Children and Young People Committee

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Cynulliad
Cenedlaethol
Cymru

National
Assembly for
Wales

I gael rhagor o wybodaeth, cysylltwch â:

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Children and Young People Committee

CYP(4)-03-11 – Paper 1

Inquiry into Children's Oral Health in Wales: Evidence from Public Health Wales

Introduction

The most common oral disease of childhood is dental caries, often called tooth decay. It is found in deprived and affluent communities but affects more teeth per child in our deprived communities. Therefore, while half of 5 year old children across Wales have no decayed teeth, the other half carry a high burden of the disease, and have on average 4 teeth that are decayed or have been filled or extracted. This average figure itself hides further inequalities between communities because some children carry an even greater burden.

For many years reported levels of tooth decay in Wales were higher than in England and lower than in Scotland. However, in 2005/6 the average number of decayed missing and filled teeth in 5 year olds (dmft) reported in Wales was higher than in Scotland.

Since 2006 Scotland has witnessed further improvement in 5-year old child dental health. In Wales, by contrast, it is believed the trend is static, although changed consent arrangements after 2006 have driven a fault line through the trend data in Wales. Data will be collected in 2011/2012 that we will be able to compare with 2007/2008 data and re-establish a trend line.

One effect of the high prevalence of tooth decay in our young children is the large number of them who receive a general anaesthetic (GA) for tooth extraction (in the order of 8000/9000 annually). This is unacceptable for what is an almost totally preventable disease. It is an avoidable risk to child health and wellbeing that would not be tolerated in other diseases. Designed to Smile (D2S) is capable of making a major contribution in turning this around.

Responses to the Committee's Questions

The questions asked by the Children and Young Peoples Committee are answered in turn.

1 The take-up:

a) **of the supervised tooth brushing scheme for 3-5 year olds,**
b) **the promotional programme for 6-11 year olds;**

The Public Health Wales dental team works closely with the Welsh Oral Health Information Unit. This unit is responsible for collecting and collating data from the local D2S programmes, and for reporting local and national data to the Welsh Government. I understand that the Welsh Government will be making data available to the Committee.

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

It is too soon in the D2S programme to assess how effective it has been in reducing the prevalence of dental decay in our children. There is a 5-year old dental epidemiology survey being carried out this year, but that will be too early to conclusively show the benefits. It will be the 2014/15 survey that will provide the first robust information on whether dental decay in our 5-year old child population has been significantly reduced.

The Welsh Government set Child Poverty oral health targets, in summary - *that by 2020 decay level in the most deprived children will fall to the level found in the middle fifth.* In the absence of water fluoridation such targets can only be achieved through sustainable programmes such as D2S.

Scotland has put great effort into preventing decay in children, notably through its Childsmile programme, (a programme not dissimilar to D2S). Scotland has achieved its 2010 dental health targets set in 2005, confirming that a sustained national oral health improvement programme can deliver significant change in a nation's oral health.

Accountability and Monitoring

There are 3 main reporting processes:

- Regular Community Dental Service (CDS) reporting to the Welsh Oral Health Information Unit that in turn reports to the Welsh Government.
- Internal Local Health Board (LHB) accountability e.g. D2S Steering Group to an Executive Director, (in LHBs where Steering Groups exist).

- The CEO of each LHB has the specific responsibility of ensuring that the LHB reports to the Welsh Government on the progress of D2S, including details of programme expenditure, by 30 July every year. Reporting channelled via the Welsh Oral Health Information Unit.

Evaluation will be through:

- Qualitative evaluations of local and national programmes conducted by the Dental Public Health Department Cardiff Dental School reporting to the Welsh Government. These evaluation reports will tell us if the 'process outcomes' have been achieved, and which elements of the programme management and delivery may need improving.
- National child dental health surveys. Ultimately, it is the results of these surveys will show whether child dental health in Wales significantly improves.

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

D2S has already become a well "branded" national programme, but it also has to be flexible to suit local circumstances. The Chief Dental Officer for Wales organises a National D2S Forum where all D2S teams, Public Health Wales and the Welsh Government meet to report and share best practice. This provides the platform for standardisation of protocols and guidance at national level, while still allowing for local flexibility.

In addition, the Consultant led Public Health Wales Dental Public Health team support local D2S planning and delivery (although the type and amount of input varies between LHB areas), this also encourages consistency across Wales.

The CDS in North Wales has provided leadership in the development of resource materials in the Welsh language, sharing these with the other D2S teams. The North Wales and the Cardiff and Vale CDS services, the two original pilot services, worked together in the development of joint procurement processed and the D2S website.

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

Prior to the launch of D2S, oral health promotion for 0-3 year olds was patchy and uncoordinated at national and local level. In some areas of Wales a variety of service teams e.g. Health Visitors, Flying Start and CDS might have delivered some oral health promotion to this age group with varying degrees of co-ordination. Parents, children and carers often received inconsistent oral health and diet/nutritional advice. Many non-dental health professionals working with children did not have links with oral health promotion teams in the CDS and vice versa. D2S is working to bring all partners into a more integrated approach so that consistent messages are sent out.

In terms of reducing tooth decay levels in 0-3 year olds the key component in D2S is the use of fluoride toothpaste by children in the most deprived areas. Oral health promotion and prevention should start as soon as the baby is born, indeed oral health promotion can begin with the parent/s to be. These are the underpinning principles to which all D2S teams across Wales work. However, local factors have dictated exactly how this 0-3 year old element of D2S has been implemented in different areas.

In Wales we do not carry out dental surveys of three year olds, but we do survey five year olds. Hence, the effect of D2S programmes for 0-3 and 3-5 yr olds will be shown in reports of tooth decay levels in five year olds. However, like many other public health measures, effectiveness has to measured when the programme has been in place for sufficient time to have an effect on behaviour.

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

D2S is a targeted programme, targeting those children with the highest dental need from the most deprived areas. The evidence shows that the children from these areas suffer the highest prevalence of dental decay, and carry the greatest burden of the disease.

However, it has always been a strength of the programme that it can, despite the need to be targeted on the basis of the prevalence of tooth decay and deprivation levels, embrace groups of children defined in other ways e.g. the inclusion of Special Education Units in some local programmes.

Representatives from the Public Health Wales dental team are working with the 1000 Lives Plus team on dental initiatives. Work on the Fundamentals of Care audit, to improve oral assessment of patients in hospital, will include children. There may be scope to link this work with D2S for children in long stay hospital, and this issue is to be raised with the group leading on Fundamentals of Care work.

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 School Schemes and Flying Start;

The Inquiry is asked to recognise the size of the challenge that LHBs and their CDS teams were set during the period 2008/10 in launching and extending the programme against extremely tight deadlines.

However, all LHB areas the D2S teams have now moved beyond the initial implementation into development and sustaining phases, and the opportunities to engage with other local and national initiatives become increasingly feasible. That said there are already good examples of integration.

In Mid and West Wales the Public Health Wales dental team took a leadership role supporting the LHBs in setting up D2S Implementation and Steering Groups in Powys, Abertawe Bro Morgannwg (ABMU) and Hywel Dda Health Boards. These groups have inclusive memberships e.g. including health visitors, healthy school coordinators, education and others. Indeed, the ABMU and Hywel Dda D2S Steering Groups are chaired by Specialist Health Promotion Officers from Public Health Wales, and therefore by default bring in the wider health promotional overview.

These Steering Groups have built into their costed programmes the allocation of funding for support of health promotion initiatives such as Healthy Schools. In Hywel Dda there are links between the local D2S team, the area`s Healthy Pre-School Coordinator and organisations such as the Network Childminders Association.

Aneurin Bevan Health Board has recently formed an ‘Oral Health Promotion Steering Group’ which is chaired by the Director of Public Health. This group provides support and guidance to the CDS in delivering oral health promotion programmes, including D2S and has representation from a wide range of stakeholders. An oral health promotion strategy/ action plan has been drawn up which emphasising the importance of working in partnerships. The vision is set to deliver oral health promotion as a part of Our Healthy Future and integrate oral health into general health and care plans in that Health Board`s area.

The Mid and West Wales approach of forming D2S Steering Groups has been highlighted as best practice through the D2S National Forum. The Chief Dental Officer has strongly encouraged other Health Board areas, where this level of integration has not developed, to work towards a similar approach. This will ensure that D2S is not delivered in isolation of other health promotion initiatives.

The Welsh Government is developing a national scheme, the All Wales Healthy & Sustainable Pre School Scheme, and a Consultant in Dental Public form Public Health Wales “represented” D2S on the working group. This Scheme presents another opportunity to strengthen D2S linkages across Wales.

Into the future the programme’s added strength must be its developing emphasis on strong partnership working with others.

Public Health Wales have adopted a pathfinder approach to the development of a “Public Health Institute”. ‘To give every child in Wales a healthy start’ was identified as a priority topic. The Public Health Wales Dental Team will be working to link the oral health of children and D2S into this work.

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

Historically, reviews of the CDS have highlighted the variable level of CDS provision across Wales, and a lack of investment in CDS infrastructure and workforce. In 2008 the Welsh Government made a commitment to develop a broadly based role for the CDS in Wales, as set out in *Ministerial Letter EH/ML/014/08: Dental Services for Vulnerable People and the Role of the Community Dental Service*. This broadly defined role will provide the flexibility the service requires to serve a country like Wales with contrasting urban and rural areas. Therefore, the CDS in Wales plays an important role in providing dental services to vulnerable children, and this will be a strength of the service as it develops into the future.

As a demonstration of this Welsh Government commitment, the CDS was given prime responsibility for delivering D2S. This has resulted in a considerable investment in terms of general resources, staff and equipment into the CDS, and most importantly has had a positive effect on morale of the service.

D2S funding has meant that the CDS across Wales has been able to recruit and develop staff so that they can deliver the programme without affecting clinical services to vulnerable groups. D2S has allowed the skilling-up of some staff and given them an opportunity to work with wider partners in oral health e.g. dental nurses for the first time will be trained to apply fluoride varnish to children`s teeth.

The CDS has also recruited support staff from their local communities, who are not dentally qualified, but are trained to deliver certain elements of the programme. The CDS has also invested in mobile dental units and other equipment which are not only useful in delivering of D2S, but also in delivering wider clinical services in D2S “downtime” i.e. school holidays.

The level of dental disease of children in Wales is high, and a high proportion of the dental decay in children remains untreated. Currently, there is no consensus among the dental professionals and academics with regard to best approach to manage dental decay in deciduous teeth (baby teeth).

A multi-centre clinical trial has started recently to find out the best method of managing dental decay in deciduous teeth- http://www.hta.ac.uk/project/1783.asp

The majority of the dental disease in co-operative children can be managed and treated by general dental practitioners. However, some children require additional management and treatment. Depending upon a child`s need this can be provided by CDS teams experienced in caring for children, by specialists/consultants in paediatric dentistry or by a general dentist with a Special interest in Paediatric Dentistry (DwSI). However, there are relatively few specialists in paediatric dentistry in any of the dental services in Wales. Most of the specialists in paediatric dentistry are located at the Cardiff Dental School/Hospital.

In the long term D2S has the potential of reducing the prevalence of dental decay in children, and as a consequence referrals to Cardiff Dental Hospital, other Hospitals, and other centres providing dental general anaesthesia should decrease. However, there will remain a need to plan and deliver comprehensive child dental services, including provision of treatment under sedation or general anaesthesia.

The Public Health Wales Consultant in Dental Public Health covering Mid and West Wales recently carried out a review of Specialist Paediatric Dental Services in the ABMU LHB area, the principles that underpin the recommendations have some application for other areas of Wales, especially those areas not covered by the Cardiff Dental Hospital. Extracts of the review most relevant to the Inquiry are set out in annex 1.

The Public Health Wales dental team is supporting the Welsh Government in a developing General Dental Services (GDS) Contract Pilots. One of the pilots developed is focused upon a preventive approach to the care of children, and includes a requirement for the pilot practices to link with their local D2S teams.

8 Conclusion

D2S, together with Welsh Government’s Dental Contract Pilots attempt to place prevention in the heart of NHS dentistry in Wales. A good start has been made a good start, but there is a long way to go.

We can deliver improved oral health for children in Wales, as the Scottish Government has achieved for children in Scotland, but we need more time to enable this.

In the absence of water fluoridation we urge the Committee to support a sustainable D2S programme. Indeed, the model being developed has the potential to embrace other vulnerable groups given appropriate resources.

Dr R Hugh Bennett, Consultant in Dental Public Health
Public Health Wales Dental Public Health Team

ANNEX 1

Extracts from a Review of Specialist Paediatric Dental Services ABMU Health Board

Author: Hugh Bennett, Consultant in Dental Public Health

Original report dated 11.05.11

Distribution: Director of Planning ABMU Health Board

The Public Health Wales Consultant in Dental Public Health covering Mid and West Wales carried out a review of Specialist Paediatric Dental Services in the ABMU LHB area, *the principles that underpin the recommendations* in that review have some application for other areas of Wales, especially those areas not covered by the Cardiff Dental Hospital. Extracts of the review most relevant to the Inquiry are set out below.

Extracted Paragraphs

6.1 Besides directly providing treatment, Specialist Paediatric

Dentists can:

- provide a consultation service for dentists in primary care
- work jointly with other dental Specialties and Maxillofacial colleagues
- offer professional leadership, promoting children's oral health and enabling the development of clinical care networks for the effective and efficient provision of care for children
- work with health care managers to develop and deliver efficient cost effective strategies for the improvement of the oral health in the child population
- offer advice and support to health professionals in other disciplines, with the aim of contributing to effective holistic care of children.

Research has demonstrated that children whose dental treatment is planned by Paediatric Dentists _are far less likely to require a repeat general anaesthetic for further dental treatment._

Managed clinical networks and Clinical care pathways

6.2 If, over time, Specialists in Paediatric Dentistry are injected into provision, and backed up by non-specialist CDS and GDS practitioners, a managed clinical network (MCN) will be required to assist delivery of high quality care to a population across a large geographical area. The All Wales National Standards for Children and Young Peoples' Specialised Healthcare Services (see page 3) views the development of MCNs as a way of ensuring that all Welsh children and young people receive equitable and high quality specialised services wherever they live in Wales.

6.6. There should be a fourth underpinning recognised i.e. the local programme of Designed to Smile, the national child oral health improvement initiative. This is rolling out across the whole area primarily targeted at the most deprived areas. Over the next 2-4 years, this will begin to reduce the prevalence of child dental decay. The knock on effect should be a reduction in the need for child dental GA services.

7.2 / **7.3** There is a need for additional Specialist Paediatric Dental Services. The whole region is losing out through the lack of such services, and the cost is both the compromise on children's health ....Based on the information provided there is a need for additional hospital based Consultant Paediatric dental services. This additional Consultant time is not required for increasing the current work linked to the core work of the Maxillofacial Unit, but rather for "stand alone" paediatric dental cases, primarily diagnostic and treatment planning, that may be referred by local dentists..................

7.5 There is an opportunity for additional Specialist Paediatric Dental Services based outside of the acute hospital environment e.g. placing some Specialist Paediatric Dental provision into the Port Talbot Resource Centre would further enrich the Specialty/service/training mix at that location.

7.6 There needs to be greater emphasis on clinical leadership in Paediatric Dentistry. Development of clinical pathways, referrals protocols and a Managed Clinical Network for Paediatric Dental Services will be required as Specialist Paediatric Dental capacity across the services is increased. The MCN would have a role to play in training and possibly, in the longer-term, accreditation of DwSI's in Paediatric Dentistry.

Extracts from the Recommendations

Recommendation 1 – It is recommended that an additional 0.6 WTE Consultant in Paediatric Dentistry input is required in ABMU. This additional Consultant time is not required for work linked closely with Celft Lip and Palate, but for "stand alone" paediatric dental cases referred by dentists from Swansea, NPT and Hywel Dda. These cases will primarily require diagnosis and treatment planning, but the appointee will need appropriate nursing and secretarial support and access to theatre time and beds.

Nb Bridgend referrals are currently directed to the Cardiff Dental Hospital.

Recommendation 3 – It is recommended that the Specialist Paediatric Dentistry capacity with primary /community services is developed.

Recommendation 3a – It is recommended that priority is given to the recruitment of a Specialist in Paediatric Dentistry into the ABMU CDS.

This would complement both the development of Special Care Dentistry in the CDS and the work of the Consultant/s in Paediatric Dentistry based at Morriston. It would also fit well with a recommendation in the earlier review of the CDS that –

- *A senior clinician should take a lead role for <u>Child Services within the CDS</u>; the CDS should retain a strong input into providing services to schoolchildren from the most deprived communities. However, the service must review its acceptance and discharge policies for children, and this should be done in liaison with LHB primary care administrators and the Local Dental Committee through the LHB Dental Advisory structures.*

Nb – It would be logical for Hywel Dda LHB to also prioritise the recruitment of a Specialist in Paediatric Dentistry into its CDS to build the capacity across the whole region creating a clinical network. This Specialist could also lead reform of the current Paediatric dental services provided by the Hywel Dda CDS, something that is urgently required.

Recommendation 4 – If the other recommendations of this review are accepted it is recommended that a MCN for Paediatric Dentistry is developed across ABMU and Hywel Dda.

A Paediatric Dentistry MCN would need to include Hospital Consultants in Paediatric Dentistry, the CDS, LDC and any other relevant stakeholders........Initially this would need to be headed up by a Consultant in Paediatric Dentistry, and be made up of a mix of Specialists and non-specialists. It would be able to take forward development of referral criteria and clinical pathways, training and also provide advice to the Health Board. It would need to interface closely with the developing services in Special Care Dentistry.

Children and Young People Committee

CYP(4)-03-11 – Paper 2

Child Health: Evidence from the Minister for Health and Social Services

Purpose

1. This paper provides background information to inform the Children and Young People's Committee's discussion with the Minister for Health and Social Services at its meeting on 29 September 2011.

2. As requested, the paper provides details on aspects of child health, including NHS service provision, the general health of children, specific children's medical conditions, and Flying Start.

Introduction

4. Many of the priorities for the Health, Social Services and Children's agenda for this Assembly were set out in *Standing up for Wales.*

5. In relation to the NHS, our manifesto commitments have a clear focus on giving children a healthy start in life. More widely, we want to ensure children receive the care they need as close to their homes as possible in an integrated, safe and sustainable health system.

6. We have made clear our commitment to improve outcomes for children. The Rights of the Children and Young Person's Measure 2011 places a clear duty on Welsh Ministers to show due regard to the United Nations Convention on the Rights of the Child. This provides for Welsh Ministers to prioritise the rights of Children and Young People and to improve outcomes across portfolios, including health and wellbeing.

7. We are doing this through our programme of health and social interventions, responding to the evidence base in the Marmot, Allen and Field Reports which clearly show that prevention and early identification and intervention, along with addressing the social determinants of health, are an essential investment in the future of each child.

8. This also includes our commitment to doubling the number of children and their families benefitting from Flying Start – including increased levels of health visiting.

8. Details on our priorities for the health of children in Wales are set out in **Annex 1**.

ANNEX 1: CHILD HEALTH

The manifesto sets out the programme for Government over the next five years and includes a range of commitments in relation to the health agenda, including the health of children, which build on, enhance and embed work already underway. We are delivering on a number of initiatives to improve child health.

(i) Expanding Flying Start

The Flying Start programme is one of the 'Five for a Fairer Future' Manifesto pledges. The programme is predicated on evidence that, for children from disadvantaged families, investing in quality interventions and experiences during their early years will have a direct impact on their health. We want to ensure that children have the best start in life and as part of this we will be doubling the number of children benefitting from improved health visiting, free nursery places and better support to families through our *Flying Star*t programme; and extending the reach of the programme and doubling the number of those gaining from *Flying Start* to 36,000, so that almost a quarter of all children in Wales aged 0-3 will be able to benefit.

(ii) Improving Protection and Child Health

It is a Welsh Government priority to forcefully take forward the public health agenda and to encourage parents to take greater responsibility for their own and their children's health.

Our Healthy Future (OHF) is the Welsh Government's Public Health Strategic Framework to 2020. Giving Children and Young People a good start in life that supports their long-term health and wellbeing is one of the OHF themes. This theme is also central to the Welsh Government's **Fairer Health Outcomes For All (FHOFA), a Reducing Inequities in Health Strategic Action Plan.** This outlines a set of practical actions which embed addressing the social determinants of health in public health work. It also links with our Child Poverty Strategy. This Strategy gives a clear account of what the Welsh Government can achieve in helping to reduce child poverty – and improve the outcomes of low income families, which will directly impact on child health.

Drawing on OHF,FHOFA and the Child Poverty Strategy, the 2011/12 Annual Quality Framework identifies protecting and improving the health of children and young people as a key action. By the end of 2011 /12, each Local Health Board (LHB) must deliver against the targets for which the organisation is responsible within its local Children and Young Persons' Plan, and especially those targets relating to child health, health inequities and child poverty. More specifically, there is to be demonstrable local progress with achieving the child poverty targets relating to infant mortality, low birth weight and teenage conceptions.

In terms of specific public health issues, we are particularly focussing on screening, immunisation, healthy eating and obesity, smoking, sexual health and wellbeing and healthy schools.

Fetal, Maternal and Child Health Screening

Antenatal screening tests are offered for: HIV, hepatitis B, syphilis, rubella susceptibility, sickle cell and thalassaemia, Down's syndrome, rhesus antibodies, and the provision of early and mid pregnancy ultrasound scans. LHBs and Public Health Wales are working to strengthen the programme and implement new tests for newborn bloodspot screening. This includes a review of Duchenne Muscular Dystrophy (DMD) testing at the behest of the Medical Director. The Newborn Hearing Screening programme was introduced in Wales in 2003. All babies are screened within 6 weeks of birth. The screening programmes form part of the suite of national population screening programmes delivered by Screening Division, Public Health Wales.

Immunisation

National uptake of all routine immunisations in one-year-old children exceeds the 95% target. Uptake for the 5 in 1 vaccine MeningitisC (MenC) and pneumococcal conjugate vaccines (PCV) continues to increase, and the level for doses in children at five years of age is now higher than it has ever been. Most recent figures show that uptake of the first dose of MMR vaccine in two year old children was 91.6%; uptake of the second (MMR) dose by five years of age remained at 87%; and uptake of MMR pre-school booster in five year old children was 90%. As at May 2011, uptake of first dose of Human Papilloma Virus (HPV) vaccine in girls in the 2010-11 School Year 8 was 86%, and uptake of the second dose was 81%.

Healthy Eating and Obesity

By raising the rates of breastfeeding in Wales, children can have a healthier start in life. The National Breastfeeding Programme aims to address the unequal incidence of breastfeeding amongst the population in Wales and to raise public awareness of the importance of breastfeeding. The programme targets support at three levels: the NHS; the community; and families. It includes the provision of a grant to the UNICEF UK Baby Friendly Initiative to provide a professional officer to support maternity, health visiting and other community services across Wales. Grants are also provided to all local health boards for local strategic co-ordination of Support Groups, Peer Supporter training and the Breastfeeding Welcome Scheme.

Healthy Start is a statutory UK wide scheme, managed by the Department of Health (DH) on behalf of the UK. The scheme provides weekly vouchers, currently worth £3.10 each, towards the cost of milk, fresh fruit, fresh vegetables and infant formula milk at participating retail outlets. Two Healthy Start branded vitamin supplements are also available through the NHS without prescription for pregnant women, new mothers and children on the scheme. Over the last 18 months the Welsh Government has funded a pilot to provide free Healthy Start vitamins to every pregnant woman and to every child aged 0-4 years in Cardiff to address health professionals' concern over the increase in the number of cases of vitamin D deficiency.

The current major public health campaign is Change4Life, a cross-Government funded campaign (£90k each from DHSSC, Heritage and BETS) to encourage people, including children, to eat more healthily and increase physical activity. This is supported by a comprehensive package of programmes including:

- An All Wales Obesity Pathway which sets out a tiered approach for the prevention and treatment of obesity, from community based prevention and early intervention to specialist medical and surgical services. LHBs, working jointly with LAs and other key stakeholders, have mapped local policies, services and activity for both children and adults against four tiers of intervention and identified gaps and will be implementing local solutions, supported by national leadership.
- MEND, a community, family based programme for overweight and obese children aged between 7-13 and their families. The multi-disciplinary programme places equal emphasis on healthy eating, physical activity and behavioural change, empowering the child, building self confidence and personal development.

Smoking

We are currently considering the responses to the consultation on the draft Tobacco Control Action Plan and will launch the revised Plan in the autumn. The draft Tobacco Control Action Plan recognises the importance of preventing young people from starting to smoke, through programmes such as ASSIST, and of protecting children from the harmful effects of second-hand smoke. We are considering what action we can take to protect children from the dangers of second-hand smoke in vehicles. On 13 July, the First Minister announced that the Welsh Government will mount a renewed media campaign to tackle smoking and exposure to second-hand smoke over the next three years and the Welsh Government will consider pursuing legislative options to ban smoking in cars where children are present, if their exposure to second-hand smoke does not start to fall within the next three years.

Sexual Health and Well-being

The Welsh Government's Sexual Health and Well-being Action Plan for Wales, 2010-2015, outlines actions to improve the sexual health and wellbeing of the population, reduce inequities in relation to sexual health, and to develop a society that supports open discussion about relationships, sex, and sexuality. It has a particular focus on preventing teenage pregnancy, with £450k being invested in a new targeted intervention for those most vulnerable to teenage pregnancy. Phase 1 will target under 17s who present to services already pregnant (particularly, offering long acting reversible contraception (LARC) pre discharge from termination services or delivery units).

Healthy schools

The Welsh Network of Healthy School Schemes is a network of local schemes which work with over 99% of maintained schools in Wales to develop a whole school approach to health, focusing on 7 health topics - food and fitness; mental and emotional health and well-being; substance use and misuse; personal development and relationships; environment, safety and hygiene. An extension of the scheme to pre-school settings is in place from September 2011.

School nursing services are an essential component of a healthy school. We are implementing the revised school nursing service outlined in ‘A School Nursing Framework for Wales’. This includes developing an outcome framework; the development of a professional network to support implementation; and facilitation of appropriate training to enhance public health skills. The most recent audit of the number of school nurses in secondary schools in Wales, in March 2011, recorded 227 school nurses in post.

(iii) Improving Health Services for Children and Young People

High quality services are essential to ensure the very best health outcomes for children and young people, and the best approach in achieving these is that of a holistic, multi-agency approach.

Setting Standards

The National Service Framework (NSF) for Children, Young People and Maternity Services in Wales was published in 2005 as a long term strategy for improving the quality of services. It places children, young people and their families at the centre of service delivery by ensuring that services are designed to meet their particular needs.

We now want to build on the NSF and to adopt a more outcome-based approach to setting out the results we want for the children and young people of Wales, including their health and well being, and identify a means by which we will measure these results to capture what we want to discover about the quality and effectiveness of NHS and local government services.

Maternity Services

Following consultation, I will be launching *A Strategic Vision for Maternity Services in Wales* on 19 September at the Midwife - Led unit in the University Hospital of Wales, Cardiff. It sets out a programme of action at both a national and local level to deliver our vision, which is that pregnancy and birth should be a safe and positive experience that enables the mother, her partner and family to begin parenting feeling confident, capable and supported in giving their child a secure start in life. An All-Wales Implementation Group will lead and oversee this process. A debate on Maternity Services will be held on Tuesday 20 September.

Neonatal Care

Following the Welsh Government's response to the previous Committee's Inquiry into Neonatal Care in Wales, LHBs, through their joint work on the Welsh Health Specialised Services Committee and the Neonatal Clinical Network, have put in place an All-Wales Action Plan to implement all the service improvements identified. This Action Plan has been informed by a review of compliance against the All Wales neonatal Standards and capacity. Individual LHBs are currently developing Action Plans to drive local activity. As part of the new 12 hour neonatal transport service which began in January, a dedicated ambulance equipped to transfer sick and premature babies began operating from July in South Wales.

An All Wales Framework for Children and Young People's Continuing Care

Assessing and providing the continuing care that disabled children need to live independent and fulfilled lives is complex and requires effective partnership working between the NHS, local government, the third sector and other agencies. The Welsh Government is developing guidance to make the needs assessment process more effective and prompt. Draft guidance is expected to issue for formal consultation this autumn.

An All Wales Children and Young People's Continence Guidance and Care Pathway

All Wales work has been undertaken to develop a more consistent approach to the supply of continence products for children and young people. That work is nearing completion and guidance is expected to issue this autumn.

Child and Adolescent Mental Health Services (CAMHS)

Improving Child and Adolescent Mental Health Services (CAMHS) in Wales remains a high priority, with the need to develop consistent services which are accessible to all young people. Within the last year, a national action plan to improve children's mental health services has been launched. We will continue to strengthen the range of CAMHS, including access to specialist services for both older adolescents and young people.

We have made available additional funding of £6.5 million over three years to improve CAMHS services. An independent report, *Fairer Care Funding*, published by the Commission on Funding of Care and Support on 4 July, shows that mental health services for children and adolescents in Wales have expanded and changed for the better with faster access to treatment and an increase in specialist staff.

Targets in the Annual Quality Framework for the NHS in Wales for 2010/11 contains specific targets to improve access to child and adolescent mental health services across the age range, including 16 and 17 year olds. LHBs have already developed plans to ensure this target is met by March 2012.

Bereavement Support

As part of the central palliative care funding being made available by Welsh Government in 2011-12, £210,072 is being provided to Cruse Cymru to develop and run comprehensive support to children in Wales who are bereaved through any cause and who require additional support. Cruse is expected to work with other services for bereaved children to ensure the appropriate level of support is available consistently and equitably across Wales.

Safeguarding Children

The NHS has an obligation to work with other statutory agencies to promote the safeguarding of children in its recruitment, employment and development of staff, in organisational structures and systems as well as in direct diagnostic and supportive services in the prevention, identification and management of child abuse. The Welsh Government is currently considering and responding to the Mansel Aylward report, exploring the role and interfaces of LHBs and Public Health Wales Safeguarding children service in the light of the National Safeguarding Forum report and possible changes to Local Safeguarding Children Board (LSCB) footprints.

(iv) Care for Children and Young People affected by illness, disability, long term conditions or who have suffered physical or emotional abuse

Child Poverty

Earlier this year, we published our Child Poverty Strategy. This Strategy gives a clear account of what the Welsh Government can achieve in helping to reduce child poverty - and improve the outcomes of low income families, which will directly impact on child health. Families First is a key response to the Welsh Government's Child Poverty Strategy. It is an innovation programme that promotes the development, by LA areas, of effective multi-agency systems and support, with a clear emphasis on prevention and early intervention for families, particularly those living in poverty.

CAFCASS Cymru

We are making progress with the review of child contact services currently available across Wales. This will be completed by December 2011. CAFCASS Cymru is also working closely with policy colleagues to consider how consistent, appropriate support can be provided to improve services to families experiencing difficulties with contact with their children following separation.

Integrated Family Support Services (IFSS)

The Welsh Government, through the Children and Families (Wales) Measure 2010, has brought forward regulations to strengthen support to vulnerable children and families through the introduction of Integrated Family Support Services (IFSS) in Wales. This service aims to support families to stay together by empowering them to take positive steps to improve their lives and is focussing initially on families where parental substance misuse coexists with concerns about the welfare of the child. The aim is to extend this service to other families with complex needs resulting from parental mental health problems or mental illness, learning disabilities and domestic violence.

The progressive phased implementation of IFSS across Wales is a key priority for the Welsh Government, building upon the clear commitment in *Sustainable Social Services for Wales: A Framework for Action*, for greater collaboration and integration of services.

Autistic Spectrum Disorder

It is just over three years since the Welsh Assembly Government launched the Autistic Spectrum Disorder (ASD) Strategic Action Plan for Wales, which was the first of its kind in the UK, if not the world. Since that time we have achieved a great deal.

£2 million has been made available to develop and implement actions within the ASD Strategic Action Plan for Wales, including the development of diagnostic services for children and adults and counselling services for adults; the maintenance of the existing local infrastructure including the ASD local leads; the establishment of an ASD Learning and Improvement Network; the development of an e-resource for frontline staff; the development of regional projects for children with ASD and their families; the development of regional projects for adults with Asperger Syndrome; and the appointment of a Wales Autism Employment Ambassador, on a part-time basis, and awareness raising training for Employment Services. Since 2007, £1.7m per annum has been passed to LAs via the Revenue Support grant for children with ASD.

Wheelchair Services Investment

Following the Wheelchair Review, an additional £2.2m per annum is being invested to reduce waiting times for wheelchair services, particularly for children and young people. The funding has now been allocated and is primarily being used to double the number of clinical staff across Wales. This will ensure that individuals' needs are assessed more quickly and enable them to have the most appropriate wheelchair to suit their need. The funding is also supporting more training for health professionals, patients and their carers. We are also working with the British Red Cross to ensure a better service to those needing to borrow a wheelchair for short periods.

Service improvement work led by the National Leadership and Innovation Agency in Healthcare (NLIAH) has already introduced changes, in particular to waiting times management, improving referral processes, thereby reducing the waiting times. Clarity on referral criteria, together with improved communication, ensures clients and carers are kept better informed of the delivery time of their wheelchair.

Sexual Assault Referral Centres (SARCs)

SARCs offer victims of sexual crime an integrated service where they can receive medical care, psychological counselling, legal advice and other support, all in one place from professionally trained staff. There are six SARCs in Wales, located in Carmarthen, Colwyn Bay, Risca, Cardiff, Swansea and Merthyr Tydfil. To support SARCs work with both adults and children, the Welsh Government has provided £192,000 over two years (2010/11 and 20112/12) to ensure the provision of local SARC services.

(iv) Other Initiatives

Parental Consent for Cosmetic Piercing

Cosmetic piercing has become increasingly popular in recent years, however complications are common. We have committed to consult on whether legislation should be introduced which would require the involvement and consent of parents for cosmetic piercing procedures on a young person below a certain age. The outcome of the consultation will inform whether a Cosmetic Piercing Bill is introduced during the 2013/14 session.

Children and Young People Committee

CYP(4)-03-11 – Paper 3

Inquiry into Children's Oral Health in Wales: Evidence from the British Society of Paediatric Dentistry

Who are we and what do we do?

The British Society of Paediatric Dentistry (BSPD) was first established in 1962 and places the oral health and well being of children at the centre of all its endeavours [1]. The membership, currently around 600, is drawn from a wide range of dental professionals who are committed to providing a high quality service for children in primary and secondary care settings. About one third of the membership is registered as specialists in paediatric dentistry with the General Dental Council and there are approximately 60 consultants who work predominantly in hospital services. The core business of the Society includes:

- Prevention of dental disease and oral disability, provision of specialist treatment for children from birth to 16 years, and ensuring appropriate transition to adult services for those with special needs
- Developing a high quality and evidence-based service through audit, service evaluation and production of clinical guidelines and policies [2]
- Safeguarding children and promoting children's rights
- Education and training of undergraduate and postgraduate dental students, professionals complimentary to dentistry, specialists and consultants
- Fostering relationships with other health care providers and agencies with the purpose of working together for better health for children
- Working with commissioners to provide a cost-effective service and engaging in local and national strategies to improve children's oral health care services
- Undertaking world class oral-health related research. Several members of the Society are currently conducting two multi-million pound randomised controlled trials, funded by the NIHR Health Technology Assessment Programme, to look at the effectiveness of restoring carious primary teeth and also the effectiveness of fissure sealants and fluoride varnish in preventing dental decay [3,4]

Summary of main points:

- The oral health of Welsh 5 year old children is the worst in the UK
- Dental caries starts in the pre-school period and preventive programmes should, therefore, target this age-group
- Access to specialist services in Paediatric Dentistry in Wales is geographically inequitable

Factual information of which we would wish the Committee to be aware:

Children's oral health needs: the scale of the problem

Dental decay remains the most common disease of childhood. Starting in the pre-school period, it has the potential for long-term functional, psychosocial and economic impacts. As with many other conditions, it predominantly affects children from the most vulnerable and deprived sectors of society.

The 2003 Child Dental Health Survey found that 43% of British 5-year-olds had some caries experience, which fell way below national targets for reductions in caries prevalence [5]. Furthermore, only 12% of 5-year-olds had any evidence of restorative care, which highlighted an ongoing decline in care indices seen in previous surveys.

In 2007/8, five out of ten (52.4%) five-year-olds in Wales were found to have no visually obvious experience of dental decay [$d_3$mft=0]. That is, they had no decayed, missing due to decay or filled teeth identifiable by eye and without radiographs. The remaining 47.6% of children who were affected by decay [$d_3$mft>0] had an average of 4 teeth either filled, extracted or with obvious decay. Levels of decay varied by unitary authority; more children in deprived areas experienced decay than those in more affluent areas. For example, while the prevalence of dental decay [d_3t>0] for Wales as a whole was 43%, it varied across unitary authority areas from 28% in the Vale of Glamorgan to 63% in Blaenau Gwent. The average number of decayed, missing or filled teeth [$d_3$mft] in Wales was 1.98; the highest average $d_3$mft being seen in Blaenau Gwent (3.25) and the lowest average $d_3$mft in the Vale of Glamorgan (0.92). As in the UK as a whole, decayed teeth made up the largest component of the $d_3$mft value. On average, five-year-old children in Wales had 1.4 decayed teeth [d_3t]. The highest average number of decayed teeth was seen in Blaenau Gwent (2.24), almost four times as high as that in the Vale of Glamorgan (0.57), the unitary authority with the lowest average number of decayed teeth. [6]

In England in the same period, more children (69.1%) were free from obvious dental decay. At PCT level there were wide variations, ranging from the East Riding of Yorkshire where only 17.7% had experience of dental decay to Middlesbrough PCT where the figure was 53.4%. These decay rates are still significantly better than those seen in Welsh children. [7]

The management of dental caries and its sequelae (pain and infection) is the most common reason for children to undergo a general anaesthetic (GA). In the UK as a whole, thousands of dental GAs are performed each year, placing a huge burden on health resources. The number of hospital admissions for dental caries extractions in children increased by 66% between 1997 and 2006. These statistics assume greater significance when one considers that caries is a preventable disease, or is readily treatable with early diagnosis and good behaviour management.

Dental decay is not the only dental condition that has the potential to impact negatively on children's quality of life and perceived well-being. Dental and facial injury, disturbances of tooth formation (structure, position and number), periodontal disease and oral manifestations of underlying systemic disease are just some of the other conditions that are commonly seen. Regrettably, a number of publications suggest that management of some of these conditions may be unsatisfactory within general dental practice.

The Society's recommendations for achieving high quality and equitable dental care for children in Wales

The Society believes that appropriate, holistic, and patient-centred dental care should be available to all children. Prevention and access must be paramount in any strategy to improve oral health and well being. In order for these goals to be realised, we would wish to see:

- Emphasis on prevention at both individual and population levels through the use of community and school-based programmes which target ALL children , including pre-school and vulnerable populations
- Strengthened salaried services delivered by specialist led teams of appropriately skilled dentists, therapists and dental nurses
- Better access to emergency dental care to avoid acute hospital admissions, thereby reducing pain and suffering for children
- Geographically equitable access to specialist level care for children with complex behavioural, medical or dental needs (these are currently only available in South East Wales)

Regrettably, the oral health needs of children living in Wales are not being met through current policy and available resources. The Society wishes to work at the highest strategic levels to deliver evidence-based and equitable dental services for all children.

The *Designed to Smile* programme in Wales would appear to fulfil the first of our recommendations, although it is too soon for its impact to be confirmed. We would wish the Committee to note that a similar programme in Scotland (C*hildsmile)* has been shown to be beneficial. We would, therefore, wish to see the programme continued and, indeed, extended.

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On behalf of The British Society of Paediatric Dentistry

Children and Young People Committee
CYP(4)-03-11 Paper 4

22 September 2011

Iechyd Cyhoeddus Cymru
Public Health Wales

NHS Dental Surveys in Wales co-ordinated by The British Association for the Study of Community Dentistry
Team
Authors: Nigel Monaghan, Public Health Wales; Maria Morgan, Welsh Oral Health Information Unit
Date: 15 September 2011 — **Version:** 1
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Review Date: Not applicable
Purpose and Summary of Document: This is a briefing paper for the National Assembly for Wales Children and Young People Committee Inquiry into Children's Oral Health on the BACSD surveys in Wales. It describes the context, processes and challenges associated with these surveys of relevance to the Designed to Smile programme and outlines current thoughts on future surveys.
Work Plan reference: Insert reference from relevant national or local work plan

1 The need for dental survey data

Unlike medicine, there is no data on the health of the population generated from the interactions between patient and general dental practitioner. Thus for monitoring of dental health and planning of dental services we are dependent upon specially conducted surveys. These surveys include the decennial Adult and Child Dental Health Surveys, funded by the UK Governments and undertaken by the ONS in conjunction with a number of Universities using local NHS community dental staff to undertake some of the field data collection and the BASCD surveys. Child Dental Health Surveys have been undertaken in 1973, 1983, 1993 and 2003. The position for 2013 is unclear. Adult Dental Health Surveys were undertaken in 1968, 1978, 1988, 1998 and 2009. In addition as a one-off the ONS undertook a National Diet and Nutrition Survey of a range of age groups in the 1990's which included collection of some dental health data.

The BASCD surveys are undertaken for the UK governments by local NHS staff in a programme co-ordinated across the UK by the British Association for the Study of Community Dentistry. They commenced in 1985/6 across Wales and England (Dowell 1988). The use of BASCD standards and co-ordination is intended to provide consistency and quality assurance to ensure data is comparable from year to year and across locations. While the ONS surveys examine a relatively small number of individuals, once a decade and go into detail on oral health, factors which influence dental health and use of dental services (e.g. reporting at all-Wales level), the BASCD surveys generally examine larger numbers of children, more frequently for a narrow range of oral health indicators. Thus the BASCD surveys provide more local detail at Unitary Authority level for key information such as reported decay levels.

2 The survey programme

Until 2006 the BASCD survey programme consisted of a 4 year cycle in which children aged 5, 12, 5 and 14 years of age were examined (technically in Wales we have examined a school year, e.g. school year 1 for 5 year old data so some children will be age 6 by the date of examination, but the mean age of children examined is about 5 ½ years). Problems with access to 14 year olds in many parts of the UK led to decisions to change the programme from 2006. In Scotland the cycle is now 5, 12, 5, 12 year olds examined. In Wales we seek to examine 5 and 12 year olds at least once in each 4 year cycle with 2 flexible years in the programme. This would allow us to either see 5, or 12 year olds again, examine other child age groups or to examine the oral health of adults.

In 2006/7 with the support of the Office of the Chief Dental Officer we undertook a survey of oral health policy and access to dentistry for registered care homes in Wales which highlighted a number of issues. This was followed up with a survey of the oral health of care home residents from 2009/2010 which is intended to complement the recent Adult Dental Health Survey. This care home data is about to be cleaned and analysed and will be reported on in 2012.

3 Changes to consent arrangements

In 2006, shortly after the decision to undertake a more flexible survey programme was made, the traditional “opt-out” approach to consent for these surveys (which relied upon the wording of the 1944 Education Act and then the 1996 Education Reform Act in relation to a “dental inspection” in a school setting) was reviewed by Department of Health lawyers in England and then Assembly legal advisors in Wales. Guidance was issued to NHS Wales that in future such examinations of teeth required either “Gillick competent” consent of the 12 year old child or positive consent of the parent for 5 year olds.

As it happened the Education Act legislation and consent law for children generally had been reviewed in the mid to late 1990’s and this possible interpretation of the Education Acts had been forseen. As a result in Wales the approach of using “Gillick competent” consent for 14 year olds and then for 12 year olds had been piloted in 2002/3 and 2004/5 respectively. Analysis of the findings in Wales suggested that introduction of “Gillick competent” consent would have negligible impact on the reported caries indices (Morgan and Monaghan 2010).

For 5 year olds the changed approach to inclusion of children has had an impact upon the reported caries indices. Until 2005/6 we had data collected every 2 years with data collected to a consistent approach showing a trend in Wales which suggested mean caries in Welsh 5 year olds was flat lining after a previous period of reductions. In 2007/8 the introduction of changed consent method appears to have resulted in a small drop in participation in the surveys for children without caries, but with a huge drop in participation in the surveys for children with caries (Monaghan, Jones, Morgan 2011). These changes are present across the quintiles of deprivation. These changes were also seen in England where changed consent arrangements were also required (). Taken on face value the reported “improvement” in decay levels in England and Wales from 2005/6 to 2007/8 exceeded anything which could be expected from a large scale decay prevention programme and no such programmes were in place. Scotland did show smaller improvement in decay levels in those years and they had already implemented for a few years pilot child toothbrushing schemes in the East of Scotland.

4 Caries trends in Wales

Data on trends in caries data for 5, 12 and 14 year old BASCD co-ordinated surveys are presented in Tables 1 to 3. There has been a steady trend of reduced prevalence of decay in the permanent teeth (noted by dentists as Decayed, Missing or Filled Teeth – DMFT) among 14- and 12-year-olds and a steady reduction of the average number of teeth affected by decay (see tables 1 and 2) in these age groups.

Table 1 Trends in 14 year old caries in Wales 1986 Until 2003

	Mean Decayed Missing Filled Teeth	Caries free
1986/7	4.03	16%
1990/1	2.77	28%
1994/5	2.27	36%
1998/9	2.25	37%
2002/3	2.10	40%

[Sources: BASCD and Welsh Oral Health Information Unit]

Table 2 Trends in 12 year old caries in Wales 1988 Until 2009

	Mean Decayed Missing Filled Teeth	Caries free
1988/9	1.90	37%
1992/3	1.51	45%
1996/7	1.49	45%
2000/1	1.31	49%
2004/5	1.09	55%
2008/9	0.98	58%

[Sources: BASCD and Welsh Oral Health Information Unit]

The steady improvement of decay in teeth of older children contrasts with the relatively steady state of the proportion of 5-year-old children affected by decay of deciduous teeth (decayed, missing and filled teeth – dmft) and of the mean number of teeth so affected per child as shown in Table 3.

Table 3 Trends in 5 year old caries in Wales 1985 until 2008

	Mean decayed missing filled teeth	Caries free
1985/6	2.52	43%
1987/8	2.27	46%
1989/90	2.65	43%
1991/2	2.74	41%
1993/4	2.52	46%
1995/6	2.36	47%
1997/8	2.50	43%
1999/2000	2.18	48%
2001/2	2.26	47%
2003/4	2.42	46%
2005/6	2.38	47%
2007/8	1.98*	52%*

*(*New consent arrangements in 2007/8 – data not comparable)*

[Sources: BASCD and Welsh Oral Health Information Unit]

The sudden reported change in the prevalence and severity of decay in table 3 is related to changes in the consent arrangements and is in excess of anything expected over a 2 year time scale which could be expected from any new preventive programme. It also predates the main roll-out of the Designed to Smile programme. The change was seen across all quintiles of deprivation which would not be expected if it was due to Designed to Smile which is targeted to deprived communities.

The changed consent arrangements represent a loss of trend data for Designed to Smile and complicate target setting and evaluation. It is thought to be unlikely that the consent changes will be reversed. Thus to complement the 2007/8 data we are collecting data of 5 year olds again in 2011/2012. This will give us a second data point and therefore a feel as to the direction of travel.

5 Data collection and future surveys

Data is collected by community dental staff during the school year. At any one time there are three surveys creating work including planning for next year’s survey, collection of data for this year’s survey and data cleaning, analysis and reporting of last year’s survey. Thus the 2011/2012 survey will be reported upon in the first half of 2013. The forward programme for the BASCD survey programme is co-ordinated across the UK such that training and calibration can support the survey needs in each UK country and generate data contemporaneously.

Table 4 Draft survey programme as of September 2011

Year	Group	Possible surveys
2011/2012	5 year olds	
2012/2013	12 year olds	
2013/2014	Flexible	5-yr-olds for 3rd +ve consent survey?
2014/2015	Flexible	Older people survey? or prison survey?
2015/2016	5 Year olds	
2016/2017	12 year olds	
2017/2018	Flexible	
2018/2019	Flexible	
2019/2020	5 year olds	
2020/2021	12 year olds	

Within Wales, alongside providing routine data to support planning and evaluation of dental health and care we seek to take advantage of opportunities presented by ONS led surveys to explore areas of need yet unexplored and to provide the data which Designed to Smile is intended to impact upon. Looking forward the draft programme for data collection is outlined in Table 4. Current plans are to use a flexible survey year to collect 5-year-old data to assist in evaluating Designed to Smile. This will limit the ability to use these years to examine other areas of dental need in Wales.

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Summary of:
Do parents of children with caries choose to opt out of positive consent dental surveys in Wales?

N. P. Monaghan,[1] S. J. Jones[2] and M. Z. Morgan[3]

VERIFIABLE CPD PAPER

FULL PAPER DETAILS

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Background Recently, positive consent has been required for dental surveys in some parts of the UK. Concerns have been raised that when positive consent is used participation is reduced in deprived areas and reported caries levels are biased as a consequence. This paper analyses caries data collected under positive and negative consent arrangements to explore this issue further. **Method** Retrospective analysis of response rates by deprivation fifth and by caries experience of participating children in NHS coordinated dental surveys in Wales undertaken from 2001/2 until 2005/6 using negative consent and in 2007/8 using positive consent. **Results** Across Wales, the change from negative to positive consent was associated with greatly decreased participation. In comparison with previous surveys there was a large increase in children sampled but not examined. The decrease in the proportion of children sampled, who were examined and found to have no decay was similar across all deprivation fifths, with no obvious deprivation-related trend. There was a much larger reduction in the number of children with decay who participated across all quintiles of deprivation. **Conclusion** Caries status could be a more important factor than deprivation regarding opting out of the survey. It appears that children with caries are more likely to be opted out of the survey than similarly deprived peers without caries. Parents appear to be more likely to opt children with caries out of dental surveys when positive consent is used. These findings have significant implications for targets aimed at improving oral health which were set before the change in consent procedures, but reported upon after.

EDITOR'S SUMMARY

In an age when so many people are anxious, some to the point of paranoia, about privacy, identity theft and the giving of fully formed consent it is hardly surprising that the matter of opting out of school dental inspections has come under scrutiny. It does remind me of my own first such inspection as a primary schoolboy when a fellow pupil standing next to me in the line asked if I thought my Mother knew about this? Frankly it hadn't occurred to me at that point why she might even be interested, let alone any more concerned than with other activities at school. Perhaps I was always destined to become a dentist.

Whether or not parents are concerned, the law in most of the UK is now that positive (that is opt-in) consent is required before dental inspections can be undertaken. The consequence, as this paper outlines, is that as far as the oral health of individuals is concerned, as well as the accuracy of data collection, it is something of a loss. For the children with caries for whom consent is not given and whose parents are probably aware of this but inactive on seeking care for whatever reason, there is the missed opportunity to have a way found for them into dental care. For the epidemiology, the inevitably skewed data means lesser accuracy with a consequent greater variance in the ability to plan services successfully.

The authors are very accommodating in the recommendations they make by suggesting tagging of data and statistical manipulation and that the reasons for non-participation of non-responders be further researched. Surely a more robust approach would be to seek political backing to change the law, albeit accompanied by an educational campaign to explain why modification of this particular 'right' might be in the interests of us all but especially the oral health of young children. Society confers certain rights and insists on certain safeguards but each has to balanced by the greater good. Maybe this has slipped too far in one direction.

The full paper can be accessed from the *BDJ* website (www.bdj.co.uk), under 'Research' in the table of contents for Volume 210 issue 2.

Stephen Hancocks
Editor-in-Chief

DOI: 10.1038/sj.bdj.2011.27

IN BRIEF

- Consent changes have reduced participation in school-based dental surveys.
- The reduction in participation is not fully understood but may be associated with presence of decay.
- Until reduced participation is understood, data collected using different consent methods should not be compared.

COMMENTARY

One of the cornerstones of dental public health in the UK is the rich child dental health data set provided by the regular delivery of standardised cross-sectional dental epidemiological surveys delivered under the auspices of BASCD. Using these data, we have, for many years, been able to describe, with some confidence, the changes that have taken place in the dental health of age-specific year groups of children over time and this information has proved both a simple and powerful device for dental planners when communicating with key decision makers in the NHS and elsewhere. Unfortunately in 2006 things changed. The way that study participants were recruited into the BASCD dental surveys moved from negative to positive consent and this raised two separate issues. Firstly, a 'fault line' has appeared in the child dental health data stream. Data collected prior to the change can no longer be directly compared with those collected after it. Secondly, little is known about the impact this change in recruitment protocol has had on the type of individual prepared to participate in such surveys.

The study considers this latter problem. It examines dental epidemiological data, as it applies to five-year-olds, collected prior to and after the change in consent arrangements. In particular, it reports levels of participation in the dental surveys and the proportion of participating children with no caries experience. The authors note that following the consent changes, there was a reduced level of child participation and proportionally, children with no decay were more likely to be entered into studies by their parents than their peers with decay experience, in all quintiles of deprivation.

The authors speculate that the key driver for these findings may be active opt-out by parents based on embarrassment associated with their child having decay, although no supporting research evidence was provided and more research is called for.

This study provides a timely reminder of the dangers attendant on the careless comparisons of dental epidemiological data sets, particularly when different methodologies are used to collect those data. The authors underline the need for those using such data to have a clear understanding of the type of consent used and the reported participation rates.

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AUTHOR QUESTIONS AND ANSWERS

1. Why did you undertake this research?

When positive consent had been used in the UK previous to 2006 in response to local problems, reported caries levels fell for the period over which positive consent was used, particularly in deprived areas. It had been suggested that positive consent resulted in a lower response rate in deprived areas. As caries is commoner in deprived areas an alternative hypothesis is that response rate could be linked to caries status.

If deprivation did explain participation then the reduction in participation within a deprivation quintile should be similar for children with and without caries. Such a simple relationship would allow data to be reweighted for non-participation.

2. What would you like to do next in this area to follow on from this work?

This paper has suggested that non-participation (when compared with previous surveys) may be related to caries status more than to deprivation.

While comparisons of data collected in Wales before and after 2006 are not appropriate, there is a continuing need to monitor oral health. The NHS epidemiology programme will have to continue with the new consent arrangements. Caries trends will be assessed using 2007/8 as a new baseline. Qualitative research engaging parents who have not provided consent could explore whether awareness of caries status does influence parental response to the letter inviting participation in the survey. Consideration will also be given to asking parents to provide information on their child's caries status if they decline participation of their child.

Do parents of children with caries choose to opt out of positive consent dental surveys in Wales?

N. P. Monaghan,[1] S. J. Jones[2] and M. Z. Morgan[3]

VERIFIABLE CPD PAPER

IN BRIEF

- Consent changes have reduced participation in school-based dental surveys.
- The reduction in participation is not fully understood but may be associated with presence of decay.
- Until reduced participation is understood, data collected using different consent methods should not be compared.

Background Recently, positive consent has been required for dental surveys in some parts of the UK. Concerns have been raised that when positive consent is used participation is reduced in deprived areas and reported caries levels are biased as a consequence. This paper analyses caries data collected under positive and negative consent arrangements to explore this issue further. **Method** Retrospective analysis of response rates by deprivation fifth and by caries experience of participating children in NHS coordinated dental surveys in Wales undertaken from 2001/2 until 2005/6 using negative consent and in 2007/8 using positive consent. **Results** Across Wales, the change from negative to positive consent was associated with greatly decreased participation. In comparison with previous surveys there was a large increase in children sampled but not examined. The decrease in the proportion of children sampled, who were examined and found to have no decay was similar across all deprivation fifths, with no obvious deprivation-related trend. There was a much larger reduction in the number of children with decay who participated across all quintiles of deprivation. **Conclusion** Caries status could be a more important factor than deprivation regarding opting out of the survey. It appears that children with caries are more likely to be opted out of the survey than similarly deprived peers without caries. Parents appear to be more likely to opt children with caries out of dental surveys when positive consent is used. These findings have significant implications for targets aimed at improving oral health which were set before the change in consent procedures, but reported upon after.

BACKGROUND

Since 2006, in England,[1] Wales[2] and Northern Ireland,[3] it has been deemed inappropriate for five-year-old children to undergo school-based dental examinations without positive written parental consent. Before 2006, standard practice was to send a letter home to parents stating that the child would be examined unless the parents refused. This practice was underpinned by laws stating that children should be encouraged to have dental and medical examinations in school settings provided parents had not refused. This process was commonly referred to as 'negative consent'.

Concerns exist that dental data collected using positive consent may be biased.[4,5] This has implications for monitoring trends in oral health over time across the United Kingdom. In Scotland, in 2000/1 questions were raised by Local Authority staff about data sharing necessary to draw samples for the survey programme. This resulted in the data in some areas of Scotland being collected using negative consent, but data in other areas being collected using positive consent. Scotland did not publish results for surveys of children aged 12 and five for the years 2000/1 and 2001/2 respectively.[6,7] It was anecdotally reported by those close to the Scottish programme that parents in more deprived households were less likely to respond to letters sent home from school. It was suggested that this created substantial differences in participation according to the consent method used. For a negative consent letter, children in deprived areas would be less likely to be 'opted out', but for a positive consent survey they are less likely to be 'opted in'. Decay levels are known to be higher in deprived communities in the UK[8] so if deprived children are 'opted out' of the survey reported decay levels would be expected to fall, particularly in deprived communities, which they did. The differential response rate in 2000/1 was sufficient to make oral health comparisons between Scottish Health Boards using different forms of consent meaningless.

Similar issues have been highlighted in England. Anderson noted a drop in participation to 78% from an estimated 90% in participation when required to use positive consent in 1993.[5] Positive consent used for local surveys in the West Midlands resulted in participation levels as low as 49%.[4] Unquantified reductions in participation using positive consent were found in the Bradford area in 2005/6.[9]

In postal surveys the use of positive consent is more likely to lead to non-response bias and affect reported numbers of decayed, missing and filled teeth.[10] This study aims to explore whether the changed

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Table 1 Proportion of sampled children examined in surveys in Swansea and Neath Port Talbot, 2001-2008, by Townsend fifth of deprivation

	2001/2		2003/4		2005/6		2007/8		
Fifth	Sampled	% seen	Sampled	% seen	Sampled	% seen	Sampled	% seen	Difference in proportions: 2007/8 versus 2005/6
Least deprived	205	87.3%	252	87.7%	144	87.5%	204	60.3%	-27.2% (-18.1% to -35.4%)
Second least deprived	246	91.1%	145	89.7%	157	89.8%	184	60.3%	-29.5% (-20.6% to -37.6%)
Middle deprived	331	88.2%	384	90.6%	397	86.9%	342	54.4%	-32.5% (-26.2% to -38.6%)
Second most deprived	365	89.3%	461	91.8%	400	89.0%	408	55.4%	-33.6% (-27.7% to -39.2%)
Most deprived	546	88.5%	524	86.8%	533	79.5%	486	46.3%	-33.3% (-27.5% to -38.7%)
Total sampled (all fifths)	1693		1766		1631		1624		Average sampled: 1678.5
Chi-squared test for trend	0.008		0.154		**11.097**		**14.533**		
p-value	0.93		0.695		**0.001**		**<0.001**		

Significant values shown in bold (χ^2 test)

consent arrangements in Wales had a similar effect on participation in the clinical examination school dental survey of 2007/8. Given previous reports of reduced participation and reduced decay scores when positive consent was used for clinical dental surveys, this study also starts to further explore the relationship between consent-associated changes in response rates, deprivation and decay experience.

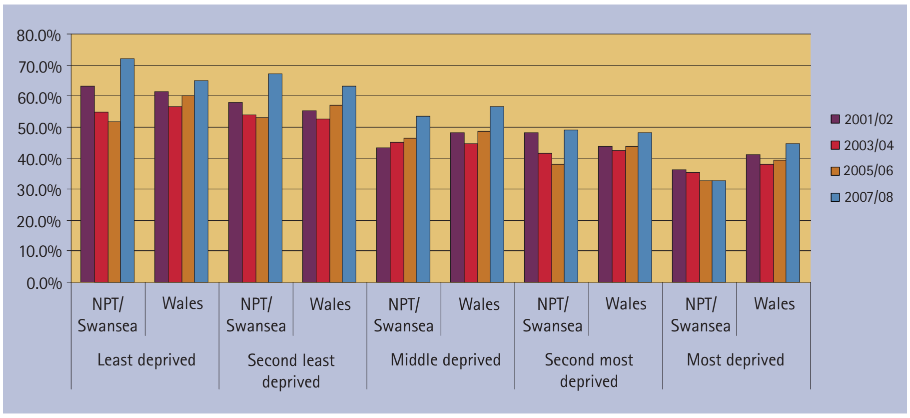

Fig. 1 Proportion of examined five-year-old children caries-free by deprivation, for Swansea and Neath Port Talbot and Wales, across four surveys

METHOD

Sampling was undertaken in line with the British Association for the Study of Community Dentistry (BASCD) epidemiology sampling guidance.[11] Examiners reported on visual signs of caries (d_3mft) in the deciduous dentition in line with BASCD standards.[12] These data have been collected on a biannual basis in Wales since 1985/6.[13] The change in consent arrangements occurred in 2006, before planning for the 2007/8 survey. However, the approach to sampling and the survey itself was the same in 2007/8 as in the previous survey in 2005/6. In Wales data collection for the NHS surveys is completed by the end of April each year. The legal advice to use positive consent only for these surveys was issued in Wales after April 2006, and had no impact on data collection in 2005/6.

The sampling frame is designed to sample approximately 250 children from the smallest Unitary Authority (UA) in Wales, Merthyr Tydfil, which has a population of 58,000. Similar proportions are then drawn from all other UAs in Wales. Schools are stratified into small and large based on the numbers on roll and schools from each stratum are randomly selected to generate the required sample size in line with the BASCD criteria.[14]

Data were analysed for Swansea and Neath Port Talbot combined and for all Wales for 2001/2, 2003/4, 2005/6 and 2007/8. Swansea and Neath Port Talbot data were analysed because detailed data on the sampling frame, participation and, most importantly, consent were available at the school level. Such detailed information was not available for the rest of Wales. Comparison of caries for Swansea and Neath Port Talbot and all Wales was used as an indicator of whether consent-related issues were similar across the whole country.

School postcode was used to assign each child to a deprivation fifth. Presence or absence of caries and severity of caries was calculated for each fifth for each time period for Swansea/Neath Port Talbot and for all Wales. Schools were assigned to fifths of deprivation based on the Townsend index of deprivation for Wales[15] for the electoral division in which the school was located.

For each time period, deprivation fifth and for each geographical level, the proportion of children with no caries was calculated, along with the trend in the proportion with no caries by fifth of deprivation (χ^2 test for trend). Differences in proportions and 95% confidence intervals were calculated between 2005/6 and 2007/8.

RESULTS

As Table 1 demonstrates in Swansea and Neath Port Talbot, an average of 1678.5 children were sampled to participate in each survey. Participation dropped significantly across all fifths of deprivation in these areas between 2005/6 and 2007/8. The drop increased with increasing deprivation, from 27.2% (95% CI 18.1% to 35.4%) among the least deprived, to 33.3% (95% CI 27.5% to 38.7%) among the most

Table 2 Numbers sampled, examined and with no $d_3$mft, by deprivation fifth in Swansea and Neath Port Talbot

	2001/2		2003/4		2005/6		2007/8		Difference in proportions
	n	% of sampled	n	% of sampled	n	% of sampled	n	% of sampled	2007/8 versus 2005/6
Total sampled	1693		1766		1631		1624		
Not examined	197	11.6%	201	11.4%	259	15.9%	741	45.6%	**29.8% (26.7% to 32.7%)**
		% with no $d_3$mft		% with no $d_3$mft		% with no $d_3$mft		% with no $d_3$mft	2007/8 versus 2005/6
Total examined	1496	47.5%	1565	43.5%	1372	41.3%	883	51.4%	**10.2% (6.0% to 14.3%)**
Least deprived	219	63.0%	221	54.8%	126	51.6%	136	72.1%	**20.5% (8.7% to 31.5%)**
Second least deprived	227	57.7%	130	53.8%	141	53.2%	101	67.3%	**14.1% (1.6% to 25.9%)**
Middle deprived	270	43.3%	334	45.2%	321	46.4%	195	53.3%	6.9% (-2.0% to 15.6%)
Second most deprived	354	48.3%	449	41.4%	385	37.9%	222	49.1%	**11.2% (3.0% to 19.2%)**
Most deprived	426	36.2%	431	35.5%	399	32.8%	229	32.8%	0.0% (-7.5% to 7.6%)
Chi-squared test for trend	**46.3**		**28.7**		**28.7**		**63.3**		
p-value	<0.001		<0.001		<0.001		<0.001		

Significant values shown in bold (χ^2 test)

Table 3 Numbers sampled, examined and with no $d_3$mft, by deprivation fifth in Wales

Wales	2001/2		2003/4		2005/6		2007/8		Difference in proportions
Fifth	n	% with no $d_3$mft	n	% with no $d_3$mft	n	% with no $d_3$mft	n	% with no $d_3$mft	2007/8 versus 2005/6
Total examined	10836	48.8%	11147	46.5%	10496	48.9%	7,071	55.9%	**7.0% (5.5% to 8.5%)**
Least deprived	1868	61.6%	2281	56.7%	1770	60.2%	1473	64.8%	**4.6% (1.3% to 7.9%)**
Second least deprived	1782	55.3%	1785	52.6%	1842	56.9%	1378	63.4%	**6.4% (3.0% to 9.8%)**
Middle deprived	2002	48.1%	2281	44.7%	2240	48.6%	1539	56.5%	**7.9% (4.6% to 11.6%)**
Second most deprived	2374	43.7%	2381	42.3%	2324	43.6%	1545	48.3%	**4.7% (1.5% to 7.9%)**
Most deprived	2810	41.0%	2419	38.2%	2320	39.4%	1136	44.8%	**5.4% (1.9% to 8.9%)**
Chi-squared test for trend	**239.5**		**203.8**		**242.4**		**163.4**		
p-value	<0.001		<0.001		<0.001		<0.001		

Significant values shown in bold (χ^2 test)

deprived, but with overlapping confidence intervals the difference between fifths of deprivation is unlikely to be significant (Table 1).

Between 2001/02 and 2005/06 in Swansea and Neath Port Talbot, on average, 1477 children were examined, while in 2007/08, when positive consent was introduced, just 883 were examined (Table 2). The proportion of examined children in Swansea and Neath Port Talbot with no visually decayed, missing or filled teeth ($d_3$mft) rose significantly between 2005/06 and 2007/08 (difference in proportions 10.2%, 95% CI 6.0% to 14.3%; Table 2). However, the proportion of children who were sampled but not examined rose by almost a third, a significant increase (29.8%, 95% CI 32.7% to 26.7%). Patterns across the deprivation fifths were not consistent, with wide confidence intervals indicating the lack of precision in the point estimate (see Table 2).

The proportions of examined five-year-old children judged visually caries-free by deprivation fifth (%$d_3$mft=0) for Swansea and Neath Port Talbot and Wales show increases in the less deprived quintiles in 2007/8 compared with previous surveys (Fig. 1). For all Wales in 2007/8 compared with 2005/6, the proportion of visually caries free children rose across all five quintiles of deprivation. This does not reflect the trend of previous surveys (see Table 3). The estimated increases in 2007/8 compared with 2005/6 ranged from 4.6% to 7.9% (see last column of Table 3).

DISCUSSION

Among the children who were examined there was a significant increase in the proportion of five-year-olds with no $d_3$mft in 2007/8 compared with 2005/6 across all deprivation fifths (except the most deprived quintile in Swansea and Neath Port Talbot) and across the whole of Wales. The new guidance on consent for school-based dental surveys was introduced without warning.

Ideally, before any change in legal interpretation was implemented, parallel surveys using positive and negative consent could have been undertaken to understand and quantify the impact of changed consent on participation in a range of circumstances. The introduction of positive consent was associated with greatly reduced participation and larger than expected reductions in average $d_3$mft indices. Reductions over this short timescale are greater than what would be expected if water fluoridation had been introduced.[16] The Scottish experience in 2000-2002 suggested that parents of children in deprived areas are less likely to participate in a dental survey than more affluent peers.

Analyses to date have not explored reasons for lower levels of participation. Actions resulting in increased non-response include passively opting out (not bothering to read or send back a form sent to the home), and active non-response (making a decision to exclude the child from the survey, for example by deciding not to send a form to school or by sending a form refusing). Reasons for lower participation in all communities could reflect parents not bothering to reply or could be caused by parents deliberately excluding children because the children have caries experience and the parents know it. If the latter is the case then it could have implications for strategies intended to raise the participation rate when positive consent is used. If non-participation is related only to deprivation-associated passive opting out, then it would be expected that:

- the drop in participation would be greatest among more deprived communities
- within all fifths of deprivation the drop in participation of children with and children without decay should be similar.

However, if non-participation is related mainly to decay experience then the drop in participation would be greater in those children expected to have caries. This would be seen in all quintiles of deprivation but have a greater effect on $d_3$mft scores in more deprived areas because of the increased caries prevalence in those communities.

The data presented here suggests that children with decay are much more likely to be excluded than caries-free peers. There were small falls in participation of caries-free children, so it is likely that some parents of children simply do not bother to opt in using positive consent. However, the fall in participation of children with decay appears to be much larger than for peers without decay. This suggests that many parents of children with decayed teeth are actively choosing not to participate in the surveys. Reasons for this could include a desire to avoid parental or child embarrassment. Actively opting out appears to be the main reason for non-participation, and further research involving parents not consenting to the dental examination could explore these issues further.

Given that the objective of dental surveys is to estimate the true prevalence and severity of decay in the population, active decisions by parents to exclude children with decay will result in under-reporting. The level of under-reporting is significant enough to make comparisons of reported dental health using data collected with different types of consent inappropriate.

If the evidence suggested similar drops in participation levels for children with and without caries in each quintile of deprivation then it would be possible to boost the population weightings given to the deprived quintiles. The analyses in this paper suggest that such an approach would be inappropriate. More needs to be understood about the true caries status of non-responders before reweighted data could be produced.

In the meantime given problems of comparability of data it is recommended that data collected in the NHS coordinated dental epidemiology surveys should report on the participation rate and the type of consent used. This will not facilitate direct comparison of data collected with different methods but could provide a visible warning that data is dissimilar.

Limitations

One key limitation of these analyses is the use of the school postcode to assign children to a deprivation fifth. Ideally, the residential postcode would be used. Previous research in Wales has shown that the Townsend score for the electoral division in which a primary school is located is strongly correlated with the proportion of free school meals received by children attending that school.[17] Obtaining accurate home postcode from the child or school may be difficult. Given that this is a study of five-year-olds in Wales, it is likely that the home to school distance is short and that this is unlikely to result in significant movement between deprivation fifths as a result of the discrepancy between the two places.

Participation data for Swansea and Neath Port Talbot are used to make assumptions about the rest of Wales, based on the similarity in decay experience between Swansea and Neath Port Talbot and Wales. It is possible that this assumption is flawed, but it seems unlikely.

Data is not available to indicate the number of children who did not participate because of a formal refusal as opposed to simply not responding. However, this paper raises concerns about the apparent disproportionate non-participation of children likely to have decayed teeth, whether parents are formally or informally declining participation. Even if data was available on those parents who formally or informally declined, the parents would not have to indicate reasons for declining. The possibility that caries status is a factor would remain. The absence of actual data on non-responders means it cannot be stated with certainty whether parents are aware of child caries status and that this affects their response to a positive consent letter. This analysis does suggest that caries status may be more important than deprivation and this is worthy of further investigation.

CONCLUSIONS

Use of positive consent does reduce participation across all quintiles of deprivation but it appears that participation is reduced most for children with caries experience. Because caries is more prevalent in deprived areas the impact on participation and $d_3$mft scores is greater there. These findings have significant implications for oral health targets which were set before the change in consent procedures, but reported upon after.

Recommendations

The hypothesis that many parents are likely to be aware their children have decay and that some of these parents decide to exclude their children from dental surveys merits further investigation. In the meantime it is recommended that:

- Data collected in the NHS coordinated dental epidemiology surveys be tagged to identify the type of consent used and the response or participation rate
- Further research be undertaken with non-responders to positive consent dental surveys to explore reasons for non-participation including parental knowledge of child caries status.

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The caries experience of 5 year-old children in Scotland, Wales and England in 2007-2008 and the impact of consent arrangements. Reports of co-ordinated surveys using BASCD criteria.

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Objective: This paper brings together summarised findings and comment on surveys of young children undertaken in Scotland, Wales and England in 2007-08. These surveys are the latest in a series using common criteria for measurement but changes in the consent arrangements for Wales and England mean that these datasets are no longer directly comparable with Scottish data. ***Method:*** Representative samples were drawn within the geographies of primary care organisations in the three countries, and in England within Local Authorities also, according to BASCD criteria. Consent was sought in three different ways. Children aged five were examined in England and those in Primary 1 (rising 6) were examined in Wales and Scotland. Examinations were conducted in schools by trained and calibrated examiners and caries was diagnosed at the dentinal threshold using visual criteria. ***Results:*** The impact of seeking positive consent appeared to depress the caries severity and prevalence in Wales and England whilst the reduced caries levels in Scotland may be attributed to the pro-active health improvement measures affecting this cohort. The results for positive consent suggest bias towards participation of children with lower levels of tooth decay. ***Conclusion:*** Caries prevalence surveys of children at the start of formal education have been conducted in Great Britain. Those carried out with the need for positive parental consent have produced new baseline data. Data presented after 2007-08 should be annotated to show the participation rate and the inappropriateness of comparing data collected using different types of consent.

Key words: epidemiology, dental caries, caries prevalence, national surveys, consent

Introduction

This paper reports on the surveys of children at the start of formal education carried out in Scotland, Wales and England during the 2007-08 school year. These were carried out by the National Health Service using criteria for training, calibration, sampling and caries measurement that have been long established by the British Association for the Study of Community Dentistry (BASCD) (Pine *et al*, 1997a, 1997b, Pitts *et al*, 1997).

In all countries examinations were carried out in schools using standardised portable equipment, techniques and conventions. Dental caries was diagnosed at the caries into dentine (d_3) level using a visual method only. Radiography, transillumination or compressed air were not used.

In England national training was provided by BASCD for Regional Coordinators, trainers and standard examiners according to a national protocol provided by The Dental Observatory (TDO) (TDO, 1997) and encompassing the standards laid down by BASCD *(op cit).* Following national calibration of benchmark examiners these standards were passed to local field examiners via regional training and calibration. Analogous training was provided for examiners in 14 NHS Boards in Scotland through the National Dental Inspection Programme (NDIP) and for 22 Local Health Boards in Wales.

Following devolution of Wales and Scotland, and the introduction of a requirement for positive parental consent in England and Wales, limits for direct comparison of results have been introduced. The details of the impact of the variations between the countries are described in this paper, along with overviews of the results and signposts to the complete results.

Scotland

Method

Training and calibration of the 44 fieldwork teams was carried out in November 2007, following UK training and calibration in September 2007. Each of the 14 NHS Boards in Scotland identified the number of children needed to obtain a representative sample from their Primary1 population following BASCD guidelines. The sample sizes were designed to have adequate numbers to allow meaningful comparisons between NHS Boards to be drawn. In the course of the survey, 10% of the children in the sample were re-inspected in order to assess the consistency of the examination decisions of the dentists who were undertaking the inspections and thus check for diagnostic reliability during the fieldwork.

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Results

All of the 44 dental teams taking part in the survey achieved satisfactory calibration and also showed very good reliability throughout the survey. 12,442 children across Scotland were inspected, representing 24.9% of the state sector Primary 1 population (Merrett *et al*, 2008). Across the fourteen NHS Boards the percentage inspected ranged from 9% to 93%. The average age of the children examined was 5.54 years – this was similar to the 2006 survey result of 5.49 years and the 2004 figure of 5.51 years (Pitts *et al*, 2007).

In 2008, the population weighted mean $d_3$mft in Scotland has decreased to 1.86 (from 2.16 in 2006), with the percentage of P1 children across Scotland having obvious decay experience reducing to 42.3%, compared to 45.9% in 2006. Across the 14 Health Boards the range of mean $d_3$mft was from 1.24 teeth in Orkney, to 2.14 teeth in Lanarkshire. The range in prevalence of tooth decay experience was from the lowest of 29.2% in Borders, to 47.8% in Lanarkshire. The changes over time in the Scottish mean number of decayed, missing and filled deciduous teeth are shown in Figure 1, and illustrate the steady decline over the last three surveys.

In 2008 for the first time the residential postcode was used to allocate each child to a datazone allowing stratification of the national sample by the Scottish Index of Multiple Deprivation (SIMD) (Scottish Government, 2006). It was possible to attribute SIMD values to data for 96% of the 12,442 children who were examined. Figure 2 shows dental decay inequalities gradient across Scotland based on the prevalence of children free from

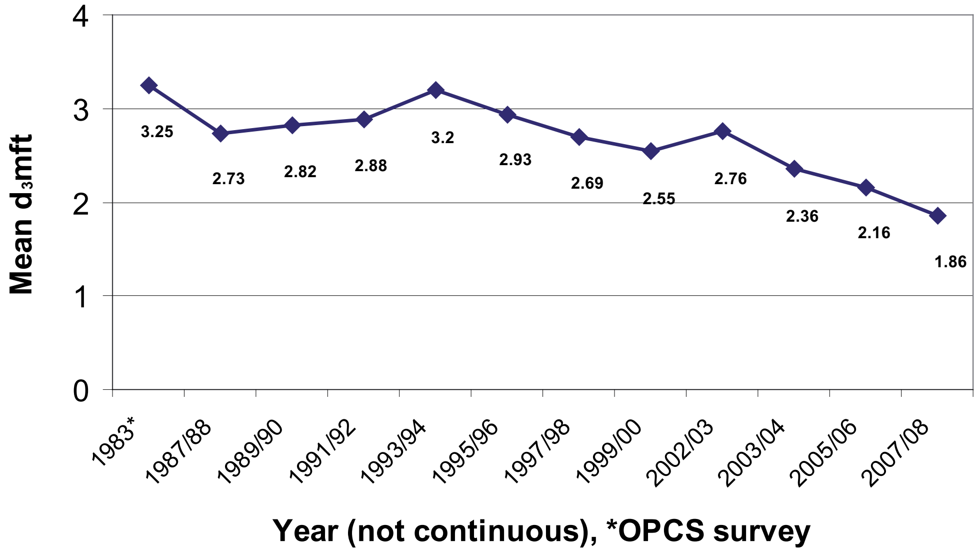

Figure 1. *Twenty-five year trends in the mean $d_3$mft of P1 Children in Scotland*

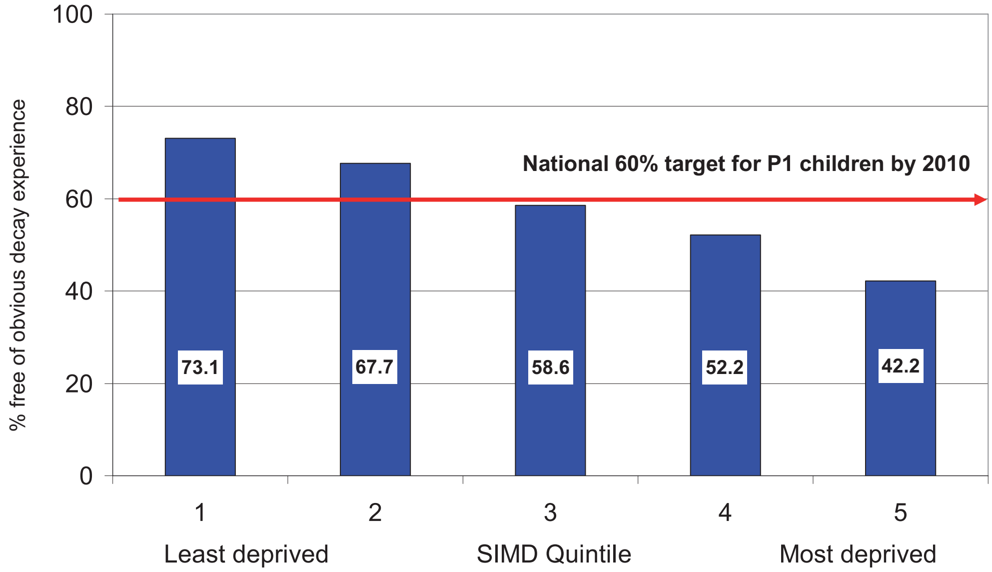

Figure 2. *Percentage of Scottish Primary 1 Children free of obvious tooth decay experience 2008, by SIMD quintile.*

obvious decay experience. It is hoped that this new analysis will act as a possible baseline for the future measurement of dental decay inequalities in P1 children across Scotland.

Comment

Surveys of the epidemiology of tooth decay at the level of Health Boards in Scotland have been in place since 1987 and inclusion of the 1983 OPCS survey results allow a national trend to be charted for the last 25 years (see figure 1). Both the mean $d_3$mft and the percentage of children with obvious decay experience reflect a steady oral health improvement since 2003. This is largely credited to the national Childsmile programme which provides a range of interventions which include free toothbrushes and fluoride toothpaste for all children aged 1 to 5, plus universal nursery toothbrushing. The 2008 mean $d_3$mft value of 1.86 is the lowest since national data began to be collected in 1983.

It is noteworthy to review the survey of P7 (12-year-old) children carried out in 2000/2001 which was a transition year before the Scottish NDIP. This system is based on the specific Scottish legislation around health inspections and a link back to individuals on the results of basic inspections was established. The method of gaining parental consent across Scotland in that school year used two methods. In this natural experiment, of the then 15 Health Boards, 5 used positive consent and the rest negative consent. Few Health Boards submitted complete results for this survey, but the data from four Health Boards were complete and of good quality. The overall response rates in the positive consent areas (42% to 55%) were roughly half of that in the negative consent areas (88% to 92%). The profile of Deprivation Category (DepCat) changed between the two surveys in the two Boards using positive consent; with the shift favouring children from more affluent areas (Carstairs and Morris, 1991). This shift in DepCat was not seen in the two Boards using negative consent. In those Boards which used positive consent, the mean $d_3$mft stayed the same or improved compared to the previous survey of 12-year-olds in 1996-97; while those using negative consent remained similar or became worse. These changes in mean $d_3$mft did not reach statistical significance. These results confirmed the broad effect of apparently better dental health outcomes when moving from negative to positive consent. In 2001 the incomplete data from Health Boards precluded a national result from being calculated. Since 2002-03 negative consent has again been used for the National Dental Inspection Programme surveys in Scotland.

Web link results of 2007/08 survey in Scotland: http://www.scottishdental.org/index.aspx?o=2153

England

Method

Following the UK training and calibration Regional Coordinators cascaded training to Primary Care Trust fieldwork teams and organised regional calibration exercises to ensure that all fieldwork teams were aware of the essential aspects of the protocol and examiners were standardised.

For the first time in this series of caries prevalence surveys representative samples were required for all Local Authorities and for all Primary Care Trust geographies. In the majority of cases these organisational boundaries were the same, but in others additional samples were needed and results had to be weighted to allow valid collation from one geography to another.

Guidance from the Department of Health issued in 2006 demands that parental consent is now required for dental epidemiological surveys of young children in England. The 2007-08 survey was therefore the first that required this from the start. Standard letters of invitation with consent forms for return to school were set out in the national protocol and PCT teams amended these to show local details. After sampling of schools and sampling of children from within the sampled schools these letters were either posted to parents or were taken home by the sampled children. The return of consent forms to school was recorded and second letters were sent to parents who did not respond to the first. Again, the return of the second forms was recorded, along with parent's agreement or refusal for their child to take part. Only children for whom positive, written consent was provided were examined.

For the first time not only summarised data but also cleaned, raw data were collated centrally at TDO. This allowed investigation of the impact of consent and more in-depth analysis of the data than had previously been possible.

Results

According to the appropriate guidance sufficiently sized samples to provide estimates of caries levels were examined in 335 out of 354 Local Authorities, leaving 19 with no estimates. Out of 152 Primary Care Trust areas estimates were provided for all but 5. This level of compliance is better than in recent previous surveys.

A total of 139,727 children were examined, representing 66.8% of those sampled and 25% of this age group in mainstream state schools. This total is 35% lower than the previous survey of 5 year-olds (Pitts *et al*, 2007). In the majority of cases caries estimates at both LA and PCT were lower than in previous surveys. Bias introduced by the need for positive consent is one of a number of possible contributing factors.

The positive consent return level varied between and within regions with 74.9% of parents who were sent a consent letter sending positive returns in the South East Coast Region and 58.4% doing likewise in London. Across England the Local Authority with the lowest return level of 31.7% was Bath and North East Somerset, the highest, 96.5% was in Rushcliffe, East Midlands. Within regions there was also a range of returns, the largest disparity being in South West Region which includes Bath and NE Somerset contrasting with a 95.4% return level in Purbeck. Only 5% of parents sent back forms saying that they did not want their child to be involved in the survey. A far higher proportion of forms (23%) were simply not returned to school at all, after two requests.

Within the North West Region it was possible to compare, for each PCT, the level of positive consent return to the apparent reduction of caries levels with the previous survey (Fig 3). Where consent return levels were lowest the difference between the previous survey estimate and this one are greatest. The correlation coefficient suggests that 33% of the drop in reported caries levels can be explained by the drop in participation. This illustrates that some bias has been introduced by the need for positive consent.

Weighting of the responses by deprivation quintile to allow for shortfalls or over-representation of particular quintiles in specific LAs or PCTs was undertaken to produce improved estimates of caries levels. This had only limited effect on apparent caries levels and suggests that the consent return levels were related to factors over and above deprivation related differences in participation. These factors could be associated with known caries levels or behaviours that are linked to caries risk. In the absence of more details about the non-responders no further reweighting to allow comparison with data collected in previous years seems feasible.

Despite the challenges posed by positive consent, the same variations as previously noted across the country, between and within regions and between and within PCTs are still present. The weighted estimate of mean severity for South East Coast was 0.7 $d_3$mft, the lowest, and compares with a weighted estimate of 1.52 $d_3$mft in the North West and 1.11 for England as a whole. The prevalence of obvious caries experience for the country was 30.9%, with South East coast having the lowest proportion affected (23.5%) and North East Region the highest (39.8%).

Within regions the variation is more marked; In East of England the LA with the lowest estimate of caries levels is found in East Hertfordshire (0.27 $d_3$mft, 8.8% with obvious caries experience) and this compares with Luton which has the highest estimate within the region (1.94 $d_3$mft, 43.9% with obvious caries experience). The PCT with the highest estimate is Brent in the London Region (2.50 $d_3$mft, 44.7% with obvious caries experience). Within the same region Bromley PCT has an estimate of 0.57 $d_3$mft and obvious caries experience of 18.8%.

Comment

Despite varying consent return levels the majority of samples were fairly representative of the populations from which they were drawn with regard to deprivation levels. There does not appear to be a discernible, directly linking factor between deprivation and consent return levels. Modelling with deprivation quintiles made only a small difference to the estimates and we have no information about the disease levels among non-consenters so currently there is no method of applying a correction factor to overcome the bias introduced by the need for positive consent. The estimates therefore represent a new baseline for England and cannot be used for backwards comparison.

Web links for tables of results http://www.nwph.info/dentalhealth/ http://www.bascd.org/annual_survey_results.php

Wales

Method

Immediately following the UK training and calibration exercise the Wales training and calibration exercise was held to train the fieldwork teams in the new consent arrangements and the examination criteria. At the time of the survey the 22 Local Health Boards in Wales were coterminous with the Unitary Authorities. As Local Health Board boundaries have since changed in Wales but Unitary Authority boundaries have not, the data in this report are referred to by Unitary Authority.

Guidance from the Welsh Assembly Government issued in 2005 required dental epidemiological surveys in Wales to use positive parental consent (Welsh Assembly

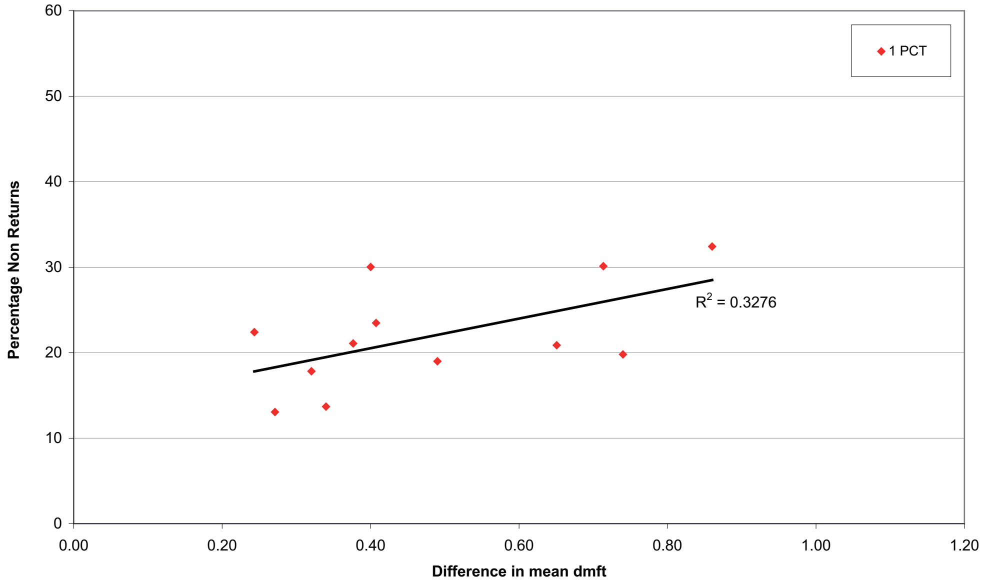

Figure 3. *Difference in mean $d_3$mft between 2005/06 and 2007/08 surveys by consent return level among North West PCTs*

Government, 2006). The 2007-08 protocol for Wales included standard letters inviting participation and response slips which were adapted by the fieldwork teams with local contact details. These letters were sent to parents with a stamped addressed envelope on a single occasion. Examiners were informed that they should only examine those children:

- who had been sampled for the survey, and
- whose parents had returned a positive consent, and
- who were willing to co-operate with the examination.

Data collected by fieldwork teams were subject to initial cleaning locally before forwarding to the Welsh Oral Health Information Unit for further data cleaning and analysis.

Results

The samples examined provided estimates of caries levels in all 22 Unitary Authorities in Wales. In total 12,662 children were sampled and 7,100 examined (56% of those sampled).

Across the Unitary Authorities in Wales the participation rate varied from 36% in Newport to 83% in Flintshire. In 2005/06 the participation rate using negative consent method in Unitary Authorities in Wales ranged from 73% in Newport to 95% in Anglesey, with a Welsh average of 87%.

The introduction of positive consent was associated with a large drop in reported caries prevalence in Wales compared with previous surveys as shown in Table 1. Table 2 shows the change in reported d$_3$mft indices for the whole of Wales and compares them with those reported for Scotland and England. While a large preventive programme called Childsmile was being introduced across Scotland there were no similarly large preventive programmes running in Wales or England between 2005 and 2008.

The changed approach to consent in Wales is associated with a reduction in participation among those sampled. The data included in Figure 4 suggest that there was a larger reduction of participation of children with caries compared with peers free of obvious decay. In surveys prior to and including 2005-06 participation rates of those sampled in Wales were consistently above 95% across Unitary Authorities. There is some correlation between the proportion of children not examined in Unitary Authorities in Wales in 2007/8 and the reduction in reported caries prevalence in 2007-08 compared with 2005-06 ($r=0.63$ $r^2= 0.4$) (Figure 5).

Comment

The drop in reported caries indices in Wales over 2 years, associated with a change in consent arrangements, was larger than that which would be expected even if large preventive programmes had been in place.

Further analysis of the Welsh data demonstrated that the drop in participation was present in similar degrees across all quintiles of deprivation. However for the whole population and for each quintile of deprivation there were other findings which could have contributed to the drop in decay severity and prevalence reported. Participation in past surveys in Wales using negative consent was at consistently similar high levels. Participation rates fell when positive consent was used.

Compared with previous surveys in Wales there was a small reduction in the proportion of children examined and found to be free of obvious caries. In contrast there was a large reduction in the proportion of children examined and found to have teeth affected by dentine caries (Monaghan *et al*, 2010).–

In the absence of actual data on caries status of children who did not participate it is not possible to

Table 1. Caries indices for Wales 2005/6 and 2007/8

Index	*2005/6 (-ve consent)*			*2007/8 (+ve consent)*		
		95% LCI	*95% UCI*		*95% LCI*	*95% UCI*
Mean d$_3$mft	2.38	2.31	2.45	1.98	1.89	2.07
% d$_3$mft = 0	47.2	46.2	48.1	52.4	53.6	51.3
Mean d$_3$mft (d$_3$mft>0)	4.51	4.42	4.60	4.16	4.02	4.29

Table 2. Changes in d$_3$mft indices in England, Wales and Scotland 2005/06 to 2007/08

	Mean d$_3$mft			*% d$_3$mft>0 Those with obvious caries*		
Year	*England*	*Wales*	*Scotland*	*England*	*Wales*	*Scotland*
2005/06	1.47	2.38	2.18	38	53	46
2007/08 – positive consent required in Wales and England	1.11	1.98	1.86	31	48	42
Difference	0.36	0.40	0.32	7	5	4

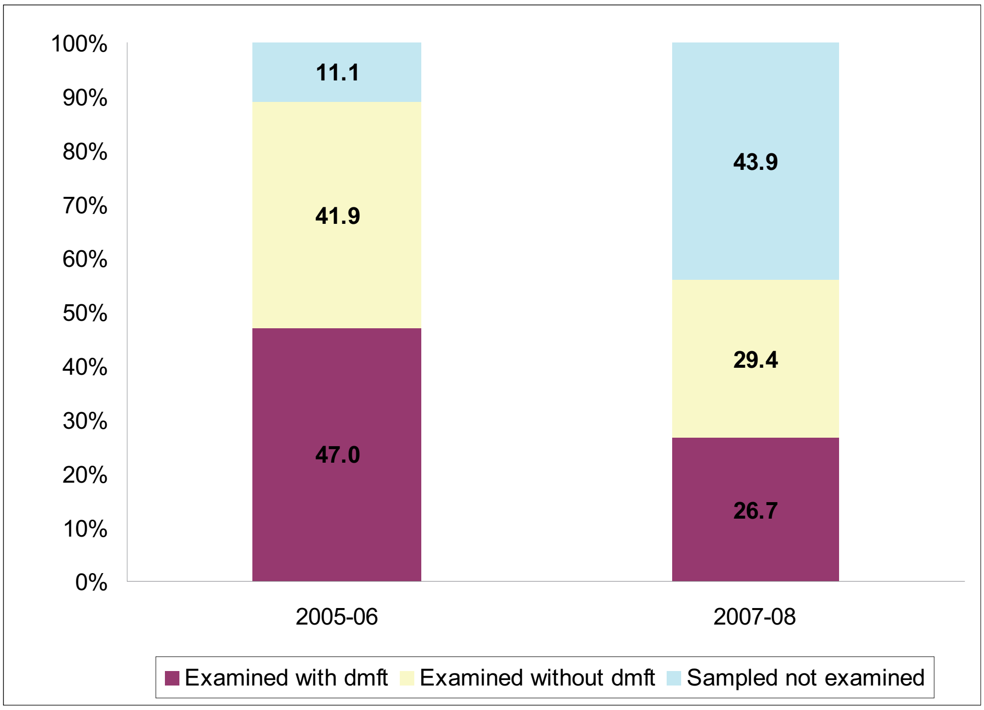

Figure 4. *Proportion of sampled children examined, with and without* d_3mft*, and not examined for the 2005-06 and 2007-08 surveys in Wales*

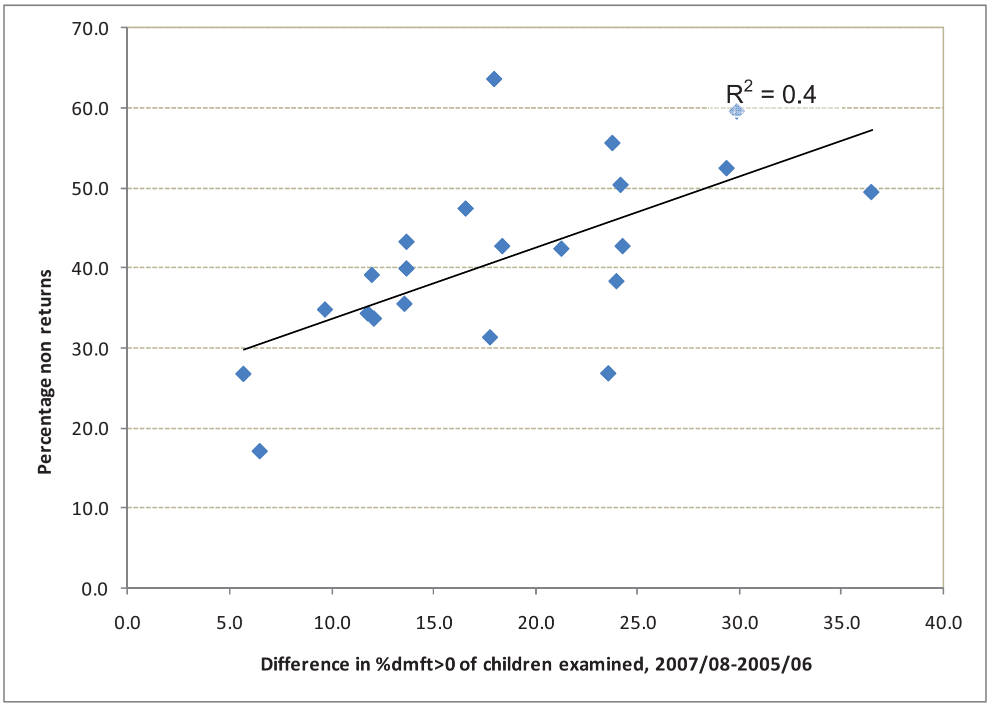

Figure 5. *Difference in* $\%d_3mft>0$ *between 2005/06 and 2007/08 surveys by consent return level among Welsh Local Health Boards*

either reweight data to allow for the change in consent method or to fully explain biases which the use of positive consent may have introduced. However the analysis in Wales suggests that positive consent of parents is less likely to be provided if the parents are aware that their child has or is at risk of decay, irrespective of socio-economic background. Further research such as focus group work with parents not providing consent might be able to confirm whether this is a factor. Differential participation between children free of obvious decay and those with caries might account for much of the reported drop in caries incidence.

Web link: http://www.cardiff.ac.uk/dentl/research/themes/appliedclinicalresearch/epidemiology/oralhealth/index.html

Discussion

The changed consent arrangements in England and Wales, but not Scotland, present an unplanned natural experiment exploring the impact of changed consent arrangements on reported caries incidence. The Scottish data provides a partial control, using the same consent arrangements as previously, but with widespread prevention initiatives targeting young children under 5-years of age. In England and Wales the changed consent arrangements were similar and are associated with large apparent reductions in caries increments largely not associated with any new nationwide prevention initiatives.

Comparing findings in the various countries demonstrates that the large reported apparent improvements in decay levels in England and Wales are unlikely to be real, and at least partially result from response bias. A significant proportion of this bias is likely to arise from differential participation of children with and without obviously decayed teeth. Because the actual status of the teeth of children not examined is not known it is not possible to weight data to correct for the differential participation. The magnitude of the change is sufficient to make comparisons of oral health data collected in England and in Wales before and after the changed consent arrangements invalid. For the same reasons data collected in England and in Wales in 2007/8 cannot be compared directly with data collected in Scotland.

Recommendations

Given that the form of consent appears to result in differential participation rates of children with and without dentine caries it is recommended that data collected from surveys from 2007-08 onwards are annotated to demonstrate the consent arrangements used and the resulting participation rates. Warnings should also be provided about the inappropriate comparison of English and Welsh data collected after 2007-08 with data collected before then or data collected in Scotland.

Acknowledgements

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ORAL HEALTH CHILD POVERTY IN THE LIGHT OF POSITIVE CONSENT

Child Poverty – Milestones and targets

The Deputy Minister for Social Justice and Regeneration requested that targets and milestones be derived to measure progress in eliminating the effects of poverty on child health. In 2006, a range of targets were devised incorporating infant mortality, low birth weight, childhood injuries, teenage conceptions and dental caries.

Targets were based on quintiles of deprivation (initially using the Townsend index); by 2020 it was aimed to reduce the burden of ill health in the most deprived fifth to reflect levels of the middle fifth. Milestones for 2010 were devised, reflecting proportionate progress.

For dental caries there were four targets and four associated milestones (Table 1). Two targets were devised for five year olds using mean dmft (average number of decayed deciduous teeth per child) and %dmft>0 (proportion of children with at least 1 deciduous tooth affected by decay). Data from the survey of 2003-04 was used as the baseline. The remaining two targets were devised for 12 year olds using mean DMFT (average number of decayed permanent teeth per child) and %DMFT>0 (proportion of children with at least 1 permanent tooth affected by decay), with data from the survey of 2004-05 used as the baseline.

In 2009, Welsh Assembly Government requested that these targets be reworked using the WIMD as the deprivation indicator. Both WIMD 2005 and 2008 were used; the WIMD indicator which was contemporaneous to survey data collection was applied.

For child oral health surveys conducted in 2001-02 and 2003-04 WIMD 2005 was used to calculate the quintiles. For the 2005-06 survey both WIMD 2005 and 2008 were used. For the 2007-08 survey WIMD 2008 used to allocate children to deprivation quintiles.

The effect of introducing positive consent to the surveys of five year olds on the child poverty targets

For dental surveys of children conducted in school year 1 (approximately 5-years-old) custom and practice underpinned by specific legislation (Education Act 1944 and later the Education Reform Act 1996) meant that until 2005/6 letters were sent home to parents and children's teeth would be examined unless parents had responded to letters refusing participation by their children. This was commonly referred to as "*negative* consent". In 2006 new guidance was issued to the NHS in Wales, England and Northern Ireland requiring *positive* parental consent used for dental surveys of children in school settings.

Table 1 CHILD POVERTY TARGETS (original version derived using the Townsend index)

Dental caries in 5 year old children

Objective: Improve the mean dmft and the %dmft>0 for the most deprived fifth of the population to that of the middle fifth of the population by 2020.

Baseline: The mean dmft for the most deprived fifth of the population is 3.1 and for the middle fifth it is 2.4 (2003-04). Ratio 5:3 = 1.29.

The %dmft>0 for the most deprived fifth of the population is 61.8 and for the middle fifth it is 55.3 (2003-2004). Ratio 5:3 = 1.12.

Targets

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.

Percentage of 5 year olds with caries: By 2020 the percentage of 5 year olds with caries in the most deprived fifth of the population will be 55.3%.

Milestones

Mean dmft 5 year olds: By 2010 proportionate progress towards the 2020 target would require a mean dmft of 2.9, being one third the required reduction by 2020.

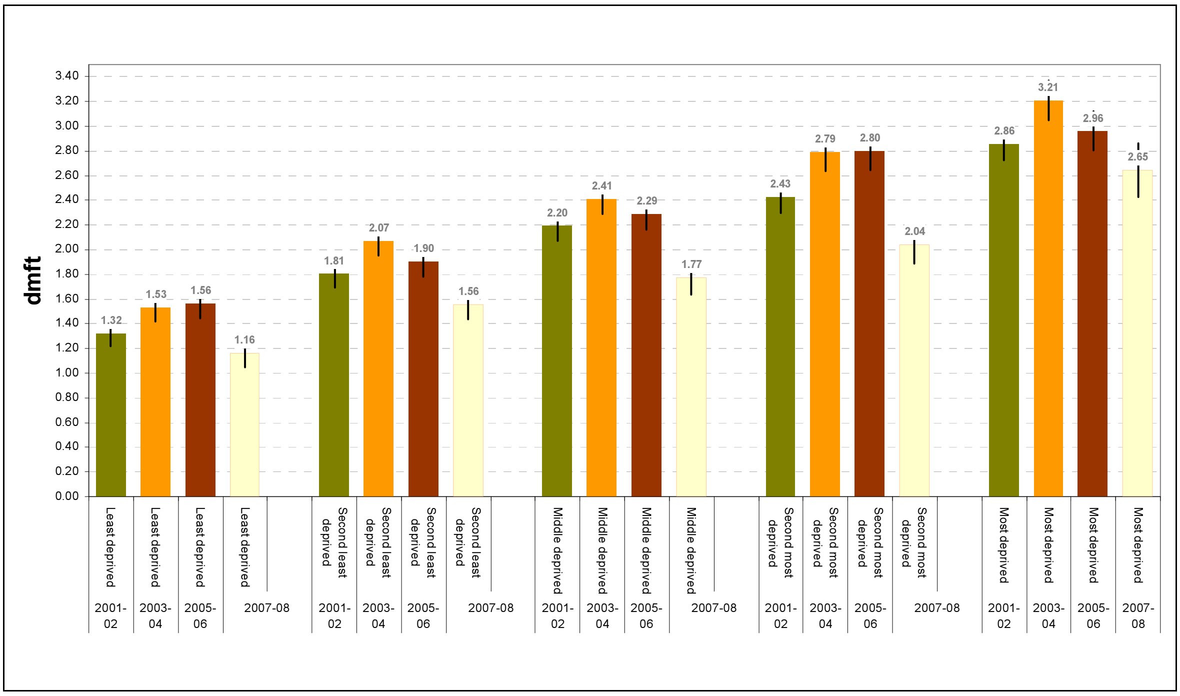
Percentage of 5 year olds with caries: By 2010 proportionate progress towards the 2020 target would require no more than 59% of children to have experience of dental decay.

The changed consent arrangements resulted in participation of about 55% of children compared with 85-90% in previous surveys. The potential problem of low response rates is non-response bias, the fact that non-responders may be different from responders and that because they do not participate you cannot be sure just how different they may be. Analysis of data collected before and after the changed consent arrangements strongly suggest that a disproportionate number of parents of children with decay have excluded their children from the 2007-8 survey which has impacted on the reported dmft indices.

The impact of changed consent on monitoring

The reduced participation of children with decayed teeth has serious implications for the monitoring of the Child Poverty Targets associated with the dental health of 5 year olds. The child poverty targets were set using data from the 2003-04 survey. We have been able to monitor progress towards the milestone using data from the 2005-06 survey – both these surveys were collected using *negative* consent. The 2007-08 survey (and any future surveys) of five year olds used *positive* consent.

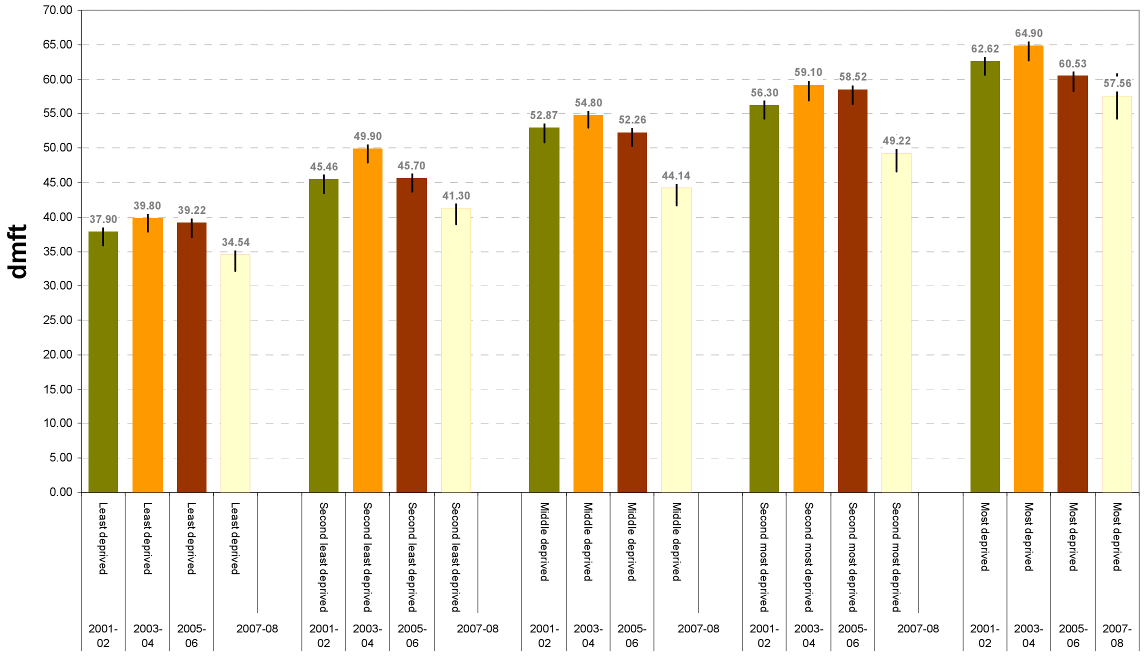
Figure 1: 5 year olds - mean dmft (-ve) surveys 2001-02 through 2005-06, mean dmft (+ve) 2007-08



Figures 1 and 2 present the average dmft and %dmft>0 by WIMD deprivation quintile. Using the WIMD derivation the target would be – to achieve an average dmft of 2.4 by 2020 for the most deprived quintile (N.B. this target was set using data generated from a survey using *negative* consent). In 2007-08 (using positive consent methodology) the average dmft for the most deprived fifth was 2.65.

If we were comparing data from surveys which used the same consent methodology then this would look like we have surpassed the milestone for 2010 and are set to more than achieve the 2020 target. The same applies for the target and milestones for the %dmft>0 (Figure 2).

Figure 2: Five year olds - %dmft>0 (-ve) surveys 2001-02 through 2005-06, %dmft>0 (+ve) 2007-08



It is important to acknowledge the significant reduction in both average dmft and the %dmft>0 between surveys conducted from 2001 through to 2006 (using *negative* consent) when compared with 2007-08 (using *positive* consent).

Estimating the impact of the change to positive consent

Crudely looking at the average dmft in 2005-06 and comparing with the average in 2007-08 there has been a 0.4 of a tooth reduction across Wales, ranging from 0.31 in the most deprived quintile to 0.76 (i.e. ¾ of a tooth reduction) in the second most deprived quintile. We have not experienced such a large reduction in dmft in Wales before (Table 2).

Table 2 A comparison of mean dmft for the surveys of 2005-06 and 2007-08

	5-05-06 *negative*	5-07-08 *positive*	Reduction in dmft
Least deprived	1.56	1.16	0.40
Second least deprived	1.90	1.56	0.34
Middle deprived	2.29	1.77	0.52
Second most deprived	2.80	2.04	0.76
Most deprived	2.96	2.65	0.31
Wales as a whole	2.38	1.98	0.40

Further, it is important to consider the ratio of the most deprived versus the least deprived (Table 3). The ratios for both mean dmft and %dmft>0, improved in 2005-06 and fell dramatically in 2007-08 – suggesting a widening of the inequalities gap, despite the reduction.

Table 3 The ratio of most deprived versus least deprived for mean dmft and %dmft>0 across survey years

	Least deprived		Most deprived		Ratio of most deprived: least deprived	
Year	dmft mean	%dmft>0	dmft mean	%dmft>0	dmft mean	%dmft>0
2001-02	1.32	37.90	2.86	62.62	2.16	1.65
2003-04	1.53	39.80	3.21	64.90	2.10	1.63
2005-06	1.56	39.22	2.96	60.53	1.90	1.54

2007-08	1.16	34.54	2.65	57.56	2.28	1.67

We need to be careful how we communicate this beyond our specialist user group - because the data are open for serious misinterpretation. We need to emphasise the distinction between dmft (collected using *negative* consent) and dmft (collected via *positive* consent); that they are two separate indicators and that it is not possible to undertake any trend analyses - until we have new dmft data (collected via *positive* consent methods) from future surveys.

Why it is important that we should set a new baseline using the 2007-08 data

Analyses have been undertaken to understand how the response rate varies, when using the positive consent approach, according to social deprivation and caries experience. There is sufficient bias to make direct comparisons with previous surveys inappropriate. In particular it is likely that those children with decay were less likely to participate, so reported indices will underestimate the true prevalence and severity of decay.

As a result the data collected in 2007/8 cannot be compared with data collected up until 2005/6. Since we are unable to obtain any information on the children who were not examined it is not possible to correct for non-response bias and produce an estimate of what data collected in 2007/8 would look like if previous consent arrangements had been used. Users of dental epidemiology data should not compare $d_3$mft data, collected using positive consent arrangements with $d_3$mft data which was collected using negative consent methodology.

Proposed new 5-year-old targets

We need to have a target for which we can monitor progress towards 2020. If we rebase the targets to the 2007-08 survey – we should have future survey data for 11/12, 13/14, 15/16, 17/18, 19/20. Admittedly the targets will be different.

Table 4 Old targets and new target proposals for 5-year-olds

	Negative Consent		Positive consent	
Most deprived fifth	2003/4	By 2020	2007/8	By 2020
Mean dmft	3.1	2.4	2.65	1.77
%dmft>0	61.8%	55.3%	57.6%	44.1%

For the new target, based on 2007-08 data, the goal would be to achieve a dmft of 1.77 for the most deprived group, who currently have an average dmft of 2.65 – compared with the original target, based on 2003-04 data, where the most deprived group were to achieve an average dmft of 2.4 by 2020 having an average dmft of 3.1 in 2003-04. Similarly the reported proportion of children with decay baseline and target (%dmft>0) need to be adjusted as outlined in Table 4.

Despite this reduction, both in the starting and the endpoints of the proposed new target (of approximately half a tooth) the inequalities slope is still evident and from a pragmatic point of view we really don't have an alternative.

RECOMMENDATION: TO USE THE 5-07-08 DMFT DATA AS A NEW BASELINE FOR THE CHILD POVERTY TARGETS

Authors: Maria Morgan, Welsh Oral Health Information Unit and Nigel Monaghan, Public Health Wales. 10th March 2010