

Children and Young People Committee
Inquiry into Children's Oral Health in Wales

September 2011

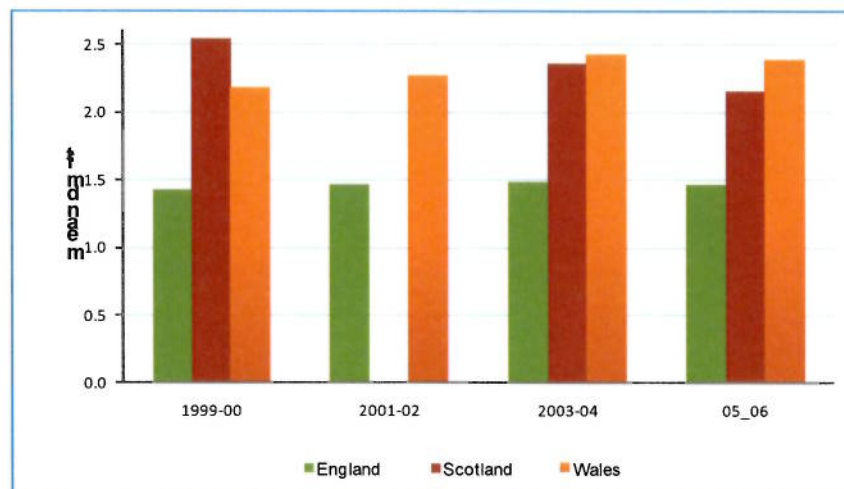
The British Dental Association (BDA) is the professional association for dentists in the UK. It represents over 23,000 dentists working in general practice, in community and hospital settings, in academia and research, and in the armed forces.

INTRODUCTION – A BRIEF OVERVIEW OF THE ORAL HEALTH OF CHILDREN IN WALES IN 2011.

Information about the dental health of the population is gathered through surveys undertaken at varying time intervals across the United Kingdom and locally across Wales.

It had been reported that caries (decay) levels in Wales are higher than in England but lower than Scotland. In 2005/6, this changed and Wales overtook Scotland which had been on a downward trend. In 2005, Scotland set targets for 2010 and introduced 'Child-Smile', a programme for dental disease prevention.

It is important to note that data collection in future will be more difficult. In the past, surveys have relied on 'negative consent'. This has changed and positive consent is now needed to examine children. This is more difficult to obtain, especially in lower socio-economic areas of Wales.



Average dmft¹ for five-year olds 1999-2006, Wales compared with England and Scotland.

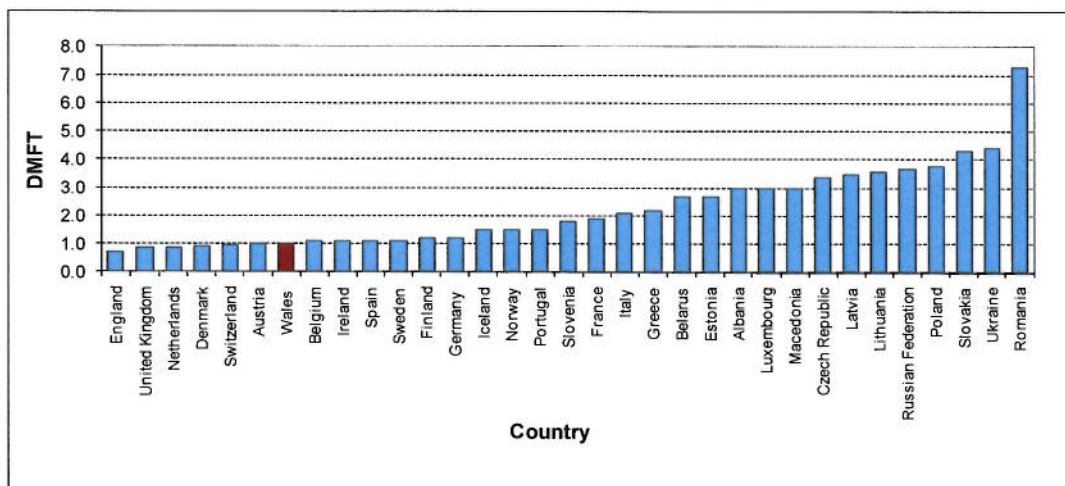
In an average class of thirty five-year-olds in Wales, four will have experienced dental pain within the last year but there is wide variation across and even within health board areas. Children in deprived areas are more likely to experience dental decay so whilst half of the five-year-olds in Wales have no decay, the other half will have four or more affected teeth.

¹ Decayed, missing and filled teeth – consent changes in 2007 do not permit comparison with Scotland.

In order to relieve dental pain, children are often treated under a general anaesthetic. Approximately 9000 were administered in Wales last year. Again, there is variation across Wales. On average two children in a class of thirty five-year-olds will have experienced a (dental) general anaesthetic but in Blaenau Gwent this would have been six whereas in the Vale of Glamorgan it would only be one.

Looking at twelve-year-old children surveyed in 2004-5², four in ten had obvious dental decay (which was an improvement on a 2001 survey) but again there was wide range between health boards – 51% in Cwm Taf compared with 36% in Hywel Dda and in local areas 31% in Ceredigion, 59% in Blaenau Gwent.

But, in the European perspective the teeth of twelve-year-olds in Wales aren't that bad!



Source: WHO area profiles programme.

² Atlas of oral health in Wales produced by the Welsh oral health information unit.

Welsh Government Policy and Initiatives.

In 2006, the Welsh Government set targets towards eradicating child poverty in Wales³. These included, for five-year-olds, that by 2020 the mean number of teeth affected by decay in the most deprived fifth of the population will reduce by approximately one half.

The Designed to Smile programme is targeted at these groups,

Responses and comments on the Terms of Reference of the Inquiry.

1. Consideration of the take-up of the supervised tooth brushing scheme for 3-5 year-olds and the promotional programme for 6-11 year-olds.

The take-up of these will, in the main, depend on the active participation of the schools in the targeted areas. Generally this is good.

The tooth brushing programme aims to ensure that fluoride comes into contact with children's teeth as clinical experience shows that this reduces the risk of decay. There is anecdotal evidence from staff working on the programme that because of raised awareness, children are brushing more at home as well as in school.

In the 6-11 age group the D2S programme includes:

- (1) a clinical fissure sealant element which is proven to aid prevention of caries and
- (2) an oral health teaching element which includes diet and oral health. This links with child nutrition.

The messages about links between diet and dental caries are also beneficial for general healthy nutrition. This is a really important part of the programme.

We should focus on the need for good nutrition for young children as part of messages about dental health.

Schools report that the D2S resources are excellent

³ Eradicating Child Poverty in Wales - Measuring Success

The programme, by promoting the development of good habits now, will have benefits for the future as, by reducing decay levels there will be a subsequent reduction in oral pain and infections in young children which in themselves have been shown to impact on their education - attendance levels etc.

2. Consideration of whether the investment has delivered improved health outcomes for the most disadvantaged children and young people.

At this stage we consider that it is too early to say whether this programme is effective. In parts of Wales the programme has only been running for one school year which is not long enough to allow measurement of outcomes.

However, Scotland has a similar programme (Childsmile) which is showing promising benefits and is further described in an appendix to this paper.

As stated earlier there is anecdotal evidence that raising awareness of good oral health is encouraging better oral care at home amongst children involved in the scheme.

3. Evaluation of whether the programme is operating consistently across Wales in all areas of need.

Following piloting in Cardiff and north Wales, the programme was not fully rolled out across Wales until January 2010 so the scheme is more advanced in some areas than in others. How it works in each Community Dental Service (CDS) area will depend on:

- how they target the school children,
- how the schools respond and
- on how much support they have from complementary services

The information and experience gained from the pilot areas has been very useful in informing the areas starting the programme in the later phase.

Whilst funding has come from the Welsh Government to the health boards specifically to be used for D2S there have been some initial problems with the release of these funds by finance directors in some areas. The delays have meant that appointments have not been made on time and orders for materials – toothbrushes; fluoride varnishes etc have also been delayed.

4. Consideration of how effective expansion of the programme has been, particularly in relation to 0-3 year-olds.

Again, it is too early to say! The programme is still being expanded in the areas of Wales not involved in the pilot but there is anecdotal evidence that the appropriate links have been made with other agencies to maximise the effect of the expansion to reach children likely to be in most need.

In deprived areas there is evidence that this age group will not normally have contact with a dental care professional. Parents often are not regular dental attenders – often seeking care only when in pain and historically, the community dental service has not been able to reach into playgroups and pre-school activities.

5. Consideration of whether the programme addresses the needs of all the groups of children and young people.

This is a targeted programme aimed at children in deprived areas - there is evidence that they are at most risk of dental disease. The focus of the scheme is to reduce oral health inequalities, and not to address the needs of all groups. It is too early to say how effective the programme is but initial feedback is encouraging and there is increased awareness of good oral health in the participating areas.

6. Exploration of the extent to which the Designed to Smile programme has been integrated into the wider local and national initiatives.

The D2S programme depends on involvement with the Healthy School Scheme and on schools setting dental health targets. Every effort has been made to integrate with the 'Healthy Schools' co-ordinators and teams which has been very positive. This will continue as the scheme becomes embedded into school programmes. Similarly the links which have been developed with 'Flying Start' and 'Healthy Early Years' schemes can only be positive in raising awareness and improving oral health practices now and in the future.

There has been positive interaction with health visitors and health promotion workers in some areas which again will develop over time.

With the recent inclusion of a small number of pilot General Dental Service (GDS) practices⁴ linking with the scheme there are good opportunities for CDS and GDS to develop ways of working together to maximise the benefits of the scheme and to ensure that prevention of dental disease becomes a priority in all branches of dentistry in the future. However, there will be both funding and workforce issues if the scheme is extended to all children and fully rolled out into the GDS.

7. The current and potential implications for paediatric dentistry, including reviewing the strengthened role of the Community Dental Service in children's public health.

The programme has and should continue to raise awareness of the importance of good oral health for children and thus raise the profile of paediatric dentistry.

The D2S programme has been directly funded by the Welsh Government. This has allowed the Community Dental Services across Wales to recruit additional staff – dentists and dental care professionals (DCPs). This has been essential in enabling CDS's to deliver the messages and to provide oral health care in areas where dental care has traditionally / historically not been taken up.

If the programme is to continue, which we feel it must, it is imperative that this direct funding continues and that health board finance directors are reminded that these are 'badged' funds! (See 3 above)

The programme takes time to deliver and further time will be required to measure its success. It also highlights untreated dental disease where further restorative dental treatment is needed. This in turn raises workforce issues as in many areas the NHS general dental service is at capacity and unable to offer care to these young people.

⁴ This is a separate pilot (one of two) to test alternative methods of remunerating dentists working in the GDS.

In conclusion, the British Dental Association in Wales has always welcomed Welsh Government initiatives aimed at improving the dental health of children in Wales but we are always aware of additional pressures being placed on dentists in the community dental service and in general dental practice.

An ongoing pilot programme in general practice is funding practices to provide a similar preventive programme for children in their care and dependant upon evaluation, we would like to see this extended into all dental practices in Wales. There would however be considerable cost implications, mainly in the employment of additional staff who would be used to provide oral hygiene instruction and supervise / administer topical fluoride mouthwashes and varnishes. We are disappointed that the number of hygienists and therapists in training in Wales is to be reduced as they would be a very important part of the D2S programme.

Some time ago the former Welsh Office did undertake a study on the feasibility of providing fluoridated water in Wales. Whilst water to households in Wales comes from many sources (reservoirs and boreholes) it was shown that a large % of the population of Wales are serviced from the large reservoirs. Fluoridated water to the West Midlands comes from the Elan valley in mid Wales!

Water fluoridation is certainly the easiest and most cost effective way of getting fluoride into contact with teeth. There is no doubt that this works.

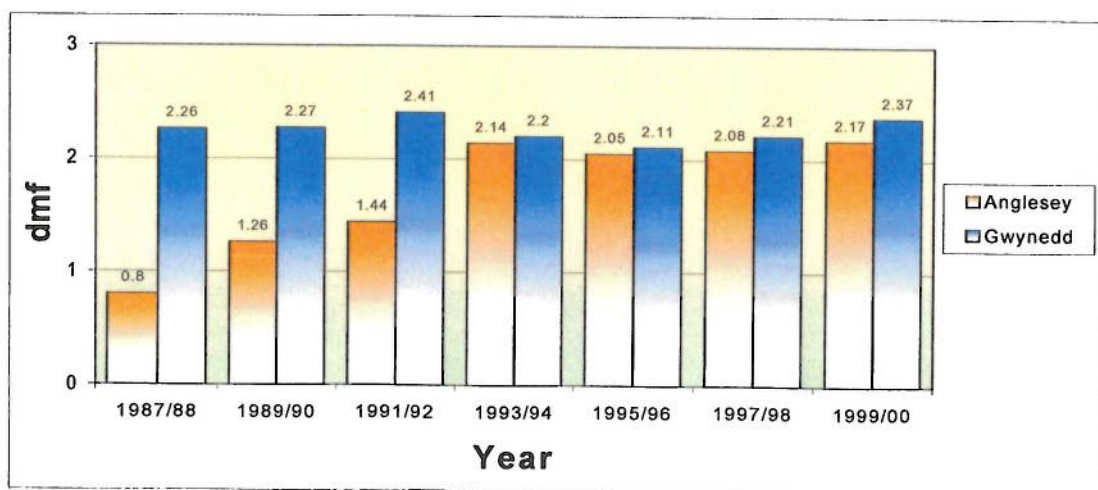
APPENDIX.

The Anglesey experience.

Anglesey was, in the 1950's part of the original trial to monitor the effectiveness of fluoridation. At that time the island had two water supplies, one of which was fluoridated. The reduction in dental caries in the fluoridated area soon became evident so supplies to the whole island were then fluoridated. In 1987 fluoridated supplies became intermittent and despite the fluoridation plant being upgraded in 1992 Welsh Water / Dŵr Cymru ceased in 1992 to fluoridate. Within five years the caries levels on Anglesey had returned to be the same as those on mainland north Wales – five-year-olds from having fewer than one decayed tooth now have more than two!

The following figure illustrates that the benefits of water fluoridation had been lost to the children of Anglesey and the effects are apparent.

Caries Experience in 5-year-old children: A comparison between Anglesey and Mainland Gwynedd from 1987-2000



Source: BASCD Surveys

The Scottish Experience.

In 2006, the Scottish Government introduced the 'Childsmile' programme, a complex oral health improvement intervention for children. Initial results published this year⁵ show that it is possible to impact upon the prevalence and morbidity of dental caries across the socio-economic spectrum of population of three year olds. Put another way, this programme has been successful in reducing the amount of decay in three year old children and has had most impact on children from lower socio-economic families living in areas showing the greatest absolute inequalities in health.

The attached poster presentation relates to the differences in decay seen between front and back teeth but also illustrates (Fig 1) how decay levels fall naturally across socio economic groups and the effect that the Scottish Childsmile project has had with time across all groups.

(with thanks to Professor Macpherson for permission to reproduce this)

⁵ Reductions in Dental Caries in three year old children in Greater Glasgow and Clyde. McMahon, Blair, McCall and Macpherson. Poster presentations to ORCA conference.



Background

In 2006, the Scottish Government introduced a complex oral health improvement intervention for children, known as the Childsmile programme. The 'Demonstration' phase of the Childsmile programme ran until 2008. The current 'Interim' phase covers the years 2009-2011. The programme consists of various interventions which are delivered at different stages of a child's life.

Dental inspections of three-year-old children in nursery education in NHS Greater Glasgow and Clyde have been conducted over the last four years in parallel with the development and implementation of the Childsmile Programme within this NHS Board area.

Aims

The aim was to determine if anterior/posterior patterns of decayed missing and filled teeth in three-year-old children in Greater Glasgow and Clyde differ by socioeconomic status and by calendar time.

Methods

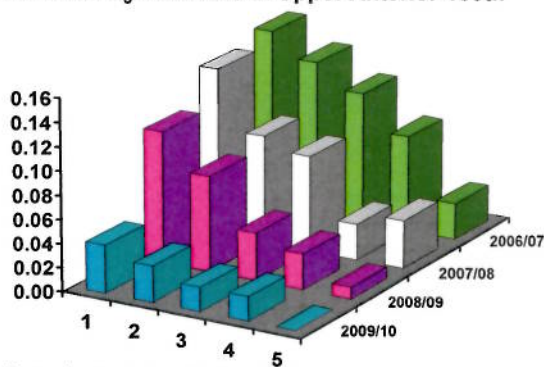
Three year old children were inspected in 2006/7, 2007/8, 2008/9 and in 2009/10. For each year, the percentage of obvious decay experience was calculated for each tooth by surface type, and also by SIMD. A mean d_3mft metric was created with a scale varying from zero to one for the four posterior teeth in the upper arch. Similarly a metric was created for the two central incisors in the upper arch (also varying from zero to one). The difference between the anterior and posterior scores according to these newly created scales was calculated, i.e. 'the anterior-posterior difference'. Additionally, an endpoint of the occurrence of obvious caries experience in both an anterior and a posterior tooth contemporaneously was created for the upper arch. The analyses were repeated for each of the fifths of the Scottish Index of Multiple Deprivation (SIMD).

Results

A total of 10022 children were inspected. The 'anterior-posterior difference' was statistically greater for the most deprived children versus the most affluent children; adjusted mean difference of differences = 0.03 (0.02, 0.05), $p < 0.001$. These differences have reduced with calendar time, and by 2009/10 there was no anterior-posterior difference (mean = 0.00 for deprived children, and -0.01 for the most affluent children).

Over the four year period, the frequency of contemporaneous anterior/posterior caries was higher for deprived children (6%) than for affluent children (1%); adjusted odds-ratio = 5.76 (3.68, 9.03), $p < 0.001$. However, this effect had reduced by 2009/10.

Figure 1: Mean d_3mft Metric in Upper Anterior Teeth



*SIMD = Scottish Index of Multiple Deprivation (1=most deprived, 5=least deprived)

Figure 2: Frequency (%) of Tooth Surfaces Affected by Obvious Decay Experience

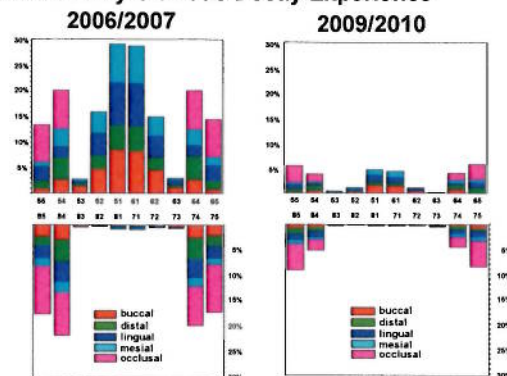
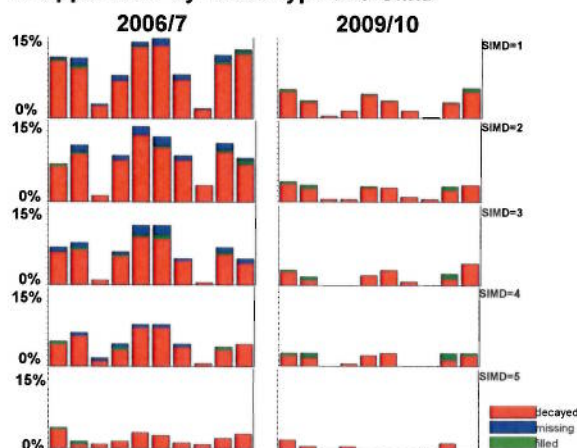


Figure 3: % Obvious Decay Experience in Upper Arch by Tooth Type and SIMD



Discussion

The disappearance of the anterior-posterior difference for deprived children in the most recent year of study (2009/10) is an interesting result. There are reductions in both the posterior mean d_3mft and the anterior mean d_3mft . This reduction is greater in the anterior teeth to enable the absolute difference to disappear. For example the mean d_3mft in the anterior teeth was 0.15 in 2006/7, 0.14 in 2007/8, 0.11 in 2008/9, and only 0.04 in 2009/10. This finding is compatible with the theory that 'as caries prevalence falls, the least susceptible sites (proximal and smooth surfaces) reduce by the greatest proportion, whilst the most susceptible sites (occlusal) reduce by the smallest proportion'.* Our data appear to reflect this theory in the dimension of relative deprivation and in the dimension of calendar time.

* Sheiham & Sabbah 2010 (Caries Research 44: 141-50)

Conclusions

There is evidence that the pattern of decay in the upper arch has changed over time, and this is particularly evident in the more deprived communities. At the outset children in the more deprived areas had a higher level of caries in the anterior teeth, and more caries in both the posterior and anterior teeth at the same time. These patterns changed by calendar time as caries prevalence in the population reduced.

