

# **National Dental Inspection Programme (NDIP) 2018**

**Report of the 2018 Detailed  
Inspection Programme of Primary  
1 Children and the Basic Inspection  
of Primary 1 and Primary 7 children**

**23 October 2018**

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## Introduction

### **The 2018 National Dental Inspection Programme (NDIP) in school year 2017/18**

The National Dental Inspection Programme (NDIP) is carried out annually with the support and approval of the Scottish Dental Epidemiology Co-ordinating Committee. Its principal aims are to inform parents/carers of the oral health status of their children and, through appropriately anonymised, aggregated data, advise the Scottish Government, NHS Boards and other organisations concerned with children's health of oral disease prevalence at national and local levels. This ensures that reliable oral health information is available for planning initiatives directed towards health improvements.

Two school year groups are involved: i) at entry into Local Authority schools in primary one (P1) and ii) in primary seven (P7) before the move to secondary education. The Inspection Programme has two levels: a Basic Inspection (intended for all P1 and P7 children) and a Detailed Inspection (where a representative sample of either the P1 or the P7 age group is inspected in alternate years).

This year's report focuses on the results of the Detailed Inspection of P1 school children in school year 2017/18 (noted as 2018 throughout the report). Information relating to the Basic Inspection of both P1 and P7 children can be found in [Appendix A6](#) of this Report. An Executive Summary of the main findings can be found at <http://www.isdscotland.org/Health-Topics/Dental-Care/National-Dental-Inspection-Programme/>.

## Key Definitions

### **Detailed Inspection**

- A comprehensive assessment of the mouth of each inspected child using a light, mirror and ball-ended probe.
- It involves recording the status of each surface of each tooth in accordance with international dental epidemiological conventions.
- It measures obvious decay into dentine (see below) when seen under school (rather than dental surgery) conditions.
- More information on the different stages of dental decay can be found in [Appendix A1](#).
- Those undertaking the inspections attend (and pass) a training and calibration course prior to the annual inspection process. Details of the course and of the calibration results can be found in [Appendix A2](#).

### **Obvious Decay (d<sub>3</sub>)**

- This is when the disease process clinically appears to have penetrated dentine (i.e. the layer below the outer white enamel of the teeth) on a tooth surface.
- This is described internationally as decay at the d<sub>3</sub> level and includes *pulpal decay* (i.e. decay into the deeper dental pulp).

- The definition of decay used here is in accordance with the *British Association for the Study of Community Dentistry* (BASCD) guidelines and international epidemiological conventions, thus allowing comparisons to be made over time and with other countries in Europe and beyond.
- This is a different diagnostic level from that used by many dentists when examining patients in a dental surgery, i.e. for dental check-ups.
- Decay is also known as caries.

### Obvious Decay Experience (d<sub>3</sub>mft)

- The sum of teeth which have decay into dentine (including teeth with fillings which require further treatment), filled teeth and teeth that are missing (extracted) due to decay. A hierarchy was used to ensure there was no double counting of teeth.
- Thus no obvious decay experience has d<sub>3</sub>mft =0.

### Care Index

- The percentage of teeth with obvious decay experience in a population that have been treated restoratively (filled).
- This is calculated as follows:

$$\frac{\text{number of filled teeth}}{\text{number of obvious decayed, missing and filled teeth}} \times 100$$

Or simply

$$\frac{ft}{d_3mft} \times 100.$$

### Scottish Index of Multiple Deprivation (SIMD)<sup>1</sup>

- A tool for measuring the extent of area-based deprivation across Scotland.
- Uses several different aspects of deprivation, combining them into a single index.

### Slope Index of Inequality (SII)

- The absolute difference overall in obvious decay experience (d<sub>3</sub>mft) score when moving across the socio-economic status (SES) spectrum. It shows the total experience of individuals in the whole population and it is considered to be a consistent indicator with local populations.

### Relative Index of Inequality (RII)

- The relative difference in obvious decay experience (d<sub>3</sub>mft) when moving across the SES spectrum. This can be calculated by dividing the SII by the mean level of decay in the population.

### Significant Caries Index (SiC)<sup>2</sup>

- Used to bring attention to the individuals with the highest caries values in each population under investigation. The Significant Caries Index is calculated as follows:
  - Individuals are sorted according to their d<sub>3</sub>mft values.
  - The third of the population with the highest caries scores is selected.

- The mean d<sub>3</sub>mft for this subgroup is calculated. This value is the SiC Index.

### **Significant Caries Index 10 (SiC10)**

- This is calculated in the same way as SIC but instead of taking the third of the population with the highest mean d<sub>3</sub>mft scores, the top tenth is chosen and this tenth of the sample with the most teeth affected by obvious decay experience was calculated.

### **Scottish Caries Inequality Metric (SCIM10)<sup>3</sup>**

- The area under the curve in relation to the distribution of the tenths of the population by obvious decay experience (d<sub>3</sub>mft).

### Specific Goals of the Detailed Inspection

- To determine current levels of obvious decay experience nationally and across the NHS Boards.
- To determine the influence of deprivation on the dental health of children in Scotland.

### How many children had a Detailed Inspection?

Each NHS Board is required to identify the number of Local Authority (LA) schools needed to obtain a representative sample of a given size from their P1 population. The sample sizes used provide adequate numbers to allow meaningful statistical comparisons between NHS Boards. Whole classes are randomly selected to simplify the process for schools while ensuring that results are representative of the P1 population in Scotland.

Between November 2017 and June 2018, 16,814 children (27% of the estimated P1 population) from across Scotland were included in the Detailed Inspection (Table 1). Across the NHS Boards, the percentage of P1 children inspected ranged from 12% to 96%.

NHS Boards can choose to increase the sample size above minimum requirements to aid local planning needs, and some less populated Boards need to include large proportions to achieve statistically meaningful results.

The average age of the children examined (both girls and boys) was 5.5 years. The range of ages across Scotland was 4.4 – 6.9 years.

**Table 1. Estimated Primary 1 population and the number and percentage who received a Detailed Inspection by NHS Board across Scotland in school year 2017-18<sup>1-4</sup>**

NHS Board	Estimated Primary 1 (P1) population	Number of P1 children receiving a Detailed Inspection	% of P1 population receiving a Detailed Inspection
Ayrshire & Arran	4,163	1,513	36.3
Borders	1,213	338	27.9
Dumfries & Galloway	1,556	407	26.2
Fife	4,421	536	12.1
Forth Valley	3,360	1,576	46.9
Grampian	6,740	3,012	44.7
Greater Glasgow & Clyde	13,415	3,858	28.8
Highland	3,386	618	18.3
Lanarkshire	7,758	1,088	14.0
Lothian	10,468	2,068	19.8
Orkney	237	215	90.7
Shetland	291	260	89.3
Tayside	4,430	1,059	23.9
Western Isles	277	266	96.0
<b>Scotland</b>	<b>61,715</b>	<b>16,814</b>	<b>27.2</b>

Source: ISD NDIP Database

1. Numbers are based on the postcode of the child and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. Primary 1 population is estimated using an aggregated population lookup file of children aged 5 (2016).
4. The estimated Primary 1 population of Orkney and Shetland was increased for analytical purposes.



### Main points

- More than two thirds (71%) of P1 children had no obvious decay experience in their primary teeth in 2018. This is a large improvement since ISD started recording this information in 2003 (45%).
- The average number of P1 children's teeth affected by obvious decay experience in 2018 is 1.14. This is less than half of the average number of teeth affected in 2003 (2.76).
- Inequalities remain, with only 56% of P1 children having no obvious decay experience in the most deprived areas compared with 86% in the least deprived areas.
- Note: no obvious decay experience means there are no obvious decayed, missing or filled teeth.

## Results and Commentary

### Detailed Inspection Results

#### What are the obvious decay experience results for the teeth of P1 children in NHS Boards in Scotland?

Table 2 provides details of the results for all 14 NHS Boards across Scotland. In this 2018 survey, 29% of P1 children in Scotland had obvious decay experience in their primary teeth. For those children, the mean number of affected teeth was 3.94. This ranged across the Boards from 2.47 in children in NHS Shetland to 4.59 in children in NHS Dumfries & Galloway. The number of teeth affected in an individual child varied from one tooth to all 20 teeth.

**Table 2. Obvious decay experience in primary teeth of P1 children for each NHS Board and Scotland in 2018<sup>1-4</sup>**

NHS Board	% with no obvious decay experience in primary teeth	Mean number of:				
		decayed, missing and filled teeth (d <sub>3</sub> mft)	decayed teeth (d <sub>3</sub> t)	missing teeth (mt)	filled teeth (ft)	decayed, missing and filled teeth for those with obvious decay experience (d <sub>3</sub> mft>0)
Ayrshire & Arran	69.4	1.21	0.70	0.36	0.15	3.96
Borders	77.1	0.73	0.48	0.05	0.20	3.11
Dumfries & Galloway	67.0	1.53	1.25	0.14	0.14	4.59
Fife	71.9	1.10	0.74	0.18	0.19	3.85
Forth Valley	73.6	0.98	0.61	0.20	0.16	3.73
Grampian	76.2	0.89	0.62	0.11	0.16	3.80
Greater Glasgow & Clyde	67.1	1.34	0.87	0.25	0.23	4.07
Highland	73.0	0.93	0.59	0.17	0.17	3.37
Lanarkshire	70.7	1.21	0.82	0.27	0.12	4.16
Lothian	71.1	1.22	0.78	0.28	0.16	4.23
Orkney	83.6	0.51	0.32	0.03	0.15	3.11
Shetland	81.9	0.45	0.25	0.11	0.09	2.47
Tayside	69.9	1.17	0.63	0.35	0.20	3.87
Western Isles	79.1	0.79	0.59	0.01	0.19	3.82
<b>Scotland</b>	<b>71.1</b>	<b>1.14</b>	<b>0.74</b>	<b>0.23</b>	<b>0.18</b>	<b>3.94</b>

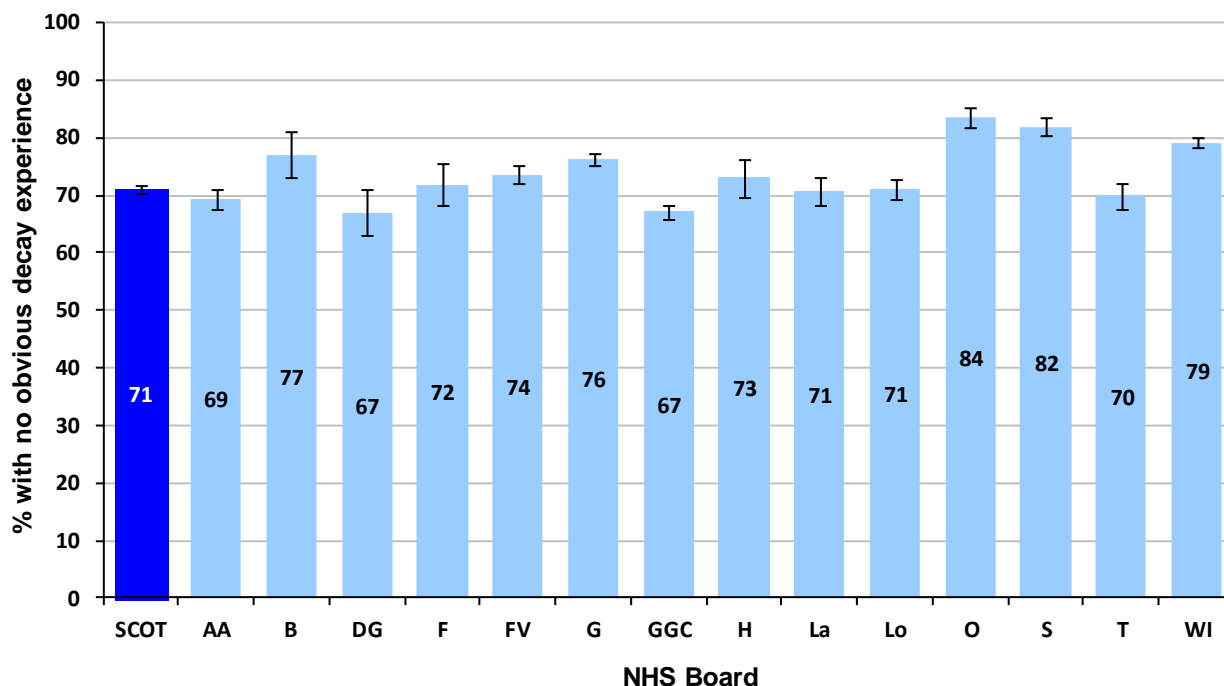
Source: ISD NDIP Database

1. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. There may be some rounding issues.
4. The definitions of d<sub>3</sub>mft, dt, mt, ft and d<sub>3</sub>mft>0 can be found in the Glossary.

**What proportion of P1 children in Scotland had no obvious decay experience in 2018?**

In Scotland, 71% of P1 children fell into this category, with a range from 67% in NHS Dumfries & Galloway and NHS Greater Glasgow & Clyde up to 84% in NHS Orkney (Figure 1).

**Figure 1. Percentage of P1 children in Scotland with no obvious decay experience in 2018; by NHS Board<sup>1-3</sup>**



<b>AA</b>	<b>B</b>	<b>DG</b>	<b>F</b>	<b>FV</b>	<b>G</b>	<b>GGC</b>
AYRSHIRE & ARRAN	BORDERS	DUMFRIES & GALLOWAY	FIFE	FORTH VALLEY	GRAMPIAN	GREATER GLASGOW & CLYDE
<b>H</b>	<b>LA</b>	<b>Lo</b>	<b>O</b>	<b>S</b>	<b>T</b>	<b>WI</b>
HIGHLAND	LANARKSHIRE	LOTHIAN	ORKNEY	SHETLAND	TAYSIDE	WESTERN ISLES

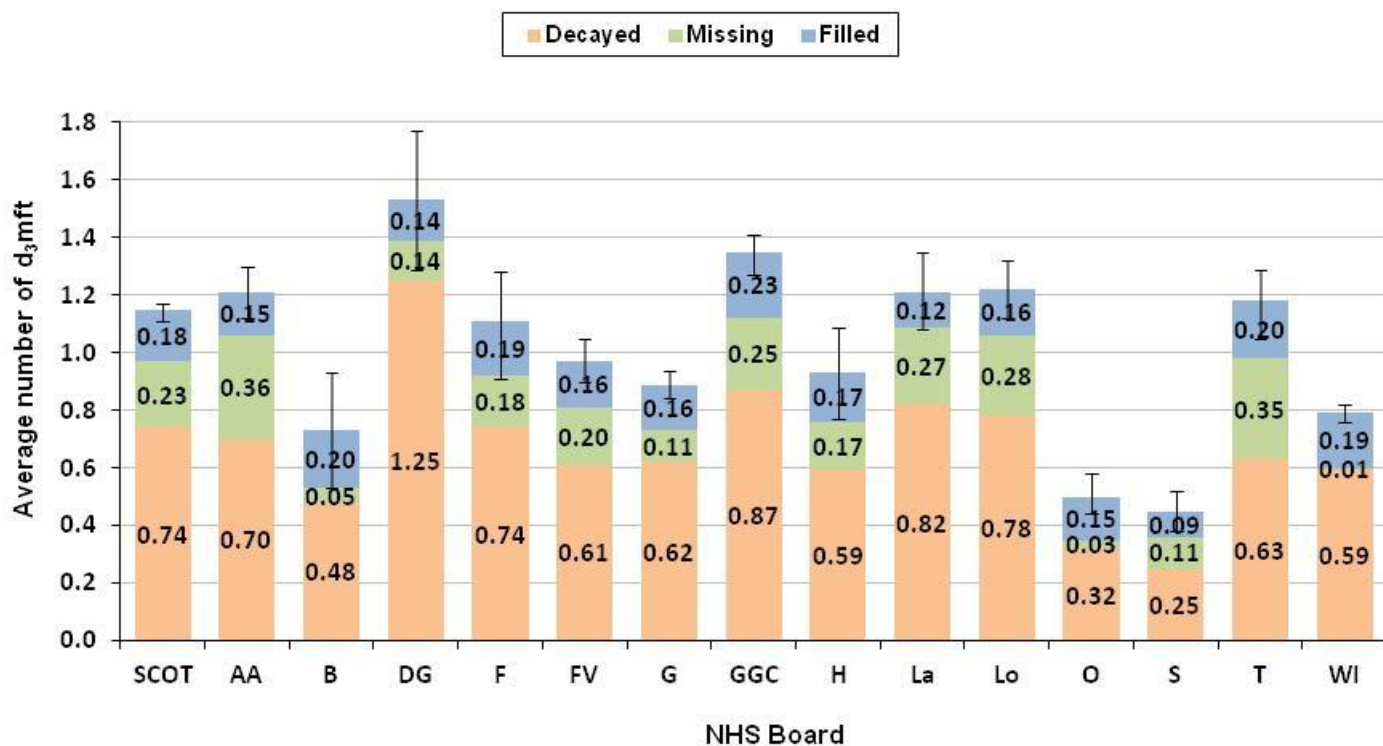
Source: ISD NDIP Database

1. No obvious decay experience is when  $d_3mft=0$ .
2. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
3. Based on NHS Board boundaries as defined in 2014.

### What levels of obvious decay experience were seen in P1 children in 2018?

The average number of obvious decayed, missing and filled teeth (d<sub>3</sub>mft) across all P1 children inspected in Scotland was 1.14. This ranged from 0.45 in NHS Shetland to 1.53 in NHS Dumfries & Galloway (Figure 2).

**Figure 2. Mean number of obvious decayed, missing and filled primary teeth (d<sub>3</sub>mft) of P1 children in 2018 in Scotland; by NHS Board<sup>1-3</sup>**



<b>AA</b>	<b>B</b>	<b>DG</b>	<b>F</b>	<b>FV</b>	<b>G</b>	<b>GGC</b>
AYRSHIRE & ARRAN	BORDERS	DUMFRIES & GALLOWAY	FIFE	FORTH VALLEY	GRAMPIAN	GREATER GLASGOW & CLYDE
<b>H</b>	<b>LA</b>	<b>Lo</b>	<b>O</b>	<b>S</b>	<b>T</b>	<b>WI</b>
HIGHLAND	LANARKSHIRE	LOTHIAN	ORKNEY	SHETLAND	TAYSIDE	WESTERN ISLES

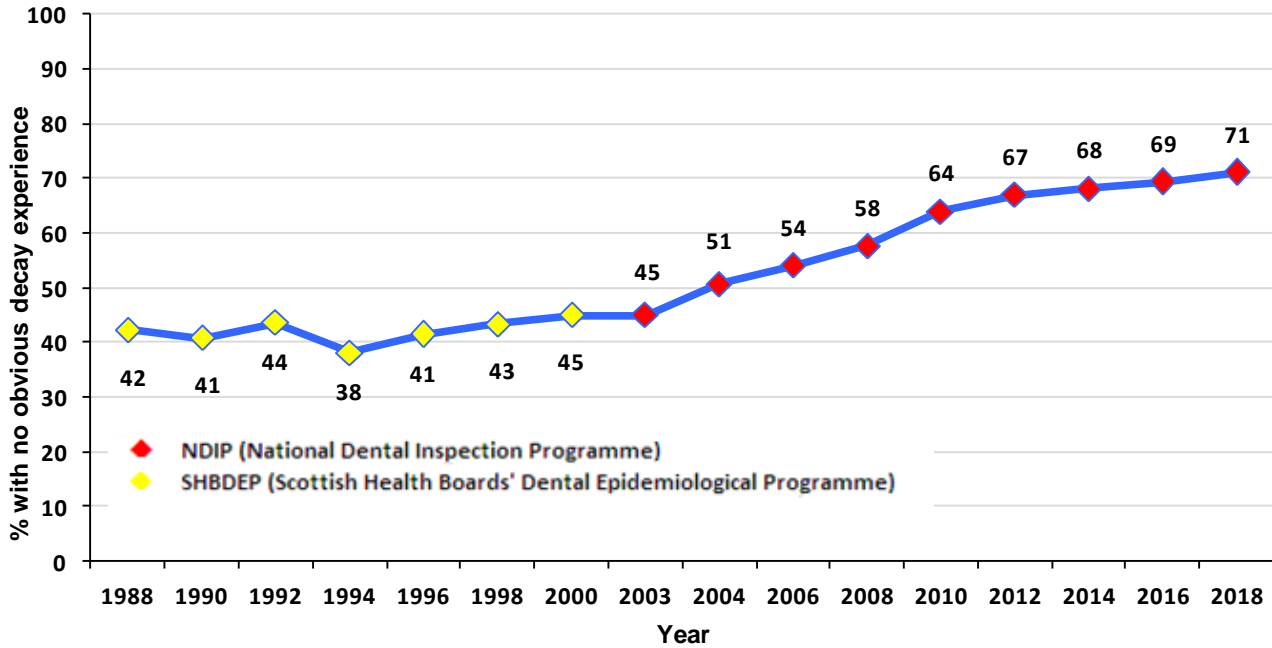
Source: ISD NDIP Database

1. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. There may be some rounding issues.

**How has the dental health of P1 children in Scotland changed over time?**

Figure 3 shows there has been a small increase since 2016 in the percentage of P1 children with no obvious decay experience (d3mft=0), but a large increase since 2003.

**Figure 3. Trends in the percentage of P1 children with no obvious decay experience in Scotland; 1988-2018<sup>1</sup>**

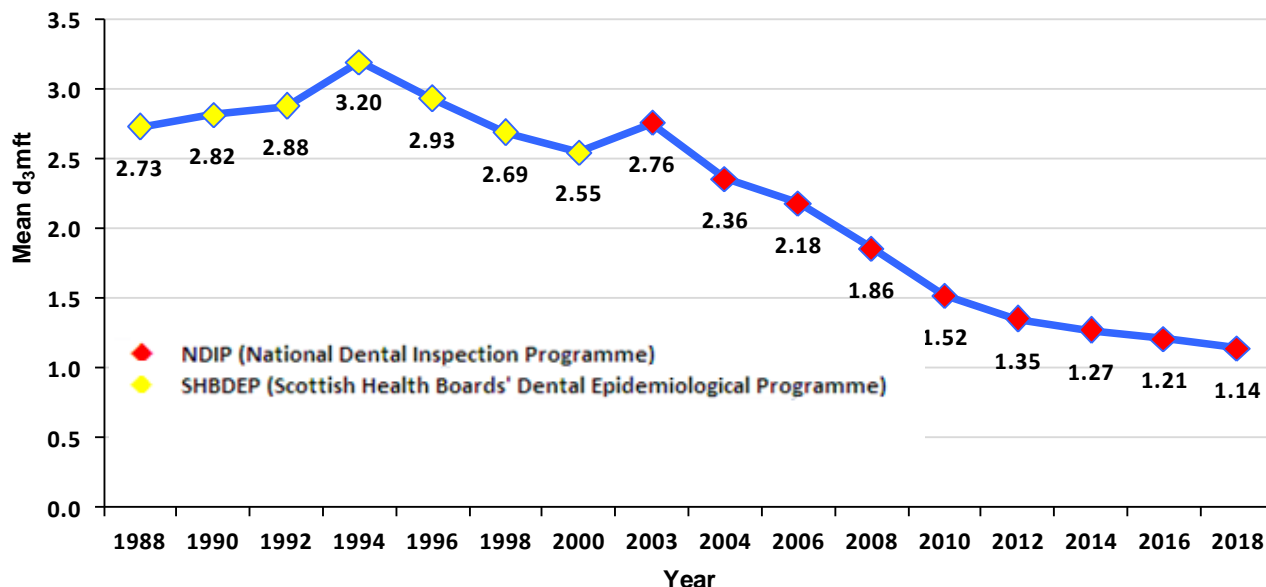


Sources: ISD NDIP Database, SHBDEP

1. The distance between each point does not represent an equal period of time as the results have not been published consistently over the 30 year period.

Similarly, there has been a continuing decline (improvement) in the mean number of decayed, missing and filled primary teeth for the P1 population as a whole (Figure 4). In the subgroup of children with obvious decay experience (Figure 5), the mean number of decayed, missing and filled teeth is 3.94 – which is a significant number of teeth affected by decay.

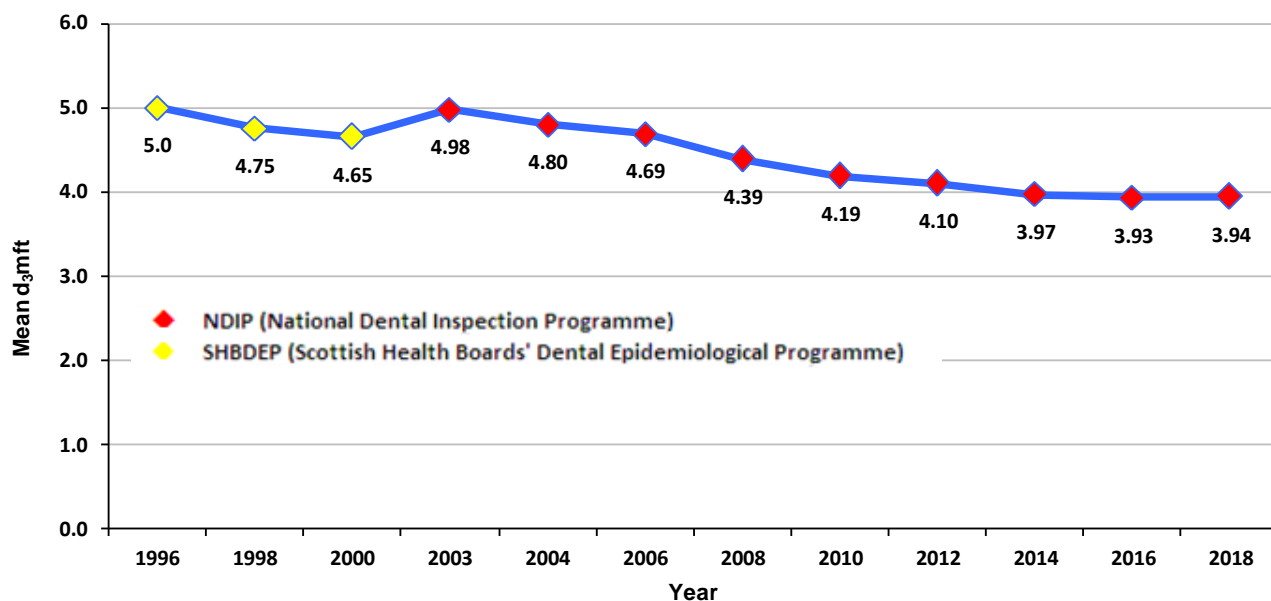
**Figure 4. Mean number of decayed, missing and filled primary teeth (d<sub>3</sub>mft) in the P1 population in Scotland; 1988-2018<sup>1</sup>**



Sources: ISD NDIP Database, SHBDEP

1. The distance between each point does not represent an equal period of time as the results have not been published consistently over the 30 year period.

**Figure 5. Mean number of decayed, missing and filled primary teeth in P1 children with obvious decay experience (i.e. in those with d<sub>3</sub>mft>0) in Scotland; 1996-2018<sup>1,2</sup>**



Sources: ISD NDIP Database, SHBDEP

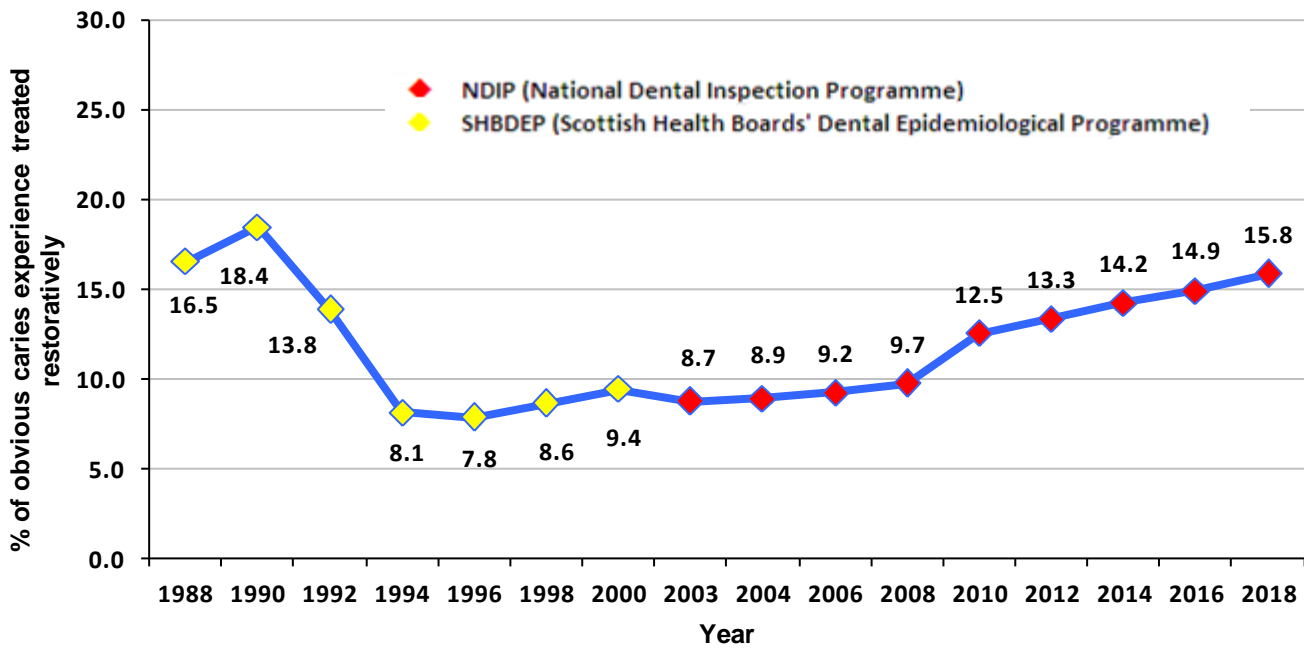
1. The distance between each point does not represent an equal period of time as the results have not been published consistently over the 22 year period.

2. This measure was not calculated prior to 1996.

What percentage of obvious decay experience in P1 children was treated with fillings?

Figure 6 shows the Care Index for the last 16 surveys. In the 2018 survey, 16% of teeth with obvious decay experience had been filled. This ranged from 10% to 31% among the 14 NHS Boards. These results can be found in [Appendix A4](#) (Table A2).

Figure 6. Care Index for P1 children in Scotland; 1988-2018<sup>1,2</sup>



Sources: ISD NDIP Database, SHBDEP

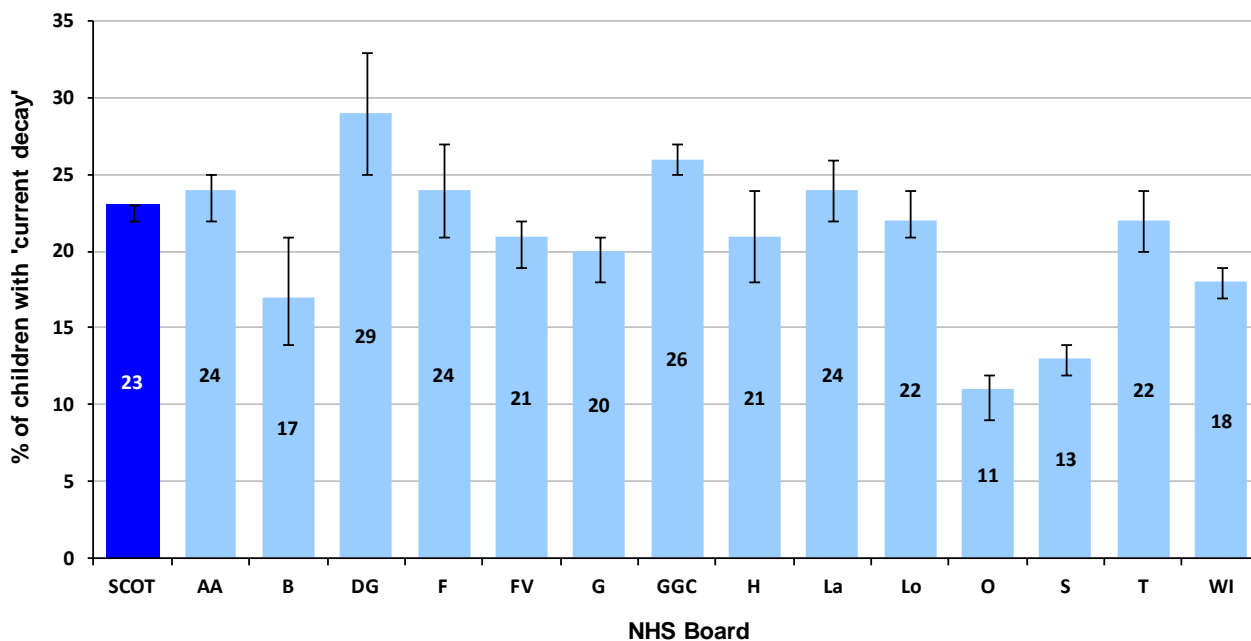
1. Care Index =  $\frac{\text{number of filled teeth}}{\text{number of teeth with obvious decay experience}} \times 100$

2. The distance between each point does not represent an equal period of time as the results have not been published consistently over the 30 year period.

### What percentage of P1 children had untreated decay?

In Scotland, 23% of P1 children had untreated decay ( $d_{3t} > 0$ ), with a range of 11% in NHS Orkney to 29% in NHS Dumfries and Galloway. Figure 7 shows the percentages and 95% confidence intervals of P1 children with untreated decay.

**Figure 7. Percentage of P1 children in Scotland with untreated decay; by NHS Board in 2018<sup>1-3</sup>**



<b>AA</b>	<b>B</b>	<b>DG</b>	<b>F</b>	<b>FV</b>	<b>G</b>	<b>GGC</b>
AYRSHIRE & ARRAN	BORDERS	DUMFRIES & GALLOWAY	FIFE	FORTH VALLEY	GRAMPIAN	GREATER GLASGOW & CLYDE
<b>H</b>	<b>LA</b>	<b>Lo</b>	<b>O</b>	<b>S</b>	<b>T</b>	<b>WI</b>
HIGHLAND	LANARKSHIRE	LOTHIAN	ORKNEY	SHETLAND	TAYSIDE	WESTERN ISLES

Source: ISD NDIP Database

1. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. Current decay is when  $d_{3t} > 0$  as per BASCD.



### Measures of Oral Health Inequalities

Health inequalities can be measured and reported using simple or complex methods.

- The simple methods compare only two groups on a socio-economic scale, usually the most and least disadvantaged.
- The complex methods look across the whole social gradient, rather than solely at the most and least disadvantaged groups (e.g. Slope Index of Inequality (SII)).

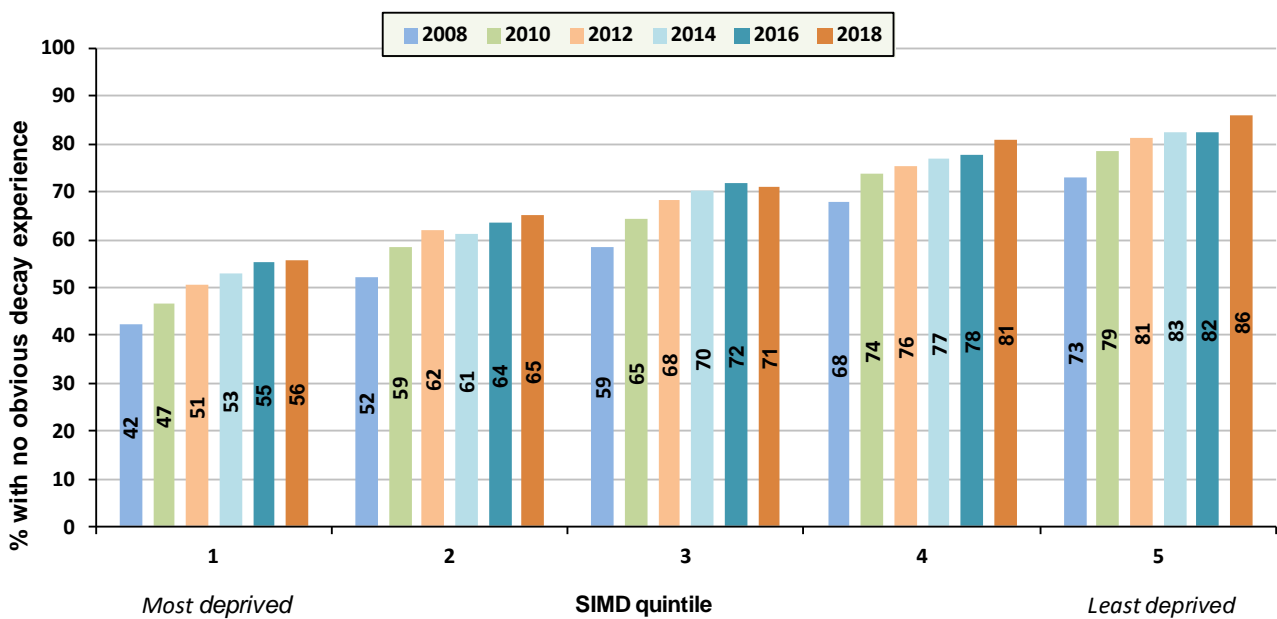
### Is there a continuing link between area-based socio-economic deprivation and poor dental health among P1 children in Scotland?

The main SIMD classification used here is based on quintiles of deprivation, where quintile SIMD 1 is the most deprived and quintile SIMD 5 is the least deprived.

There is clearly a difference in dental health among P1 children in the different SIMD quintiles. The most deprived quintiles SIMD 1 and SIMD 2 showed an increase of one percentage point, free from obvious decay, from 2016. SIMD 4 showed an improvement by three percentage points, whilst SIMD 3 showed a decrease in one percentage point. The least deprived quintile (SIMD5) showed an increase of four percentage points from the 2016 inspection (Figure 8).

The absolute inequality between SIMD 1 and SIMD 5 has increase to 30%, a 3 percentage point increase (i.e. decline) since 2016, with 56% of P1 children in the most deprived area showing no obvious decay experience, compared with 86% of P1 children in the least deprived area.

**Figure 8. Change between 2008 and 2018 in the percentage of P1 children in Scotland with no obvious decay experience; by SIMD quintile<sup>1,2</sup>**



Source: ISD NDIP Database

1 .No obvious decay experience is when d<sub>3</sub>mft=0.

2. Scotland level SIMD has been used, subject to availability as follows: 2008 - SIMD 2006; 2010 & 2012 - SIMD 2009; 2014 & 2016 - SIMD 2012; 2018 - SIMD 2016.

Similarly, there is an inequality gap in the average number of teeth with obvious decay experience (d<sub>3</sub>mft). This was 0.45 in the least deprived quintile (SIMD 5) compared with 1.92 in the most deprived (SIMD 1).

**Table 3. Mean number of decayed, missing and filled primary teeth (d<sub>3</sub>mft) in P1 children by SIMD quintile, 2010-2018<sup>1</sup>**

Year	SIMD 1 (most deprived)	SIMD 2	SIMD 3	SIMD 4	SIMD 5 (least deprived)
2010	2.61	1.76	1.39	0.99	0.64
2012	2.42	1.57	1.19	0.85	0.55
2014	2.14	1.61	1.13	0.76	0.56
2016	1.99	1.48	1.07	0.75	0.54
2018	1.92	1.45	1.08	0.64	0.45

Source: ISD NDIP Database

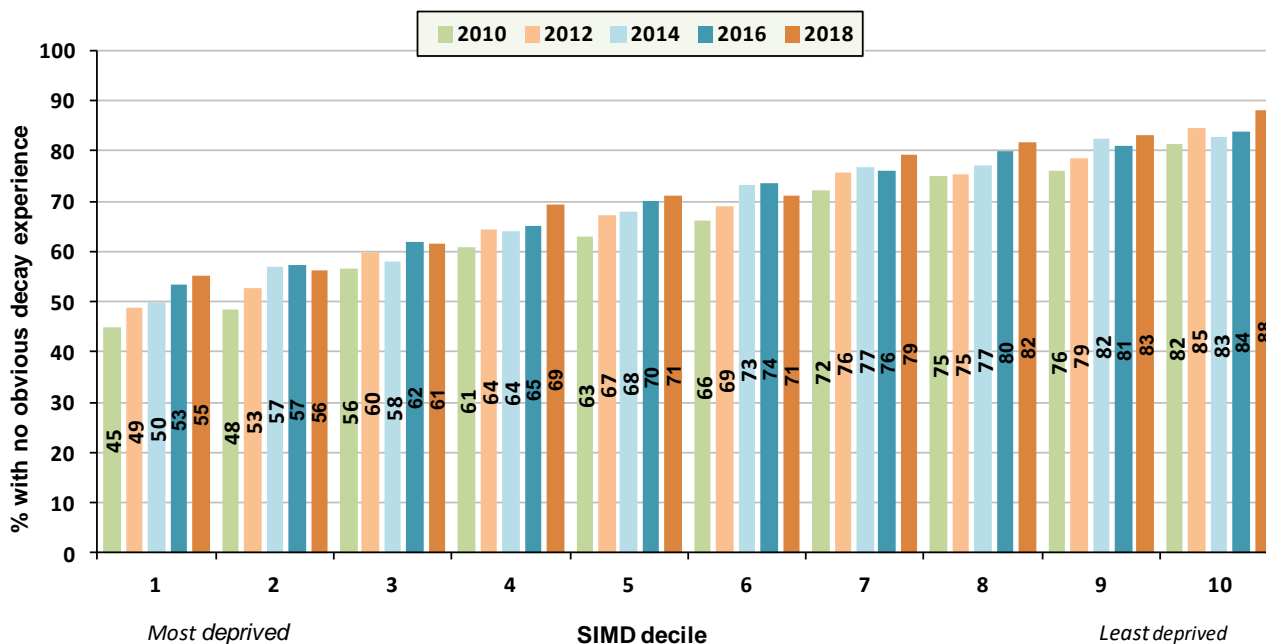
1. Scotland level SIMD has been used, subject to availability as follows: 2008 - SIMD 2006; 2010 & 2012 - SIMD 2009; 2014 & 2016 - SIMD 2012; 2018 - SIMD 2016.

The SIMD decile classification has 10 divisions of deprivation from decile 1 (most deprived) to decile 10 (least deprived).

As with the SIMD quintiles, there is a clear difference in dental health among P1 children in the different SIMD deciles. The most deprived decile (SIMD1) showed an increase of 2 percentage points, free from obvious decay experience, from 2016. There was an increase of four percentage points in the least deprived decile (SIMD10).

The absolute inequality between the most and least deprived deciles has increased to 33%, a 2 percentage point increase since 2016.

**Figure 9. Change between 2008 and 2018 in the percentage of P1 children in Scotland with no obvious decay experience; by SIMD decile<sup>1,2</sup>**



Source: ISD NDIP Database

1. No obvious decay experience is when d<sub>3</sub>mft=0.

2. Scotland level SIMD has been used, subject to availability as follows: 2008 - SIMD 2006; 2010 & 2012 - SIMD 2009; 2014 & 2016 - SIMD 2012; 2018 - SIMD 2016.

### Distribution of obvious decay experience across the number of P1 children in Scotland

The value for the Slope Index of Inequality (SII) in 2018 was 1.93, which is an improvement since 2010 (Table 4). The Relative Index of Inequality (RII) in 2018 was slightly higher than in 2010. The three non-SES-based measures of dental health inequalities shown in Table 4 (SiC, SiC10, SCIM10) show overall improvements since 2010.

**Table 4. Inequality measures in teeth of P1 children in Scotland; 2010-2018**

Year	Slope Index of Inequality (SII)	Relative Index of Inequality (RII)	Significant Caries (SiC) Index	Significant Caries 10 (SiC10)	Scottish Caries Inequality Metric (SCIM10)
2010	2.42	1.58	4.50	8.52	11.07
2012	2.25	1.63	4.13	7.97	9.80
2014	1.99	1.61	3.72	7.64	8.57
2016	1.84	1.54	3.59	7.48	8.22
2018	1.93	1.71	3.38	7.32	7.61

Source: ISD NDIP Database

Results from the detailed inspection for the Health and Social Care Partnerships are given in [Appendix A5](#).

A summary of the Basic Inspection results for all P1 and P7 children are given in [Appendix A6](#).

Results of the Basic Inspection for all Additional Support Needs (ASN) P1 and P7 children, in terms of numbers inspected, are given in [Appendix A6](#).

### Conclusions

- The oral health of P1 children in Scotland continues to show some improvement over time. Considerably improved has occurred since the early 2000s when the National Dental Inspection Programme started.
- Clear oral health inequalities remain, and this needs to be the focus of oral health improvement activity as the Childsmile Programme<sup>4</sup> continues to be refined and implemented by the NHS Boards.

### Glossary

BASCD	British Association for the Study of Community Dentistry
Basic Inspection	Simple assessment of the mouth of the child using a light, mirror and ball-ended probe. The dental status of each child is assigned to one of three categories, depending on the level of dental health and treatment need observed. Refer to <a href="#">Appendix A6</a> for further information.
Care Index	Percentage of obvious decay experience that has been treated restoratively; expressed as number of filled teeth divided by number of obvious decayed, missing and filled teeth, multiplied by 100 [(ft/d3mft)x100]
Childsmile	National oral health improvement programme for children in Scotland
Deprivation decile	This SIMD classification is based on deciles of deprivation (and is often used for greater depth of geographical analysis): decile 1 is the most deprived and decile 10 is the least deprived
Deprivation quintile	This SIMD classification is based on quintiles of deprivation: quintile 1 is the most deprived and quintile 5 is the least deprived.
Detailed Inspection	Comprehensive assessment of the mouth of the child using a light, mirror and ball-ended probe. The status of each surface of each tooth is recorded in accordance with international epidemiological conventions
d3mft	Obvious decay experience in primary teeth, as noted above; includes both missing teeth (extracted due to decay) and filled teeth.
d3mft >0	(Any) amount of decay experience in primary teeth.
d3t	Obvious decayed primary teeth.
ft	Filled primary teeth
LA	Local authority
mt	Missing primary teeth
NHS Board abbreviations	AA: Ayrshire & Arran B: Borders DG: Dumfries & Galloway F: Fife FV: Forth Valley G: Grampian GGC: Greater Glasgow & Clyde H: Highland

	La: Lanarkshire
	Lo: Lothian
	O: Orkney
	S: Shetland
	T: Tayside
	WI: Western Isles
	SCOT: Scotland
Obvious decay	Disease process that clinically appears to have penetrated dentine (the layer below the outer white enamel of the teeth). This is described internationally as decay at the d3 level and includes pulpal decay (i.e. decay into the deeper pulp).
SCIM10	Scottish Caries Inequality Metric. The area under the curve in relation to the distribution of the tenths of the population by obvious decay experience (d3mft).
SES	Socio-economic status.
SiC	Significant Caries Index. This is used in order to bring attention to the individuals with the highest caries values in each population under investigation.
SiC10	Significant Caries 10. The mean d3mft for the tenth of the sample with the most teeth affected by caries experience.
SII	Slope Index of Inequality. One of the recommended tests of complex inequality, as it reflects the entire SES distribution and weights for the population share in the respective groups. SII may be interpreted as the absolute difference overall in d3mft score when moving across the SES spectrum and is indicative of the total experience of individuals in the whole population.
RII	Relative Index of Inequality. One of the recommended tests of complex inequality, as it reflects the entire SES distribution and weights for the population share in the respective groups. RII can be interpreted as the relative difference overall in d3mft when moving across the SES spectrum. It can be calculated by dividing the SII by the mean level of decay in the population.
SIMD	Scottish Index of Multiple Deprivation Classification, identifying small area concentrations of multiple deprivation presented at data zone level and based on postcode unit information. Seven domains (income, employment, education, housing, health, crime and geographical

access) are combined into an overall index to rank relative multiple deprivation in all geographical areas throughout Scotland.

Several different versions of the SIMD are used across the annual reports. In 2008, the 2006 SIMD was used; in 2010 & 2012, the 2009 SIMD was used; in 2014 and 2016, the 2012 SIMD was used and in 2018 the 2016 SIMD was used. For all of these indices, the most deprived quintile (or decile) is shown by SIMD1; and the least deprived quintile (or decile) shown by SIMD5 or SIMD10.

There were SIMD releases in 2004, 2006, 2009, 2012 and 2016. The most appropriate SIMD release has been used for each year of data as illustrated in the following table.

Data for Years	Index and release
2000, 2001, 2002, 2003	SIMD 2004
2004, 2005, 2006	SIMD 2006
2007, 2008, 2009	SIMD 2009
2010, 2011, 2012, 2013, 2014, 2015, 2016	SIMD 2012
2018	SIMD 2016

Please note that following the release of SIMD 2009, ISD changed its ordering of quintiles to fit with the method used by the Scottish Government. The method is now:

- Quintile 1 = MOST deprived
- Quintile 5 = LEAST deprived

This applies to all data analysed by SIMD 2009, SIMD 2012 and SIMD2106.



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- Scottish Association of Clinical Dental Directors.

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<b>Table 3</b>	<a href="#">Mean number of decayed, missing and filled primary teeth (d3mft) in P1 children by SIMD quintile, 2010-2016.</a>	2010-2018	Excel [10KB]
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Figure No.	Name	Time period	File & size
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<b>Figure 5</b>	<a href="#">Mean number of decayed, missing and filled primary teeth in those children with decay experience (d3mft&gt;0).</a>	2006-2018	Excel [41KB]
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<b>Figure 9</b>	<a href="#">Change in the percentage of P1 children in Scotland with no obvious decay experience; by SIMD decile.</a>	2010-2018	Excel [30KB]

<b>Diagram No.</b>	<b>Name</b>	<b>Time period</b>	<b>File &amp; size</b>
1	<a href="#">The various stages of tooth decay.</a>	n/a	Excel [280KB]

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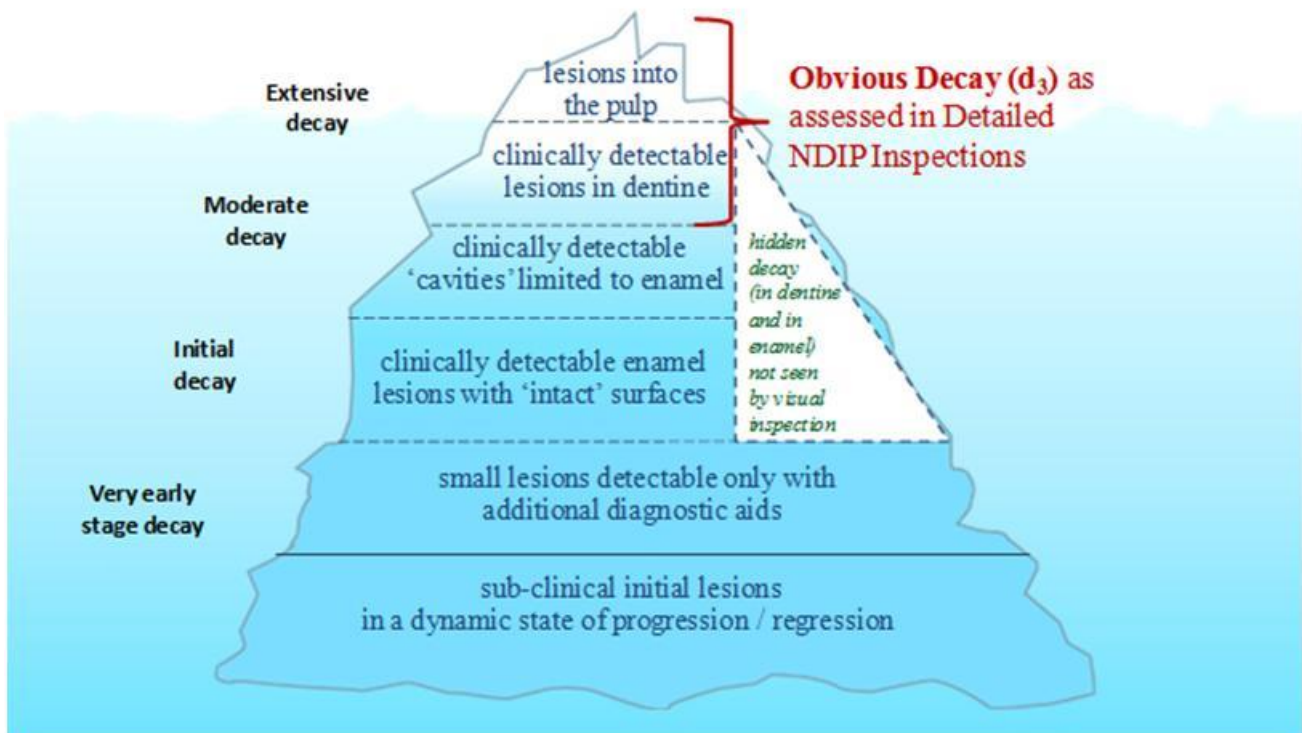
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## Appendices

### A1 – What are the stages of tooth decay?

Dentists use specific professional terms to identify the different stages of tooth decay. However, simpler terms are provided in Diagram 1 below to help illustrate the various stages of tooth decay. The early stages of decay occur at a sub-clinical level and cannot be detected by the naked eye. As decay progresses it can be detected visually, first on the outer surface of the tooth (enamel layer) and then, with further progression, the lesion is clinically detectable in the dentine layer under the enamel. It is decay which has reached this stage that is recorded by the dental inspectors undertaking the NDIP inspections.

Diagram 1: The various stages of tooth decay



### A2 – National training and calibration course

The training and calibration course for the Detailed NDIP survey of P1 children in Scotland was organised and held in NHS Lothian, NHS Lanarkshire, NHS Tayside, and NHS Forth Valley in November 2017.

Mandatory training and calibration were run over four separate courses to accommodate the 50 inspection teams (dentist/dental therapist and dental nurse) who attended from all 14 NHS Boards.

Training involved sessions on inspection procedures, tooth/surface codes and diagnostic criteria based on the British Association for the Study of Community Dentistry (BASCD) Trainers' Pack<sup>6</sup>. Clinical training sessions were then undertaken on schoolchildren, and were followed by the calibration sessions on a further group of P1 children. Calibration sessions involved each inspection team examining the same children. The number of children on each course ranged from 11 to 12.

Analyses were undertaken by the Community Oral Health research group, University of Glasgow Dental School, supported by colleagues in NHS Tayside, NHS Forth Valley, NHS Lanarkshire, NHS Lothian and NHS National Services Scotland's Information Services Division. Inter-examiner agreement was assessed using the percentage agreement and Kappa statistic assessed at the patient level on  $d_{3mft}$  and separately for  $d_{3t}$ ,  $mt$ , and  $ft$  components.

Cohen Kappa estimates agreement, which is considered<sup>7</sup>:

- *poor* if  $Kappa \leq 0.20$
- *fair* if  $0.21 \leq Kappa \leq 0.40$
- *moderate* if  $0.41 \leq Kappa \leq 0.60$
- *substantial* if  $0.61 \leq Kappa \leq 0.80$
- *good* if  $Kappa > 0.80$

All 50 inspection teams calibrated with percentage agreements ranging from 91% to 100%, and the Kappa estimates for  $d_{3mft}$  scores at the patient level did not drop below the level of good agreement.

### A3 – Links/comparisons to other sources of dental health information

The sources below offer information related to dental services and dental health. Most of these sources are external to ISD and we cannot guarantee the content or accessibility of these external web sites.

[Childsmile](#) - improving the oral health of children in Scotland.

#### Dental data in Scotland

ISD publishes

- Information relating to the [general dental service workforce](#) in Scotland.
- An annual [NHS Adult & Child Fees and Treatments](#) report providing information on GDS fees paid to dentists and on treatments provided to children and adults.
- A biannual [NHS Registration and Participation](#) report providing information on NHS General Dental Services (GDS) registrations and participation (contact with GDS).
- An annual report providing information on the [application of fluoride varnishing](#) to children’s teeth.

The 2014 [Scottish Health Survey](#) covers dental health topics such as dental health problems and trends in prevalence of natural teeth.

The 2015/16 [Scottish Adult Oral Health Survey](#) provides detailed analyses of oral health factors and demographic measures for adults, and provides a tool to inform policy, plan services and improve and maintain health.

**Table A3.1: Is NDIP Comparable with other UK dental data?**

Country	Comparable to NDIP?	Available	Links
England	No – consent affects participation rates of children with and without decay	Yes	The <a href="#">Dental Observatory</a> produced a report on the prevalence and severity of dental decay of five-year old children in 2017.
Northern Ireland	-	No	-
Wales	No – consent affects participation rates of children with and without decay	Yes	Cardiff University and Public Health Wales produce annual reports for <a href="#">childhood oral epidemiology programme</a> .



As stated, the results from these reports are not directly comparable with the NDIP report. The Office for National Statistics' (ONS) has carried out a [Dental Health Survey of Children and Young People](#) every ten years since 1973. The study provides information to underpin dental health care for children in England, Wales and Northern Ireland. The information collected helps the NHS to understand how the dental health of each generation of children is changing. It is used in the planning of dental care services for the future.

Please note that if you want to compare deprivation levels in Scotland and England, the Scottish Index of Multiple Deprivation (SIMD) is not directly comparable with the Index of Multiple Deprivation used in England.

## A4 – Results of Care Index at NHS Board level; Detailed Inspection

Table A4.1 displays the Care Index from the 2018 survey for all 14 NHS Boards. This ranged from 9.8% in NHS Dumfries & Galloway to 30.8% in NHS Orkney.

**Table A4.1: Care Index for P1 children in Scotland; by NHS Board<sup>1-3</sup>**

NHS Board	% of teeth with obvious caries experience treated restoratively
Ayrshire & Arran	12.4
Borders	24.8
Dumfries & Galloway	9.8
Fife	17.4
Forth Valley	16.4
Grampian	14.3
Greater Glasgow & Clyde	16.9
Highland	19.7
Lanarkshire	11.8
Lothian	13.0
Orkney	30.8
Shetland	18.3
Tayside	16.7
Western Isles	24.3
<b>Scotland</b>	<b>15.8</b>

Source: ISD NDIP Database

1. Care Index =  $\frac{\text{number of filled teeth}}{\text{number of teeth with obvious decay experience}} \times 100$ .

2. Numbers are based on the postcode of the child and not the postcode of the school where the child was inspected.

3. Based on NHS Board boundaries as defined in 2014.

### A5 – Results for Health and Social Care Partnerships (HSCP); Detailed Inspection for Primary 1 children in 2018

Tables A5.1-5.8 show the 2018 Detailed NDIP results for Health and Social Care Partnerships for the eight NHS Boards.

The following variables are given:

- Mean age
- Weighted % no obvious decay experience
- Weighted mean  $d_{3mft}$
- Weighted mean  $d_{3t}$
- Weighted mean  $mt$
- Weighted mean  $ft$
- Mean  $d_{3mft}$  for children with  $d_{3mft} > 0$

Results for the HSCPs are weighted by population deprivation categories specific to each NHS Board. This is different to the deprivation categorisation used in the main report which is SIMD 2016 based on the whole of Scotland. As such the deprivation results for the HSCPs are **not** directly comparable with those in the main report.

The HSCPs are weighted by NHS Board deprivation categories so as to allow fair comparison within the NHS Board area. This is only applicable to NHS Boards with more than one HSCP, and therefore NHS Boards with only one HSCP are not reported, namely NHS Borders, NHS Dumfries & Galloway, NHS Fife, NHS Orkney, NHS Shetland and NHS Western Isles.

**Table A5.1: NHS Ayrshire & Arran: Health and Social Care Partnership results**

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
East Ayrshire	487	5.5	0.3	4.8	6.6
North Ayrshire	579	5.5	0.3	4.8	6.6
South Ayrshire	447	5.5	0.3	4.4	6.6

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
East Ayrshire	60.7	57.2	64.1
North Ayrshire	71.5	68.6	74.4
South Ayrshire	75.6	72.4	78.8

HSCP name	Weighted mean d <sub>3mft</sub>		
	Mean d <sub>3mft</sub>	Lower 95% CL	Upper 95% CL
East Ayrshire	1.7	1.5	1.9
North Ayrshire	1.0	0.9	1.1
South Ayrshire	1.0	0.8	1.2

HSCP name	Weighted mean d <sub>3t</sub>		
	Mean d <sub>3t</sub>	Lower 95% CL	Upper 95% CL
East Ayrshire	1.1	0.9	1.2
North Ayrshire	0.5	0.4	0.6
South Ayrshire	0.5	0.4	0.6

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
East Ayrshire	0.5	0.4	0.6
North Ayrshire	0.3	0.2	0.4
South Ayrshire	0.3	0.2	0.5

HSCP name	Weighted mean ft		
	Mean pt	Lower 95% CL	Upper 95% CL
East Ayrshire	0.2	0.1	0.2
North Ayrshire	0.2	0.1	0.2
South Ayrshire	0.2	0.1	0.2

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
East Ayrshire	196	4.4	3.9	4.8
North Ayrshire	168	3.4	3.0	3.7
South Ayrshire	108	4.1	3.5	4.7

Table A5.2: NHS Forth Valley: Health and Social Care Partnership results

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
Clackmannanshire and Stirling	739	5.4	0.3	4.6	6.8
Falkirk	837	5.5	0.3	4.6	6.3

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	73.6	71.4	75.8
Falkirk	73.1	70.9	75.4

HSCP name	Weighted mean d <sub>3mft</sub>		
	Mean d <sub>3mft</sub>	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	1.0	0.9	1.1
Falkirk	1.0	0.9	1.1

HSCP name	Weighted mean d <sub>3t</sub>		
	Mean dt	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	0.7	0.6	0.8
Falkirk	0.6	0.5	0.7

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	0.2	0.1	0.2
Falkirk	0.2	0.2	0.3

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	0.1	0.1	0.2
Falkirk	0.2	0.2	0.2

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
Clackmannanshire and Stirling	192	3.6	3.2	4.0
Falkirk	229	3.8	3.5	4.2

**Table A5.3: NHS Grampian: Health and Social Care Partnership results**

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
Aberdeen City	1333	5.5	0.3	4.8	6.4
Aberdeenshire	1193	5.6	0.3	4.9	6.8
Moray	486	5.5	0.3	4.9	6.5

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
Aberdeen City	74.4	72.9	75.9
Aberdeenshire	77.2	75.4	79.0
Moray	76.7	73.8	79.5

HSCP name	Weighted mean d <sub>3mft</sub>		
	Mean d <sub>3mft</sub>	Lower 95% CL	Upper 95% CL
Aberdeen City	1.0	1.0	1.1
Aberdeenshire	0.8	0.8	0.9
Moray	0.7	0.6	0.9

HSCP name	Weighted mean d <sub>3t</sub>		
	Mean dt	Lower 95% CL	Upper 95% CL
Aberdeen City	0.8	0.7	0.9
Aberdeenshire	0.5	0.5	0.6
Moray	0.4	0.4	0.5

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
Aberdeen City	0.1	0.1	0.1
Aberdeenshire	0.1	0.1	0.2
Moray	0.1	0.1	0.2



HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
Aberdeen City	0.2	0.1	0.2
Aberdeenshire	0.2	0.1	0.2
Moray	0.2	0.1	0.2

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
Aberdeen City	340	4.1	3.7	4.4
Aberdeenshire	293	3.7	3.4	4.1
Moray	121	3.2	2.7	3.7

Table A5.4: NHS Greater Glasgow & Clyde: Health and Social Care Partnership results

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
East Dunbartonshire	496	5.4	0.3	4.8	6.1
East Renfrewshire	527	5.5	0.3	4.8	6.3
Glasgow City	1455	5.4	0.3	4.8	6.6
Inverclyde	470	5.4	0.3	4.7	6.7
Renfrewshire	445	5.5	0.4	4.8	6.9
West Dunbartonshire	465	5.5	0.3	4.8	6.2

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
East Dunbartonshire	75.7	72.9	78.5
East Renfrewshire	82.6	80.1	85.0
Glasgow City	62.8	60.6	65.0
Inverclyde	67.0	64.2	69.7
Renfrewshire	67.6	63.7	71.4
West Dunbartonshire	62.5	59.3	65.7

HSCP name	Weighted mean d <sub>3mft</sub>		
	Mean d <sub>3mft</sub>	Lower 95% CL	Upper 95% CL
East Dunbartonshire	0.9	0.8	1.1
East Renfrewshire	0.5	0.4	0.6
Glasgow City	1.7	1.6	1.9
Inverclyde	1.3	1.1	1.5
Renfrewshire	1.1	1.0	1.3
West Dunbartonshire	1.4	1.2	1.6

HSCP name	Weighted mean d <sub>3t</sub>		
	Mean dt	Lower 95% CL	Upper 95% CL
East Dunbartonshire	0.6	0.5	0.7
East Renfrewshire	0.3	0.2	0.4
Glasgow City	1.1	1.0	1.2
Inverclyde	0.8	0.7	0.9
Renfrewshire	0.7	0.6	0.9
West Dunbartonshire	1.0	0.9	1.1

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
East Dunbartonshire	0.2	0.1	0.2
East Renfrewshire	0.1	0.1	0.2
Glasgow City	0.3	0.3	0.4
Inverclyde	0.2	0.2	0.3
Renfrewshire	0.1	0.1	0.2
West Dunbartonshire	0.2	0.1	0.4

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
East Dunbartonshire	0.1	0.1	0.2
East Renfrewshire	0.1	0.1	0.1
Glasgow City	0.3	0.2	0.3
Inverclyde	0.2	0.2	0.3
Renfrewshire	0.3	0.2	0.3
West Dunbartonshire	0.2	0.1	0.2

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
East Dunbartonshire	131	3.9	3.3	4.4
East Renfrewshire	92	3.0	2.5	3.5
Glasgow City	547	4.6	4.3	4.9
Inverclyde	164	3.9	3.4	4.4
Renfrewshire	146	3.6	3.2	3.9
West Dunbartonshire	172	3.7	3.2	4.1

Table A5.5: NHS Highland: Health and Social Care Partnership results

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
Argyll & Bute	297	5.5	0.3	4.9	6.7
Highland	321	5.6	0.3	5.0	6.4

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
Argyll & Bute	75.3	71.1	79.4
Highland	71.4	66.1	76.7

HSCP name	Weighted mean d <sub>3</sub> mft		
	Mean d <sub>3</sub> mft	Lower 95% CL	Upper 95% CL
Argyll & Bute	0.8	0.6	1.0
Highland	1.0	0.7	1.3

HSCP name	Weighted mean d <sub>3</sub> t		
	Mean dt	Lower 95% CL	Upper 95% CL
Argyll & Bute	0.5	0.4	0.6
Highland	0.7	0.4	0.9

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
Argyll & Bute	0.2	0.1	0.3
Highland	0.2	0.1	0.3

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
Argyll & Bute	0.1	0.1	0.2
Highland	0.2	0.1	0.2

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
Argyll & Bute	71	3.4	2.8	4.0
Highland	84	3.4	2.7	4.0

Table A5.6: NHS Lanarkshire: Health and Social Care Partnership results

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
North Lanarkshire	538	5.5	0.3	4.8	6.4
South Lanarkshire	550	5.4	0.3	4.6	6.7

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
North Lanarkshire	66.9	63.1	70.6
South Lanarkshire	74.8	71.5	78.1

HSCP name	Weighted mean d <sub>3</sub> mft		
	Mean d <sub>3</sub> mft	Lower 95% CL	Upper 95% CL
North Lanarkshire	1.3	1.1	1.5
South Lanarkshire	1.1	0.9	1.3

HSCP name	Weighted mean d <sub>3</sub> t		
	Mean dt	Lower 95% CL	Upper 95% CL
North Lanarkshire	1.0	0.8	1.1
South Lanarkshire	0.7	0.5	0.8

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
North Lanarkshire	0.2	0.1	0.3
South Lanarkshire	0.3	0.2	0.4

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
North Lanarkshire	0.2	0.1	0.2
South Lanarkshire	0.1	0.1	0.1

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
North Lanarkshire	180	4.0	3.6	4.4
South Lanarkshire	141	4.3	3.8	4.9



**Table A5.7: NHS Lothian: Health and Social Care Partnership results**

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
East Lothian	342	5.5	0.3	4.8	6.4
Edinburgh	935	5.6	0.3	4.9	6.4
Midlothian	351	5.5	0.3	4.9	6.5
West Lothian	440	5.6	0.3	4.8	6.4

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
East Lothian	73.9	69.9	77.9
Edinburgh	74.1	71.6	76.7
Midlothian	71.0	66.8	75.1
West Lothian	64.2	60.2	68.1

HSCP name	Weighted mean d <sub>3</sub> mft		
	Mean d <sub>3</sub> mft	Lower 95% CL	Upper 95% CL
East Lothian	1.0	0.8	1.2
Edinburgh	1.1	0.9	1.2
Midlothian	1.1	0.9	1.3
West Lothian	1.8	1.5	2.1

HSCP name	Weighted mean d <sub>3</sub> t		
	Mean dt	Lower 95% CL	Upper 95% CL
East Lothian	0.7	0.6	0.9
Edinburgh	0.7	0.5	0.8
Midlothian	0.7	0.6	0.9
West Lothian	1.1	0.9	1.4

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
East Lothian	0.2	0.1	0.3
Edinburgh	0.3	0.2	0.4
Midlothian	0.1	0.1	0.2
West Lothian	0.5	0.4	0.6

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
East Lothian	0.1	0.1	0.2
Edinburgh	0.1	0.1	0.2
Midlothian	0.3	0.2	0.3
West Lothian	0.1	0.1	0.2

HSCP name	No. of children with obvious decay experience	Mean $d_3mft$ for children with obvious decay experience ( $d_3mft > 0$ )		
		Mean	Lower 95% CL	Upper 95% CL
East Lothian	90	3.9	3.3	4.4
Edinburgh	233	4.0	3.6	4.5
Midlothian	110	3.7	3.2	4.2
West Lothian	160	5.0	4.5	5.6

**Table A5.8: NHS Tayside: Health and Social Care Partnership results**

HSCP name	No. of children	Mean age			
		Mean	Std dev	Minimum	Maximum
Angus	363	5.6	0.3	5.0	6.4
Dundee	336	5.6	0.3	4.9	6.3
Perth & Kinross	360	5.6	0.3	4.9	6.5

HSCP name	Weighted % no obvious decay experience		
	%	Lower 95% CL	Upper 95% CL
Angus	74.1	70.3	78.0
Dundee	65.3	60.7	69.9
Perth & Kinross	69.8	65.6	74.0

HSCP name	Weighted mean d <sub>3</sub> mft		
	Mean d <sub>3</sub> mft	Lower 95% CL	Upper 95% CL
Angus	1.0	0.8	1.1
Dundee	1.3	1.1	1.6
Perth & Kinross	1.2	1.0	1.5

HSCP name	Weighted mean d <sub>3</sub> t		
	Mean dt	Lower 95% CL	Upper 95% CL
Angus	0.5	0.4	0.6
Dundee	0.6	0.5	0.8
Perth & Kinross	0.8	0.6	0.9

HSCP name	Weighted mean mt		
	Mean mt	Lower 95% CL	Upper 95% CL
Angus	0.3	0.2	0.4
Dundee	0.5	0.3	0.7
Perth & Kinross	0.3	0.2	0.4

HSCP name	Weighted mean ft		
	Mean ft	Lower 95% CL	Upper 95% CL
Angus	0.2	0.1	0.3
Dundee	0.2	0.1	0.3
Perth & Kinross	0.2	0.1	0.3

HSCP name	No. of children with obvious decay experience	Mean d <sub>3</sub> mft for children with obvious decay experience (d <sub>3</sub> mft >0)		
		Mean	Lower 95% CL	Upper 95% CL
Angus	90	3.7	3.2	4.3
Dundee	122	3.8	3.3	4.4
Perth & Kinross	115	4.0	3.5	4.6

The results are weighted by population SIMD 2016 categories, specific to each NHS Board. This is different to the SIMD 2016 used in the main report which used SIMD 2016 categories for Scotland as a whole. As such they are **not** directly comparable.

### A6 – Basic Inspection results

#### What does the NDIP Basic Inspection consist of?

The *Basic Inspection* involves a simple assessment of the mouth of the child using a light, mirror and ball-ended probe. The dental status of each child is then categorised into three groups, depending on the level of dental health and treatment need observed, and parents/carers are advised of this by letter. The information in the letter explains the state of dental health observed in the mouth of the child at the time of the inspection.

The letter types are as follows:

- Letter A - should arrange to see the dentist as soon as possible, if the child has not had a recent appointment, on account of severe decay or abscess.
- Letter B - should arrange to see the dentist in the near future, if the child has not had a recent appointment, on account of evidence of current or previous decay.
- Letter C - no obvious decay experience but should continue to see the family dentist on a regular basis.

The results of the *Basic Inspection* are then anonymised and aggregated. They are used to monitor the impact of local and national NHS oral health improvement programmes and assist in the development of local dental services.

## A6 – Basic Inspection results cont

### Primary 1 Basic Data Scotland; 2018

During 2017/18, all P1 classes of Scottish Local Authority schools were invited to participate in the Programme. The Basic Inspections were conducted in primary schools in all NHS Board areas, and overall 52,324 P1 children were inspected (Table A6.1). This represents 85% of P1 children who attended mainstream Local Authority schools. Parents/carers were advised by letter of the oral health of their child.

**Table A6.1: Primary 1 children inspected by NHS Boards during school year 2017/18; Basic Inspection<sup>1-7</sup>**

NHS Board	2016 mid-year population estimate of P1 children in Local Authority schools	Total no. of P1 children inspected	Percentage (%) of P1 children inspected	Percentage (%) of A letters issued	Percentage (%) of B letters issued	Percentage (%) of C letters issued
Ayrshire & Arran	3,879	3,623	93.40	4.25	25.20	70.55
Borders	1,129	1,048	92.83	4.48	23.57	71.95
Dumfries & Galloway	1,539	1,314	85.38	4.95	23.74	71.31
Fife	4,265	2,571	60.28	4.67	26.64	68.69
Forth Valley	3,353	2,992	89.23	6.75	20.19	73.06
Grampian	6,734	5,697	84.60	7.06	17.90	75.04
Greater Glasgow & Clyde	12,314	11,638	94.51	10.31	23.17	66.51
Highland	3,284	2,886	87.88	6.83	19.47	73.70
Lanarkshire	7,436	7,063	94.98	7.82	21.76	70.42
Lothian	9,545	8,504	89.09	5.97	20.81	73.21
Orkney	224	198	88.39	2.02	14.14	83.84
Shetland	276	239	86.59	2.51	14.23	83.26
Tayside	4,255	3,896	91.56	8.86	21.66	69.48
Western Isles	264	230	87.12	4.35	20.43	75.22
<b>Scotland</b>	<b>61,695</b>	<b>52,324</b>	<b>84.81</b>	<b>7.27</b>	<b>22.35</b>	<b>70.39</b>

Source: ISD NDIP Database

1. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. The population of Primary 1 pupils is based on the NRS mid-year population estimate for children aged 5 (2016).
4. Children with a missing postcode, had an exam but did not receive a letter, or did not have an exam, were removed before analysis. This accumulated to 5,803 children. Repeat examinations were also omitted.
5. Letter A - should arrange to see the dentist as soon as possible, if the child has not had a recent appointment, on account of severe decay or abscess.
6. Letter B - should arrange to see the dentist in the near future, if the child has not had a recent appointment, on account of evidence of current or previous decay.
7. Letter C - no obvious decay experience but should continue to see the family dentist on a regular basis.

**Primary 7 Basic Data Scotland; 2018**

During 2017/18, all P7 classes of Scottish Local Authority schools were invited to participate in the Programme. The Basic Inspections were conducted in primary schools in all NHS Board areas, and overall 49,914 P7 children were inspected (Table A6.2). This represents 89% of P7 children who attended mainstream Local Authority schools. Parents/carers were advised by letter of the oral health of their child.

**Table A6.2: Primary 7 children inspected by NHS Boards during school year 2017/18; Basic Inspection<sup>1-7</sup>**

NHS Board	2016 mid-year population estimate of P7 children in Local Authority schools	Total no. of P7 children inspected	Percentage (%) of P7 children inspected	Percentage (%) of A letters issued	Percentage (%) of B letters issued	Percentage (%) of C letters issued
Ayrshire & Arran	3,955	3,535	89.38	2.04	27.02	70.95
Borders	1,225	1,074	87.67	0.65	22.44	76.91
Dumfries & Galloway	1,569	1,420	90.50	5.00	27.96	67.04
Fife	3,942	3,588	91.02	1.81	32.72	65.47
Forth Valley	3,380	2,854	84.44	3.71	24.98	71.30
Grampian	5,852	5,096	87.08	1.33	23.14	75.31
Greater Glasgow & Clyde	11,627	10,679	91.85	2.58	30.82	66.61
Highland	3,430	2,896	84.43	1.45	18.23	80.32
Lanarkshire	7,376	6,878	93.25	2.20	27.60	70.21
Lothian	8,686	7,528	86.67	1.67	24.12	74.20
Orkney	237	240	101.27	0.00	10.00	90.00
Shetland	267	258	96.63	1.16	19.38	79.46
Tayside	4,324	3,590	83.02	1.56	27.66	70.78
Western Isles	272	278	102.21	1.80	29.50	68.71
<b>Scotland</b>	<b>56,142</b>	<b>49,914</b>	<b>88.91</b>	<b>2.10</b>	<b>26.73</b>	<b>71.15</b>

Source: ISD NDIP Database

1. Numbers are based on the postcode of the child's home address and not the postcode of the school where the child was inspected.
2. Based on NHS Board boundaries as defined in 2014.
3. The population of Primary 7 pupils is based on the NRS mid-year population estimate for children aged 11 (2016).
4. Children with a missing postcode, had an exam but did not receive a letter, or did not have an exam, were removed before analysis. This accumulated to 7,059 children. Repeat examinations were also omitted.
5. Letter A - should arrange to see the dentist as soon as possible, if the child has not had a recent appointment, on account of severe decay or abscess.
6. Letter B - should arrange to see the dentist in the near future, if the child has not had a recent appointment, on account of evidence of current or previous decay.
7. Letter C - no obvious decay experience but should continue to see the family dentist on a regular basis.

**Number of children with Additional Support Needs in Primary 1 and Primary 7 (attending Special Schools or Units/Classes) who received a Basic Inspection in Scotland; 2018**

**Table A6.3: Numbers of children with Additional Support Needs (ASN) in Primary 1 and Primary 7 receiving a Basic Inspection (2018), and numbers of Special Schools or Unit/Classes they attended**

NHS Board	Total no. of P1 children inspected	No. of Special Schools or Unit/Classes for children with ASN (P1)	Total no. of P7 children inspected	No. of Special Schools or Unit/Classes for children with ASN (P7)
Scotland	273	53	391	56

Source: ISD NDIP Database

1. ASN – Additional Support Needs children – identified by NHS Boards as attending Special Schools or Units.

Children with Additional Support Needs (ASN) who attended Special Schools or Units/Classes and were within the expected age range for P1 and P7 children are included within the NDIP Basic Programme. The results of these inspections are included within the overall P1 and P7 Basic Inspection results above (Tables A6.1 and A6.2). Table A6.3 shows figures for all Additional Support Needs (ASN) children seen within the NDIP Basic Programme regardless of age.

**Note:** Many children identified as having ASN within the pupil census are in mainstream schools / mainstream classes and are thus already included.

A data linkage research project is planned to identify whether children identified as having ASN (in both mainstream schools and classes as well as in Special Schools and Unit/Classes) have different dental health needs than the general child population.

The numbers of children inspected broadly follow the numbers of children expected from the Scottish Pupil Census (ScotXed - [gov.scot/Topics/Statistics/Browse/School-Education/dspupcensus](http://gov.scot/Topics/Statistics/Browse/School-Education/dspupcensus)).



### A7 – Authors

This report, which is published by ISD Scotland on behalf of the Scottish Dental Epidemiology Co-ordinating Committee, has been prepared by the NDIP Report Writing Group, whose membership is as follows:

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**A8 – Publication Metadata (including revisions details)**

Metadata Indicator	Description
Publication title	National Dental Inspection Programme (NDIP) 2018.
Description	This report presents the results of the programme of children’s dental inspections carried out in Scotland during school year 2017/18.
Theme	Dental care.
Topic	Children’s dental health.
Format	PDF.
Data source(s)	2008/09, 2010/11, 2012/13, 2014/15, 2016/17, 2017/18 National Dental Inspection Programme databases.
Date that data are acquired	Various dates during school year 2017/18.
Release date	23 October 2018
Frequency	Annual.
Timeframe of data	School year ending June 2018; four months in arrears.
Continuity of data	Reports annually.
Revisions statement	These data are not subject to planned major revisions. However, ISD aims to continually improve the interpretation of the data and therefore analysis methods are regularly reviewed and may be updated in future.
Revisions to this publication	None.
Concepts and definitions	See Glossary, Appendix and References.
Relevance and key uses of the statistics	The principal aims of the National Dental Inspection Programme (NDIP) are to inform parents/carers of the oral health status of their children and, through appropriately anonymised, aggregated data, advise the Scottish Government, NHS Boards and other organisations concerned with children’s health of oral disease prevalence at national and local levels.
Accuracy	These data are regarded as highly accurate as per the Kappa estimates agreement in <a href="#">Appendix A2</a> .
Completeness	These data are regarded as suitably complete. The Detailed inspection was carried out on 16,814 children, over 27% of the estimated P1 children from Local Authority Schools across Scotland. The Basic inspection saw 85% of P1’s and 89% of P7’s inspected.
Comparability	Each annual NDIP report has two levels: a Basic Inspection (intended for all P1 and P7 children) and a Detailed Inspection (where a representative sample of either the P1 or the P7 age group is inspected in alternate years).
Accessibility	It is the policy of ISD Scotland to make its web sites and products accessible according to <a href="#">published guidelines</a> .
Coherence and clarity	Tables and charts are accessible via the <a href="#">ISD website</a> .

Value type and unit of measurement	Various dental/epidemiological and demographic units of measurement.
Disclosure	The <a href="#">ISD Statistical Disclosure Protocol</a> is followed.
Official Statistics designation	Official Statistics.
UK Statistics Authority Assessment	Not assessed at this time.
Last published	25 October 2016 (2017 report covered Primary 7 children).
Next published	27 October 2020 (2019 report will cover Primary 7 children).
Date of first publication	31 <sup>st</sup> December 2003 (revised 3 <sup>rd</sup> March 2008).
Help email	<a href="mailto:nss.isd-dental-info@nhs.net">nss.isd-dental-info@nhs.net</a>
Date form completed	23/07/2018

## A9 – Early Access details (including Pre-Release Access)

### Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", ISD are obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access and, separately, those receiving extended Pre-Release Access. Early Access endeavours to strengthen quality assurance across the content of the report by way of a report writing group; members listed in table below:

Early Access Job Title	Early Access Contact Name	Early Access Email Address	Early Access Reason
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### Standard Pre-Release Access

Scottish Government Health Department  
 NHS Board Chief Executives  
 NHS Board Communication leads

### Early Access for Management Information

These statistics will also have been made available to those who needed access to 'management information', i.e. as part of the delivery of health and care.

### A10 – ISD and Official Statistics

#### About ISD

Scotland has some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow patient based analysis and follow up.

Information Services Division (ISD) is a business operating unit of NHS National Services Scotland and has been in existence for over 40 years. We are an essential support service to NHSScotland and the Scottish Government and others, responsive to the needs of NHSScotland as the delivery of health and social care evolves.

**Purpose:** To deliver effective national and specialist intelligence services to improve the health and wellbeing of people in Scotland.

**Mission:** Better Information, Better Decisions, Better Health

**Vision:** To be a valued partner in improving health and wellbeing in Scotland by providing a world class intelligence service.

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