Scotland's National Dental Inspection Programme 2003

A REPORT OF THE DETAILED INSPECTIONS
PREPARED BY THE SCOTTISH DENTAL
EPIDEMIOLOGICAL CO-ORDINATING COMMITTEE
REPRESENTING THE NHS BOARDS AND
THE DENTAL HEALTH SERVICES RESEARCH UNIT

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The National Dental Inspection Programme (NDIP)

It is important that each child's dental wellbeing is observed so that children and their parents can maintain oral health and take necessary steps to remedy any problems that may arise. There is also a need to monitor children's dental health at a national and regional level so that reliable information is available for planning and evaluating initiatives directed towards improvements.
The National Dental Inspection Programme (NDIP) aims to fulfill these functions by providing an essential source of information for keeping track of any changes in the dental health of Scottish children. Combined with the rich, historical nature of the existing data bank gathered from 1987 by the Scottish Health Boards' Dental Epidemiological Programme[1], NDIP will be able to forecast trends and assist in planning future dental services.

Scottish five year old's dental health in 2003

All young people should hope to enter adult life with a healthy mouth. However, despite improvements in the last thirty years, many Scottish children still suffer from tooth decay and have already embarked upon a journey of deteriorating oral health. Even aged five at the start of their school career, well over half of Scottish children have some established dental decay.

Scotland does not compare well with other Western European nations. In the Netherlands for example, 70% of five year old children have no obvious dental decay experience compared with just 45% in Scotland[2]. Tooth extraction remains the single most common reason for Scottish children receiving a general anaesthetic.

Additionally, most of the improvement in dental health in recent years has occurred in children from the more advantaged sections in society. The brunt of dental disease continues to be borne by children from more deprived backgrounds where five year olds are more than three times as likely to suffer from severe dental decay and missing teeth than their classmates from wealthier homes.
The Scottish Executive consultation document 'Towards Better Oral Health in Children'[3] sums up the situation... *"Despite some significant improvements, we still have unacceptably poor levels of oral health. Scotland's children still have too many diseased teeth. Dental disease still results in extreme pain and discomfort, infection, social embarrassment and interrupted work and education for a significant part of the Scottish population."*

Scottish Health Boards' Dental Epidemiological Programme (SHBDEP)

The Scottish Health Boards' Dental Epidemiological Programme, a series of annual surveys of key age groups of Scottish children was established in 1987 as a joint venture between the Scottish Health Boards and the Dental Health Services Research Unit at the University of Dundee. These surveys provided a useful and reliable picture of Scottish children's oral health for thirteen years. However, variations at regional level in interpretation of the Data Protection Act and methods of obtaining consent resulted in the comparability of the data being compromised and the last national survey took place in 1999/2000. Over the years SHBDEP built up a reliable data set which was crucial to the planning of dental services at both national and local levels.

Establishment of the National Dental Inspection Programme (NDIP)

Following a review by the Chief Dental Officer of the existing schemes and processes related to dental inspection of children at school in Scotland and in accordance with the framework outlined in the NHS Scotland Act 1978 and the Education (Scotland) Act 1980, the National Dental Inspection Programme was set up in 2002. Its principal aims are to gather appropriate information in order to inform children (and parents) of their dental/oral health status and, through appropriately anonymised, combined data, advise the Scottish Executive, Health Boards, Trusts and other organisations concerned with children's health of the oral disease prevalence in their area.

Key age groups are targeted: at entry into school in Primary I and in Primary VII before the move to secondary education.

The 2003 Inspection was the first and pilot year of the new NDIP Programme and concerned only Primary I children. A joint effort took place across Scotland involving the Scottish Association of Community Dental Directors, Community Dental Officers, Health Boards, Local Education Authorities and schools and the Chief Scientist Office's Dental Health Services Research Unit (DHSRU) at the University of Dundee.

The Inspection Programme has two levels; a *Basic Inspection* (which all children in Primary I received) and a *Detailed Inspection* (for a representative sample of this group).

What did the Basic NDIP Inspection consist of?

The Basic Inspection involved a simple assessment of the child's mouth using a light, mirror and ball probe. The child was then placed into one of three categories, depending on the level of dental health, and a letter sent to the parents informing them that their child had

- severe decay and should seek immediate dental care
- some established decay and should seek dental care in the near future
- no obvious decay but should continue to see the family dentist on a regular basis

The results of the Basic Inspection will also be used to feed back health information locally.

What did the Detailed NDIP Inspection consist of?

The Detailed Inspection was a more rigorous and comprehensive assessment which involved recording of the status of each tooth surface in accordance with international epidemiological conventions.

The specific goals of the Detailed Inspection were to determine current levels of established tooth decay, to obtain a simple measure of the level of oral cleanliness and to illustrate the impact of deprivation on the dental health of five year old children in Scotland in 2003.

The remainder of this report gives the results for the Detailed Inspection only. Further information about the Basic Inspection can be found on pages 17 and 18 of this document.

How many children had a Detailed Inspection?

Each Health Board was required to identify the number of schools needed to obtain a representative sample of a given size from the Primary I population[4]. The sample sizes used provided adequate numbers to allow meaningful comparisons between Health Boards to be drawn. The procedure for NDIP differs from the previous SHBDEP surveys in so far as whole classes are now selected to simplify the process for schools while ensuring results reflect the Primary I population in Scotland.

Table 1.
Primary I population and number of children inspected

Health Board	Primary I Population	Inspected	(% of PI Population Inspected)
Argyll & Clyde	4790	579	(12%)
Ayrshire & Arran	4010	375	(9%)
Borders	1218	318	(26%)
Dumfries & Galloway	1582	338	(21%)
Fife	3631	543	(15%)
Forth Valley	3241	517	(16%)
Grampian	5751	413	(7%)
Greater Glasgow	9686	2401	(25%)
Highland	2284	388	(17%)
Lanarkshire	6728	2277	(34%)
Lothian	7861	934	(12%)
Orkney	227	184	(81%)
Shetland	272	250	(92%)
Tayside	4291	313	(7%)
Western Isles	268	250	(93%)
Scottish Total	**55840**	**10080**	**(18%)**

Table 1 shows that more than 10,000 children across Scotland were inspected, almost one fifth of the Primary I population. Across the Health Boards, the percentage varied from 7% to 93% (Health Boards can choose to increase the sample size in order to assist with local planning needs and some less populated Boards need to include large proportions to achieve meaningful numbers).

During the course of the survey 10% of the children were re-inspected to assess the consistency of the inspecting dentists' results.

When did the Dental Inspections take place and what age were the children?

The previous SHBDEP surveys of five year olds were largely carried out in November and December. The average age of the children examined was 5.25. As NDIP Inspections took place from November 2002 until June 2003, the average age rose to 5.5. This modest increase in the average age of children examined is expected to have a limited impact on the results.

Average Age	Male	Female	Range for Health Boards
5.55	5.57	5.53	5.37 - 5.67

Who conducted the inspections?

The inspections were conducted by community dentists from each Health Board.

How was consistency achieved in the conduct of the inspections across Scotland?

An important part of the NDIP process was that the conduct of the Detailed Inspections all over Scotland remained consistent with key elements of the previous SHBDEP system and that the participating community dentists recorded their findings in the same manner. In order to ensure this, the dentists were required to undergo a training and calibration exercise before the programme began.

Mandatory two-day training courses took place in Perth in November 2002 consisting of illustrated lectures and discussion sessions on how to record the inspections (in accordance with criteria set down by the British Association for the Study of Community Dentistry[5], appropriately modified for NDIP). These were followed by clinical training sessions using Primary I children from two local primary schools. When these were completed, the dentists conducted a series of assessments on another group of schoolchildren and the results were compared so that any dentists falling outwith the range of 'substantial agreement' [6] would not participate in the actual Detailed Inspections. In 2003, two dentists were excluded from the programme having not "calibrated" sufficiently closely with their colleagues.

What definitions of decay are used by the dentists conducting the NDIP Detailed Inspection?

The definitions of decay used are in accordance with the British Association for the Study of Community Dentistry (BASCD) guidelines and international epidemiological conventions, thus allowing comparisons to be made with other countries in Europe and beyond.

The figures presented for decay only relate to dental decay which clinically appears to have penetrated dentine (the inside of the tooth). This is a different level from that used by many dentists examining patients in a dental surgery. The Detailed Inspection measures obvious decay into dentine seen under school (rather than dental surgery) conditions.

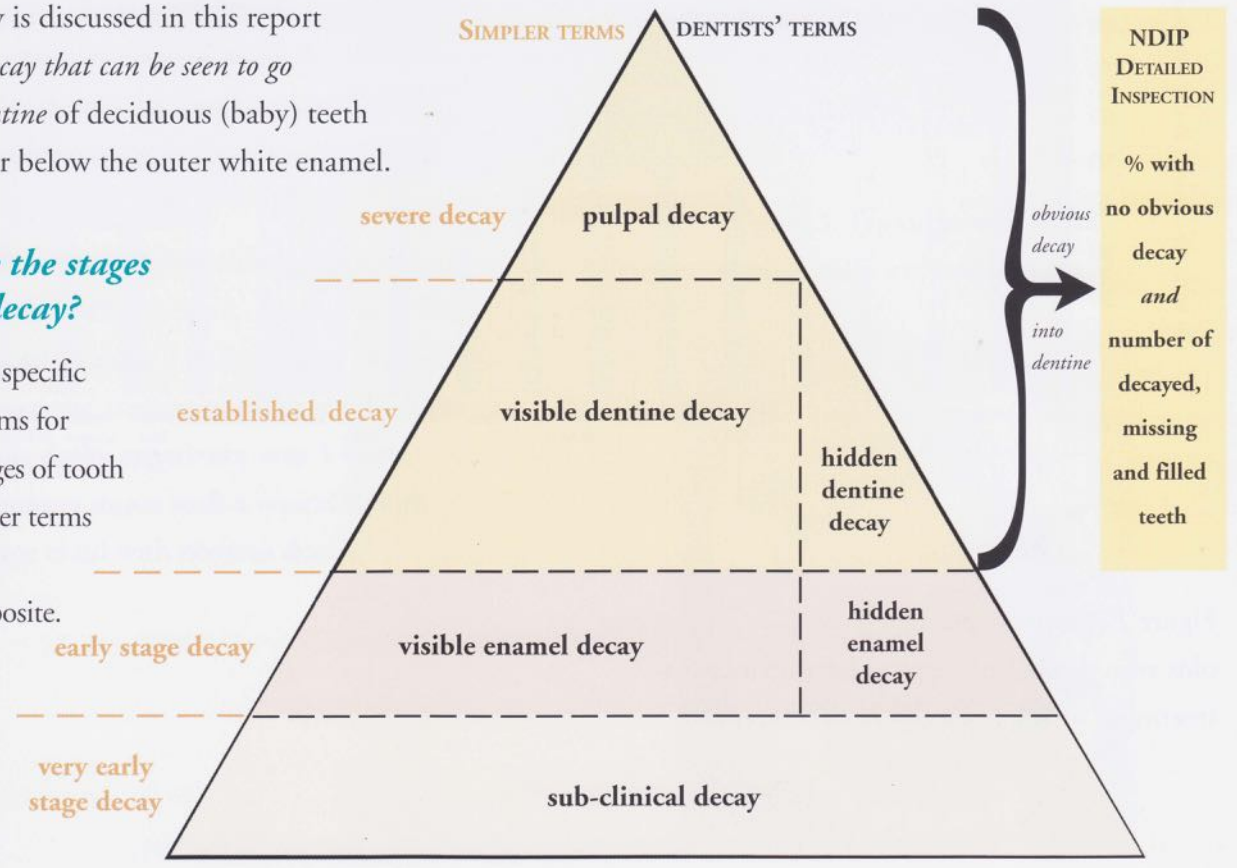
What is meant by 'obvious decay' in this report?

It is important to note that when obvious tooth decay is discussed in this report it means *decay that can be seen to go into the dentine* of deciduous (baby) teeth i.e. the layer below the outer white enamel.

What are the stages of tooth decay?

Dentists use specific technical terms for different stages of tooth decay. Simpler terms are given in Figure 1 opposite.

Figure 1. Stages of tooth decay



NDIP 2003

Detailed Inspection Results

What proportion of Primary I children in Scotland have no obvious decay experience in 2003?

The target set by the Scottish Executive in 1999[7] is that 60% of Scottish five year old children will have no obvious decay experience by the year 2010. Currently, 45% of Scottish five year olds fall into this category. The situation varies across Scotland with some Health Boards having already achieved or come close to this dental health target and others with some way to go.

Figure 2. Proportion of Scottish five year olds with no obvious decay experience in 2003

Figure 2 shows the percentage of Scottish five year olds who showed no signs of having decay or treatment of decay in any of their teeth.

What levels of decay are seen in Primary I children in 2003?

A more detailed picture of decay results is presented in Table 2. This year it was found that boys had, on average, more decayed teeth than girls.

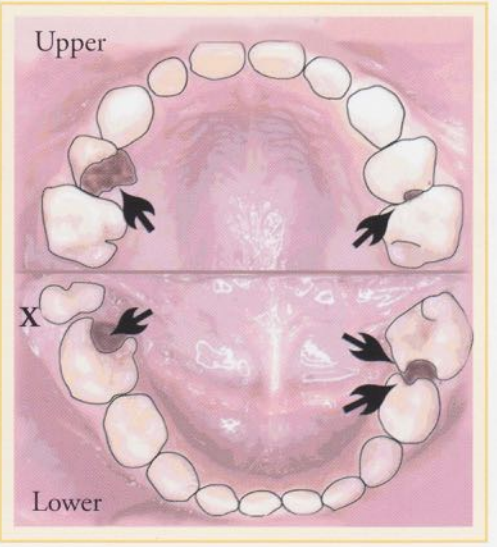
Table 2.
Overall decay results for Primary I children in Scotland in 2003

	%			Range for Health Boards
No obvious decay experience	44.6			34.2 - 62.6
Care Index (proportion of obvious decay that has been filled)	8.7			6.7 - 24.8
	Number	**Male (average)**	**Female**	**Range for Health Boards (average)**
Obvious decay - (decayed, missing and filled teeth)	2.76	2.90	2.61	1.29 - 3.67
decayed teeth	*1.87*	*2.02*	*1.72*	*0.58 - 2.70*
missing teeth	*0.65*	*	*	*0.05 - 0.96*
filled teeth	*0.24*	*	*	*0.17 - 0.53*
decayed, missing and filled teeth for those children with obvious decay	4.98	5.19	4.76	3.45 - 5.58

* no significant difference

It is important to note that although the average number of obviously decayed, missing and filled teeth across all Primary I children was two and three quarters, the average number for the 55% with obvious decay experience was 5 teeth. Figure 3 opposite shows such a typical mouth for an average child with obvious decay.

Figure 3. Typical mouth for an average child with obvious decay



Are we on track to meet the 2010 target?

Figure 4. Improvement needed in order to meet 2010 target

There has been no meaningful improvement in the proportion of five year old children free of obvious decay experience since the late 1980s. The improvements that had occurred prior to this were probably due to more children using fluoride toothpaste and it is possible that this and its attendant benefits have penetrated as far as possible under current conditions in Scottish society.

The poor level of dental health among Scottish children is part of a larger picture of unsatisfactory general health in Scotland and it may be that a more positive attitude to overall health in Scottish society is needed before larger strides are made towards reducing levels of dental decay.

Issues that impact on general health such as the sugary food and drinks favoured by many Scottish children[8] have clear implications for oral health and the Scottish Executive's initiatives towards improving the diet of Scottish children may help bring advances towards meeting the target.

Dental decay is a disease of lifestyle with multiple causes. Improvements in oral hygiene and fluoride availability are also needed to make progress. It is clear that more direct and also more innovative methods of delivering preventive care than have been used in the past are necessary if advances are to be made towards reaching the 2010 target.

What proportion of obvious decay among five year olds was treated with fillings?

The Care Index is used to describe the level of restorative care (the number of filled teeth divided by the number of obviously decayed, missing and filled teeth and multiplied by 100%). For Scotland as a whole (Table 2, page 6), only 9% of teeth with decay had been filled and some concern has been expressed that this high level of unrestored decay may indicate a failure in primary dental care provision.

With only approximately 50% of children in Primary I registered with a dental practice there remains scope for improvement in this area. Furthermore, the process does not end with simply registering with a dental practice. As dental registration differs from joining a medical practice (in that it lapses if the patient does not attend within a fifteen month period), there is additional effort needed from parents to maintain their child's enrolment with the family dentist and to help children combat tooth decay.

To encourage families, locally co-ordinated community health improvement programmes promoting children's dental registration and projects supported by the NHS in Scotland such as *Starting Well* in Glasgow, and the *GETCaPPP* research project in Dundee (Development and Evaluation of **G**eneralisable **E**vidence-based, **T**argeted **C**aries **P**revention for **P**re-school children by integrated **P**rimary care teams, funded by NHS R&D) are encouraging parents to seek and maintain professional dental care for very young children as part of a holistic approach to improving children's health.

The low Care Index figure highlights the issue of how best to treat dental decay in young children, currently the source of debate within the dental profession. The traditional approach is that all holes in teeth must be restored by conventional fillings and this view is still strongly supported by one school of thought[9]. However, recent debate has emphasised the view that consideration must be made of the maturity and emotional state of the child and the effect of previous dental treatment, together with medical and socio-economic factors[10]. The process of placing a filling may be considered too traumatic in some cases for a small child and some dentists fear that it may result in an aversion to dental treatment later in life. However, whichever practice is followed, preventive care is still needed.

Regardless of the approach taken, the initial step is to consult a dentist so that assessment of the child's condition can be made. Efforts by the Scottish Executive and Health Boards to improve registration rates are thus a vital move in ensuring that children in Scotland receive appropriate treatment. However, once in contact with primary care it is important that essential preventive services are commenced promptly and maintained thereafter.

How has the dental health of Scottish five year olds fared over time?

Trends over time in the percentage of children who showed no signs of having decay or treatment of decay in any of their teeth are shown in Figure 5. The latest data from the current inspection appear to add to the overall picture of a bottoming out of the decline in the prevalence of decay seen in the nineteen-eighties, a phenomenon which is being increasingly observed in other areas of Europe[11]. In England, (where overall decay levels are lower than Scotland) the dental health of five year olds appears to be deteriorating, following a long plateau[12].

The similar trend being observed in the Scottish results at a higher level than in England may reflect the general poorer health status of Scotland compared to England and the greater burden of ill-health carried by Scotland in relation to other developed nations.

Figure 5.
Trends over time in the % of five year old children with no obvious decay experience

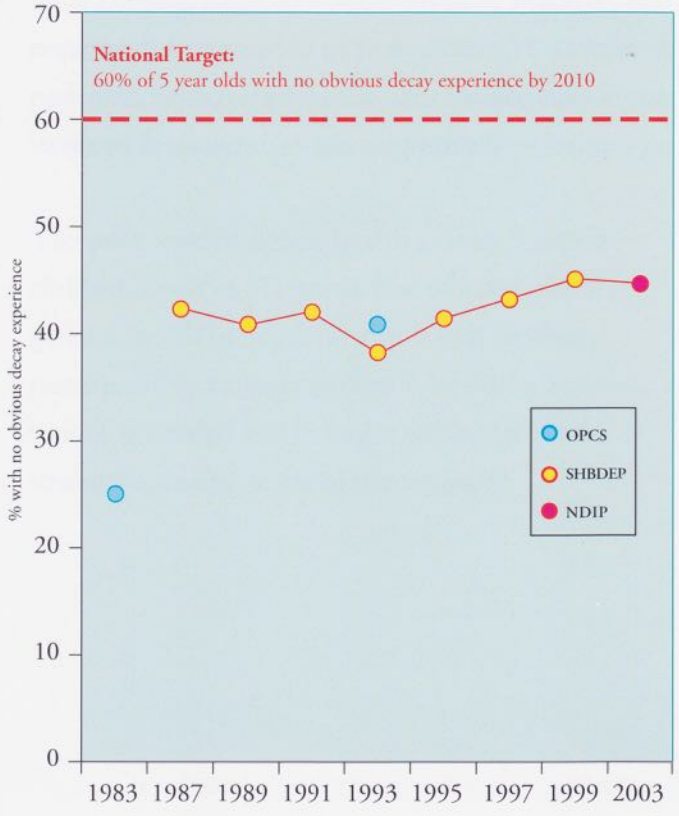
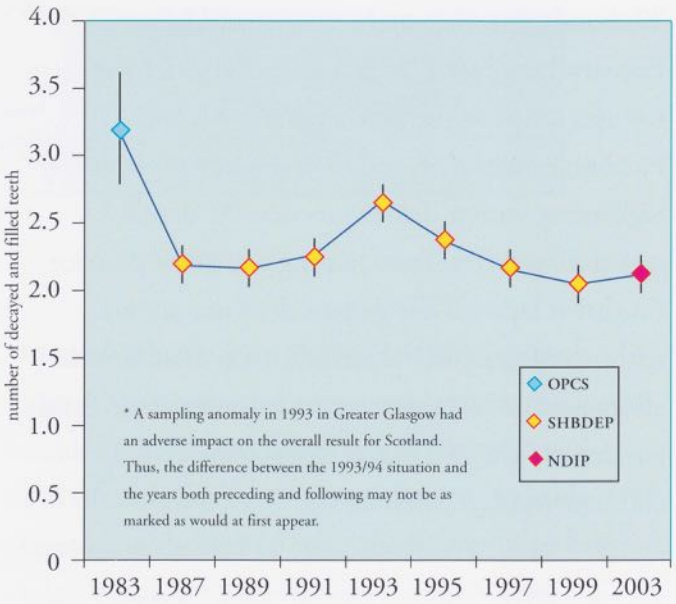


Figure 6 illustrates the changes in the number of obviously decayed and filled teeth for Scottish five year old children from 1983 to 2002. A large drop occurred between the 1983 Office of Population Censuses and Surveys (OPCS) Child Dental Health Survey[13] and the first SHBDEP survey of five year olds in 1987/88. The figure appears to have subsequently settled at around two decayed and filled teeth.

Figure 6.
Trends over time in the number of decayed and filled teeth



The importance of monitoring children's dental health and being able to make comparisons over a long period of time is illustrated by Figure 6 above. By viewing the results as a series, rather than making year on year comparisons, it can be seen that minimal improvement in the number of decayed and filled teeth has occurred since the mid 1980's. This year's NDIP Inspection figure of 2.11 differs only a little from the SHBDEP survey figure of 2.22 in 1987.

How do the results of the 2003 NDIP Inspection compare with the last SHBDEP survey in 1999/2000?

When the data collected for the last SHBDEP survey in 1999/2000[14] is compared with the current NDIP Inspection, the number of decayed, missing and filled teeth has increased significantly. This rise is largely due to an increase in the number of missing teeth. The proportion of the five year old population with extractions has not changed, but the number of missing teeth for those children who have had extractions has increased by 20%.

Although the number of decayed teeth has not changed overall, both the proportion of teeth with severe decay and the proportion of the Primary I population with severe decay has increased. This may be explained in part by the modest rise in the average age of the child participants this year.

Table 3.
Comparison of decay figures in 1999 (SHBDEP) and 2003 (NDIP)

	1999	2003
number of decayed , missing and filled teeth	2.55	2.76
number of missing teeth	0.50	0.65
number of teeth with severe decay	0.18	0.34
number of missing teeth (for children with extractions)	3.64	4.41
% of children with decayed teeth	49.7	47.5
% of children with missing teeth	13.8	14.7
% of children with severe decay	9.2	15.4

How clean were the children's teeth?

Overall, 68% were considered to have clean teeth. Poor oral hygiene leads to thicker plaque deposits and this is associated with obvious decay[15].
Boys showed higher levels of plaque than girls, particularly on the measure of "substantial" plaque, where 60% of the children with substantial plaque (4.3% of the children in total) were boys.

Was the level of obvious decay spread evenly throughout the population of five year olds in Scotland?

Table 4.
Skewed distribution of decay

Proportion of Children	with	Share of Disease
Established Decay		
1% of population	had	8% of teeth with established decay
11% of population	had	50% of teeth with established decay
48% of population	had	100% teeth with established decay
Severe Decay		
1% of population	had	22% of severe decay
4% of population	had	50% of severe decay
15% of population	had	100% of severe decay

These results clearly demonstrate how unevenly decay and severe decay are spread among Primary I children. For example, half of the teeth with severe decay were seen in just 4% of the children inspected.

Is there a link between social deprivation and poor dental health among Scottish five year olds ?

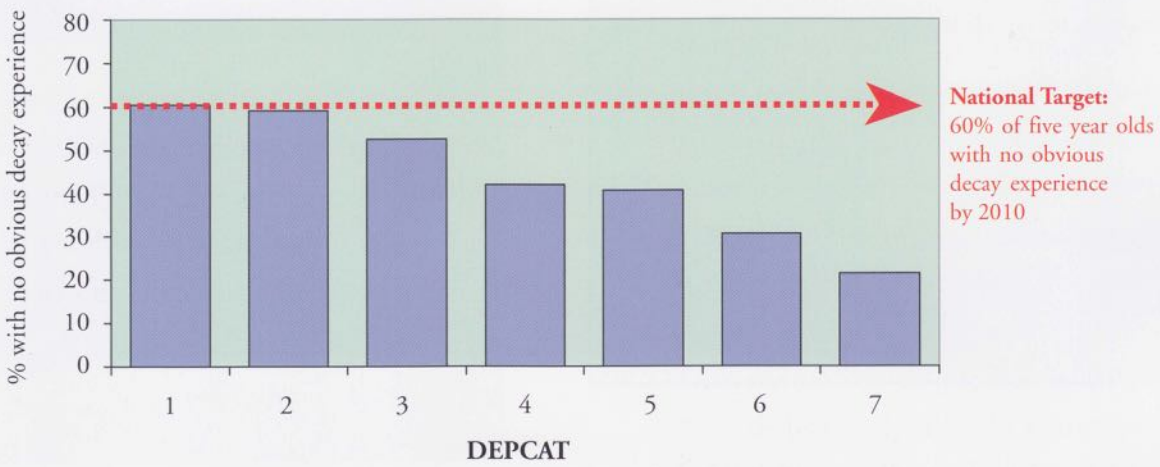
An approximate measure of social deprivation often used in Scotland is DEPCAT[16]. This is a scale of deprivation based on information gathered in the national census every ten years and describes the social composition of residents in a particular postcode sector. DEPCAT scores for each postcode area in Scotland are calculated from the percentage of unemployed males, over-crowded households, households without cars and people from social classes IV and V. The scale runs from DEPCAT 1 (most prosperous) to DEPCAT 7 (least prosperous). The index has been shown to be linked closely with measures of death, illness and health service use and a clear association between DEPCAT measured social deprivation and children's dental decay has been established[17].

Of the total 10,080 children examined in this NDIP Inspection, 98% were subsequently able to be linked to their respective DEPCAT scores.

Figure 7 graphically illustrates the yawning gap in dental health between five year olds from the most deprived areas (DEPCAT group 7) and their more fortunate contemporaries from DEPCAT groups 1 and 2. The children from DEPCAT 1 have reached the National Target of 60% with no obvious decay experience in the year 2010 and have in fact met this within the original timeframe (the year 2000). Additionally, those from DEPCAT 2 are within two percent of meeting the target. Children from DEPCAT group 7 fall well short with only 21% with no obvious decay. These results have varied little since the measure was first used in relation to children's dental health in Scotland in the mid 1990s.

As well as bearing the overall brunt of dental decay, children from more socially deprived areas suffer more from severe decay. Nearly three times as many children in DEPCAT groups 6 and 7 need extractions or root treatment compared to children in DEPCAT groups 1 and 2. In most cases this means the child will be given a general anaesthetic with the attendant risks which this entails.

Figure 7. Percentage of five year old children with no obvious decay experience by DEPCAT group



What is the picture of dental health in Primary I children across Scotland?

Figure 8 illustrates the decay experience of 5 year olds across Scotland. The contrast between Borders and Argyll and Clyde, for example, shows the variation in dental health that exists and highlights the difficulty in making generalisations about the overall dental health of five year old children in Scotland.

Figure 9 shows the average number of decayed, missing and filled teeth per child for each Health Board and emphasises how little of the total decay experience in this age group is made up of fillings or missing teeth. The vertical bars indicate the 95% confidence limits associated with each value and illustrate the limited extent to which the figure can be interpreted as a "league table". Thus, while there are real differences between the Boards at the extreme right of the figure and those on the far left, it is unwise to ascribe too much importance to minor variation in the detailed ranking positions of Boards near to one another in the figure.

Figure 8. Picture of tooth decay for five year olds in each Health Board across Scotland in 2003

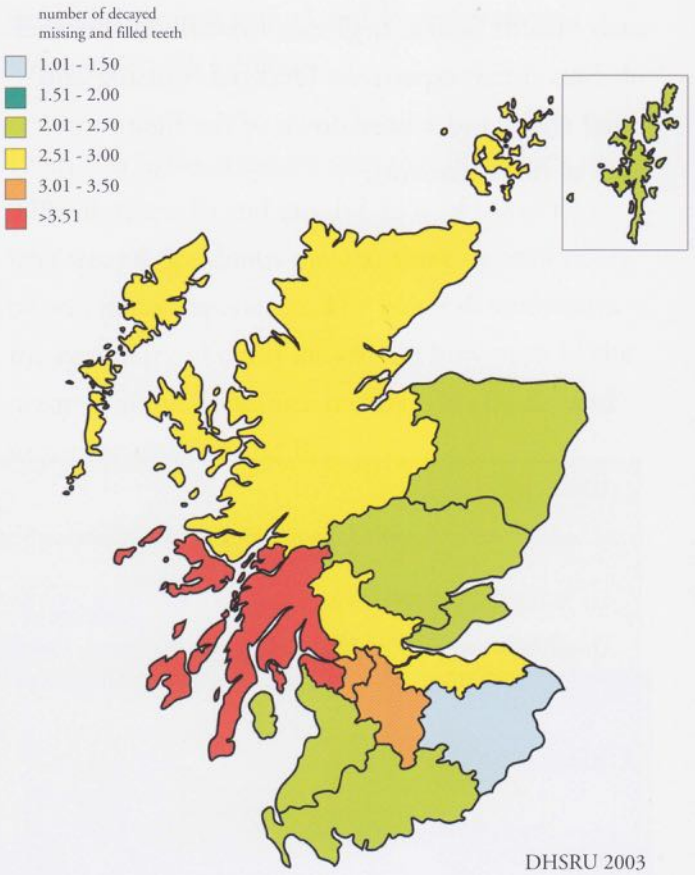
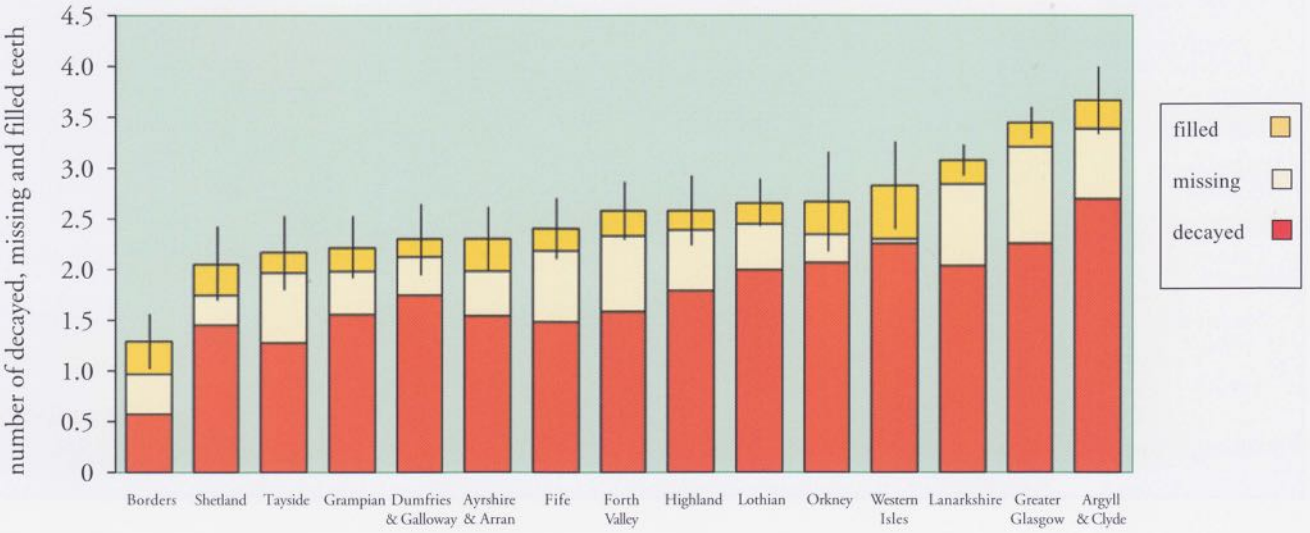


Figure 9. Average number of decayed, missing and filled teeth per child for each Health Board



What are the detailed decay results for each Health Board across Scotland?

Table 5 below shows in detail the decay results for each Health Board. It gives a measure of the total obvious decay experience (decayed, missing and filled teeth) and a breakdown of the figure into each of these elements.

The variation in dental disease levels and in its individual components (decayed, missing and filled teeth) seen in past SHBDEP surveys remains evident in this year's NDIP Inspection; for example, Greater Glasgow and Argyll & Clyde with an average of 3.45 and 3.67 teeth respectively do not compare well with Borders and Shetland where the figures are 1.29 and 2.06. The variation in the percentage of children in each Health Board with severe decay is also striking (6.6% in Borders to 20.2% in Argyll & Clyde).

Table 5.

Detailed decay results for each Health Board across Scotland

Health Board	% no obvious decay experience	number of decayed, missing and filled teeth	decayed	missing	filled	% decay for those with decay	% severe decay
Argyll & Clyde	34.2%	3.67	2.70	0.68	0.29	5.58	20.2
Ayrshire & Arran	46.7%	2.30	1.54	0.45	0.32	4.32	17.9
Borders	62.6%	1.29	0.58	0.40	0.32	3.45	6.6
Dumfries & Galloway	50.9%	2.30	1.75	0.37	0.17	4.67	15.4
Fife	54.3%	2.41	1.47	0.71	0.22	5.27	11.4
Forth Valley	45.5%	2.58	1.59	0.74	0.25	4.72	12.6
Grampian	48.9%	2.22	1.56	0.42	0.24	4.35	16.2
Greater Glasgow	35.2%	3.45	2.26	0.96	0.23	5.32	18.2
Highland	47.7%	2.58	1.79	0.60	0.19	4.94	11.9
Lanarkshire	40.7%	3.08	2.04	0.80	0.24	5.19	16.1
Lothian	46.3%	2.66	2.00	0.44	0.21	4.94	13.6
Orkney	45.7%	2.67	2.06	0.29	0.32	4.91	18.5
Shetland	51.6%	2.06	1.45	0.29	0.32	4.25	11.2
Tayside	55.3%	2.17	1.28	0.68	0.21	4.84	13.4
Western Isles	35.6%	2.83	2.25	0.05	0.53	4.40	11.6

Which teeth bear the brunt of decay?

Figure 10. Distribution of decay by tooth type

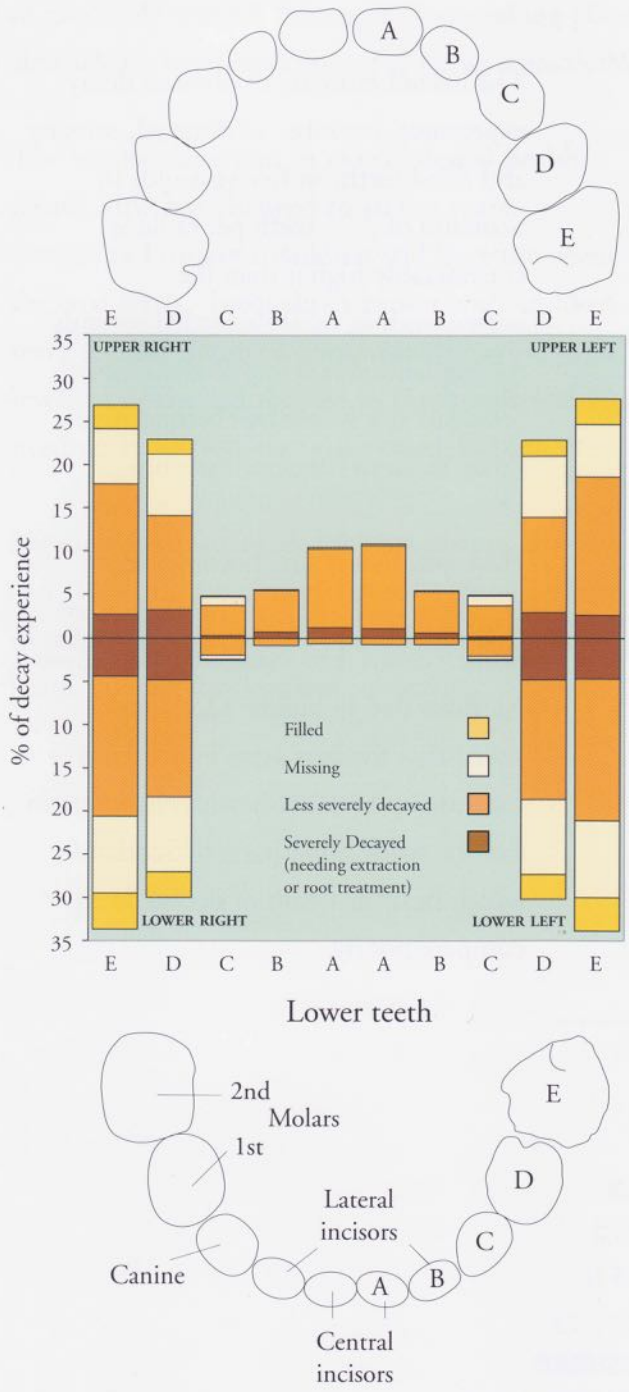


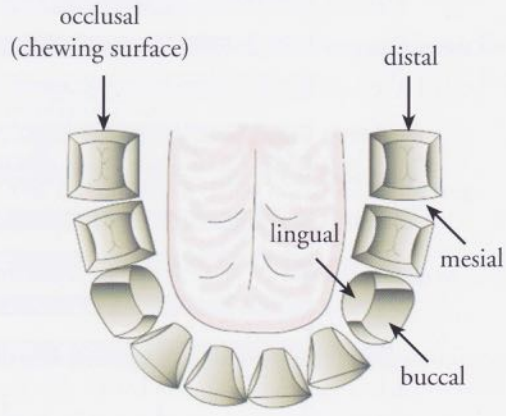
Figure 10 shows the distribution of obvious decay experience by tooth type. The decay component has been subdivided into *severe decay* (needing extraction or root filling) and *less severe decay* (restorable with a filling).

From this figure it can be seen that just over 27% of upper Es and around 33% of lower Es (the second deciduous molars) show signs of decay or past decay experience. The figure demonstrates the symmetry of decay attack and how most of the decay is in the deciduous molars (Ds and Es) and upper incisors (As and Bs).

Which tooth surfaces are most affected?

- More than one quarter of fillings are placed in lower molar occlusal surfaces.
- For children with better dental health, most decay occurs in the occlusal and distal surfaces of deciduous molars.

Figure 11. Illustration of tooth surfaces



How does the dental health of Scottish Primary I children compare with that in other parts of Europe?

Figure 12. Obvious decay experience for five year olds throughout most of Europe

The overall estimate of obvious decay experience, (number of decayed, missing and filled teeth) in five year olds in Scotland of 2.76 teeth per child is considerably higher than the corresponding values recorded recently for England (1.47) and Wales (2.26). Scotland as a whole lags behind many other Western European nations.

However, the picture becomes more complex when the Scottish figures are broken down into Health Board regions. As illustrated in Figure 12, it can be noted that the best areas in Scotland measure up favourably with elsewhere in Europe while those parts of Scotland which bear the brunt of dental decay compare poorly.

What do the findings of the first NDIP Detailed Inspection show?

This pilot year of the NDIP Inspections has demonstrated that the process of Detailed Inspections of randomly selected Primary I classes taking place alongside the basic inspections of all classes is practicable.

The results show that in overall dental health terms, little has changed in recent years; Scotland's Primary I children still have too many decayed teeth. Inequalities persist with children from socially deprived backgrounds having high levels of decay and the rise in the number of teeth needing extraction also gives cause for concern.

New initiatives are needed so that parents, dentists and NHS primary care staff can all redouble efforts to reduce the unacceptably poor levels of dental health endured by Scotland's children.

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The National Dental Inspection Programme Basic Inspections

The previous section of this report relates to the detailed inspection data collected as part of the National Dental Inspection Programme of 2003. This section gives more information on the complementary, Basic Inspections for all Primary I children in Scotland which provide information for parents and children on the child's oral health status. In its anonymised, aggregated form the data also provides information for schools (where numbers are sufficient to ensure anonymity), local authorities and the NHS and can inform strategies for health promotion activities and service planning. Over time the new system will provide essential information to parents and act as a tool to inform health improvement strategies at local level throughout Scotland.

Background

It is recognised that preventive care and early treatment intervention can positively influence the oral health status of children and adults. However, the risk of children developing poor dental health is greater for some children than others and this programme identifies three risk categories :

- **Risk Category A (greatest risk)**
  Children with acute problems requiring an urgent appointment with the dentist. This would normally relate to children who, by the age of five, have abscesses or advanced tooth decay.

- **Risk Category B**
  Children who need dental care and require a routine appointment with a dentist. These would include children who had obvious tooth decay or who were at an increased risk of getting tooth decay.

- **Risk category C (least risk)**
  Children who have no obvious oral health problems. Children in this category would be encouraged to attend a dentist to ensure that they can benefit from ongoing preventive advice and treatment.

How can the NDIP Programme be applied to local services?

Helping the NHS

The NHS can receive information at Local Health Care Cooperative (LHCC) level or, in the future, Community Health Partnership level and at Health Board level. This can provide valuable information in highlighting areas requiring health promotion and dental service input and will be a useful monitoring tool over time.

Helping Local Authorities

Local Authorities can receive the anonymised, aggregated data at primary school level (where numbers are sufficient to ensure anonymity) or at "cluster" level. The latter are primary schools grouped according to which secondary school the children are most likely to progress. It is hoped that with strategies in place to improve health in schools, progress will be seen over time at each monitoring level.

How can results from NDIP Basic Inspections be presented at a local level?

The following examples are drawn from the Basic Inspections in 2003 for Lanarkshire Health Board area and show how the statistics might be presented locally.

Figure A1. Percentage of five year olds in each oral health risk category in Lanarkshire Health Board

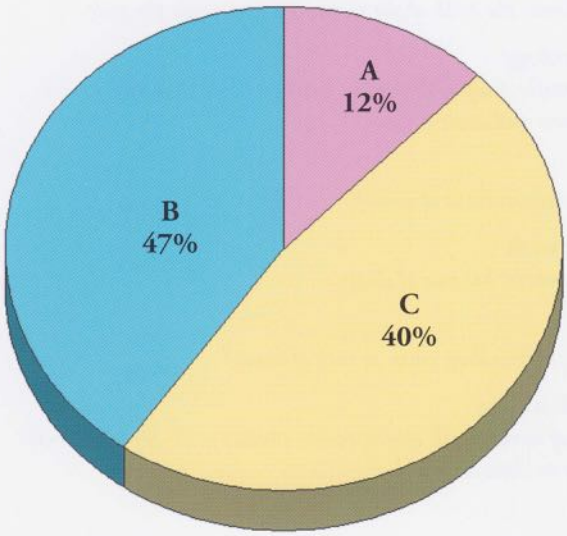
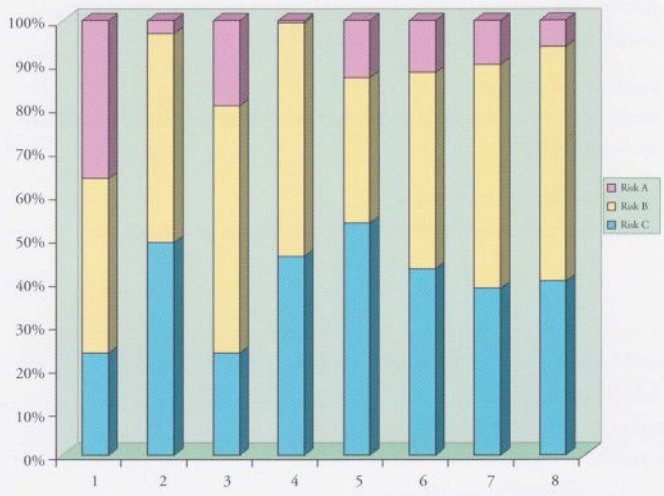


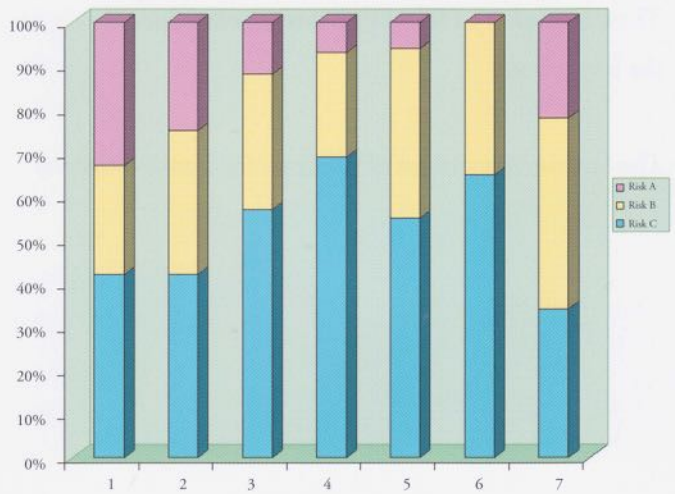
Figure A2. Percentage of Risk Categories of five year olds in each LHCC in Lanarkshire Health Board area



Local Health Care Cooperative Code

It is obvious that considerable variation will exist within a Health Board area. For example, as can be seen in Figure A2, in Lanarkshire as a whole, LHCC Code 4 has a far smaller proportion of children requiring urgent treatment than those in LHCC Code 1. Variations within an area may be marked however and inspection results from smaller areas are useful for targeting where resources might have the greatest impact. Looking at each school within a LHCC (Figure A3) reveals substantial difference at this level and offers the opportunity of greater refinement in the planning process.

Figure A3. Variation of Risk Categories by school within the LHCC Code 5



School Code

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Scottish Local Education Authorities

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The Community Dental Officers who conducted the inspections

The Scottish Association of Community Dental Directors

Glossary of terms used in this report

Community Dentists
dentists employed by Health Boards

deciduous teeth
baby teeth

dental (or tooth) decay
rotting of tooth due to microbial activity which in childhood can usually be attributed to a high sugar diet and inadequate protective measure such as brushing with fluoride toothpaste

dental decay experience
having decay or past treatment of decay

dentine
sensitive layer of tissue under the hard enamel surface of the tooth which forms the bulk of the tooth and surrounds the pulp

epidemiology
the scientific study of disease in order to discover means for its prevention and control

incisor
biting tooth at front of mouth

missing teeth
teeth extracted because of decay

molar
chewing or grinding tooth at rear of mouth

occlusal surface
surface of molar tooth which makes contact with opposing tooth in order to chew or grind

plaque
sticky film left on tooth when toothbrushing has been absent or inadequate

pulp
soft tissue at core of tooth which contains nerves and blood vessels

restorable or substantial decay
decay that is treatable by fillings

root treatment
filling and sealing of the root canal which contains the nerves, blood and lymphatic vessels of a tooth

substantial plaque
thick sticky film left on tooth when toothbrushing has been absent or inadequate

unrestorable or severe decay
decay that can only be treated by root fillings or extractions

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