

Institution: University of Birmingham
Unit of Assessment: 3
Title of case study: Improving oral and dental health in the UK charted by the Adult and Child Dental Health Surveys
<p>1. Summary of the impact</p> <p>“One in 10 adults in Wales has no natural teeth” (BBC News), “Cost puts off some going to the dentist” (BBC News) and “Overall improvement masks dental health concerns”, (British Dental Association, Press Release). These are examples of the sensational headlines which accompanied the publication of the findings of the 2009 Adult Dental Health Survey (ADHS). Researchers at Birmingham’s Dental School were key members of the research consortium that carried out both the ADHS as well as the 2003 Child Dental Health Survey (CDHS). The findings from these surveys demonstrated an overall improvement in the nation’s oral health but also highlighted areas of inequality. The Government regards these surveys as being of vital importance in providing gold-standard information about the nation’s oral health and uses the findings to inform oral health policy in the areas of workforce planning, the provision of, and access to, dental services. The impact of these internationally-leading studies is reflected in Government policy documents and in public debates about the future provision of dentistry.</p>
<p>2. Underpinning research</p> <p>Every ten years the UK Government has commissioned national epidemiological surveys of the oral health of the nation. The Adult Dental Health Survey (ADHS) was first undertaken in 1968 and has been carried out each decade, with the last ADHS survey in 2009. Similarly, a Child Dental Health Survey (CDHS) has been performed every 10 years since 1973. The robust oral epidemiological data obtained through these surveys, and Birmingham’s long-standing expertise in and contributions to these surveys, informs Government strategic policy decisions on UK oral/dental healthcare provision and workforce planning.</p> <p>Working with the Office for National Statistics, a research consortium of dental schools (Birmingham, Newcastle, Cardiff, Dundee, Kings College London and University College London) performs these surveys (under competitive tender). All partners are involved equally in every aspect of the survey, which includes development of criteria, recruitment and training of dental examining teams, questionnaire development, analysis of data and report writing. As one of the key partners since 1993, the Birmingham team has contributed to all these aspects of the surveys and provided leadership in examiner training and questionnaire development.</p> <p>Seminal longitudinal research by Anderson (Professor of Dental Public Health until 1998) provided the first evidence (Br Dent J 1995;179:125) of reducing caries rates (dental decay) amongst UK children over a 30 year review interval. This provided valuable information which complemented and underpinned the CDHS in 1993 & 2003 by White (Senior Lecturer/Associate Professor), Morris (Lecturer/Hon Senior Lecturer), Anderson, and Bradnock (Senior Lecturer/Hon Senior Lecturer) (1). The 2003 CDHS showed: Improving oral health in 12 and 15 year olds, i.e. permanent teeth over a decade - less decay and most decay treated; little change in the condition of primary teeth of younger children (5 and 8) over a decade.</p> <p>The ADHS of 1998 & 2009 involved the Birmingham team of White, Hill (Lecturer), Morris, Anderson, and Bradnock. The Birmingham team took the lead in two key areas of the 2009 ADHS: Dental attendance patterns, oral health behaviour and the current barriers to dental care (2); and, Common oral health conditions and their impact on the population (3). The 2009 ADHS demonstrated:</p> <ul style="list-style-type: none"> • A significant reduction in the proportion of edentate adults in the UK; • A divergence between adults up to the age of 45, who generally have better oral health and have had less restorative care, and those aged 45+ (the 'heavy metal' generation) who have less teeth and more restorations; • Inequalities in oral health related to social class. <p>All of these findings have significant implications for planning dental services in the future, in particular the need to meet the high treatment demands of older adults, whilst acknowledging that</p>

younger adults will require less treatment and therefore the skill mix requirement within dentistry will change. This will in turn have an impact on training provision and workforce planning and there will also be challenges in how to reduce oral health inequalities.

This extensive body of oral epidemiological data has underpinned models adopted by the Department of Health for provision of, and access to, oral healthcare in the UK. Implementation of a new General Dental Services (GDS) contract in 1990 with a capitation payment to dentists was new to the UK and our research (**White, Anderson**) was crucial in determining the efficacy of this model (**4**). Birmingham research also provided evidence of how to map oral health needs and service provision across a population, which in turn allowed planning of dental manpower to meet these requirements (**5**). Increasing recognition of the importance of access within the provision of oral healthcare contributed to the introduction of the Personal Dental Services (PDS) scheme (employing a locally-negotiated contract and capitation-based funding of adult GDS) following the Health and Social Care Act 2003. The Birmingham research team of **Hill, Morris, Anderson, Bradnock and Burke** (Professor of Primary Dental Care) was central to the evaluation of the PDS pilots (**6**) and demonstrated an increased capacity in the system to deliver primary and emergency care as well as encouraging a new skill-mix, improved job satisfaction and working conditions thereby moving us towards primary care provision based upon quality in addition to activity and cost.

3. References to the research

1. **Morris AJ**, Nuttall NM, **White DA**, Pitts NB, Chestnutt IG, Evans D. Patterns of care and service use amongst children in the UK 2003. *Br Dent J.* 2006; 200: 429-34. doi:10.1038/sj.bdj.4813462
2. **White DA**, Tsakos G, Pitts NB, Fuller E, Douglas GV, Murray JJ, Steele JG. Adult Dental Health Survey 2009: common oral health conditions and their impact on the population. *Br Dent J.* 2012; 213: 567-72. doi:10.1038/sj.bdj.2012.1088
3. **Hill KB**, Chadwick B, Freeman R, O'Sullivan I, Murray JJ. Adult Dental Health Survey 2009: relationships between dental attendance patterns, oral health behaviour and the current barriers to dental care. *Br Dent J.* 2013; 214: 25-32. doi:10.1038/sj.bdj.2012.1176
4. **White D** and **Anderson, R**. Children's dental health under the capitation scheme. *Community Dental Health* 1996; 13 (Suppl 1): 21-48. PMID: 8689496
5. **White DA, Anderson RJ, Bradnock G**, Gray MM, Jenkins P. The use of a geographical information system in investigating dental services. *Community Dent Health.* 2000; 17: 79-84. PMID: 11349991
6. McLeod HST, **Morris AJ, Hill KB**. Evaluation of personal dental services (PDS) first wave pilots: the alternative to general dental services (GDS) offered by the capitation-based pilots. *Br Dent J.* 2003; 195: 644-650. doi:10.1038/sj.bdj.4810782

4. Details of the impact

The research described above has impacted the development of UK Government oral health policy including workforce and dental service planning, oral health promotion and dental education. Understanding how the oral health of the population has changed and will change in the future through the UK Dental Health Surveys is **"pivotal to the planning of oral health services" (e1)**.

1. Informing Government policy on dental health: 2005 onwards

Access to dentists is an area that motivates public opinion and the ADHS findings have led directly to strategic policy decisions by the UK Government on the distribution of dentists in order to match oral health needs. Published by the Department of Health in 2005, the last *National Oral Health Strategy* (still current) drew upon evidence from the UK Dental Health Surveys to outline measures by which improvements needed to be made to dental services to enable good oral health and reduce oral health inequalities across all age groups in England (**e2**). While many of the key action points have been implemented, an independent review of dentistry published in 2009 (**e3**), drawing upon evidence from the recent UK Dental Health Surveys, indicated that **"The trends in disease prevalence and the way it has been managed are visible in the oral health of different generations. We still need to deal with this burden of the past..."**.

Various recommendations for the improvement of NHS dental services are now being acted upon

and are reflected in the Coalition Government's 2010 white paper 'Healthy Lives, Healthy People: Our strategy for public health in England' (e4): ***"The dental public health workforce will increase its focus on effective health promotion and prevention of oral disease...[]. It will also make a vital contribution to implementation of a new contract for primary care dentistry, which the Government is to introduce to increase emphasis on prevention while meeting patients' treatment needs more effectively"***.

2. Improvements to provision of dental services: 2006 onwards

Alterations to dental services and the dental contract models adopted within the NHS are influenced, and monitored over time, by the results of the Dental Health Surveys, with the Department of Health outlining in 2010: ***"The latest surveys of the oral health of adults and children show that about two-thirds are free of visible tooth decay. People want a dental service that helps them to prevent oral health problems and maintain good oral health. [] Until now, the NHS dentistry contract has remained focused on treatment; there has been little or no incentive for dentists to practise the sort of preventative dentistry that most people today want and need. It is time for this to change."*** (e5).

The new dental contracts piloted (2011-3) aim to deliver the Government's commitment of increasing access to dental services and improving oral health and represents a fundamental reform of NHS dentistry. ***"In moving to a capitation and quality model, we are therefore proposing a completely new way of remunerating dentists for the clinical care they deliver. We are building on the lessons of the past"*** (e5). The new pilot contracts are working under a full capitation scheme with payments for quality and clinical outcomes using quality measures first suggested by the Birmingham team's PDS evaluation findings. The General Dental Services contract was first introduced in 1948, changed in 1990 and again in 2006. The new dental contracts would only be the 3rd change since the inception of the NHS.

3. Government Workforce Planning: 2004 onwards

The impact of the Birmingham research in monitoring and identifying trends in population oral health is continuing to inform government workforce planning. Higher Education undergraduate dental training numbers are set by government on the basis of workforce needs and the Office of Fair Trading wishes to see open and fair competition for dental services. In the last decade, the UK dental health surveys highlighted the difficulties people experienced identifying an NHS dentist and it was generally assumed that this was due to a shortage of dentists. To address this, and specific geographical needs, in 2004 the Government agreed to a 25% expansion in dental training in England and approved the establishment of two new dental schools in the SW Peninsula and Central Lancashire. Due to the long lead time (5 years to train a dentist), this expansion programme of the NHS workforce, aimed at improving access to local dental services and oral health, began to have an impact only in 2010 (Review of Medical and Dental School Intakes in England, 2012).

More recently, the 2009 ADHS demonstrated that there had been a considerable shift in demographics and the way in which people access dental services, with access to services and standards of general oral health in lower socioeconomic groups still remaining a challenge. Reflecting these findings, the 2010 Government policy on workforce planning (e6) outlined a vision: ***"The NHS commissions to improve the oral health and well-being of the population, to reduce oral health inequalities and to make oral health services available for all and tailored to meet the needs of each individual"***. Subsequently, in 2013, Medical Education in England reviewed the dental skill mix, which includes Dental Care Professionals (DCPs) such as nurses, therapists and dental technicians, and recommended ***"that the Government consider how DCPs can make a greater contribution to outreach services to adults and children in the lowest socio-economic groups."*** (e7)

4. Oral Health Strategy across the UK: addressing oral health inequalities

One of the most significant findings to emerge from the recent UK Dental Health Surveys was the issue of inequalities of oral health. Oral health inequalities are recognised as a major public health

challenge because lower income and socially disadvantaged groups experience disproportionately higher levels of oral disease. In response to these findings, oral health policy has shifted to targeting vulnerable groups. For example, in Scotland, the government is implementing a strategy which targets oral health for frail older individuals, people with special care needs and those who are homeless (e8). Also, at the BDA conference in April 2013, the Department of Health Minister, Earl Howe quoted findings from the ADHS 2009 and announced the formation of a dental task group to determine how to improve dental services for vulnerable patients and individuals who are not accessing care.

At a local level, implementation of the Government's strategy for oral health is the responsibility of local NHS Trusts, which publish their local oral health strategy on a 5-year cycle. These local strategies (for example e9) are written against a backdrop of the 2009 ADHS findings of oral health inequalities and a need to ensure equitable access to dental services for all. For example, the Isle of Man dental services are considering adopting the protocol of the 2009 Adult Dental Health Survey to improve and inform a health needs assessment of adult residents (e10).

The UK Dental Health Surveys have started to provide the international dental community with robust and rich epidemiological data resulting in an evidence-base for influencing international oral health policies (as reported at leading global conferences, eg e11).

5. Sources to corroborate the impact

- e1 Letter from the Chief Dental Officer, NHS England, Department of Health. 2-10-2013.
- e2 Choosing Better Oral Health: an oral health plan for England. Department of Health, November 2005.
http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4123253.pdf (accessed August 2013)
- e3 NHS dental services in England. An independent review by Professor Jimmy Steele. 2009.
http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_101180.pdf (accessed August 2013)
- e4 Healthy Lives, Healthy People: Our strategy for public health in England. 30 November 2010.
<https://www.gov.uk/government/publications/healthy-lives-healthy-people-our-strategy-for-public-health-in-england> (accessed September 2013)
- e5 NHS Dental Contract: Proposals for Pilots. Department of Health. December 2010.
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_122789.pdf (accessed August 2013)
- e6 Improving oral health and dental outcomes: Developing the dental public health workforce in England - Full report. 15 March 2010.
http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/dr_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_114497.pdf (accessed September 2013)
- e7 A Review of Skill Mix in Dentistry, Medical Education in England 2013.
http://www.mee.nhs.uk/pdf/Skill_Mix_in_Dentistry.pdf (accessed August 2013)
- e8 The National Oral Health Improvement Strategy for Priority Groups by the National Older People's Oral Health Improvement Group 2012.
<http://www.scotland.gov.uk/Resource/0039/00394171.pdf> (accessed August 2013)
- e9 Oral Health strategy – Devon and Torbay NHS, 2012 to 2015.
http://www.devonhealthandwellbeing.org.uk/wp-content/uploads/2012/10/Devon_and_Torbay_Oral_Health_Strategy_2012-2015.pdf (accessed August 2013).
- e10 Oral Health Strategy - Isle of Man Government – A five year plan 2011.
www.gov.im/lib/docs/health/Dentists/oralhealthstrategy20112016.pdf (accessed August 2013)
- e11 Borgnakke WS, Yl Ostalo PV, Taylor GW, Genco RJ. Effect of periodontal disease on diabetes: systematic review of epidemiologic observational evidence. J Periodontol. 2013; 84: S135-52. doi: 10.1902/jop.2013.1340013