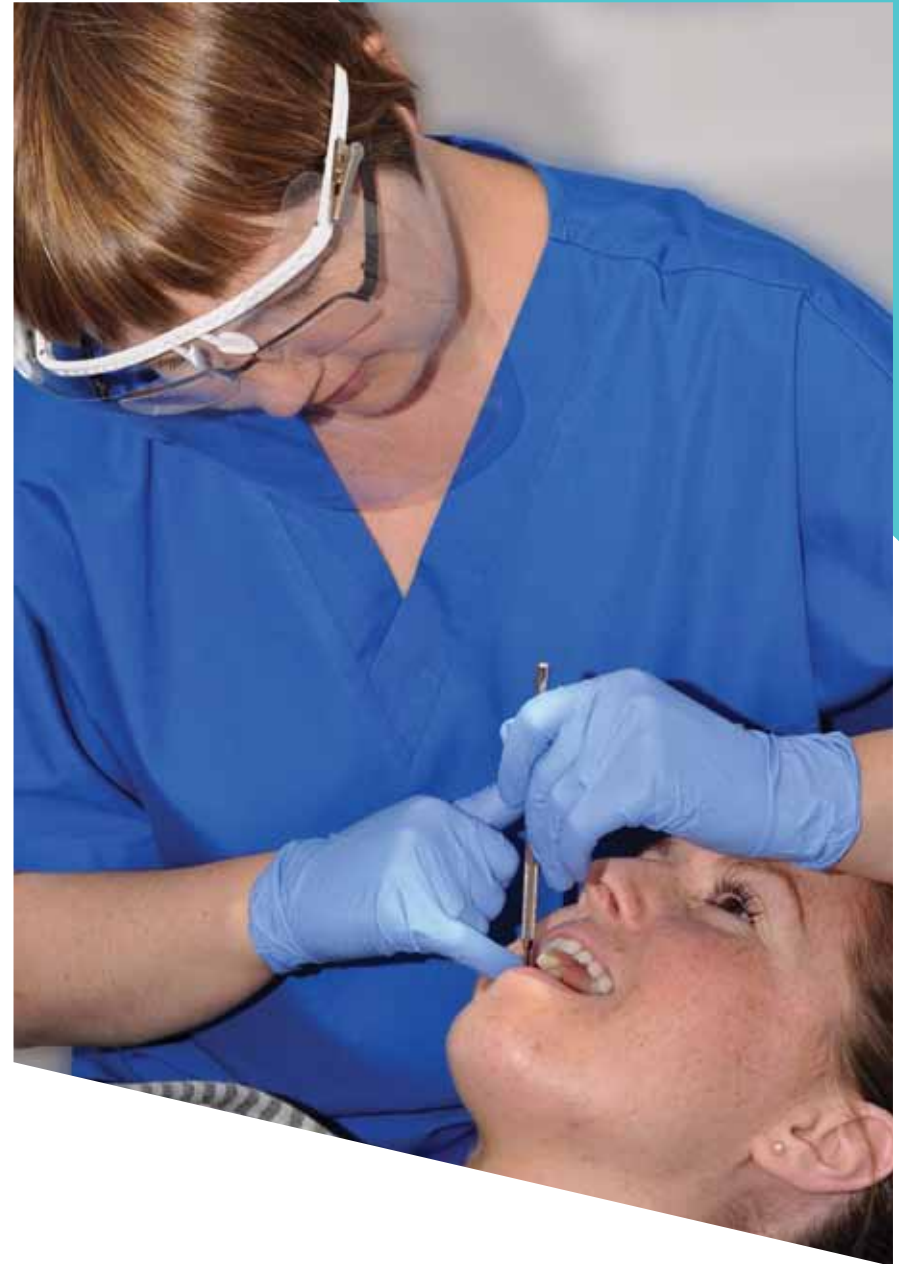




A PICTURE OF SCOTLAND'S ORAL HEALTH

ACKNOWLEDGEMENTS

The Chief Dental Officer acknowledges the contribution of the many individuals and organisations who have helped compile this report, in particular to the dental team at ISD and to Emma O'Keefe, Specialty Registrar in Dental Public Health, who have managed the process. It is evident that there are numerous key stakeholders working towards improving Scotland's oral health: individual dental practitioners, dental care professionals and representative bodies from across the NHS, general community and hospital dental services, NHS boards, as well as the dental public health, academic and research communities, nursery nurses, school staff and many other partner agencies.



Acknowledgements

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IT IS MY PLEASURE TO PRESENT THE INAUGURAL CHIEF DENTAL OFFICER ANNUAL REPORT

It is my pleasure to present the inaugural Chief Dental Officer *Annual Report*.

This report highlights key oral health messages via the presentation of useful information at national and NHS board level and illustrates some recent trends in oral health. This past year has seen significant changes, with the introduction of new oral health promotion and clinical prevention payments for general dental practitioners and the graduation of the first cohort of Aberdeen's Dental School students who undertook a 4-year programme.

The purposes of this report are to draw attention to the progress made within dentistry in Scotland and to inform a wide audience – not just those involved in dentistry – of our oral health status against a background of past trends and aspirations for the future.

Dentistry must not be isolated from general health, and this report shows how oral health is a key component of wider general health and affects quality of life. Investing time and expertise in collaboration with the wider health family on the common risk factor approach helps to address dental as well as general health issues.

NHS dentistry extends across all healthcare sectors, but most activity takes place in the primary care setting in either the independent (“high street”) general dental service or in the salaried dental service managed directly by NHS boards. Secondary and tertiary hospital dental services are provided from dental schools, hospitals and institutes, as well as general hospitals.

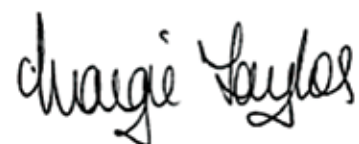


It is not possible to cover every aspect of dentistry within this report, but I hope to engage your attention with a flavour of what goes on in dentistry so you can appreciate that we are dealing not just with people's teeth but holistically with the mouth as part of the body: oral disease has an impact on our whole-body health.

Oral health is improved through such activities as health education programmes, toothbrushing schemes, application of fluoride varnish, dietary advice and preventive treatment services, as well as regular engagement between patients and primary care dental teams. No single approach alone will deliver improvement to our oral health; rather, a multi-faceted, whole-generation approach is required to tackle people's habits and behaviours. Deeply entrenched, harmful behaviours cannot be broken overnight, and many years may pass before evidence of behavioural change is available. However, the many and extensive prevention and promotion programmes now in place are designed not only to change the behaviours of this generation but also to influence the parenting skills of future generations and thereby further improve their oral health.

This evidence-based, multi-optional, concerted action will realise lasting oral health gains.

Throughout this document the term "oral" will be used, instead of "tooth" or "teeth", to mean all areas of the mouth, including the teeth and gums, tongue, soft tissues of the mouth and throat, chewing muscles and jaws.



Margie Taylor
Chief Dental Officer



When the NHS was founded in 1948, poor oral health was endemic in Scotland, and the main focus of dentistry was on extracting decayed teeth and prescribing and fitting dentures.

Since then, dentistry has come a long way, with the advancement of dental technology and techniques, in teaching and education, in developing the dental workforce, and in securing an overall decrease in dental caries.

Improvements in oral health, and changes in the pattern of disease, have occurred in recent years. These are clearly demonstrated in the latest surveys, and it is encouraging to note that two thirds of young children are now free from obvious dental decay, compared with well under half of young children 25 years ago (www.isdscotland.org/Health-Topics/Dental-Care/Publications/2012-11-27/2012-11-27-DentalNDIP-Report.pdf).

Dentistry now faces a very interesting challenge and one that might not have been considered outside the dental profession. Although the population is ageing, improvements in oral care and oral health mean more people are keeping their natural teeth but requiring more complex care, often in a domiciliary setting. The key to delivering effective dental services for the future is appropriate skill-mix, particularly in relation to managing patients with co-morbidities – especially dementia.



/ 2. ORAL HEALTH OF THE POPULATION: THE FACTS AND KEY ISSUES

/ 2.1 DEMOGRAPHICS

Scotland's population currently totals 5,222,100 <http://www.gro-scotland.gov.uk/statistics/theme/population/projections/scotland/2010-based/index.html> and is spread over an area of 78,772km², including a more urbanised central belt, remote rural areas and many islands. As the geographic area is very diverse, there are major challenges in ensuring the health needs of the population are met.

/ 2.2 SOCIO-ECONOMIC STATUS AND SOCIAL DISPARITY

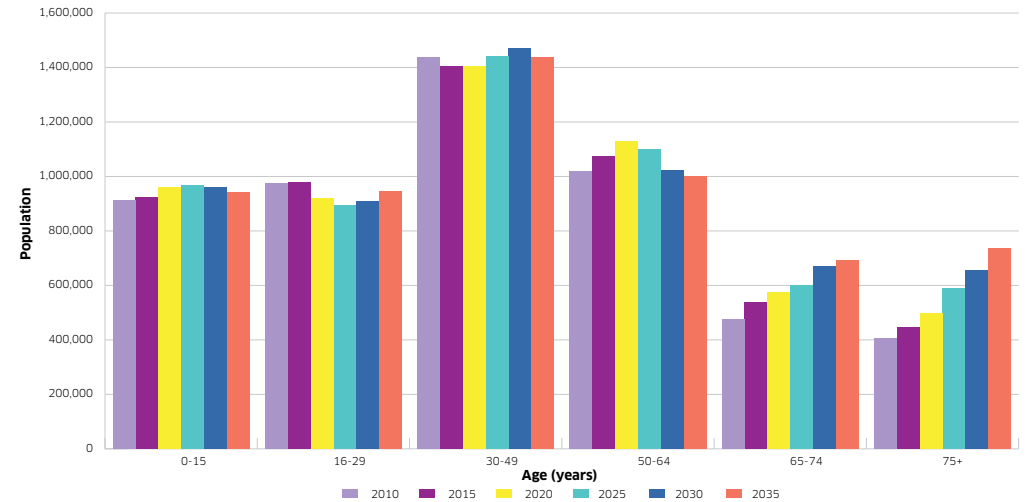
The health experience of the population is far from evenly distributed, with some communities experiencing much poorer health and greater health risks than others. The Office of National Statistics (ONS) published life expectancy at birth figures for the UK in 2011 (www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-223356). These present a stark picture of health inequalities, with 8 out of the 10 lowest-ranked life expectancy areas in the UK (total number of areas = 404) situated within Scotland. The life expectancy at birth in Glasgow City (ranked lowest at 404) was 71.6 years, compared with 85.1 in Kensington and Chelsea (London); by contrast, life expectancy in East Dunbartonshire was 79.4.

The area-based Scottish Index of Multiple Deprivation (SIMD) is commonly used as a proxy for socio-economic status at a population level and shows clearly the variance in health experience between the most deprived and most affluent areas. The causes of this variance are complex and rooted in both historical and contemporary social events that have an impact on some communities more than others. A key message shared by the Chief Medical Officer, Sir Harry Burns, talks of “the biology of deprivation”, which refers to the *causes of the causes* and does not put ill health and inequalities solely down to our behaviours. It is a phenomenon more complex than simply the effect of poor diet and smoking, and one whereby additional, psycho-social problems prevent people from having control over their lives.



Figure 2.1 shows the projected change in the population age profiles for Scotland between 2010 and 2035. This indicates that by 2035 Scotland will experience a reduction in the child population and a significant increase in the number of older people, factors which will have major implications for service demand. Although many older people consider themselves to be in good health, the proportion of the population living with long-term illnesses and self-reported ill health increases sharply with age. Older people are more likely to suffer from co-morbidities and age-related frailty. These factors all have an impact on dental services, particularly the potential increase in demand for domiciliary dental care.

Figure 2.1 Projected change in the population age profiles for Scotland between 2010 and 2035



Source: www.gro-scotland.gov.uk/files2/stats/population-projections/scottish-areas-2010-based/10pop-proj-scottishareas-alltables.xls



/ 2.4 ORAL HEALTH AND ORAL DISEASE

Oral health is more than just having healthy teeth in a healthy mouth; it is integral to general health and wellbeing and is a determinant of quality of life. Good oral health enables us to eat, speak, smile, taste, chew and swallow.

On the contrary, oral disease can have detrimental effects on an individual's health and wellbeing and can impact significantly on work, school and other daily activities. Various conditions are classified as "oral disease" but the two commonest conditions are dental caries (tooth decay) and periodontal (gum) disease; the condition that is of most concern, due to its seriousness and increasing incidence, is oral cancer.

Dental caries and periodontal disease are very common and largely preventable and are therefore considered widespread public health issues. Despite significant improvements over the past 30-40 years, there remains high prevalence of dental caries.

The relationship between oral health and general health is well documented, with oral disease and non-communicable chronic disease sharing many common risk factors. Moreover, many general conditions either have oral manifestations or can affect dental treatment.

/ 2.5 EPIDEMIOLOGY AND DATA

Epidemiology is the science concerned with the study of factors determining and influencing the frequency, distribution and control of diseases in populations. Scotland is fortunate to have some of the best health service data in the world combining high quality, consistency, national coverage and the ability to link data to allow secure, confidential patient-based analysis and follow-up.



2.6.1 Trends in children's oral health

The National Dental Inspection Programme (NDIP) surveys are conducted each year in Scotland's schools and provide information on trends in children's oral health.

NDIP invites every Primary 1 (P1) and Primary 7 (P7) child in local authority schools to have a basic dental inspection carried out; a representative sample of these children receive a detailed dental inspection (P1 or P7 in alternate years). These inspections are a core component of the public health function of the NHS community dental service across Scotland. The main aim of the inspections is to inform parents/carers of their child's oral health and convey the degree of urgency of a dental appointment for the child. The results are also used in the planning and evaluation of local and national oral health initiatives to ensure the appropriate use of resources.

Figure 2.2 illustrates the trends of both P1 and P7 from 2003 to 2012 and shows a very encouraging picture of continual improvement in the proportion of children with no obvious decay experience.

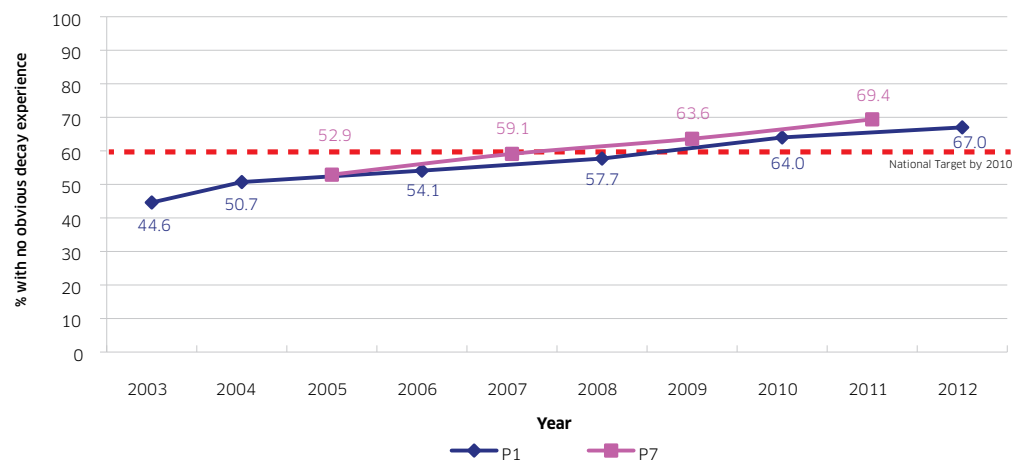
In the school year 2011/12, the detailed inspection programme involved P1 children (www.isdscotland.org/Health-Topics/Dental-Care/Publications/2012-11-27/2012-11-27-DentalNDIP-Report.pdf?41798037291) and provided the following key results:

- 67.0% of P1 children had no obvious decay experience, compared with 42.3% in 1988.
- This was the first year that all NHS boards met the 2010 national target of 60% to have no obvious decay experience.

The 2011 NDIP Report focused on P7 children and reported that:

- 69.4% of P7 had no obvious decay experience.
- For the first time, all NHS boards achieved the 2010 national target of 60% of P7 children to have no obvious decay experience.

Figure 2.2 Trends over time in the proportion of P1 and P7 children with no obvious decay experience; 2003-2012



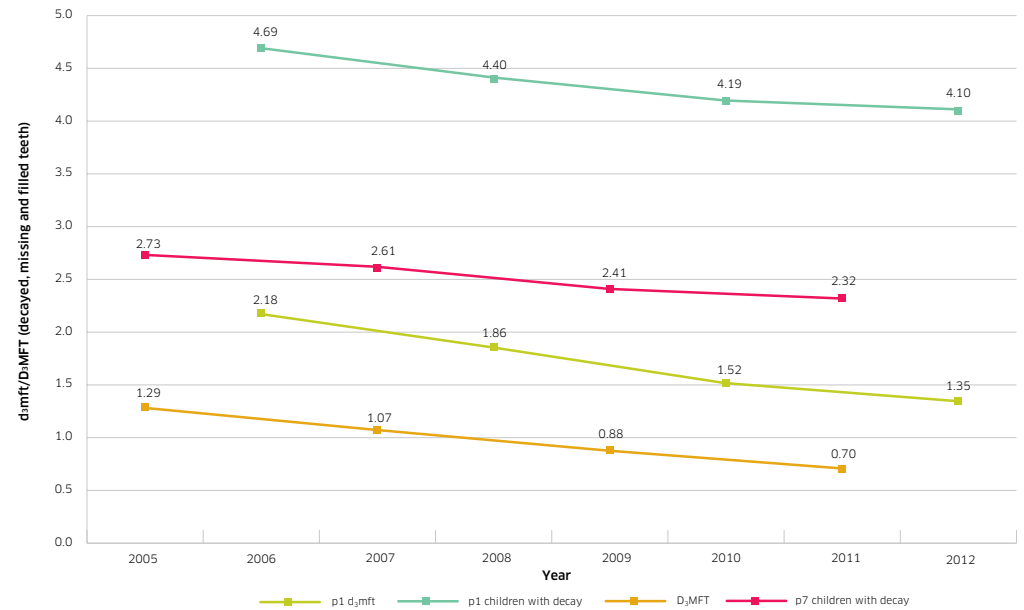
Source: NDIP reports 2003-2012



While the results in Figure 2.2 are positive, the underlying message is that still nearly one third of children experience dental decay, which is reported as the number of decayed, missing and filled teeth. Among those children who did have decay, the number of teeth affected by obvious decay experience has decreased from 2.73 in 1988 to 1.35 in 2012. The changes over time in the mean number of decayed, missing and filled teeth are shown in Figure 2.3 and illustrate a steady improvement for both P1 and P7 children.

This mean number masks the unequal distribution of dental caries. Those with the disease have a higher burden of disease, but the average number of teeth affected by decay has also declined.

Figure 2.3 Comparison over time of the mean number of decayed, missing and filled deciduous/permanent teeth (d_3mft/D_3MFT) in the P1 and P7 populations and the mean number of decayed, missing and filled deciduous/permanent teeth in those children with decay ($d_3mft/D_3MFT > 0$); 2005-2012



Sources: NDIP reports 2005-2012

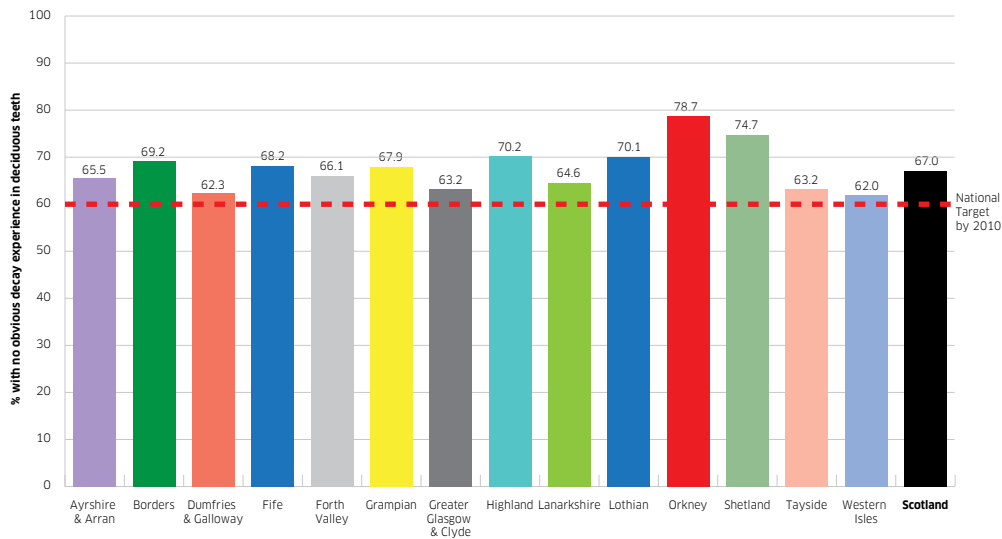


/ 2.6 DEMOGRAPHICS

Although the target of 60% of P1 children to have no obvious decay experience was reached at Scotland level in 2010, for the first time, all NHS boards across Scotland achieved the target in 2012.

This level of achievement across NHS boards relative to the target is illustrated in Figure 2.4.

Figure 2.4 Proportion of P1 children with no obvious decay experience by NHS board; 2012



Source: www.isdscotland.org/Health-Topics/Dental-Care/Publications/2012-11-27/2012-11-27-DentalNDIP-Report.pdf

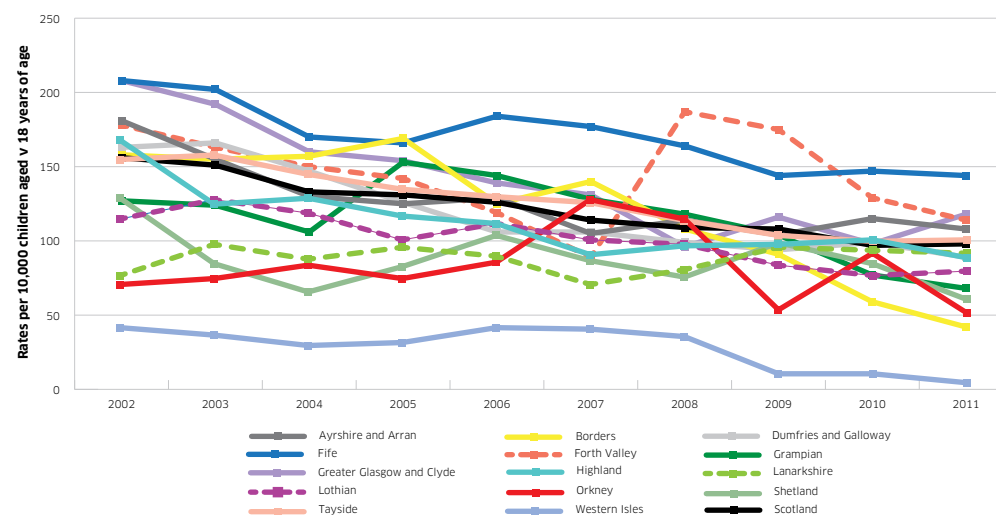


2.6.2 Trends in children’s dental general anaesthesia

Dental general anaesthesia still accounts for the highest amount of inpatient and day-case hospital activity for elective surgery in children. General anaesthesia is not without risk and causes anxiety and stress to both the child and family. The procedure is a burden on resources and results in time off school (and time off work for the child’s parents/carers) and remains a major public health problem, despite dental caries being a largely preventable, non-communicable disease.

The historical data for this activity have come from a variety of sources and should be interpreted with care; however, the latest figures (see Figure 2.5) for trends in dental general anaesthesia are more positive and heading in the right direction. The general picture is that there has been an overall reduction in general anaesthetics for dental extractions, which is encouraging, given the continuing investment in preventive oral health initiatives, particularly *Childsmile* (www.child-smile.org.uk), the national oral health programme for children.

Figure 2.5 Rates per 10,000 child population for general anaesthesia procedures for dental extractions in 0-17 year olds; 2002-2011



Sources: SMR01, SMR13 and local data

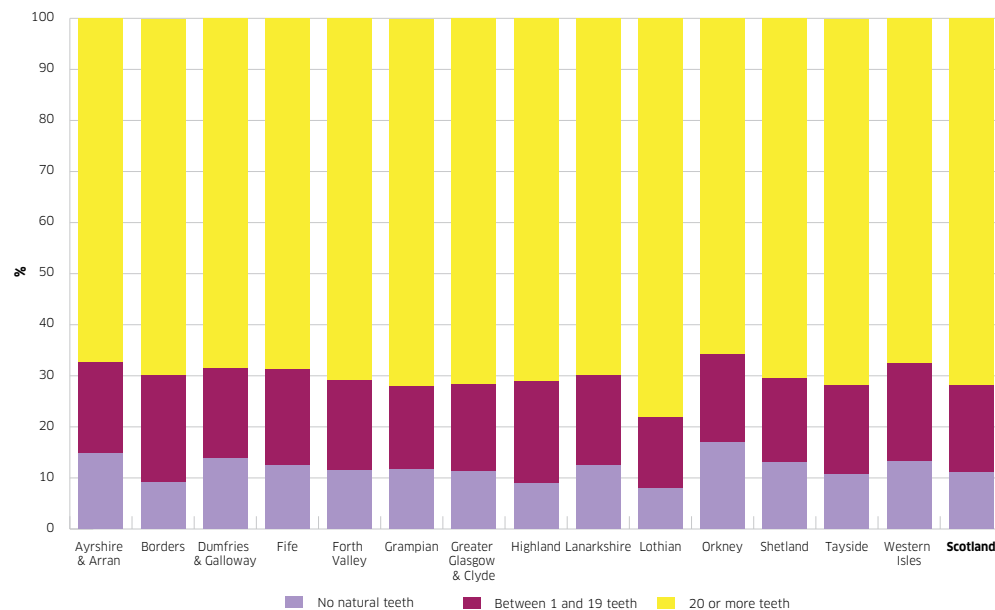


2.6.3 Trends in the oral health of adults

Every 10 years from 1968, Scotland took part in UK-wide Adult Dental Health Surveys (ADHS). The results of these surveys – available at Scotland level only – show a continuous improvement in dental health from the 1970s. Since 2009, Scotland has relied on data from the Scottish Health Survey (SHS).

The latest data – which enable comparisons to be made across NHS board areas – come from the combined 2008-2011 surveys. SHSs report that 89% of the adult Scottish population (here, those aged over 16) had some or all of their own natural teeth, which is just below the 2005 Dental Action Plan’s target of 90% by 2010. Figure 2.6 shows the proportion of adults with no natural teeth, 19 or fewer natural teeth and 20 or more natural teeth.

Figure 2.6 Proportion of adults aged 16 and over with natural teeth by NHS board; 2008, 2009, 2010, 2011



Source: www.scotland.gov.uk/Resource/0040/00402718.xls



Although people in the older population are no different in having needs that reflect the stage in life they have reached, their specific oral health needs have changed significantly over the past forty years; at one time, care of older patients focused on fitting full sets of dentures, but the most recent SHS shows that the majority of older people have retained some or all of their natural teeth. Therefore, better oral health, combined with the development of new treatments and technologies, brings a new set of challenges. The cohort of adults aged 30-40 have different needs, meanwhile: having experienced little dental treatment, they require a more preventive approach to their care and have greater expectations of their oral health maintenance.



2.6.4 Oral cancer trends

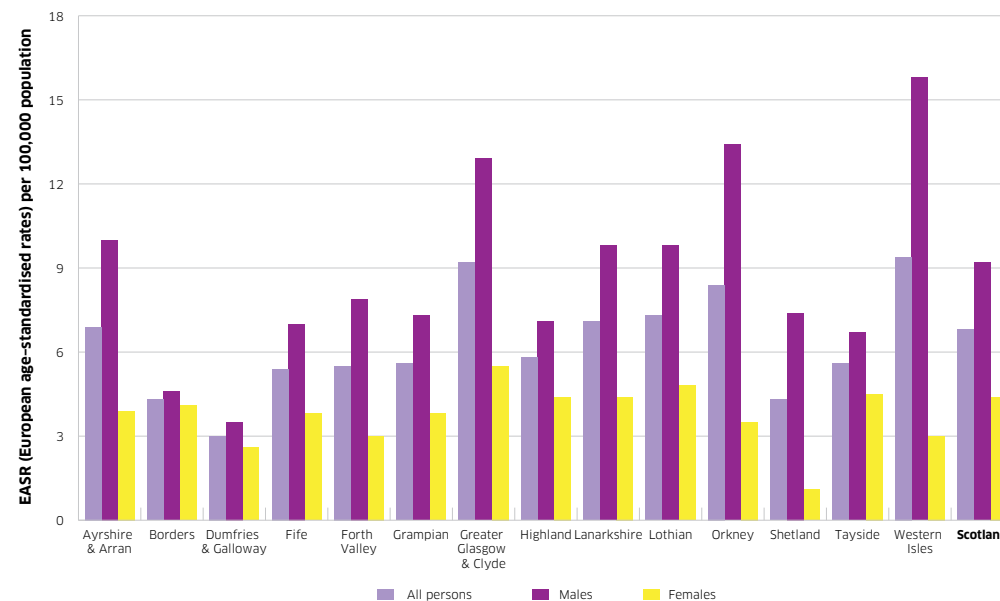
Oral cancer is a group of cancers that affect the mouth and has many definitions due to the way the anatomical sites of the mouth and the surrounding structures are clinically coded. For the purposes of this report, oral cancer has been defined as cancer of the tongue, gum, floor of the mouth, palate and other unspecified parts of the oral cavity and does not cover the lip or the wider oro-pharynx sites.

The latest figures indicate that there continues to be an increase in the incidence of oral cancer, while that of other cancers is decreasing; and while oral cancer is predominantly a disease of older people, an increase is now being seen in younger age groups. The major risk factors in the development of oral cancer are tobacco use and the excessive consumption of alcohol.

Dental teams, as part of the general health team, need to support key messages about common risk factors, encourage behaviour change and carry out opportunistic screening. The Scottish Government is working on legislation around alcohol pricing and the drink-driving level, following the introduction in 2006 of the law banning smoking in public places.

Figure 2.7 shows the 5-year summary incidence of oral cancer broken down by sex and NHS board. Incidence rates vary between NHS board areas, and oral cancer is twice as common in males compared to females.

Figure 2.7 Cancer of the oral cavity; 5-year summary of incidence by NHS board (European age-standardised incidence rates); 2006-2010

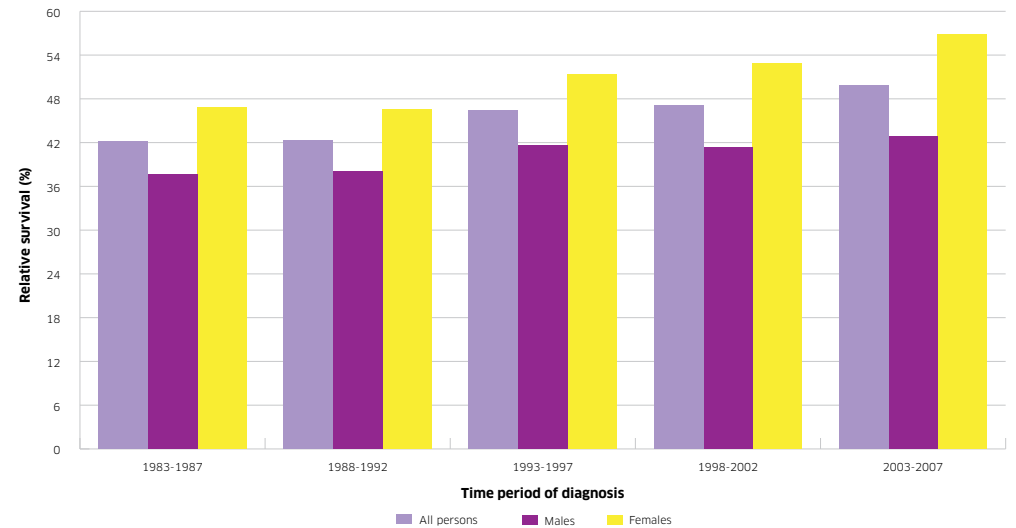


Sources: www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Head-and-Neck/#oral and www.isdscotland.org/Health-Topics/Cancer/Publications/2012-04-24/si_cancer_head_neck.xls



During the past 30 years there has been little improvement in the oral cancer survival rate, despite advances in medical treatment and efforts to promote early detection. Figure 2.8 illustrates the trend over the period 1983-2007 with outcomes dependent on the type, site and stage of cancer and its presentation. Women have higher survival rates than men, but the mean 5-year survival rate is approximately 50%.

Figure 2.8 Trends in 5-year survival for men, women and all persons diagnosed with oral cancer; 1983-2007



Source: www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Head-and-Neck/s_cancer_oral.xls?1



A well recognised association exists between oral disease and deprivation; trends suggest that the burden of disease is concentrated in more deprived populations.

Inequalities persist across socio-economic groups despite an overall improvement in oral health. A key priority is to reduce oral health inequalities while promoting oral health improvement for all.

Oral health inequalities, to a large extent, are avoidable. A reduction in inequalities will be seen when the oral health of those in more deprived areas improves at a faster rate than that of those in less deprived areas. Oral health initiatives which have a population-wide approach as well as a targeted approach will help improve oral health overall, while investing additional resources in more deprived areas will help reduce inequalities; this approach has been called “universal proportionalism” by Professor Sir Michael Marmot. There is much interest in this approach, which is being used and closely monitored within the *Childsmile* programme.

Focusing solely on the disadvantaged will not reduce health inequalities sufficiently. To reduce the steepness of the social gradient in health, actions must be universal, but with a scale and intensity that is proportionate to the level of disadvantage.

Fair Society, Healthy Lives
Marmot 2010

(www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review)

The area-based Scottish Index of Multiple Deprivation (SIMD) is commonly used as a proxy for socio-economic status and identifies small-area concentrations of multiple deprivation at data zone level. The index combines seven domains to rank relative multiple deprivation across Scotland. It is useful for showing the variance in health experience between the most deprived and the least deprived quintiles (fifths) of the population.



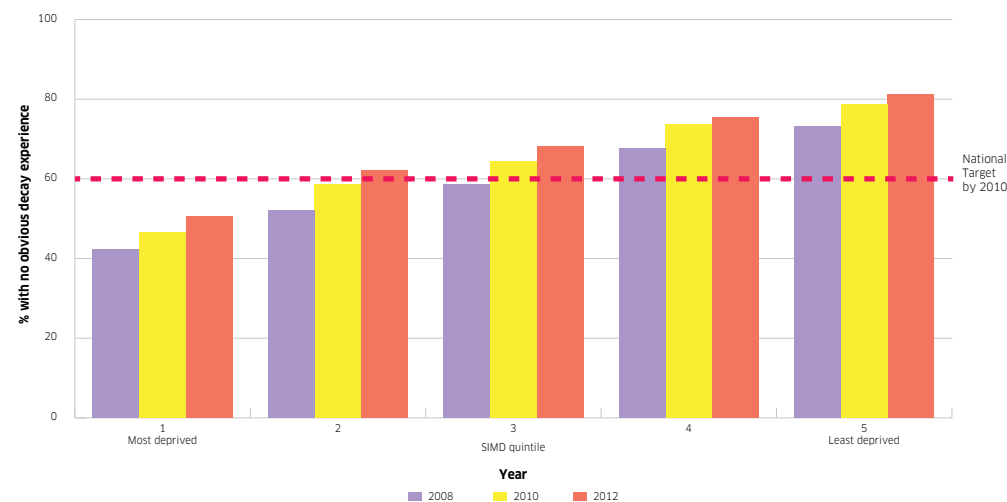
The recently published Audit Scotland report on *Health Inequalities in Scotland* (www.audit-scotland.gov.uk/docs/health/2012/nr_121213_health_inequalities.pdf) found overall health has improved over the past 50 years but there are still significant differences attributable to deprivation and other factors. Despite the significant investment made and priority given by successive governments, most indicators show little reduction in health inequalities. The report recommendations included the need to (i) develop measures to assess the short-term impact of strategies which aim to improve health and reduce health inequalities in the long term, (ii) assess the impacts of policies on the population as a whole, and (iii) share learning and publish data at a local level to show progress in reducing health inequalities.

2.7.1 Inequalities in children's oral health

The 2012 NDIP figures for P1 children show a continuing improvement in oral health for children from all socio-economic backgrounds compared with the results from 2010. This is rightly seen as a success but clear inequalities still remain, with 33% of 5-year-old children having signs of obvious decay experience. The NDIP findings show the uneven distribution of caries, with a relatively small proportion of the population having a high burden of disease. However, they do also show a reduction over time in the average number of decayed teeth in children with the highest levels of disease.

The clear relationship between deprivation and dental decay can be seen in Figure 2.9, with oral health improving while inequalities persist: 81% of children in the least deprived areas have decay-free mouths, compared with just 50% in the most deprived areas.

Figure 2.9 Proportion of P1 children with no obvious decay experience in Scotland by SIMD quintile; 2008, 2010, 2012



Source: www.isdscotland.org/Health-Topics/Dental-Care/Publications/2012-11-27/2012-11-27-DentalNDIP-Report.pdf



Figure 2.9 shows that proportionately more children in deprivation quintile 1 (most deprived) had still not reached the 2010 target by 2012.

Inequalities can be measured by examining absolute inequality, which is the difference in values between the least and most deprived groups. Figures for absolute inequality in children’s oral health have remained constant over the past 4 years (30.9% in 2008 and 30.7% in 2012). Clearly, much still has to be done to reduce inequalities in the oral health of Scotland’s children.

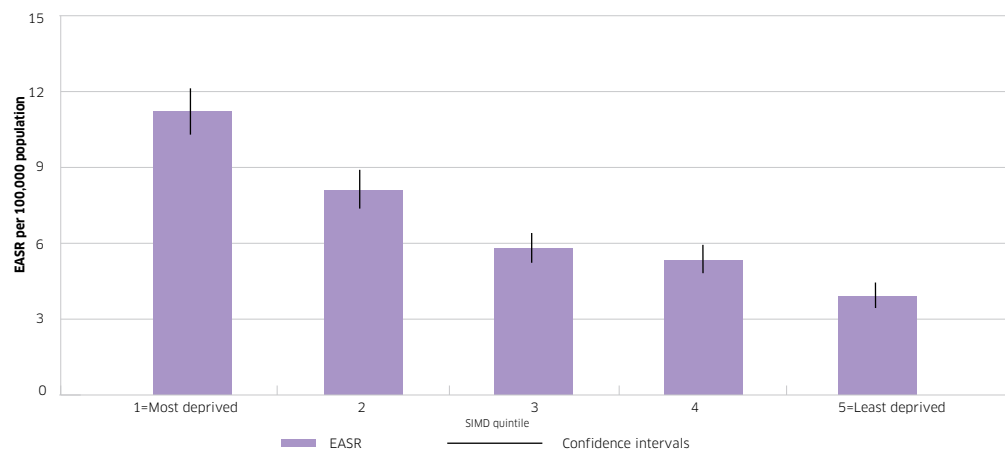
2.7.2 Inequalities in adults’ oral health

The Scottish Health Survey is conducted annually and samples adults and children from private households across Scotland. In 2011, over 7,500 adults were surveyed and approximately 2,000 children.

The 2011 Scottish Health Survey found significant association between deprivation and the number of natural teeth present in sampled adults. The proportion of adults living in the least deprived areas who had some natural teeth was 94%, compared with 83% of those in the most deprived areas; nearly three times as many people from the most deprived backgrounds (17%) as those from the least deprived (6%) had no natural teeth (www.scotland.gov.uk/Publications/2012/09/7854/18).

Oral cancer incidence is strongly associated with deprivation and Figure 2.10 demonstrates the difference between those living in the most deprived areas and least deprived areas. Survival is lower among individuals from more deprived backgrounds and incidence is almost three times the rate of those in the least deprived quintile.

Figure 2.10 Incidence of oral cavity cancer by SIMD quintile; 2006-2010



Sources: Scottish Cancer Registry, ISD (incidence); National Records of Scotland (NRS) (mortality and populations)
Data extracted September 2012



It is now widely believed that the risk factors associated with oral disease are more than lifestyle behaviours. Access to, and the use of, oral health services plays an important role in preventing oral disease, while socio-economic deprivation and environmental factors are strongly associated with ill health, including oral disease.

It has long been recognised that oral health promotion needs to be firmly integrated with general health promotion in order to maximise its effect; together, they can tackle the risk factors associated with the main chronic non-communicable diseases. A united approach simultaneously helps reduce the incidence of obesity, heart disease, stroke, diabetes, cancer and mental health, as well as oral diseases, and supports a health service that is striving to tackle ill health and reduce mixed messages from healthcare professionals for the general public (www.who.int/oral_health/strategies/cont/en/index.html).

This approach was used in *Oral Health and Nutritional Guidance for Professionals* (www.healthscotland.com/documents/5885.aspx), published in 2012, by NHS Health Scotland; the aim was to produce user-friendly guidance that was evidence-based, consistent and agreed by a range of healthcare professionals.

Poor oral hygiene is the main cause of periodontal (gum) disease, while the main causes of dental caries (decay) are poor oral hygiene and poor diet.



/ 3.2 FLUORIDE

The benefits of fluoride can be delivered in a variety of ways. Brushing with fluoride toothpaste is considered to have been the single biggest contributor to the reduction in dental caries in children over the past 30-40 years. Well established programmes have focused on organised tooth brushing as part of the daily routine in nursery and targeted school settings and have supplemented the key message to brush twice a day at home. Other methods of delivery involve the widespread fluoride varnish programmes described in section 4.2.



/ 3.3 IMPROVING DIET AND REDUCING SUGAR INTAKE

The frequent consumption of sugar is strongly linked to dental decay. Across Scotland, the dental team and partner agencies play an important role by offering dietary advice and encouraging healthier behaviours that help reduce the frequency and amount of consumption of sugary foods, particularly between meals.

Diets high in sugar and fat and low in fibre and essential vitamins are associated with coronary heart disease, stroke, obesity, diabetes and periodontal disease, as well as other diseases of the soft tissues of the mouth.



/ 3.4 REDUCING SMOKING

The effect of tobacco use is well recognised. Tobacco contributes to periodontal disease and the rarer but potentially life-threatening oral cancer.

Reducing smoking is an established HEAT target, and members of the dental team are ideally positioned to engage with the “well” smoking population who attend dental surgeries for regular dental check-ups. The dental team are encouraged to actively help their patients and increase the number of referrals into the Stop Smoking Services.



Alcohol consumption increases the risk of high blood pressure, liver disease, coronary heart disease and oral cancer. Alcohol is also a major factor in many social problems, including violence and injuries to the face and mouth.

NHS Health Scotland's recently published paper *Alcohol and Oral Health: Understanding risk, raising awareness and giving advice* (www.healthscotland.com/documents/6124.aspx) highlights the link between alcohol consumption and oral health. It provides guidance on how to increase the dental team's confidence to raise the issue of alcohol consumption with their patients using behaviour change techniques.

The key messages to improve oral health for the population of Scotland are:

- Brush teeth with fluoride toothpaste twice a day - morning and particularly last thing at night.
- Spit out the excess toothpaste and do not rinse with water.
- Reduce sugar intake and improve diet - the frequent consumption of sugar is strongly linked to dental decay. Keep sugary food and drink to meal times.
- Visit the dental team as advised for regular check-ups.

Results from the 2011 Scottish Health Survey (www.scotland.gov.uk/Publications/2012/09/7854/15) report that almost 96% of adults with some natural teeth brushed daily with fluoride toothpaste. The use of daily mouthwash in 2009/2011 was self-reported by 45% of women and 36% of men, and twice as many women stated that they flossed daily (33% compared with 17% of men).



The fundamental objectives of a dental service for the 21st century in Scotland were set out in the 2005 *Dental Action Plan*: to improve oral health and provide accessible prevention services and high-quality, effective treatment. SDCEP's recently published *Oral Health Assessment and Review (OHAR)* guidance document (www.sdcep.org.uk/index.aspx?0=2336) further supports this philosophy and aims to “facilitate the move from a restorative approach to patient care towards a preventive and long-term approach that is risk-based and meets the specific needs of individual patients”. It also acknowledges the fact that patients need to be encouraged to manage their own oral health.

It is important to recognise that for the majority of the population individuals themselves make the biggest contribution to better oral health.

Despite improvements in recent years, Scotland's oral health remains worse than that of some other Western European countries, and there continues to be a wide disparity between those with the best oral health and those carrying the burden of the disease. However, national approaches to improving oral health and reducing inequalities have been developed for both children and priority adult groups.



The Scottish Government has invested significantly in “early years” health improvement and firmly believes that putting resources into initiatives in the early stages of children’s development has many short-, medium- and long-term benefits.

4.2.1 Introduction

Many of the national policy documents relating to oral health published at the turn of the millennium had a particular focus on improving children’s oral health, through a combination of health promotion and the early identification and management of oral disease.

The Action Plan for improving oral health and modernising NHS dental services in Scotland (2005) (<http://scotland.gov.uk/Publications/2005/03/20871/54817>) was partly based on the combined responses to two consultation documents, *Towards Better Oral Health in Children* (2002) (www.scotland.gov.uk/Publications/2002/09/15477/11087) and *Modernising NHS Dental Services in Scotland* (2003) (www.scotland.gov.uk/Publications/2003/11/18542/29107).

One of the proposed outcomes of the 2005 *Dental Action Plan* was the development of *Childsmile* (www.child-smile.org.uk), the national programme designed to improve the oral health of Scotland’s children and reduce inequalities in oral health and in access to dental services.

4.2.2 Childsmile

The programme promotes wider partnership working among healthcare professionals and agencies to deliver primary care prevention programmes, anticipatory care and the appropriate management of caries within NHS services and in other settings. The Scottish Government continues to fund and invest in the programme, which now has four main components which have been rolled out across all 14 NHS board areas.

The universal programme aims to give every child a dental pack to support toothbrushing at home, free daily supervised toothbrushing in nursery and a tailored programme of care within Primary Care Dental Services. Meanwhile, the targeted programme provides additional help, including:

- Home support and community interventions.
- An enhanced programme of care within Primary Care Dental Services to children and families requiring additional support.
- Clinical prevention programmes in priority nursery and primary schools.
- Daily supervised toothbrushing programmes in priority primary schools.
- Facilitated access to appropriate dental services.



/ 4.2 CHILDREN'S ORAL HEALTH IMPROVEMENT

Childsmile is delivered using a broad skill mix, including dental health support workers (DHSWs) trained in oral health promotion, to support families in need of help to attend a dental practice. DHSWs also provide a crucial link between families, health visitors and dental teams. Health visitors and public health nurses introduce families to *Childsmile* and reinforce the key oral health messages and promote dental registration from birth. In 2012, *Childsmile* was embedded into the pre-5-year-old National Child Health Programme and is included in the 6-8 week assessment made by health visiting teams.

Appropriately trained extended duty dental nurses (EDDNs) also deliver preventive oral care and caries management based on the individual needs of the child. EDDNs operate in general dental practice and are also employed by salaried dental services to target nurseries and schools in more deprived areas with children at increased risk of caries and apply fluoride varnish.

From October 2011, *Childsmile* became part of “mainstream” NHS general dental services and was incorporated into the Statement of Dental Remuneration (SDR) to shift the balance of care towards prevention rather than treatment of established disease. All practices delivering NHS care to children must deliver *Childsmile* interventions, including preventive dental care and caries management tailored to the individual child's needs.



HEAT target for children's oral health

In April 2010, the Scottish Government set a Health Improvement, Efficiency, Access and Treatment (HEAT) target for oral health, as part of a range of NHS performance indicators, that all NHS boards are monitored on. The target supports improving the oral health of children and states:

“At least 60% of 3- and 4-year-old children, in each SIMD quintile, to receive at least two applications of fluoride varnish per year by March 2014.”



There is extensive variation in these reported quintile scores between NHS boards, but generally children in more deprived SIMD quintiles are achieving better results than those in more affluent quintiles. This may be partly due to the *Childsmile* programme's targeting of schools and nurseries attended by children from more deprived backgrounds.

Further information is provided at: http://www.isdscotland.org/Health-Topics/Dental-Care/Publications/2012-11-27/Fluoride_Varnish_Statistics_Boards.xls

Since October 2011, additional funding has been provided to dentists for *Childsmile* activities, including the application of fluoride varnish.

Meanwhile, the focus of *Childsmile* research is on whether the programme can improve oral health and reduce health-related inequalities; it also considers which components of the interventions are responsible for the greatest impacts on health improvement.



4.3.1 National Oral Health Improvement Strategy for Priority Groups

The *National Oral Health Improvement Strategy for Priority Groups* www.scotland.gov.uk/Publications/2012/05/7031/0 was published in May 2012. It focuses on the oral healthcare of frail older people, adults with additional needs and homeless people and makes a number of recommendations on improving their oral health. It is recognised that such vulnerable people often experience increased incidence of oral disease, and it is critical that the dental team support the needs of both patients and their carers. Progress made against the strategy's recommendations will be closely monitored.

4.3.2 Homeless people

Prior to the strategy being launched, research informed action in a number of key priority group areas including the oral health of homeless people in Scotland. A survey was conducted during 2008-2009 and the *Smile4Life Report: the oral health of homeless people across Scotland* was published in 2011 to provide insight into the views and health of those experiencing homelessness, in order to better support them to maintain and improve their oral health (www.dundee.ac.uk/dhsru/docs/smile4life_report2011.pdf).

4.3.3 Older people

The focus of this section is on the oral care of dependent older people and the work already done with partners service-wide to achieve oral health improvement. The multi-faceted approach taken has included the need to ensure equity of access through the promotion of dental registration, as registration rates among older people are significantly lower.

People in Scotland are generally living longer lives, and it is projected that the population aged 75 years and over will increase by 82% between 2010 and 2035 (www.gro-scotland.gov.uk/files2/stats/population-projections/scottish-areas-2010-based/10pop-proj-scottishareas-alltables.xls) (See Figure 2.1). Although tooth loss is reducing, the dental aspirations of the population are such that people wish to retain their teeth but thereby need more complex restorative care. The retention of natural teeth may bring its own problems, such as decay in the roots of teeth as gums recede and excessive tooth wear.

Longer lives also bring medical and poly-pharmacy complications for the dental team to manage successfully. Personal care may need to be carried out by carers, which brings further training and support needs.



/ 4.3 PRIORITY GROUPS

Increasing numbers of frail elderly people requires wider consideration of the role of domiciliary dental care. The 2010 *SDNAP report into Domiciliary Dental Care* (www.scottishdental.org/index.aspx?o=3064) made detailed recommendations on service provision, including the need for enhanced training for staff, particularly care home staff, and the promotion of oral disease prevention in older adults.

NHS Health Scotland, in partnership with the National Older People's Oral Health Improvement Group, published *The Caring for Smiles: Guide for Trainers* in May 2010 (www.healthscotland.com/documents/4169.aspx), a comprehensive training package for oral health professionals to deliver training to staff in care establishments. Work is ongoing with key stakeholders including Healthcare Improvement Scotland (www.healthcareimprovementscotland.org) Scottish Care (www.scottishcare.org) and corporate care providers to ensure successful roll-out across Scotland.

The National Older People's Oral Health Improvement Group has raised the profile of oral health as part of the overall routine care of dependent older people. It is fundamental to establish and sustain effective relationships with care establishments and individual carers to provide oral health improvement and address health inequalities.



/ 5. UTILISATION OF DENTAL SERVICES

/ 5.1 PRIMARY CARE DENTAL SERVICES

Primary care dentistry is usually the first point of contact for patients seeking dental treatment. The majority of dental treatment is provided by independent general dental practitioners (GDPs) working on behalf of local NHS boards; salaried general dental practitioners provide an alternative service to independent GDPs to help meet the oral health needs of the local population.

At 31st March 2012, there were 3,115 GDPs – independent and salaried – contracted to provide NHS dental services in Scotland within the NHS general dental services framework. The Statement of Dental Remuneration, set by the Scottish Government, determines the fees associated with each item of treatment for general dental practitioners and payments for adults and children registered; dentists may also receive centrally-funded allowances and grants.

Patients registered with an NHS dentist can receive the full range of NHS treatment ranging from simple examinations to complex restorative and advanced surgical treatments. Adult patients, unless exempt from charges, contribute 80% of the total fee, up to a maximum of £384 (www.psd.scot.nhs.uk/dentists/treatment-costs.html). The fees for child patients (those under 18 years) are paid by local NHS boards.

The *Dental Workforce Report 2012* (<http://nes.scot.nhs.uk/education-and-training/bydiscipline/dentistry/about-dentistry/resources/publications/dental-workforce-report-september-2012.aspx>) highlights the fact that, as in similar areas of health and care, the utilisation of dental services is a function of the supply of dental services and the demand for dental services. Although information is captured about people registered with an NHS dentist, there is no centrally-held information about people seeking and using private dental care. Data from the 2009 *Scottish Health Survey* suggested that, in a 12-month period, 17% had received private dentistry (<http://www.scotland.gov.uk/publications/2010/09/23154223/24>).

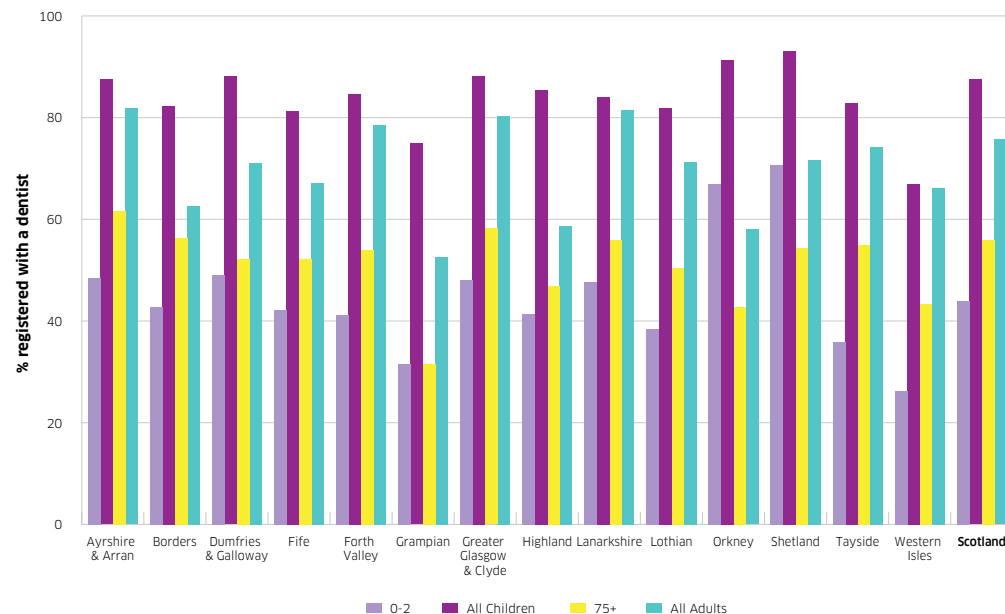


5.1.1 Registration

In April 2010, non-time-limited registration for patients was introduced. This “life-long” registration is designed to allow children and adults to stay registered with a dentist for life. The continuous, practitioner-patient relationship this change introduces is consistent with arrangements elsewhere in primary care, such as general medical services; it aims to promote a more stable relationship between dentist and patient to improve attendance and enable long-term monitoring and management of oral health.

Registration rates for both children and adults have increased over the past two years, with more than 87% of children and 75% of adults registered at the end of March 2012 (<https://isdscotland.scot.nhs.uk/Health-Topics/Dental-Care/Publications/2013-05-28/2013-05-28-Dental-Report.pdf?35259646178>). Figure 5.1 illustrates registration rates by key age groups in NHS board areas and shows that the national registration rate in the 0-2-year-age group is below the target of 55% of 0-2-year-olds to be registered with a dentist. The level of adults registered aged 75 and older is also low, at just over 50%.

Figure 5.1 Percentage of population registered with an NHS dentist by NHS board; March 2012



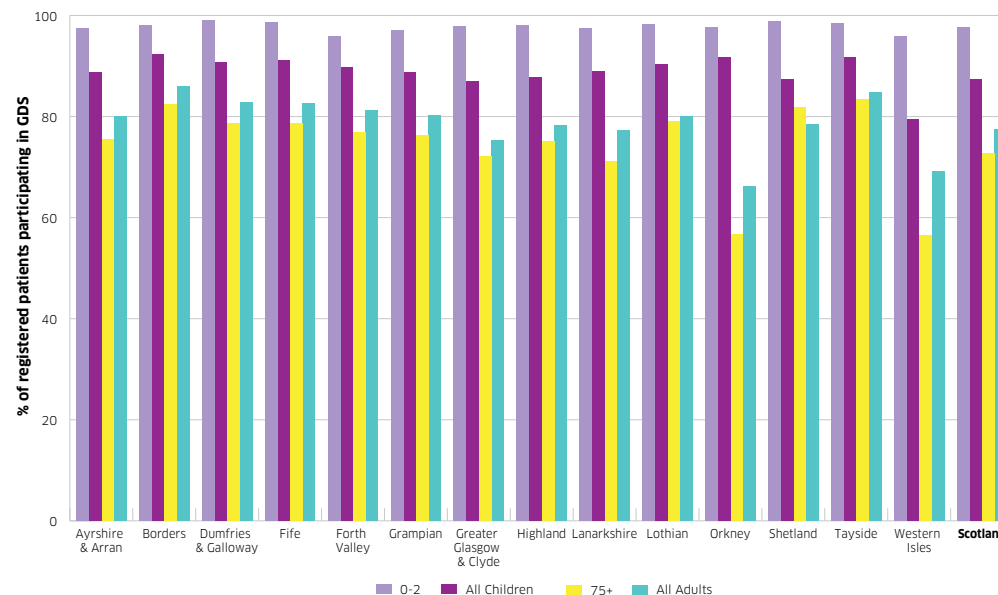
Source: <http://isdscotland.org/Health-Topics/Dental-Care/Publications/data-tables.asp?id=705#705>



5.1.2 Participation

Registration itself does not tell the whole story; it is one of a number of markers that indicate accessibility of general dental services to the population. Participation, as used by the NHS Information Services Division, is a measure of patient attendance at an NHS general dental practice for registration or treatment or other form of contact within the last 2 years. Participation rates are therefore a further indicator of the care that patients are accessing. Figure 5.2 demonstrates the participation rates per NHS board area, with the highest participation rates for children seen in Borders and the lowest in the Western Isles, while rates for adults were highest in Borders and lowest in Orkney.

Figure 5.2 Percentage of registered NHS patients participating in general dental services over a 2-year period; March 2012



Source: <http://www.isdscotland.org/Health-Topics/Dental-Care/Publications/data-tables.asp?id=705#705>



5.1.3 Treatment

During 2011/12 there were over 4 million courses of treatment provided in primary dental care by both independent dental contractors and salaried general dental services, an increase of 7% from the year before. Approximately 88% of the courses of treatment carried out were for adults and 12% for children.

Key points:

- In 2011/12, GDS dentists carried out nearly 2.7 million examinations, an increase of 5.5% from 2010/11.
- The number of teeth extracted by GDS dentists amounted to nearly 545,000 in 2011/12, an increase of 2.5% from the year before.
- During 2011/12, there were increases in the number of radiographs taken, simple and complex periodontal treatments, fillings, root treatments, crowns, dentures, domiciliary visits, surgical treatments, sedations and orthodontic treatments.
- Decreases were observed in 2011/12 over the previous year in treatments involving veneers, inlays and bridges.

5.1.4 Access

In 1997, the Scottish Dental Access Initiative (SDAI) was introduced to improve access to NHS general dental services in parts of Scotland where, historically, availability of GDS had been variable. There has been significant investment over the past few years in expanding dental services in areas where there were still insufficient primary care dental services to meet demand, particularly rural areas, and where people were not registered with a dentist. There were also problems in areas where some dentists developed the private side of their businesses, with the result that the limited numbers of NHS patients registered with them did not justify the establishment of full-time practices.

Despite the opening of new premises, there remains a perception that it is still difficult to find an NHS dentist, but access is at its highest ever level. All NHS boards have dedicated dental advice phone lines to help those not registered with a dentist to find a dentist in their vicinity. Action in future will be focused more on how best to promote the services that are available and on those practices that are willing to take NHS patients.

Dental outreach centres have been established by salaried dental services, further increasing access to dental services, while at the same time benefiting the dental undergraduate student experience.



5.1.5 Allowances

Allowances and Rates and Rent Reimbursement payments have encouraged practitioners to remain committed to NHS dentistry and contributed significantly to their and their practices' incomes.



The Scottish Emergency Dental Services (SEDS) operates across all areas of Scotland (except Edinburgh City, and East and Midlothian, where other arrangements are in place). SEDS is a coordinated, multi-centred service that accommodates unregistered patients.

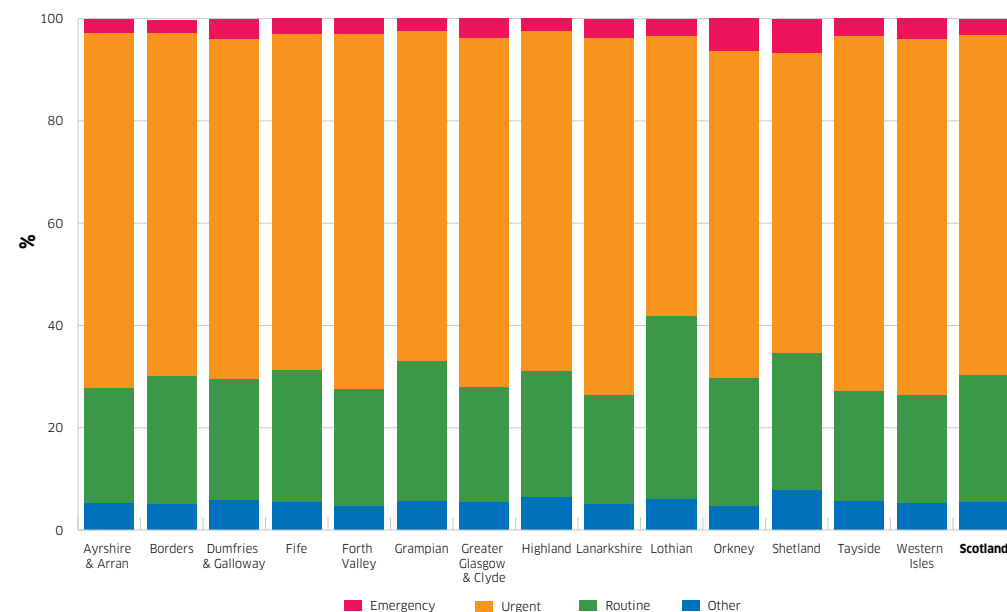
Via NHS24 (www.nhs24.com), SEDS provides a single-point telephone access, triaged by dental nurses using a clinical decision support system and centralised patient booking arrangements. Individual NHS boards are responsible for the local services that enable treatment to be provided within national target times.

Patients are assessed and assigned to one of three categories according to the urgency of the condition:

- Emergency (requiring contact with a clinician within 1 hour).
- Urgent (requiring treatment within 24 hours).
- Routine care (where self-help measures are considered adequate and patients given appropriate advice).

In the year to September 2012, NHS 24 received 74,614 dental calls. There are fluctuations in the number of calls received each month, but effective service planning ensures staffing levels meet demand. The busiest months are December/January and April/May due to the concentration of public holidays. Figure 5.3 shows this information split by triage category (as defined by SDCEP guidance) for the year in question (emergency, urgent, routine and other).

Figure 5.3 NHS 24 triaged calls by NHS board; 12 months to September 2012



Source: NHS 24 data



/ 5.3 COMMUNITY DENTAL SERVICES

The community dental service (CDS) is a directly managed service, providing services which are complementary to the GDS and specialist services. It offers care to priority groups, including those with special needs, and acts as a safety net for those who cannot access general dental services. The CDS provides an essential public health role, which includes epidemiology and oral health improvement.

/ 5.4 HOSPITAL DENTAL SERVICES

Hospital dental services (HDS) in Scotland are accessed via referral from primary care dentists and doctors. Procedures carried out are generally confined to more complex dentistry which is beyond the scope of primary care.



/ 5.5 UTILISATION OF SERVICES

Data on GDS dental activity are readily available, and plans are in place to better record the activities of the community dental services (CDS). Recommendations from the *Dental Workforce Report 2010* (www.scotland.gov.uk/Publications/2011/03/07154848/19) include the need to better record hospital dental data. An implementation group has been tasked with enhancing such dental data quality with a view to aiding planners and decision makers in the future; with the increases in the number of dental care professionals providing NHS services, there is a need to capture more robust information on the care they are delivering.



/ 6. DENTAL WORKFORCE

/ 6.1 INTRODUCTION

NHS Education for Scotland and NHS National Services Scotland published a comprehensive *Dental Workforce Report in 2012* (<http://nes.scot.nhs.uk/education-and-training/by-discipline/dentistry/about-dentistry/resources/publications/dental-workforce-report-september-2012.aspx>).

The dental workforce of Scotland continues to evolve, with more dental undergraduates undergoing training in Dundee and Glasgow and on Aberdeen's 4-year graduate course, which saw the first cohort of students graduate in summer 2012.

Services are provided by dentists and a number of dental care professionals in a variety of general, community and hospital dental service settings.

/ 6.2 THE SUPPLY OF DENTISTS

Since the publication of the *Dental Action Plan* in March 2005, there has been a significant increase in the number of NHS general dental practitioners (GDPs) (both non-salaried and salaried). The *Dental Action Plan* set out a range of targets to increase the number of dentists, dental graduates and vocational trainees.

The age and sex distribution of the dental workforce has changed over time and this has implications for workforce planning. In 1995, fewer than one third of NHS GDPs were female, while in 2011 almost 45% were female. Information from Scottish dental schools shows that well over half of dental students are female, and the percentage of female NHS GDPs is likely to increase.

Key highlights from the *Workforce Report* include (30th September 2011 compared to 30th September 1995):

- The average age of GDPs had decreased.
- The percentage of female GDPs had increased.
- The percentage of dentists who qualified outside Scotland had increased.



/ 6.3 THE SUPPLY OF DENTAL CARE PROFESSIONALS

The *Dental Action Plan* also acknowledged the important role of dental care professionals (DCPs) and their contribution to improving oral health and the provision of oral health care in Scotland; it proposed an increase in the number of dental therapists in training to 45 per year and dental nurses in training to 250 per year. These proposals were based on the shift in demand on dental services, with a greater number of people keeping their teeth into old age, and changes in the patterns of work, with dentists retiring earlier or working reduced hours and some practitioners choosing to work more for the private sector.

Since 2008, dental care professionals have had to register with the General Dental Council and adhere to the *Standards for the Dental Team* (<http://www.gdc-uk.org/Dentalprofessionals/Standards/Pages/default.aspx>) to protect patients and staff and maintain the appropriate level of knowledge, skills and competence. The Office of Fair Trading (OFT) report published in May 2012 (www.of.gov.uk/OFTwork/markets-work/dentistry/#.UqbtOScgGK0) raised concerns over the “continued restrictions preventing patients from directly accessing DCPs”. The OFT felt the restrictions were unjustified and were likely to reduce patient choice and dampen competition. The report recommended that the GDC “change regulations and remove restrictions preventing patients from making appointments to see DCPs directly”. In March 2013, the GDC, following a detailed review, agreed to direct access, permitting dental hygienists and therapists to treat patients within their full scope of practice without prescription from a dentist.

/ 6.4 EDUCATION AND TRAINING

NHS Education for Scotland commissions and delivers a wide range of dental education and training in Scotland for all members of the dental team to ensure patients receive high-quality care.



/ 6.5 THE DENTAL WORKFORCE OF THE FUTURE

The workforce of today needs to be designed for tomorrow, to ensure it has the necessary competencies, skills, knowledge and experience to enable *“the right person to do the right job at the right time”*.

Forecasting dental workforce requirements is challenging, as it is based on the supply of dentists and DCPs, population projections and their needs and demands on dental services. It is currently forecast that there may even be an excess supply of NHS GPs, considering the potential contribution of dental therapists.



/ 7. QUALITY AND BEST PRACTICE

/ 7.1 INTRODUCTION

The vision for dentistry is for patients to have better oral health through evidence-based dental care provided in a safe clinical environment, and for the whole dental team to continually improve its professional practice, thereby ensuring effective patient care is delivered in well-maintained, high-quality premises.

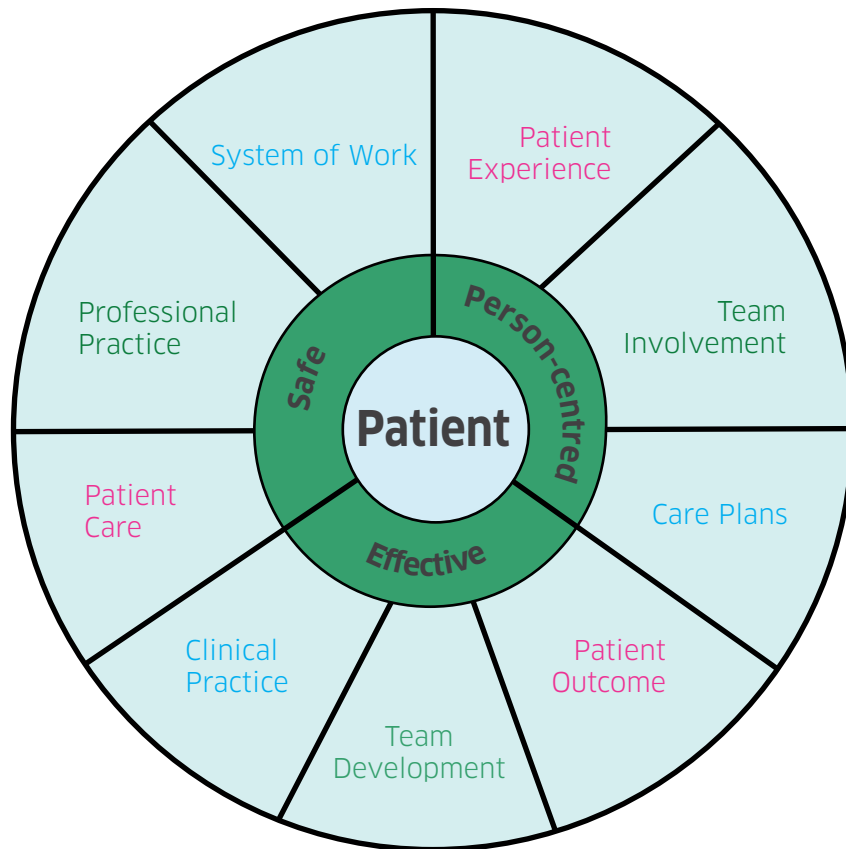
Best clinical practice is underpinned by robust, relevant, evidence-based guidance, and within Scotland there are two key organisations who provide user-friendly guidelines.

/ 7.2 THE QUALITY AGENDA

NHSScotland's *Quality Strategy* (www.scotland.gov.uk/Publications/2010/05/10102307/8) was launched in May 2010 with the aim of achieving world-leading, high-quality healthcare services underpinned by the three Healthcare Quality Ambitions: person-centred, safe and clinically effective. It sets out a range of initiatives at national and NHS board level to improve services to meet these ambitions. Work to develop a set of outcomes and performance indicators, linked to HEAT targets, is under way to enable progress on the quality strategy to be measured at a national level.

A quality outcome framework has been devised by the Scottish Government with close involvement from primary care dentists. The framework is based on the three quality ambitions and has nine key dental practice quality indicators. Against each indicator there are a number of outcomes that will measure the impact on the quality of dental care.





The Scottish Dental Practice Board (SDPB, formerly the Scottish Dental Estimates Board, founded at the creation of the NHS) and Dental Reference Officers (DROs) have a role in examining patients to monitor clinical quality and confirm probity of claims made by GPs for treatment carried out. Practitioner Services Division (PSD) pays dentists on behalf of NHS boards for the NHS work they carry out and monitors the quality of service provided under NHS general dental services (GDS). Further information is available at (www.shsc.scot.nhs.uk and www.psd.scot.nhs.uk).

The challenge is to maintain quality within a more constrained financial environment. Moreover, innovative thinking is required to ensure quality improvement is carried out in a way which promotes equality, tackles discrimination and addresses health inequalities.



7.4.1 Scottish Dental Clinical Effectiveness Programme (SDCEP)

The Scottish Dental Clinical Effectiveness Programme (SDCEP) (www.sdcep.org.uk) supports dental teams throughout Scotland by providing guidance – developed by the profession for the profession – on topics identified as priorities for dentistry. Recently published guidance includes:

- *Drug Prescribing for Dentistry* (www.sdcep.org.uk/index.aspx?o=2334)
- *Oral Health Management of Patients Prescribed Bisphosphonates* (www.sdcep.org.uk/index.aspx?o=3017)
- *Prevention and Management of Dental Caries in Children* (www.sdcep.org.uk/index.aspx?o=2332)

A smart-phone app has been developed by SDCEP following the publication of the second edition of *Drug Prescribing for Dentistry* guidance (www.sdcep.org.uk/?o=3166). This provides mobile access to facilitate drug prescribing within primary care dental practice. There are direct links to the BNF website (www.bnf.org) for drug interaction information and advice on the management of dental emergency. This tool has been designed to help in the management of a range of dental conditions, with prescription information for both adults and children being displayed in a prescription-like format.

In March 2013, the programme produced guidance on *The Management of Acute Dental Problems* (www.sdcep.org.uk/?o=3158) aimed at all healthcare professionals directly involved in the provision of care for patients with such problems, not just dental professionals.

The guidance is available in various forms, including a quick reference guide and a web-app (an interactive electronic version).



7.4.2 Scottish Intercollegiate Guidelines Network (SIGN)

The Scottish Intercollegiate Guidelines Network (SIGN) (www.sign.ac.uk) develops evidence-based clinical practice guidelines for the NHS in Scotland.

A number of guidelines relating to dentistry have been published by SIGN:

- No. 43 – *Management of unerupted and impacted third molar teeth.*
- No. 47 – *Targeted prevention of dental caries in the permanent teeth of 6-16-year-olds presenting for dental care.*
- No. 58 – *Safe sedation of children undergoing diagnostic and therapeutic procedures Section 5: Specialty requirements: dentistry.*
- No. 83 – *Prevention and management of dental decay in the pre-school child* (<http://www.sign.ac.uk/pdf/sign83.pdf>).
- No. 90 – *Diagnosis and management of head and neck cancer* (<http://www.sign.ac.uk/guidelines/fulltext/90/index.html>).

A selective update on guidance numbers 47 and 83 is in progress and due for publication later in 2013.

SIGN Guideline 83 (2005) found fluoride varnish to be effective in the prevention of permanent teeth and showed a benefit extending to all pre-school children. It recommended that fluoride varnish should be applied to the teeth of all pre-school children at least twice a year (see HEAT target above.)



The Scottish Dental Needs Assessment Programme (SDNAP) was established in 1993 and has produced a number of reports. Links to the most recent are given below. SDNAP recommendations have informed the development of new strategies and service delivery models.

- *Domiciliary Dental Care Needs Assessment Report*
(www.scottishdental.org/index.aspx?o=3064)
- *Restorative Dentistry Needs Assessment Report*
(www.scottishdental.org/index.aspx?o=7428)




/ 8. CONCLUSION

/ 8.1 CONCLUSION

There is no doubt that Scotland's oral health improvement has come a long way. In order to continue this long and complex journey it is essential to learn from and use the evidence gathered, capitalise on the connections we have made to prioritise disease prevention, deliver effective dental care to meet the changing needs of the population today and plan for the needs of tomorrow.

At first glance the problem of oral disease may seem straightforward and relatively simple to solve, as the causes are largely preventable and the trends show an overall improvement in oral health; but inequalities persist. The dental workforce has a role to play in changing people's behaviours and lifestyles, but underlying this is the need to address wider social factors, tackle root causes of disadvantage and thereby improve health and reduce inequalities.

It is evident that improving oral health across the population remains a challenge, and simple messages about how to improve oral health still need to be sent far and wide. Building strong dental public health policy and re-designing and implementing effective health services to nurture personal knowledge and self-management skills will enable more people to choose healthier options.



THERE IS NO DOUBT THAT
SCOTLAND'S ORAL HEALTH
IMPROVEMENT HAS COME
A LONG WAY.





The Scottish
Government
Riaghaltas na h-Alba

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