table 1.8

Table 1.8 Mean number of teeth with obvious decay experience measured by pre-2003 ($D_{3c}MFT$) and 2003 ($D_{3cv}MFT$) criteria by age (Northern Ireland, 2003)

	Pre-2003 ($d_{3c}MFT$)	2003 ($d_{3cv}MFT$)
	Percentage of children:	
Decay into dentine		
8 year olds	0.2	0.5
12 year olds	0.4	1.1
15 year olds	0.4	1.1
Obvious decay experience		
8 year olds	0.5	1.8
12 year olds	2.2	2.5
15 year olds	3.8	4.4

In all age groups, a higher proportion of children in Northern Ireland compared with England were affected by obvious decay experience ($D_{3cv}MFT$), decay into dentine (D_{3cv}) or fillings in the permanent teeth. For example, 78 per cent of 15-year-olds in Northern Ireland had obvious decay experience ($D_{3cv}MFT$) in the permanent teeth, compared with 55 per cent in England. Among 12-year-olds a higher proportion of children in Northern Ireland (73 had obvious decay experience ($D_{3cv}MFT$) compared with Wales (54 per cent). In all age groups, the proportion of children with filled permanent teeth was higher in Northern Ireland than in England or Wales. A similar pattern was observed among 12 and 15-year-olds for the proportion with at least one permanent tooth missing due to decay. The proportion of total obvious decay experience represented by filled teeth was higher in Northern Ireland compared with England in all age groups.

Table 1.9

Table 1.9 Proportion of children with obvious decay experience ($D_{3cv}MFT$) in permanent teeth by country and age (United Kingdom , 2003)

	Country			
	England	Wales	Northern Ireland	United Kingdom
		Percentage of children		
Decay into dentine				
8 year olds	13	18	25	14
12 year olds	28	35	44	29
15 year olds	31	35	46	32
Filled (otherwise sound)				
8 year olds	6	10	15	7
12 year olds	22	32	54	25
15 year olds	38	51	66	41
Missing due to decay				
8 year olds	1	1	1	1
12 year olds	2	4	14	3
15 year olds	5	9	17	6
Obvious decay experience				
8 year olds	17	26	34	19
12 year olds	41	54	73	43
15 year olds	55	65	78	57
Filled teeth as a percentage of obvious decay experience *				
8 year olds	28	31	37	30
12 year olds	44	46	51	46
15 year olds	54	62	64	57
Unweighted sample size				
8 year olds	1547	573	472	2599!
12 year olds	1356	559	462	2689!
15 year olds	1116	482	380	2556!

! Weighted based presented for UK

* Total number of filled teeth divided by total number of teeth with obvious decay experience

Differences between countries were also evident in the average number of teeth affected by decay. In all age groups, the average number of permanent teeth with obvious decay experience ($D_{3cv}MFT$) was higher in Northern Ireland than in England or Wales. For

example, the average number of permanent teeth with obvious decay experience ($D_{3cv}MFT$) for 15-year-olds was 4.4 in Northern Ireland compared with 1.8 in England, and 2.5 in Wales. The average number of permanent teeth with decay into dentine (D_{3cv}) was higher in Northern Ireland than in England for all ages. Among 12 and 15-year-olds, the average number of filled permanent teeth was higher in Northern Ireland than England or Wales.

Table 1.10

Table 1.10 Mean number of permanent teeth with obvious decay experience (D3cvMFT) by country and age (United Kingdom , 2003)

	Country			
	England	Wales	Northern Ireland	United Kingdom
		Percentage of children		
Decay into dentine				
8 year olds	0.2	0.3	0.5	0.2
12 year olds	0.5	0.7	1.1	0.5
15 year olds	0.8	0.8	1.2	0.8
Filled (otherwise sound)				
8 year olds	0.1	0.1	0.3	0.1
12 year olds	0.4	0.6	1.4	0.5
15 year olds	1.0	1.5	2.8	1.2
Missing due to decay				
8 year olds	*	*	*	*
12 year olds	*	0.1	0.3	*
15 year olds	0.1	0.2	0.4	0.1
Obvious decay experience				
8 year olds	0.3	0.5	0.8	0.3
12 year olds	1.0	1.4	2.7	1.1
15 year olds	1.8	2.5	4.4	2.0

Prevalence of Sealants

Sealants are applied to the surfaces of the teeth to arrest or prevent decay. Among all age groups, the proportion of children with sealed permanent teeth was higher in Northern Ireland than in England and Wales. For eight, and 12-year-olds the trends in sealant provision indicate that there was an increase between 1983 and 1993, but that sealant use has declined over the last decade. Sealant use among 15-year-olds in Northern Ireland has not declined over the last 10 years. *Table 1.11*

Table 1.11 Proportion of children with sealants on permanent teeth by age and country (United Kingdom, 2003)

Age	England			Wales			Northern Ireland			United Kingdom		
	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
						Percentage of children:						
8 year olds	5	24	11	9	32	18	3	49	32	6	27	13
12 year olds	3	35	22	4	35	25	1	57	40	4	38	25
15 year olds	2	34	28	2	31	31	-	47	50	2	36	30

2 Non-carious dental conditions

The 2003 survey examined three main types of non-carious dental conditions:

- Tooth Surface Loss of the primary and permanent upper incisors and occlusal surfaces of first permanent molars.

Tooth Surface Loss (TSL) is pathological non-carious loss of tooth tissues resulting from: chemical action not involving bacteria (erosion); or wear due to tooth-to-tooth contact during mastication or grinding of teeth (attrition); or physical wear caused by factors other than tooth-to-tooth contact, for example toothbrushing (abrasion).

- Enamel opacities among 12-year-olds

Alterations to the structure of enamel during its formation produces changes in its appearance which can be observed clinically. The aetiology of these changes is variable and includes trauma, infections and nutritional disturbances, including the ingestion of too much fluoride. The appearance of the tooth varies widely from discrete white or yellow patches (demarcated opacity) to more extensive coverage with fine white lines barely visible to the naked eye (diffuse opacity). More rarely, pitting of the tooth surface occurs (hypoplasia). The defects may appear alone or in combination. Where the opacities are considered unsightly, treatment may be required to improve the appearance of teeth.

- Accidental damage to permanent incisors

Evidence of accidental damage to permanent incisors and treatment undertaken to repair the damage was also assessed among eight, 12 and 15-year-olds.

Tooth surface loss of primary upper incisors

The proportion of 5-year-olds with evidence of any TSL on one or more of the buccal surfaces of the primary upper incisors was 10 per cent, and 3 per cent had TSL involving dentine or pulp. TSL of the lingual surface was more common, affecting almost half (48 per cent) of 5 year olds. TSL progressing to dentine or pulp was present on 25 per cent of lingual incisal surfaces.

Table 2.1

Table 2.1 Proportion of 5 year old children with tooth surface loss (TSL) on the surfaces of the primary incisors (Northern Ireland, 2003)

	Any TSL	Into dentine or pulp
Percentage of children with TSL on:		
Incisors		
Buccal surfaces	10	3
Lingual surfaces	48	25

Table 2.2 details the TSL on each of the incisors on the left side of the mouth (figures were identical for the right side which is therefore not shown). The proportion of children with

any TSL was greater on the central incisor (upper left a) than on the lateral incisor (upper left b) for both buccal surfaces and lingual surfaces. TSL into dentine or pulp was greater on the lingual surfaces of the central incisor than the lateral incisor (23 per cent as compared to 9 per cent), while similar levels of TSL into dentine or pulp were observed on buccal surfaces of each incisor.

Table 2.2

Table 2.2 Tooth surface loss (TSL) on primary teeth in the left side of the mouth in children aged 5 (Northern Ireland, 2003)

	Any TSL	into dentine or pulp
	Percentage of children:	
Buccal surfaces		
Upper left a	10	2
Upper left b	6	1
Lingual surfaces		
Upper left a	47	23
Upper left b	31	9

When a primary incisor was affected by TSL usually two thirds or more of the surface was affected *Table 2.3*

Table 2.3 Area covered by tooth surface loss (TSL) on lingual surface of primary upper left incisors in children aged 5 (Northern Ireland, 2003)

	Percentage
Upper left central	
Less than a third	8
A third, but less than two thirds	35
Two thirds or more	56
Base (100 per cent of children with TSL)	*198*
Upper left lateral	
Less than a third	11
A third, but less than two thirds	25
Two thirds or more	63
Base (100 per cent of children with TSL)	*147*

Tooth surface loss of permanent upper incisors and first permanent molars

TSL of permanent incisors was both less common and less severe than that of primary incisors. Among eight-year-olds, 6 per cent of incisors had some TSL on the buccal surfaces and among 15-year-olds this increased to 14 per cent. TSL was more common on the lingual surfaces of the incisors. The proportion of children with TSL of the lingual surfaces increased between examined age groups: with 9 per cent of eight-year-olds, 18 per cent of 12-year-olds and 26 per cent of 15-year-olds affected. Only a small proportion of TSL of the lingual surfaces was into dentine or pulp; 1 per cent among eight and 12-year-olds and 2 per cent among 15-year-olds. The proportion of children with TSL on the molars

was similar for eight –year-olds (11 per cent) and 12-year-olds (9 per cent) and increased to 20 per cent among 15-year-olds. There was little TSL into dentine or pulp on the molars with only 2 per cent of 12 and 15-year-olds affected.

Table 2.4

Table 2.4 Proportion of children aged 8, 12 and 15 with tooth surface loss on the surfaces of the permanent incisors and first permanent molars (Northern Ireland, 2003)

	Age					
	8		12		15	
	Any TSL	Into dentine or pulp	Any TSL	Into dentine or pulp	Any TSL	Into dentine or pulp
	Percentage of children:					
Incisors						
Buccal surfaces	**6**	**-**	**8**	**-**	**14**	**-**
Lingual surfaces	**9**	**1**	**18**	**1**	**26**	**2**
Molars	**11**	**-**	**9**	**2**	**20**	**2**

Table 2.5 shows the TSL on each of the two incisors on the left side of the mouth. Within each age group, there were no statistically significant differences between the levels of TSL on central (upper left 1) and lateral (upper left 2) incisors or upper or lower first permanent molars. The highest levels of any TSL were observed among 15-year-olds.

Table 2.5

Table 2.5 Tooth surface loss (TSL) on individual permanent incisors and first permanent molars on the left side of the mouth in children aged 8, 12 and 15 (Northern Ireland, 2003)

	Age					
	8		12		15	
	Any TSL	Into dentine or pulp	Any TSL	Into dentine or pulp	Any TSL	Into dentine or pulp
	Percentage of children:					
Incisors						
Buccal surfaces						
Upper left 1	6	-	7	-	13	-
Upper left 2	3	-	4	-	11	-
Lingual surfaces						
Upper left 1	9	-	17	-	24	1
Upper left 2	6	-	14	-	20	1
Molars						
Upper left 6	8	-	3	-	10	-
Lower left 6	6	-	7	1	13	1

As with primary incisors, among 12 and 15-year-olds the majority of affected permanent incisors on the left side of the mouth, had tooth surface loss affecting two-thirds or more of the tooth surface

Table 2.6

Table 2.6 Area covered by tooth surface loss on the lingual surfaces of the permanent incisors and occlusal surfaces of the first permanent molars on the left side of the mouth in children aged 8, 12 and 15 (United Kingdom, 1993, 2003)

	Age		
	8	12	15
		Percentage of children	
Incisors			
Upper left central			
Less than a third	[17]	6	5
A third, but less than two thirds	[33]	25	19
Two thirds or more	[50]	67	76
Base (100 per cent of children with TSL)	37	86	95
Upper left lateral			
Less than a third	[33]	8	-
A third, but less than two thirds	[33]	23	24
Two thirds or more	[33]	69	76
Base (100 per cent of children with TSL)	20	71	78
Molars			
Upper left 6			
Less than a third	[67]	[33]	[44]
A third, but less than two thirds	[33]	[33]	[22]
Two thirds or more	[-]	[33]	[33]
Base (100 per cent of children withTSL)	37	26	38
Lower left 6			
Less than a third	[75]	[43]	[33]
A third, but less than two thirds	[25]	[29]	[42]
Two thirds or more	[-]	[29]	[25]
Base (100 per cent of children withTSL)	28	38	49

[ ] Caution low base number of respondents: results are indicative only

Enamel opacities in 12-year-olds

Compared with the 1993 survey there was a slight increase in the proportion of 12-year-olds in Northern Ireland presenting with enamel defects: 27 per cent in 1993 and 33 per cent in 2003. The defects presenting most often were demarcated opacities and diffuse opacities: 24 per cent and 11 per cent of 12-year-olds respectively had these on one or more teeth. In 2 per cent of 12-year-olds, one or more tooth exhibited both demarcated and diffuse opacities. Hypoplasia affected few 12-year-olds with only 2 per cent showing hypoplasia. Children in Northern Ireland were more likely to have demarcated opacities (24 per cent), compared with England (18 per cent). Diffuse opacities were less prevalent among 12-year-olds in Northern Ireland (11 per cent) than they were in England (18 per cent).

Table 2.7

Table 2.7 Proportion of 12 year olds with enamel opacities and other defects of the tooth enamel (United Kingdom, 1993, 2003, upper incisors and premolars)

	Country England		Wales		Northern Ireland		United Kingdom	
	1993	2003	1993	2003	1993	2003	1993	2003
	Percentage of children:							
Demarcated opacity	19	18	15	20	20	24	20	17
Diffuse opacity	20	18	15	9	7	11	19	16
Demarcated and diffuse opacity	3	3	2	2	4	2	3	3
Hypoplasia	1	2	1	1	1	2	1	2
Demarcated opacity and hypoplasia	1	*	1	*	-	1	1	*
Diffuse opacity and hypoplasia	1	1	-	*	-	1	1	1
All three defects	-	*	-	*	-	-	-	*
Other defects	-	-	-	-	-	-	-	-
Any of the above defects	36	35	27	29	27	33	36	34

Symmetry of diffuse defects

The symmetry of diffuse defects was measured for the first time in 2003. Among examined 12-year-olds with diffuse defects in the United Kingdom almost two thirds (65 per cent) are symmetrical. The proportion of symmetrical defects was highest in England, at 66 per cent, with Wales and Northern Ireland having lower levels of 48 per cent and 46 per cent respectively. However, it must be noted that very few of the symmetrical diffuse defects were severe, as assessed by reference to a standard impact photograph regarded as the level at which diffuse defects cause aesthetic concern. Only a minority of the teeth examined, which had symmetrical diffuse defects, had a defect more severe than the impact photograph.

Tables 2.8 and 2.9

Table 2.8 Symmetry of diffuse enamel defects (United Kingdom, 2003, 12 year olds)

	England	Wales	Northern Ireland	United kingdom
		Percentage:		
Not symmetrical	34	52	53	35
Symmetrical	66	48	46	65
Base (100 per cent of children with defect)	*272*	*54*	*60*	*409*

Table 2.9 Severity of symmetrical enamel defects (United Kingdom 2003, 12 year olds)

	England	Wales	Northern Ireland	United Kingdom
		Percentage:		
Similar or less severe than photo	89	[98]	[93]	90
More severe than photo	11	[2]	[6]	10
Base (100 per cent of children with defect)	*179*	*28*	*26*	*248*

[ ] Caution low base number of respondents - results are indicative only.

The prevalence of accidental damage

The proportion of children in Northern Ireland sustaining accidental damage to permanent incisors fell among 15-year-olds from 27 per cent in 1993 to 17 per cent in 2003. The decline was most pronounced among 15-year-old girls, with the proportion having accidental damage falling from 25 per cent in 1993 to 11 per cent in 2003. Among 15-year-olds, boys were more likely to damage their incisors than girls. The overall trends within Northern Ireland are, in general, very similar to the pattern in England and Wales, with exception of 12-year-olds in Northern Ireland where there is a slight increase since the 1993 survey from 13 per cent to 16 per cent.

Table 2.10

Table 2.10 Proportion of children with any accidental damage to the incisors by age, sex and country (United Kingdom 1983, 1993, 2003)

Age	England			Wales			Northern Ireland			United Kingdom		
	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
	Percentage of children:											
Boys												
8 year olds	13	6	6	9	7	6	6	6	5	12	6	6
12 year olds	29	27	14	31	11	11	22	20	20	29	25	14
15 year olds	34	21	17	35	20	14	30	30	23	33	21	16
Girls												
8 year olds	7	5	4	6	5	1	5	4	5	7	5	4
12 year olds	16	9	7	12	6	7	13	7	10	16	9	8
15 year olds	19	12	10	27	11	12	19	25	11	19	12	10
All children												
8 year olds	10	6	5	8	6	3	5	5	5	10	6	5
12 year olds	23	18	11	22	8	9	18	13	16	23	17	11
15 year olds	26	16	13	30	16	13	24	27	17	26	17	13

3 Periodontal condition and hygiene behaviour

Indicators of oral health include the condition of children's gums as well as their teeth. The clinical examination included four measures of periodontal health that had been used in the previous surveys of 1983 and 1993. Three of these, relating to the visual examination of the gingivae, recorded the presence of gum inflammation, plaque and calculus for each of the six segments of the mouth, for all age groups. The criteria were consistent with those used in 1993. The fourth measure of periodontal health was used for 15-year-olds only. This made use of a periodontal probe which was used to detect gingival bleeding, a marker of active periodontal disease, around six index teeth. Periodontal pocketing was not measured, as accurate assessment of periodontal attachment loss at this age is difficult without a much more detailed and invasive examination. Furthermore, previous surveys had not identified periodontal attachment loss as a significant public health problem at this age.

In addition, reported oral hygiene behaviours form an important part of understanding the whole picture of oral health. This section also presents information from the questionnaire to determine these aspects of children's oral health.

The visual assessment of the gums

Each of the six segments of the mouth were examined for the presence or absence of gum inflammation, plaque and calculus.

Thirty six per cent of five-year-olds in Northern Ireland had gum inflammation. This proportion increased to 63 per cent among eight-year-olds and 68 per cent among 12-year-olds and decreased slightly among 15-year-olds to 65 per cent. Five, eight and 12-year-olds, in Northern Ireland were more likely than those in England to have gum inflammation. A higher proportion of five and eight-year-olds in Northern Ireland had gum inflammation compared with Wales. Among 15-year-olds a higher proportion of children in Northern Ireland (65 per cent) had gum inflammation compared with both England (53 per cent) and Wales (56 per cent).

Table 3.1

Prevalence of plaque showed a similar pattern to that of gum inflammation with higher proportions of eight-year-olds (75 per cent), 12-year-olds (77 per cent) and 15-year-olds (77 per cent) having plaque than five-year-olds (56 per cent). Five year olds in Northern Ireland were more likely to have plaque than five-year-olds in Wales (56 per cent compared with 44 per cent). Among 15-year-olds, a higher proportion of children in Northern Ireland had some plaque (77 per cent) compared with England (63 per cent) and Wales (63 per cent).

Table 3.1

Table 3.1 Proportion of children with unhealthy gums, plaque or calculus (in any sextant) by age (United Kingdom, 1983, 1993, 2003)

	Country			
Age	England	Wales	Northern Ireland	United Kingdom
	Percentage of children:			
Unhealthy gums				
5 year olds	32	25	36	32
8 year olds	65	52	63	63
12 year olds	67	61	68	65
15 year olds	53	56	65	52
Visible plaque				
5 year olds	50	44	56	50
8 year olds	78	71	75	76
12 year olds	74	72	77	73
15 year olds	63	63	77	63
Calculus				
5 year olds	6	2	4	6
8 year olds	25	14	19	23
12 year olds	32	24	27	30
15 year olds	41	32	35	39

Table 3.1 shows that increasing proportions of children were affected by calculus as age increased: only a small proportion (4 per cent) of 5-year-olds had calculus compared with 19 per cent of 8-year-olds, 27 per cent of 12-year-olds and 35 per cent of 15-year-olds. There were no statistically significant differences in any age group in the proportions of children with calculus between Northern Ireland, England and Wales.

Table 3.1

Gingivitis among 15-year-olds

In 15-year-olds, an assessment of gingival bleeding was made by applying a periodontal probe around six index teeth. Gingival bleeding, is a marker of active periodontal disease. Table 5 shows that 44 per cent of 15-year-olds in Northern Ireland had gingivitis, a small increase since 1993 (39 per cent).

Table 3.2

Table 3.2 Proportion of 15-year-old children with gingivitis by country (United Kingdom, 1983, 1993, 2003)

	Country		
	1983	1993	2003
England	47	44	45
Wales	41	62	37
Northern Ireland	60	39	44
United Kingdom	48	45	43

Oral healthcare at home

Information from the questionnaire gives an indication of the way that children's teeth and oral health are maintained at home. Questions were asked about tooth brushing and the use of fluoride supplements and other oral health aids. At least 60 per cent of children in all age groups were reported to brush their teeth at least twice a day. Few children brushed their teeth three times or more daily, with eight-year-olds being most likely to brush three times or more (7 per cent).

Table 3.3

Table 3.3 Frequency of tooth brushing by age (Northern Ireland, 2003)

	Age			
	5	8	12	15
	Percentage of children:			
Three times or more daily	-	7	-	5
Twice daily	73	69	60	70
Once daily or less	27	24	40	25
Unweighted sample size	*112*	*128*	*101*	*88*

Oral hygiene products

The use of different oral hygiene products among children in Northern Ireland is shown in Table 3.4. As might be expected, toothbrushes and toothpaste are used widely. Over four-fifths of children in all age groups use an ordinary toothbrush, but electric or battery operated brushes are becoming popular, particularly among five to 12-year-olds where over 50 per cent reported using them, compared with 36 per cent of 15-year-olds. Other products that are commonly used at home are mouthwashes and sugar free or dental chewing gum and the use of these increases with age. Around a fifth (22 per cent) of 8-year-olds use mouthwash compared with 37 per cent of 12-year-olds and 57 per cent of 15-year-olds. A similar pattern exists for chewing gum. Dental floss is appropriate for older children to use as an adjunct to tooth brushing. Sixteen per cent of 12-year-olds and 14 per cent of 15-year-olds reported using dental floss as did smaller proportions of five and eight-year-olds. Some children of all ages made use of dental disclosing tablets.

Table 3.4

Table 3.4 Proportion of children in each age group using different oral hygiene products (Northern Ireland, 2003)

	Age			
	5	8	12	15
	Percentage of children:			
Toothbrush (non-electric)	85	85	84	84
Electric / battery operated toothbrush	51	57	56	36
Toothpaste	98	96	97	98
Fluoride drops or tablets	6	3	3	2
Mouthwash	12	22	37	57
Dental Floss	4	6	16	14
Dental disclosing (plaque revealing) tablets	1	4	3	6
Sugar free or dental chewing gum	20	26	48	49
Other	-	-	1	-
Unweighted sample size	*112*	*128*	*101*	*88*

Fluoride supplements (tablets and drops) can be used in areas where there is no water fluoridation. As Table 3.7 shows, the proportion of children using these supplements is very small and has decreased markedly since the previous survey.

Table 3.7

Table 3.7 Use of fluoride supplements by age and country (United Kingdom, 1983, 1993, 2003)

Age	5		8		12		15	
	1993	2003	1993	2003	1993	2003	1993	2003
England	6	2	4	1	2	2	3	1
Wales	10	2	6	4	4	1	3	-
Northern Ireland	33	6	22	3	22	3	10	2
United Kingdom	9	2	6	1	3	2	3	1

4 Patterns of care and service use

While it is possible to draw some conclusions about a child's dental history from the state of their mouth, this gives an incomplete picture as some previously diseased or treated teeth may have fallen out naturally or been extracted. Asking parents about their child's lifetime experience of dentistry gives an opportunity to build a more complete picture than would be available from the clinical examination alone. When combined with information on maternal attendance it also allows an examination of how a mother's attendance pattern may influence that of their child.

Reported use of dental services is an important indicator of attitudes to oral health and dental care. Similarly, reported experience of dental services indicates choices that have been made by children and their parents or carers and how accessible and appropriate certain forms of dental treatment may have been. This is essential to understanding how changing patterns of disease amongst children are linked to dental service uptake.

This section also presents information on dental anxiety and access to dental services.

Visiting the dentist

The majority of children were reported as having visited the dentist at least once. Table 4.1 shows the proportion of children who had reportedly never visited the dentist. In Northern Ireland, the proportion of children who had never visited the dentist reduces with age to less than 1 per cent of 12 or 15-year-olds. The proportion of five-year-olds who had never visited the dentist was only 4 per cent in 2003, compared with 29 per cent in 1983.

Table 4.1

Table 4.1 Proportion of children who had never visited the dentist by country (United Kingdom, 1983, 1993, 2003)

	Age											
Country	5			8			12			15		
	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
	Percentage of children:											
England	13	11	7	4	4	2	2	1	1	1	1	*
Wales	16	6	5	4	1	2	1	2	-	1	1	-
Northern Ireland	29	5	4	7	1	1	5	*	-	1	3	-
United kingdom	14	10	6	4	4	2	2	1	1	1	1	1

The age at which children first visited the dentist is another way of investigating this issue. Parents were asked at what age their child had first attended a dentist and the responses are shown in table 4.2. The proportion of five-year-olds who were reported as having first visited the dentist before the age of two years had increased from 9 per cent in 1993 to 30 per cent in 2003. Among eight-year-olds the proportion increased six-fold (24 per cent in 2003 compared with 4 per cent in 1993). This confirms the finding that parents are apparently taking their children to the dentist at a younger age than was previously the case. The age of first dental visit is a more difficult question for parents of older children to answer and the responses for older children should be interpreted with caution.

Table 4.2

Table 4.2 Age of first visit to the dentist by age (Northern Ireland, 1993, 2003)

	Age							
Age at first visit	5		8		12		15	
	1993	2003	1993	2003	1993	2003	1993	2003
	Percentage of children:							
Under two years	9	30	4	24	2	24	6	13
Under three years	32	57	19	51	14	44	14	35
Under four years	66	82	50	69	24	56	24	56
Under five years	82	91	70	82	48	72	50	72
Five years or older	11	4	26	18	45	28	40	28
Never visited the dentist	14	4	4	-	1	-	1	-
Cant' remember	2	-	3	-	5	-	8	2

Children's dental attendance pattern

Parents' were asked whether their child usually attended the dentist for a regular check up, an occasional check up or only when they had trouble with their teeth. Table 4.3 shows the proportion of children in each age group reported as attending the dentist regularly, occasionally or only when having trouble with their teeth. The majority of children in all age groups were described as attending for regular check ups.

Table 4.3

Table 4.3 Children's reported dental attendance patterns by age (Northern Ireland, 2003)

	Frequency of visit		
	Regular check up	Occasional check up	Only attends when trouble
		Percentage of children:	
5 year olds	86	9	5
8 year olds	84	11	4
12 year olds	84	11	4
15 year olds	80	11	9

Reason for last dental visit

Another way of assessing children's dental attendance is to examine what initiated their most recent course of treatment, irrespective of whether it was completed in one visit or spread out over a number of visits. This is shown in Table 4.4. Across all age groups the majority of reasons given for initiating a course of treatment were check ups or in response to reminders from the dentist; between 76 per cent and 90 per cent of children. There were no age-related differences in the proportion of reasons reported for initiating treatment.

Table 4.4

Table 4.4 Reason for last dental visit by age (Northern Ireland, 2003)

	Age			
Reason for last visit	5	8	12	15
		Percentage of children:		
Having trouble with teeth	15	16	12	9
Note from school dentist	-	5	5	-
Check-up	63	56	65	60
Reminder	17	23	16	28
To get used to going	5	-	-	-
Other reason	-	-	*	*
Unweighted sample size	*106*	*123*	*96*	*80*

Dental Services Used

In the 1983 and 1993 surveys, most children who had experienced dental treatment had used the General Dental Service and few were reported to have received treatment from the Community Dental Service, either in isolation or in combination with General Dental Services. The question relating to this topic was re-phrased to improve clarity and focus upon experience of both diagnostic and treatment services rather than only treatment as in 1983 and 1993. The results are therefore not comparable with previous surveys but give a more complete picture of service use. In 2003 the terms `school dentist' and `Community Dental Service' were applied to capture use of NHS salaried primary care dental services that were targeted at children and provided screening as well as individual diagnostic and treatment services. In 2003, most children reported having used the General Dental Services, either in isolation or in combination with Community Dental Services . Reported use of dental services outside the NHS by children remains very low, as in previous surveys.

Table 4.5

Table 4.5 Dental services used by age (Northern Ireland, 2003)

	Age			
Dental Service	5	8	12	15
		Percentage of children:		
General Dental Services only	23	36	38	44
Community Dental Services only	7	9	11	4
General and Community Dental Services	66	51	51	50
Treatment outside the NHS	-	2	-	-
No experience of service	4	-	-	-

Experience of dental treatment

The questionnaire sought information on the reported lifetime experience of certain dental treatments. Reported extractions in children aged five and eight years will tend to be for removal of decayed teeth; in older children an increasing number of extractions will have been for orthodontic purposes. Any changes over time will reflect a range of factors particularly changing dental attendance patterns, demand for orthodontics and changing prevalence of dental caries. Changes in the reported experience of fillings may be the result

of changing disease levels but may also be affected by children having teeth filled rather than extracted. This makes interpretation of the data increasingly problematic when disease levels are known to be falling and dental attendance rising.

Table 4.6 shows the proportion of children who were reported to have experienced at least one extraction at some time in their lives, irrespective of the underlying reason. In Northern Ireland, reported experience of extraction increased with age from 14 per cent among five-year-olds to 60 per cent among 15-year-olds. Among five-year-olds the proportion with reported experience of extractions fell from 27 per cent in 1993 to 14 per cent in 2003, while among eight-year-olds the reported experience fell from 41 per cent in 1993 to 26 per cent in 2003. In 12 and 15-year-olds the proportion experiencing extractions fell between 1983 and 1993 and then remained at a relatively similar level in 2003. Among 12-year-olds, a higher proportion of children in Northern Ireland (53 per cent) had reported experience of extractions compared with England (34 per cent). Statistically significant differences in the proportion of children with experience of extractions were also evident between England and Northern Ireland among 15-year-olds (46 per cent compared with 60 per cent).

Table4.6

Table 4.6 Proportion of children who had ever had an extraction by age and country (United Kingdom, 1983, 1993, 2003)

	Age											
	5			8			12			15		
Country	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
	Percentage of children who had ever had an extraction:											
England	9	10	10	39	29	21	64	48	34	70	54	46
Wales	14	11	9	47	29	32	72	53	58	75	64	53
Northern Ireland	27	27	14	60	41	26	80	57	53	87	58	60
United kingdom	11	12	10	42	31	23	66	51	36	71	56	47

The reported experience of fillings is shown in Table 4.7. There were no statistically significant changes between the 1993 and 2003 surveys for reported experience of fillings in Northern Ireland. Among five and 12-year-olds a higher proportion of children in Northern Ireland (28 per cent of five-year-olds and 70 per cent of 12-year-olds) had reported experience of fillings compared with children in Wales (21 per cent of five-year-olds and 57 per cent of 12-year-olds). *Table 4.7*

Table 4.7 Proportion of children who had ever had a tooth filled by age and country (United Kingdom, 1983, 1993, 2003)

	Age											
	5			8			12			15		
Country	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
	Percentage of children who had ever had a tooth filled:											
England	27	20	15	57	45	42	81	60	47	90	63	49
Wales	41	21	21	64	56	54	84	67	57	90	74	70
Northern Ireland	29	25	28	63	50	51	72	77	70	87	77	70
United kingdom	29	20	16	58	46	42	81	62	49	90	66	52

Parents were also asked whether their child had ever had a general anaesthetic for dental procedures. Since the late 1990s there has been increasing regulation of the provision of general anaesthesia for dental procedures. Younger children therefore will mostly have experienced this for extraction of carious teeth only, where other patient management techniques could not be used. In 1993 the questionnaire linked general anaesthesia with extractions, in 2003 experience of general anaesthesia for dental procedures was recorded irrespective of the dental procedure. This means that the 2003 results are not comparable with previous surveys. The proportion of children who reported to have both experienced a general anaesthetic for dental procedures and had teeth extracted, not necessarily simultaneously, is shown in Table 4.8. In Northern Ireland only 8 per cent of five-year-olds reported experience of both general anaesthesia and extractions compared with 26 per cent of 15-year-olds. There were no statistically significant differences between countries .

Table 4.8

Table 4.8 Proportion of children who have had a general anaesthetic and teeth taken out by age and country (United Kingdom, 2003)

	Age			
Country	5	8	12	15
	Percentage of children:			
England	5	8	9	20
Wales	5	19	18	22
Northern Ireland	8	14	20	26
United Kingdom	5	10	10	20

Children who were reported as having visited the dentist and not received an extraction or a filling are shown in tables 4.9. In Northern Ireland, five and eight-year-olds were more likely than 12 or 15-year-olds to have visited the dentist and not received an extraction or filling. In all age groups, there was an increase since 1993 in the proportion reported as visiting the dentist and not receiving an extraction or filling: from 57 per cent to 64 per cent in five-year-olds, from 34 per cent to 44 per cent among eight-year-olds, from 11 per cent to 22 per cent in 12-year-olds from 14 per cent to 26 per cent in 2003. In all age groups a lower proportion of children in Northern Ireland compared with England had visited the dentist and not required any treatment. The difference was most pronounced among 12-year olds; 22 per cent in Northern Ireland compared with 50 per cent in England. Among five and 12-year-olds, children in Northern Ireland were less likely to have visited the dentist and not required any treatment compared with Wales.

Table 4.9

Table 4.9 Proportion of children who had visited the dentist and had never had an extraction or filling by age and country (United Kingdom, 1983, 1993, 2003)

	Age											
	5			8			12			15		
Country	1983	1993	2003	1983	1993	2003	1983	1993	2003	1983	1993	2003
	Percentage of children who had never had a filling or extraction:											
England	56	72	81	28	44	55	8	26	50	5	21	42
Wales	35	71	76	18	33	39	7	21	38	3	11	28
Northern Ireland	27	57	64	13	34	44	5	11	22	4	14	26
United kingdom	53	71	79	26	42	53	7	24	47	4	19	40

Parents were asked whether their child was accompanied to their last dental check-up and the results are shown in Table 4.10. Over 90 per cent of children in all age groups were accompanied to this visit; only 6 per cent of children aged 15 were unaccompanied. Among fifteen-year-olds, children in Northern Ireland (12 per cent) were more likely to have gone unaccompanied than children from England (5 per cent).

Table 4.10

Table 4.10 Proportion of children attending the dentist who were accompanied by age and country (United Kingdom, 2003)

	Age			
Person accompanying	5	8	12	15
England				
Parent/legal guardian	96	98	95	92
Another adult relative	2	2	2	2
Another adult (not a relative)	*	*	1	-
Another child (aged under 16)	15	12	8	7
Child unaccompanied	-	-	1	5
Seen by dentist at school	3	1	2	1
Unweighted sample size	*504*	*527*	*440*	*348*
Wales				
Parent/legal guardian	98	96	93	82
Another adult relative	*	3	4	5
Another adult (not a relative)	*	1	1	-
Another child (aged under 16)	15	11	10	4
Child unaccompanied	-	-	2	14
Seen by dentist at school	1	1	*	*
Unweighted sample size	*205*	*187*	*160*	*139*
Northern Ireland				
Parent/legal guardian	98	97	93	85
Another adult relative	1	3	1	3
Another adult (not a relative)	-	1	-	-
Another child (aged under 16)	12	7	5	2
Child unaccompanied	-	*	2	12
Seen by dentist at school	1	-	4	-
Unweighted sample size	*107*	*126*	*99*	*84*
United Kingdom				
Parent/legal guardian	96	97	94	90
Another adult relative	2	2	2	2
Another adult (not a relative)	*	*	1	-
Another child (aged under 16)	15	11	8	6
Child unaccompanied	*	*	1	6
Seen by dentist at school	3	2	2	1
Weighted base	*1274*	*1382*	*1330*	*1269*

Barriers to access

Parents were asked whether their child got anxious or worried about going to the dentist and the results are shown in Table 4.11. Some anxiety about going to the dentist was reported for 16 per cent of five-year-olds, 25 per cent of eight-year-olds, 32 per cent of 12-year-olds and 20 per cent of 15-year-olds. However, in all age groups the majority of children reported as having some anxiety would still attend the dentist.

Table 4.11

Table 4.11 Reported anxiety about attending the dentist by age (Northern Ireland, 2003)

	Age			
Reported anxiety	5	8	12	15
Does not usually get anxious	83	75	67	80
Gets anxious but attends	14	23	24	17
Gets anxious and only attends if in pain	-	-	2	2
Gets anxious and only attends if parent/guardian insists	2	2	4	-
Gets so anxious that refuses to go	-	-	2	-
Unweighted sample size	*108*	*127*	*101*	*86*

In all age groups the majority of parents reported no difficulty in accessing NHS dental care at some point. A small proportion (2 per cent) of parents of eight and 12-year-olds reported experiencing problems accessing an NHS dentist.

Tables 4.12

Table 4.12 Proportion of children reporting experiencing difficulties in finding an NHS dentist by age (Northern Ireland, 2003)

	Age			
	5	8	12	15
	Percentage of children:			
Experienced difficulty	-	2	2	-
No attempt to access dentist	5	4	2	2
No difficulty	95	93	96	98
Unweighted sample size	*108*	*127*	*101*	*87*

5 Impact of oral health

The way in which children are affected by their oral condition is as important as the amount or extent of disease they have experienced. A measure to assess the impact of oral condition was introduced into the 1998 Survey of Adults Dental Health in the United Kingdom[1] and it was considered to be important to assess this in children in 2003. The children's dental health survey questionnaire was designed for completion by the parents or guardians of those who took part, although older participants may have filled the questionnaire in themselves. Therefore it was unnecessary to try to frame questions which could be answered by both very young children and by teenagers. It was decided to develop a "generic" type of impact measure in which the questions were framed to directly reflect the impact dimensions specified in the 1998 survey of adults. The questions dealt with each of the seven issues identified in the adult survey plus an item on general health in terms of the frequency that an impact was experienced over the 12 months preceding the survey.

The parents of most of the children in all age groups did not think their children had been affected by their oral condition in the preceding year. In Northern Ireland, some form of impact was reported by the parents of 16 per cent of five-year-olds, 25 per cent of eight-year-olds, 24 per cent of 12-year-olds and 21 per cent of 15-year-olds. Differences were apparent between Northern Ireland and England and Wales among 12 and 15-year-olds, with a lower proportion of children in Northern Ireland reported to have experienced at least one problem. *Table 5.1*

Table 5.1 Mean number and proportion of children with reported oral condition problems experienced at least *occasionally* in the preceding 12 months by age and country (United kingdom, 2003)

	Mean number of problems	Percentage with at least one problem	*Unweighted sample size**
England			
5 year olds	0.4	22	*553*
8 year olds	0.4	26	*547*
12 year olds	0.6	35	*456*
15 year olds	0.5	30	*358*
Wales			
5 year olds	0.3	22	*218*
8 year olds	0.4	30	*193*
12 year olds	0.8	38	*165*
15 year olds	0.6	31	*140*
Northern Ireland			
5 year olds	0.3	16	*112*
8 year olds	0.6	25	*128*
12 year olds	0.5	24	*101*
15 year olds	0.3	21	*88*
United Kingdom			
5 year olds	0.4	22	*1373*
8 year olds	0.4	26	*1424*
12 year olds	0.6	34	*1375*
15 year olds	0.5	28	*1309*

* weighted bases shown for United Kingdom

The quality and frequency of the problems experienced is shown in Table 5.2. Where some form of problem was reported to be experienced it was generally described as being experienced occasionally rather than more frequently. The most common problem reported to have been experienced occasionally in the preceding year was pain, which was reported between 13 per cent and 16 per cent across the age groups. Only a small proportion (1 per cent to 2 per cent) of children in any age group experienced pain fairly often , while only 1 per cent of eight and 15-year-olds experienced oral pain very often in the preceding 12 months. A small proportion of children were affected by their oral condition to the extent that it occasionally affected their life as a whole (3 per cent of 5 and 12 year olds, 2 per cent of 8 year olds and 1 per cent of 15 year olds). A further 2 per cent of 8 year olds and 1 per cent of 12 year olds were described as having their life as a whole affected by their oral condition very often in the preceding year.

Table 5.2

Table 5.2 Proportion of children reported as having oral condition problems occasionally, fairly often or very often in the preceding 12 months by age (Northern Ireland, 2003)

	Frequency of problem by age											
	Occasionally				Fairly often				Very often			
Type of problem	5	8	12	15	5	8	12	15	5	8	12	15
Pain												
Toothache or sore mouth	13	16	15	13	1	2	2	1	-	1	-	1
Impact on oral function												
Problems chewing, talking	5	3	1	2	-	2	-	-	1	2	1	-
Impact on self-confidence												
Embarrassed, self-conscious or worried	-	3	5	5	-	1	8	1	-	1	3	*
Impact on orally-related activity												
Stopped playing musical instrument	3	6	3	4	-	1	2	1	-	1	1	1
Impact on emotions												
Becoming less cheerful or more irritable	5	6	6	4	-	1	-	2	-	1	1	-
Impact on social functioning												
Stopping playing or speaking to friends	-	1	2	-	-	-	-	-	-	1	-	-
Impact on General Health												
General health effected	4	4	1	-	-	-	-	-	-	2	-	-
Impact on Life Overall												
Life as a whole made worse	3	2	3	1	-	-	-	-	-	2	1	-

Table 5.3 shows the proportion of children in England, Wales and Northern Ireland reported to have experienced oral health problems occasionally or more often. The estimates for Northern Ireland show more eight-year-olds (23 per cent) were reported to have experienced occasional or more frequent pain in the year preceding the survey than any other age group. Five-year-olds were not reported to have had their self-confidence affected occasionally or more often but this problem was more commonly reported among older children; 11 per cent of 12-year-olds and 8 per cent of 15-year-olds were said to have experienced some effect on their self-confidence in the year before the survey. In some

children the condition of their mouths was thought to have led to their emotional outlook on life being affected (for example, being less cheerful or more irritable); 5 per cent of five-year-olds, 7 per cent of eight-year-olds, 6 per cent of 12-year-olds and 2 per cent of 15-year-olds were reported to have experienced some form of emotional impact as a result of their oral condition. The more far-reaching consequences of oral condition were rarely encountered, but a few children in every age group (no more than 6 per cent of any age group) were reported to have had their social functioning, their general health or their life in general affected by some aspect(s) of their oral condition.

The pattern of problems experienced in England, Northern Ireland and Wales was broadly similar but there was some variation between countries in certain age groups. Among 12-year-olds, fewer children in Northern Ireland (18 per cent) were reported to have experience of oral pain compared with England (28 per cent) and Wales (27 per cent). Problems with oral function were reported for a higher proportion of 12-year-olds in Wales (9 per cent) compared with Northern Ireland (2 per cent).

Table 5.3

Table 5.3 Proportion of children reported as having oral condition problems occasionally or more often in the preceding 12 months by age and country (England, Wales and Northern Ireland, 2003)

	England				Wales				Northern Ireland			
Type of problem	5	8	12	15	5	8	12	15	5	8	12	15
Pain												
Toothache or sore mouth	16	20	28	21	19	24	27	24	14	23	18	16
Impact on oral function												
Problems chewing, talking	6	5	5	8	4	3	9	6	6	7	2	2
Impact on self-confidence												
Embarrassed, self-conscious or worried	4	8	9	8	1	7	11	11	-	4	11	8
Impact on orally-related activity												
Stopped playing musical instrument	4	4	6	8	3	3	11	9	2	9	6	5
Impact on emotions												
Becoming less cheerful or more irritable	4	6	6	4	3	4	11	6	5	7	6	2
Impact on social functioning												
Stopping playing or speaking to friends	1	1	2	2	1	-	3	2	-	2	2	-
Impact on General Health												
General health effected	2	1	1	*	1	4	3	-	4	6	2	-
Impact on Life Overall												
Life as a whole made worse	2	2	2	1	1	3	3	2	2	4	4	2
Unweighted sample size	*553*	*547*	*456*	*358*	*218*	*193*	*165*	*140*	*112*	*128*	*101*	*88*

Impact of Oral Health and Dental Health

What is the relationship between disease as determined by the survey dental examination and the subjective impact of oral condition determined primarily by the reports of the children's parents? Table 5.4 compares the experience of obvious decay (d_{3cv}mft) in primary teeth with the parental report of some form of oral problem. Among both five and eight-year-olds a higher proportion of children with obvious decay experience in their primary teeth were reported to have had an oral problem and had experienced a greater number of problems than children of the same age with no obvious decay experience.

Table 5.4

Table 5.4 Mean number and proportion of children with reported oral condition problems experienced at least occasionally in the preceding 12 months by age and obvious decay experience (d_{3cv}mft) in primary teeth (Northern Ireland 2003)

	Mean number of problems	Percentage with at least one problem
Obvious decay experience		
5 year olds	0.4	19
8 year olds	0.6	29
No obvious decay		
5 year olds	0.1	6
8 year olds	0.2	10

A similar pattern was observed in permanent teeth, with a higher proportion of eight, 12 and 15-year-olds with obvious decay (D_{3cv}MFT) having experienced problems due to their oral condition in comparison to those with no obvious decay. Among 12 and 15-year-olds those with obvious decay (D_{3cv}MFT) also experienced on average a greater number of problems than children with no obvious decay experience.

Table 5.5

Table 5.5 Mean number and proportion of children with reported oral condition problems experienced at least occasionally in the preceding 12 months by age and obvious decay experience (D_{3cv}MFT) in permanent teeth (Northern Ireland, 2003)

	Mean number of problems	Percentage with at least one problem
Obvious decay experience		
8 year olds	0.5	31
12 year olds	0.6	28
15 year olds	0.4	23
No obvious decay		
8 year olds	0.6	21
12 year olds	0.3	15
15 year olds	0.2	9

There was no obvious relationship between experiencing some form of oral problem and the presence of unhealthy gums. A lower proportion of 5-year-olds with unhealthy gums were reported to have experienced a problem compared with those with healthy gums. However, among eight and 15-year-olds, a higher proportion of children with unhealthy gums had oral problems and experienced more problems on average than those with healthy gums.

Table 5.6

Table 5.6 Mean number and proportion of children with reported oral condition problems experienced at least occasionally in the preceding 12 months by age and presence of unhealthy gums (Northern Ireland, 2003)

	Mean number of problems	Percentage with at least one problem
Unhealthy gums		
5 year olds	0.1	7
8 year olds	0.7	30
12 year olds	0.6	27
15 year olds	0.4	25
Healthy gums		
5 year olds	0.4	19
8 year olds	0.4	17
12 year olds	0.3	25
15 year olds	0.1	13

A higher proportion of 12-year-olds and 15-year-olds with visible plaque (28 per cent and 24 per cent) had experienced problems than those without visible plaque (10 per cent and 11 per cent). Among five-year-olds, a lower proportion of children with plaque (9 per cent) had experienced oral problems compared those without plaque (20%). There were no further statistically significant differences.

Table 5.7

Table 5.7 Mean number and proportion of children with reported oral condition problems experienced at least occasionally in the preceding 12 months by age and presence of plaque. (Northern Ireland, 2003)

	Mean number of problems	Percentage with at least one problem
Visible plaque		
5 year olds	0.1	9
8 year olds	0.6	25
12 year olds	0.6	28
15 year olds	0.4	24
No visible plaque		
5 year olds	0.5	20
8 year olds	0.6	25
12 year olds	0.1	10
15 year olds	0.1	11

6 Orthodontic condition

The survey collected information relating to the orthodontic condition of 12 and 15-year-olds. The clinical examination recorded current and past orthodontic treatment, as well as the type of appliance worn by children undergoing treatment. For those children not already wearing an appliance, orthodontic treatment need was determined using the Simplified Index of Orthodontic Treatment Need which consists of two separate components, the aesthetic component and the dental health component.

The aesthetic component determines the level of need for orthodontic treatment on aesthetic grounds. The overall dental attractiveness of the anterior teeth are assessed using a ten point scale. This compares the anterior teeth with ten standard photographs. Grades eight to ten are regarded as a definite need for treatment. The dental health component determines the need for orthodontic treatment on dental health grounds. The dental health component of the Index assesses five occlusal traits following the "MOCDO" convention; Missing teeth, Overjet, Crossbite, Displacement of contact points and Overbite.

Orthodontic condition among 12 and 15-year-olds.

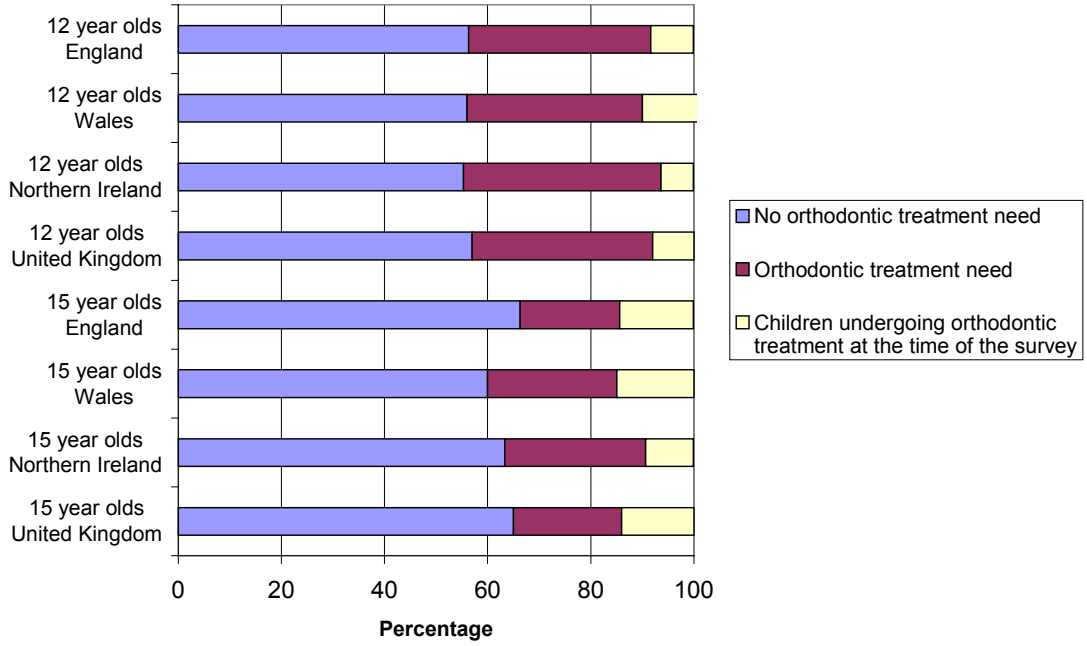
The orthodontic condition of 12 and 15-year-olds is summarised in Table 6.1 and Figure 6.1. The estimates for Northern Ireland show that 6 per cent of 12-year-olds and 9 per cent of 15-year-olds were wearing an orthodontic appliance at the time of the survey. In total, 38 per cent of 12- year-olds and 27 per cent of 15-year-olds were assessed as having need for orthodontic treatment on both aesthetic and dental health grounds or on either aesthetic or dental health grounds alone. Fifty five per cent of 12-year-olds and 63 per cent of 15-year-olds were not wearing an orthodontic appliance and were not judged in need of orthodontic treatment. Differences between children in Northern Ireland and other countries were not statistically significant. *Table 6.1, Figure 6.1*

Table 6.1 Orthodontic condition among 12 and 15-year-olds by country (United Kingdom, 2003)

	England		Wales		Northern Ireland		United Kingdom[8]	
	Age							
Orthodontic condition	12	15	12	15	12	15	12	15
	Percentage of children:							
Children undergoing orthodontic treatment at the time of the survey	8	14	11	15	6	9	8	14
Children not undergoing orthodontic treatment at the time of the survey								
In need of orthodontic treatment on Dental Health grounds alone	26	15	26	18	28	20	26	16
In need of orthodontic treatment on aesthetic grounds alone	*	*	-	1	*	*	*	*
In need of orthodontic treatment on grounds of both dental health and aesthetics	9	4	8	6	10	7	9	5
No orthodontic treatment need	56	66	56	60	55	63	57	65
Unweighted sample size	*1356*	*1116*	*559*	*482*	*462*	*380*	*2690*	*2555*

* Weighted bases shown for United kingdom

Figure 6.1 Orthodontic condition by age and country (United Kingdom 2003)



Orthodontic treatment need among children not wearing an appliance

Table 6.2 shows the proportion of children , not already wearing an orthodontic appliance, who were judged in need of orthodontic treatment on the basis of the dental health component of the simplified index of orthodontic treatment need. The figures for Northern Ireland show that the proportion recorded as having a malocclusion who were judged in need of treatment was higher among 12-year-olds (40 per cent) than 15-year-olds (30 per cent). There were no statistically significant differences between Northern Ireland and England or Wales in the proportion of 12 and 15-year-olds not wearing an appliance who had orthodontic treatment need.

Table 6.2

Table 6.2 Proportion of 12 and 15-year-olds not undergoing orthodontic treatment at the time of the survey, with orthodontic treatment need on dental health grounds by country (United Kingdom, 2003)

	England		Wales		Northern Ireland		United Kingdom[8]	
	Age							
Orthodontic condition	12	15	12	15	12	15	12	15
	Percentage of children:							
Malocclusion absent	62	77	62	72	60	70	62	76
Malocclusion present	38	23	38	28	40	30	38	24
Unweighted sample size	*1249*	*965*	*499*	*424*	*435*	*338*	*2648*	*2199*

* Weighted bases shown for United kingdom

The examining dentists were asked, by making reference to ten photographs, to score aesthetics on a ten point scale. A score of one represented the most attractive teeth and 10 the least attractive. Table 6.3 shows the proportion of children judged to be in each category. Need for treatment was indicated by a score of eight or above. Table 6.4 shows that a similar proportion of 12 and 15-year-olds, not already wearing an appliance, were scored in need of treatment on the basis of aesthetics, 11 per cent and 8 per cent respectively.

Tables 6.3 and 6.4

Table 6.3 Visual assessment of attractiveness of teeth among 12 and 15-year-olds not undergoing orthodontic treatment (Northern Ireland, 2003)

	Age	
Assessment of attractiveness	12	15
	Percentage of children:	
1 Most attractive	9	18
2	25	30
3	21	18
4	18	13
5	6	5
6	6	4
7	5	4
8	9	6
9	1	1
10 Least attractive	1	1
Unweighted sample size	*435*	*338*

Table 6.4 Proportion of 12 and 15-year-olds not undergoing orthodontic treatment at the time of the survey, with visual attractiveness assessments at grade 7 or less or grade 8 or greater (Northern Ireland, 2003)

	Age	
	12	15
	Percentage of children:	
Less than or equal to Grade 7	89	92
Greater than or equal to Grade 8	11	8
Unweighted sample size	*499*	*424*