Children and Young People Committee

Inquiry into Children's Oral Health

Evidence from Betsi Cadwaladr University Health Board

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

Author: Dr J S Sandham

Role in the Organisation: Clinical Director of North Wales Community Dental Service, Betsi Cadwaladr University Health Board

Date: 11th September 2011

Version: Final

Introduction

In 2008 it was stated in a Welsh Assembly Government Ministerial letter to Chief Executives of NHS Trusts and Local Health Boards [EH/ML/014/08] that 'in general, dental health of 5-year-old child in Wales is currently the worst in Great Britain'. It also reiterated the targets that had been set in 2006 to improve this position, namely:

- *Mean dmft 5-year-olds.*
  By 2020 the mean number of decayed, missing and filled teeth in those 5-year-olds living in ***the most deprived fifth*** *of the population will be 2.4. It is currently 3.1.*
  By 2010 proportionate progress toward this target would require a mean dmft of 2.9 in this segment of the population, being one-third the required reduction by 2020.
- *Percentage of 5-year-olds with caries experience.*
  By 2020 the percentage of 5-year-olds with caries in ***the most deprived fifth*** *of the population will be 55%. It is currently 61.8%.*
  By 2010 proportionate progress towards this target would require no more than 59% of children to have experience of dental decay.
- *Mean DMFT 12-year-olds.*
  By 2020 the mean number of decayed, missing and filled teeth in those 12-year-olds living in ***the most deprived fifth*** *of the population will be 1.1. It is currently 1.3.*
  By 2010 proportionate progress towards this target would require a mean DMFT of 1.2, being approximately one third the required reduction by 2020.
- *Percentage of 12-year-olds with caries experience.*
  By 2020 the percentage of 12-year-olds with caries in ***the most deprived fifth*** *of the population will be 46%. It is currently 52.6%.*
  By 2010 proportionate progress toward this target would require no more than 50% to have experience of dental decay.

Dental caries (dental decay), the most common childhood oral disease causes pain; sepsis; loss of sleep; absence from school and lower self esteem when aesthetics are poor. It also results in a significant number of young children having to have teeth extracted under general anaesthesia, a procedure which is not without risk. However, this is the only option in many cases when other treatment modalities are not possible or contraindicated.

Despite being a preventable disease, more than half (53%) of children in Wales have experienced dental caries by the age of five (Source: BASCD survey 2005/06). Sadly, Wales does not appear to have seen an improvement in the overall prevalence or severity of caries experience since 1995/96; with children from the most disadvantaged communities suffering the highest level of disease. For many years Scotland had been the poorest performer in the UK league table but in 2005/06 Wales assumed this position. Scotland continued to witness further improvements in child oral health; attributed largely to the oral health campaign, *Child Smile*, which had been introduced across the country.

It is worthy of note that Scotland has already achieved the 2010 targets set in 2005. In the absence of access to fluoridated water supplies *Designed to Smile* offers the

opportunity for the children of Wales to reap the oral health benefits enjoyed by those living in Scotland.

Oral Health of Children and Young People in North Wales

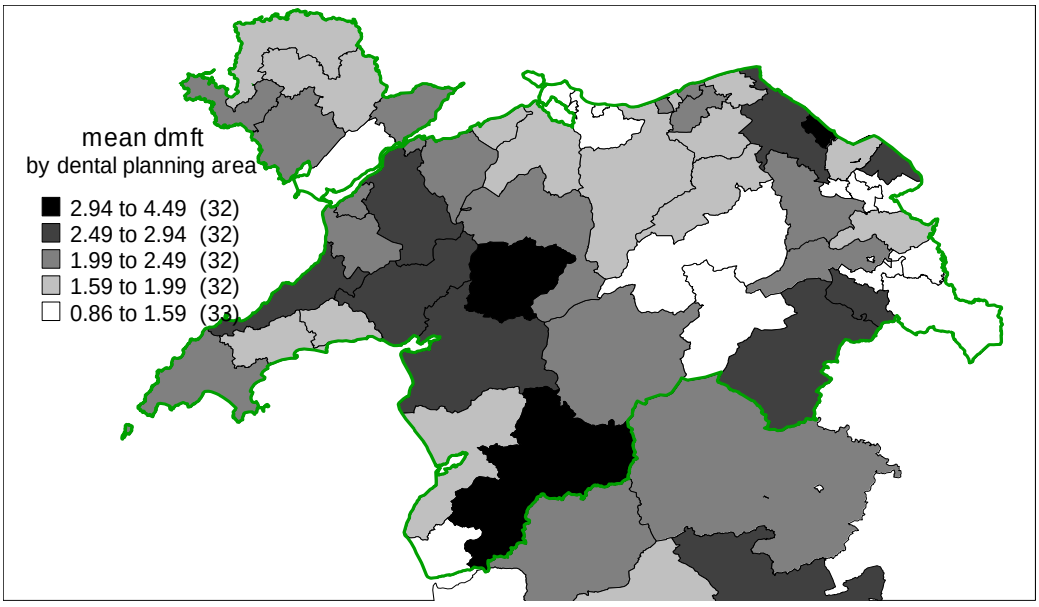
Oral Health of 5 year-old-children

The North Wales Oral Health Profile 2004 and the North Wales Regional Dental Public Health Report 2006/07 detailed the caries trends in 5-year-old children in north Wales. Although generally, caries indicators compare favourably with the Welsh means, this masks the wide range which is evident when small area statistics are considered; children from the most disadvantaged backgrounds suffering the highest levels of disease.

The prevalence of dental disease is measured using the decayed, missing and filled tooth index; denoted as dmft in the deciduous dentition and DMFT in the permanent dentition.

The inequalities that exist can be illustrated by Flintshire, which exhibited both the best and worst mean dmft in north Wales; 0.9 for Hawarden dental planning area (dpa) and 3.0 for Flint. When the children who had experienced caries were considered separately, they were found to have an average of more than four teeth decayed, missing or filled.

Mean dmft in North Wales by Dental Planning Area, Survey of 5-year-olds 2005/06



Source: Welsh Oral Health Information Unit

When addressing indicators relating to treatment provision, inequalities were also evident. The Treatment Index records the proportion of teeth that have been treated with fillings or have been extracted because of decay. For north Wales, the treatment Index in 2005/06 was 30% indicating that 70% of disease remained untreated. Once again inequalities exist, with this index ranging from 12% in Conwy dpa to 55% in Llanfairpwll. However, provision of treatment to preschool and young children is not

without its problems as cooperation is often limited. This emphasises the wisdom of the adage ‘prevention is better than cure’.

Oral Health of 12-year-old children

The latest study of 12-year-old children was conducted in 2008/09 and is reported in the North Wales 2009 Annual Report from Dental Public Health to the Chief Dental Officer. Although many 12-year-old children are in the mixed dentition stage (deciduous and permanent teeth present), data reported only records the oral health status of the permanent (adult) dentition.

The north Wales experience mirrored the national picture with a decline in the incidence and prevalence of dental caries since 2000/01. However, in common with the data for 5-year-old children the overall figures mask the inequalities evident when small area statistics are considered.

Of concern is that a fifth of 12-year-old children in north Wales were reported as having an average of two untreated, decayed permanent teeth.

Oral Health of 14-year-old children

The last available data relates to the BASCD survey conducted in 2002/03 and reported in the North Wales Oral Health Profile (2004). Analysis by dental planning areas again revealed marked variation with children living in deprived areas having fewer natural teeth, more dental disease and greater levels of unmet treatment need.

Fluoridation and Defluoridation

The benefits of water fluoridation and the deterioration in the dental health of children following the withdrawal of the water fluoridation scheme on Anglesey were described in the 2004 Oral Health Profile.

North Wales has possibly been in a unique position of witnessing the deteriorating dental health of a child population following the withdrawal of a fluoridation scheme.

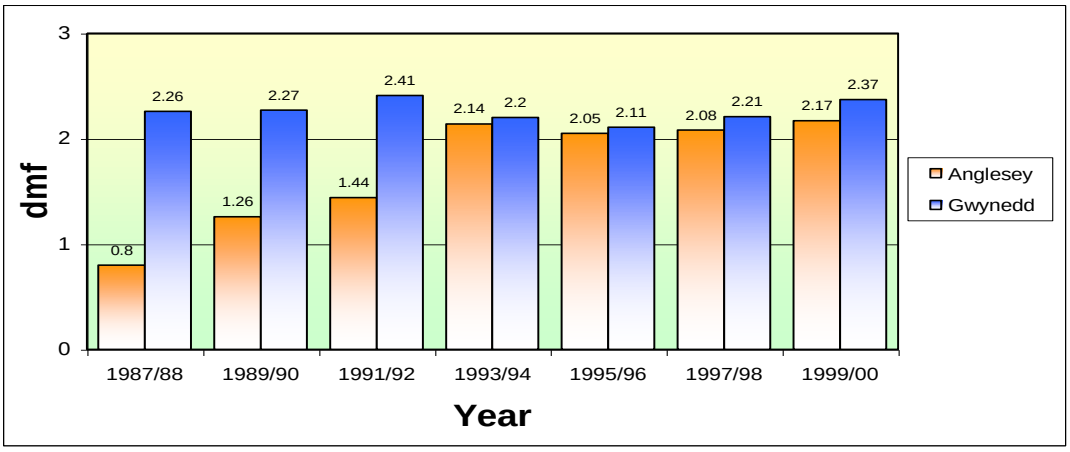
Water fluoridation was introduced in Anglesey in 1955 following a five-year trial and a 50% reduction in decay levels was subsequently achieved in 5-year-old children. A study of new mothers, who were life-long residents of the island and had been born since optimal fluoridation was achieved, showed that these benefits continued into adult life.

In 1987, fluoridated supplies in Anglesey became intermittent and Welsh Water unilaterally withdrew the supply of fluoridated water in 1992. Neither the population nor the dental profession were informed and as a result, alternative methods of prevention were neither advised nor adopted.

Against a background of little change in disease levels in un-fluoridated mainland Gwynedd, there was an increase in dmft of Anglesey children (aged five) from less than one tooth per child to more than two. This occurred after only five years of intermittent

or no fluoridation. Comparative decay levels for Anglesey and mainland Gwynedd showed no significant differences after this period of time.

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



Source: BASCD Surveys

History of Dental Health Promotion and Preventative Programmes in North Wales Prior to the Introduction of Designed to Smile

Some in-roads had been made with regard to child populations across North Wales via dental preschool initiatives and *Sure Start* programmes. Gwynedd Local Health Board had supported a dental health promotion programme in Bethesda for a number of years and strong links had been established with *Sure Start* in this area. A dental trauma pack had also been introduced some years ago which involved close liaison with School Nurses and Head Teachers. Additionally, families of children who had been registered as having special needs in Clwyd were offered oral health advice from birth. Wrexham LHB had introduced a programme for children with learning disabilities which operated for a number of years. However, funding opportunities were often non-recurring and resource limitations meant that coverage was patchy and often difficult to sustain. Flintshire also included a number of dental health promotion initiatives in its *Wanless* plan including a programme for children with learning disabilities, which was subsequently adopted by Denbighshire. The Flintshire and Denbighshire initiatives continue to be implemented on a recurring basis.

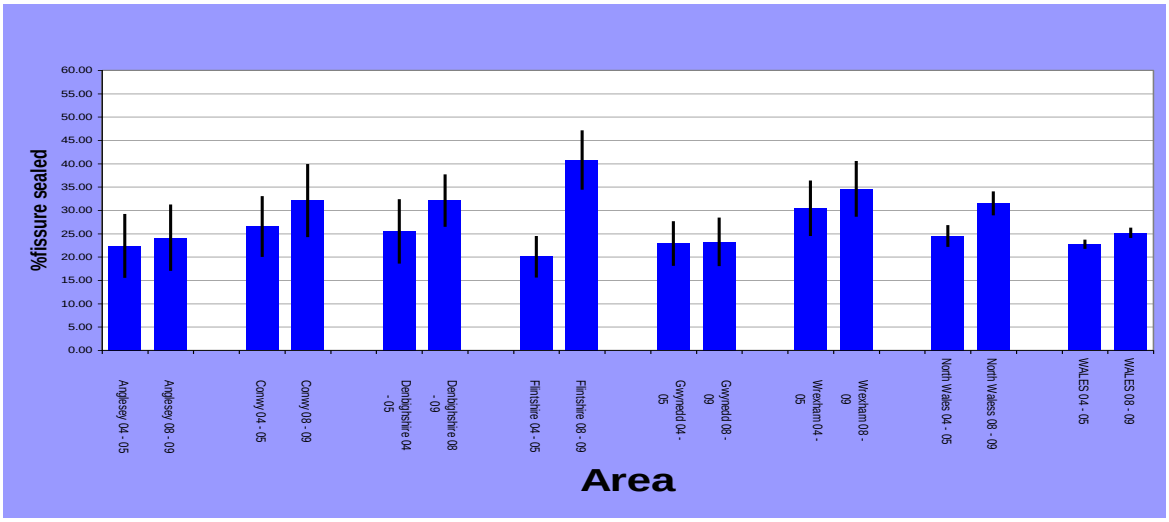
In November 2001 a Welsh health Circular, "NHS Dental Services Fissure Sealant Programme: Health Inequalities Fund", announced the allocation of funding for Health Authorities in Wales to commission a three-year dental fissure sealant programme targeted at 6-8 year-old children in deprived areas as identified by 'Communities First' i.e. the 100 electoral divisions with the worst Index of Material Deprivation. The Community Dental Services across Wales were commissioned to deliver the programme. For the first time a workforce could be identified that would be dedicated to the delivery of a preventative programme.

The fieldwork commenced in North Wales in September 2002**.** Wrexham LHB expanded the Fissure Sealant Initiative to include additional schools attended by

children living in the Caia Park area. Similarly Flintshire extended the programme to year- three children and included the 50% of schools with the highest dmft. This approach was subsequently adopted by Denbighshire.

Some of the youngest cohorts of children at the inception of the Fissure Sealant Programme in 2002 would have been included in the 2008/09 Epidemiological Survey of 12-year-old children.

Percentage Children with Fissure Sealed Teeth 2004/05 and 2008/09



Source: Welsh Health Oral Information Unit

An increase in the proportion of children with Fissure Sealed teeth between 2004/05 and 2008/09 was evident for all Unitary Authority Areas. A statistically significant increase is evident for Flintshire where investment was greatest.

Designed to Smile

"*Designed to Smile* – A national Child Oral Health Improvement Programme Promoting Better Oral Health and Delivering a Fluoride Supplementation Programme" was issued as a Welsh Health Circular in March 2008. This core programme targeted schools in deprived areas and comprised two key elements; a supervised toothbrush/fluoride toothpaste scheme for 3-5 year-olds and a fluoride varnish application programme, complimented by a promotional programme for 6-11 year-olds. Following an evaluation of the pilots conducted in north Wales and Cardiff and Vale, a Ministerial Letter "Expansion of *Designed to Smile* - A National Oral Health Improvement Programme" was issued in October 2009. This extended the programme to other LHB areas and introduced the nursery based tooth brushing scheme and fluoride varnish programme for the 0-3 age group in the targeted areas and extended the tooth brushing scheme to year-two children.

Launch of Designed to Smile Pilot in north Wales by Mary Burrows, Chief Executive of BCUHB and Ian Budd, Director of Life Long Learning for Flintshire LEA.

Responses to Questions Posed by the Children and Young People Committee

1. The take-up of *Designed to Smile*:

In north Wales, 270 schools and nurseries are participating in the scheme with 770 classes involved and more than 16,000 children brushing on a daily basis at school. It has been disappointing that seven schools in the targeted areas have refused to engage with the programme. These will be approached again this year with a request to make a presentation to the Board of Governors. In all the schools that have adopted '*Designed to Smile*' there has been a commendable 100% uptake by parents for children in the eligible age groups. A "flagship school" has recently been identified which will adopt a whole school approach with all children aged 3-11 participating in all relevant aspects of the programme. A special school located on the same site is also included in this initiative.

The National Eisteddfod 2011 held in Wrexham afforded the opportunity for *Designed to Smile* to be represented. Dewi the Dragon proved a "hit" with the children, parents, the Chief Executive of BCUHB and the Minister of Health and Social Services.

National Eisteddfod Wrexham 2011. Chief Executive, Mary Burrows with Dewi the dragon.

Approximately 40% of parents were aware of the *Designed to Smile* Programme and the majority had taken on board the key messages. These were reinforced i.e. to use age relevant fluoride toothpaste, to brush for two minutes and to "spit don't rinse". Oral health resources were issued to children, which included 950 packs (donated by Colgate); 2000 age appropriate tooth brushes and 500 tooth brush timers.

a) The supervised tooth brushing scheme for 3-5 year-olds

In this age group 6621 children are eligible and all are participating in the scheme. By the end of July 13,243 home packs had been distributed.

b) The promotional programme for 6-11 year-olds

The Fissure Sealant Programme which was introduced in 2002 has now been incorporated into *Designed to Smile* Programme.

In this age group 7145 children are participating in the tooth brushing scheme with 31,918 packs having been issued to these children; those involved with the extended fissure sealant initiatives and those in years 5 and 6 (aged 9-11) who have received oral health education, dietary and smoking cessation advice.

Of the 4113 children screened for Fissure Sealant and Fluoride varnish application, 2587 have received a Fissure Sealant intervention and 7206 sealants have been applied.

The Fluoride varnish aspect of the initiative has been delivered to 364 children with 249 children having received a second application.

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

Oral health outcomes will largely be measured by the National Child Dental Health Epidemiological Surveys co-ordinated by the British Association for the Study of Community Dentistry (BASCD). The impact of the Fissure Sealant Programme on caries in first permanent molars could possibly be identified utilising the survey of 12-year-old children. However, the impact following the introduction of positive consent will need to be considered when interpreting the data. The recently introduced pre-school (0-3) element of the *Designed to Smile* Programme will be assessed from the 5-year-old children surveys. Realistically, a cohort born in 2010 could not be evaluated until 2015 at the earliest.

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

Inevitably the two pilot areas will have developed further than other areas in Wales as they have been operating longer. However, much of the initial period was spent in developmental work from which other areas have been able to benefit. A National *Designed to Smile* forum was established by the Chief Dental Officer which has enabled standard protocols and resources to be developed. North Wales has led on the

development of resources in the medium of Welsh and has co-ordinated information for inclusion on the *Designed to Smile* website.

The programme is operational across all north Wales and is provided through the medium of Welsh as well as English. The programme is also available to children attending special units/schools in the targeted areas.

Inequalities in the level of coverage do however exist due to differing opportunities presented regarding investment in preventative programmes by the previous Local Health Boards across north Wales. Some areas of good practice emerged as a result. The additional funding, which was assigned by some of the LHBs, enabled supplementary schools to benefit from the '*Designed to Smile*' initiative. Furthermore, for a number of years, Flintshire LHB funded a preventive programme for children with learning disabilities and extra needs, including looked after children, which has been subsequently adopted by Denbighshire. These programmes continue on a recurrent basis.

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

The Ministerial Letter detailing the expansion of the *Designed to Smile* programme was issued to the Chairs of Local Health Boards in October 2009. This built on the first phase of *Designed to Smile* in the pilot areas and the infra structure established in the Community Dental Service and included a nursery based tooth-brushing scheme and fluoride varnish programme for the 0-3 age group.

To ensure that the fluoride varnish aspect of the scheme could be delivered as cost effectively as possible, the initial efforts were concentrated on introducing an accredited training programme in fluoride varnish application. This was a joint venture between BCUHB and Bangor University. It was piloted as a five day course in Deeside during 2010 when six *Designed to Smile* Dental Health Educators (registered dental nurses, who already had the foundation of a post-certificate qualification in Dental Health Promotion) were trained in the theoretical and practical aspects of fluoride varnish application, following a syllabus recommended by the Department of Health and designed to fulfil the criteria for extended duties competencies. In addition, two non-BCUHB staff (dental nurses who had previously obtained the post-certification in Dental Health Promotion through past training carried out by BCUHB), attended the same fluoride varnish application pilot course; one from Powys Community Dental Service and one from a General Dental Service practice in Wrexham. Subsequent to the training, the dental nurses completed a reflective logbook of their practical experience, applied fluoride varnish for a minimum of ten patients under supervised conditions and sat written and oral examinations. The training is now being offered to other qualified dental nurses including those from General Dental Practice.

Additionally, eight Dental Health Support Workers, who do not have a dental nursing qualification, have attained their Foundation Certificate in Oral Health Promotion awarded by The Royal Society for Public Health.

Of the 106 preschool settings approached by July 2011 all had accepted the 0-3 programme with 2,415 children participating.

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

The *Designed to Smile* programme targets areas of need and the schools to receive the programme were initially identified by WAG. Additional schools in deprived areas have been added as the programme has been introduced. Children attending special schools and nurseries are included in the scheme. Numerous approaches from Head Teachers and parents requesting the programme have been received but unfortunately, many of the schools were not located in the identified target areas of need.

6. The extent to which the Designed to smile programme has been integrated into wider local and national initiatives such as the Welsh Network of Healthy Schools Schemes and Flying Start

The Community Dental Service is working with others to ensure that oral health improvement activities complement other health promotion which is on-going in north Wales. A multiagency team is in the process of being established. It is envisaged that this will function as a sub-group of the North Wales Oral Health Strategy Group within the Surgery & Dentistry Clinical Programme Group. Discussions are underway regarding making training and resources available to other disciplines involved in the delivery of health promotion to children to maximise the benefits of adopting a holistic approach especially with regards to diet and oral health advice.

Expanding the networks established prior to the introduction of *Designed to Smile,* the teams work closely with schools to help them achieve their Healthy Schools Awards. Flying Start and *Sure Start* areas continue to be targeted and close working relations have been established.

Designed to Smile activities complement the elements of the Healthy and Sustainable Pre-school Scheme which has recently been introduced across north Wales. Formal links have been established at the strategic planning and local implementation levels. There are plans to further widen the information resources available to parents of pre-school children attending playgroups and nurseries, and to provide educational resource packs for the staff working with these establishments.

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

In '*One Wales* - an agenda for the government of Wales', a commitment was made to 'build up the Community Dental Service'. The Minister for Health and Social Services reinforced this message with an announcement in November 2007 that 'central' to her 'vision to improve oral health was a strengthened public dentistry role for the Community Dental Service'. The 'long experience' of the Community Dental Service in Wales of providing oral health promotion was recognised and in line with its public health role the Community Dental Service was given the lead in developing and undertaking the *Designed to Smile* programme.

The Ministerial letter (EH/ML/014/08) **- *Dental Services for Vulnerable People and the Role of the Community Dental Service*** also identified the other roles and remit of the Community Dental Service in Wales which it wished to see 'retained and developed'.

It urged that 'stronger salaried dental services' be developed to ensure that 'the most vulnerable people in our society have better access to care'. It also recognised that there were 'examples in Wales where Community Dental Service services have developed strongly including the provision of Specialist services such as, Special Care Dentistry, Oral Surgery, Orthodontics and the provision of General Anaesthesia and Sedation Services'.

In north Wales the Community Dental Service operates from 50 surgeries at 26 fixed sites which are generally located in socially or geographically disadvantaged areas and 10 mobile dental units (the majority of which have now been 'branded' with the *Designed to Smile* Logo). The possible rationalisation of estate poses a potential threat to the retention of services in areas of high need.

The strengthening of the Community Dental Service through the *Designed to Smile* initiative with 'ring fenced' funding is most welcome and has enabled the preventative aspect of the service to develop. Although it is anticipated that over time this investment will reduce the demand for treatment, in the short term it is bringing into dental care many children with a high treatment need who hitherto have either not accessed treatment or have been poor attenders. It has been shown that children presenting or referred to the Community Dental Service tend to have higher treatment need than those treated exclusively in the General Dental Service. There is concern that the loss of a number of clinical posts due to cost pressures is likely to have a detrimental effect on treatment provision to vulnerable groups of patients.

A Consultant Paedodontist from Alderhey Hospital visits north Wales on a quarterly basis and holds joint clinics with the Community Dental Service Specialist in Paediatric Dentistry. However, very few referrals for treatment are made to Alderhey as there is a wealth of experience amongst the Community Dental Service clinicians (dentists and therapists/ hygienists) in the provision of care to children (and adults) with management or special care needs. Referrals to the Community Dental Service are received from Consultant Paediatricians, Dental and Maxillo-facial Consultants; Consultants in other disciplines; General Medical Practitioners; Social Services and dental colleagues in Primary Care.

In addition to the orthodontic service provision in the Hospital and Primary Care dental services, a full time Community Orthodontist is employed. A dental officer is currently undertaking orthodontic training in an attempt to succession plan for his retirement. A number of Community Dental Service dentists have also undertaken clinical attachments in the specialty and provide orthodontic care in support of these services and those provided by General Dental Practitioners with a special interest in the discipline.

The Community Dental Service is the main provider of GA and Sedation services in north Wales. In north Wales in 2005/06, 18% of 5-year-old children were reported as having experienced toothache; and 7% as having had extractions under General

Anaesthesia (Source: BASCD Survey 2005/06; parental questionnaire response rate 79%).

A GA Service for children is provided by the Community Dental Service at three sites across north Wales. Children with special care needs are able to receive restorative treatment at two of these locations. Additionally, some patients will be receiving care under GA in England and those requiring more complex surgical procedures will be referred to a maxillo-facial department.

In an attempt to reduce the number of general anaesthetics administered and reduce GA waiting times most Community Dental Service dentists have received additional training and provide an Inhalation Sedation Service with 22 clinical sites equipped to provide this service. Additionally, an Intravenous Sedation Service is offered at five sites by experienced dental IV sedationists. This service is not generally offered to younger children but is a valuable treatment modality for anxious adults and older teenagers.

During 2009/10, the Community Dental Service provided treatment to 1633 children (0-18) under general anaesthesia and 1120 received care utilising sedation techniques.

Multi-disciplinary Clinical Governance Teams are well established for GA and Sedation. Clinical Pathways, Procedures and Protocols have been formulated in an attempt to standardise the service provided at all sites. This has been challenging with three District General Hospitals previously operating in different Trusts being amalgamated into a single Local Health Board.

The service also employs five Specialists in Special Care Dentistry which ensures continuity of dental care for those children with special care needs as they transfer from child to adult services.

Several members of the Community Dental Service staff are experienced fieldworkers supporting national epidemiological surveys. The necessity of working closely with the *Designed to Smile* team in order to gain positive consent for participation in these surveys is recognised. This is crucial if socially deprived areas are to be adequately represented and the results not skewed.

Screening of children involved with the *Designed to Smile* programme is well developed. However is recognised that stronger coordination of screening, preventative initiatives and treatment services where mobile dental units are deployed is required.

The service provides dental student outreach training to all final year dental students from Cardiff Dental School and is involved in general professional (DF2) training; employing three trainees at any one time. All receive training in Inhalation Sedation and gain experience in the management of children including those with special needs. These programmes increase the awareness of the Community Dental Service as a career option and present valuable recruitment opportunities. This is vital if succession planning is to be achieved.

Conclusion

Analysis of the available data has consistently shown that children from the most deprived areas carry the greatest burden of dental disease and have greater unmet treatment need.

Where the water concentration of fluoride is optional (1 part per million), either naturally or by adjustment, dental decay levels are reduced. In the absence of enabling legislation in Wales in relation to the Water Act 2003, alternative preventative initiatives are essential if the Welsh Government child poverty targets to reduce inequalities in child dental health are to be achieved.

Bringing teeth into contact with fluoride and altering patterns in the consumption of non-milk extrinsic sugars will be key to meeting the targets. To effect a change in the dmft of 5-year-old children, programmes need to be implemented from birth. The extension of the *Designed to Smile* programme was announced in October 2009 and it is therefore too early to determine the effectiveness of the initiative.

As mentioned in the introduction to this response, Scotland has already achieved the 2010 targets set in 2005 by its Government. In the absence of access to fluoridated water supplies *Designed to Smile* offers the opportunity for the children of Wales to reap the oral health benefits already enjoyed by those living in Scotland.