Position Statement

Royal College of Surgeons
FACULTY OF DENTAL SURGERY

Oral health and general health

Introduction

Oral health is an essential part of everyone's wellbeing. It impacts on our ability to eat and speak, as well as our self-esteem. In recent years, there has been increasing interest in the relationship between oral health and general health.

In 2017 the Faculty of Dental Surgery (FDS) at the Royal College of Surgeons and other leading dental organisations supported a series of rapid research reviews published in the *British Dental Journal* which considered the links between oral health and a number of broader health conditions.[1] Meanwhile the Cochrane Oral Health Group, which is internationally recognised as producing the best evidence-based research available to clinicians and policy makers, has conducted a series of reviews examining the impact of oral healthcare on a number of wider health outcomes.

This statement summarises the evidence showing the associations between oral health and conditions including diabetes, obesity, cancer, HPV and sexual health, cardiovascular disease and older people's health. Based on this evidence, the FDS puts forward a series of recommendations for how dentists could play a broader role in supporting their patients' general health and delivering a more holistic model of care.

In particular, we believe that there are clear opportunities for dentists and oral health professionals to support the diagnosis of certain conditions and provide patients with preventative lifestyle advice. In order to achieve this there are a number of steps that could be taken at national and local level – these include raising awareness amongst the general public of the links between oral health and general health and the importance of visiting a dentist; ensuring that clear mechanisms are in place to enable dentists to signpost and refer patients to non-dental services if necessary; and learning lessons from comparable initiatives in other fields of healthcare such as the Healthy Living Pharmacy programme.

1. Diabetes

Diabetes represents a major public health issue, and the NHS spends approximately £10 billion per year dealing with it.[2] Around 3.7 million people in the UK have been diagnosed with type 1 or 2 diabetes, and it is estimated that there could be a further 1 million people living with type 2 diabetes who do not know they have the condition because they have not been diagnosed.[3] Incidence is expected to increase due to rising levels of obesity.

A rapid research review published in the *British Dental Journal* highlighted that current evidence indicates a number of associations between diabetes and oral

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diseases, and that diabetes is a recognised risk factor for gum disease.[4] This is supported by systematic research, with some studies suggesting that diabetes increases the risk of gum disease occurring or progressing by 86%.[5] However, more evidence is needed to determine whether gum disease is a factor in the development of diabetes.

Given the impact that diabetes has on oral health, there is potentially scope for oral health professionals to play a role in supporting the diagnosis of diabetes, prospectively using gum disease as an indicator for the condition.

2. Obesity

Obesity is arguably the biggest long-term health challenge facing the UK today, with the most recent Health Survey for England finding that 29% of adults are obese and a further 36% are overweight.[6] Obesity can lead to a number of serious conditions such as type 2 diabetes, coronary heart disease, stroke and certain types of cancer. Treatment for obesity often involves supporting patients to eat a healthier diet and exercise more.[7]

Studies examining links between obesity and oral disease are very limited, and a clinical link between the two conditions has not been firmly established. For example, a systematic review of causal inference in obesity research published in 2017 found “no evidence for causal relationships between adiposity [being severely overweight] … and periodontitis [gum disease]”.[8]

However, research does indicate that dental care settings can be effective sites for the provision of healthy lifestyle advice. A Cochrane Oral Health review has found evidence that one-to-one dietary interventions delivered in a dental surgery and similar settings can change behaviour, including around fruit and vegetable consumption and alcohol intake. It also recommends that more research should be undertaken about the effectiveness of such interventions in different types of dental settings.[9]

This lends support to the suggestion that dentists and oral health professionals are well placed to deliver dietary and lifestyle advice to patients, which can contribute to efforts to combat obesity.

3. Cardiovascular disease

There is a recognised association between oral disease (particularly chronic gum disease) and cardiovascular diseases, although uncertainty remains over the clinical mechanism which causes this. The link between the two conditions means that dentists and oral health professionals are well positioned to support those at risk of cardiovascular disease, and a rapid review published in the *British Dental Journal* has already made a series of recommendations in this regard.

The review suggested that health professionals involved in the diagnosis and management of oral and cardiovascular diseases should be aware of the associations between the two conditions, and a concerted effort made to ensure that cross-referrals and risk assessments take place across both disciplines. It also proposed that oral health professionals “should provide health promotion advice and signposting for patients presenting with chronic periodontitis [gum disease] in the presence of other cardiovascular disease risk factors such as obesity, diabetes and increased age”, for instance by encouraging take up of the NHS Health Check for people aged 40-74.[10]

4. Cancer

Head and neck cancers are the eighth most common form of cancer in the UK (and the fourth most common form of cancer amongst UK males). They account for around 3% of all new cancer cases, and incidence rates for head and neck cancers have increased by nearly a third (31%) since the 1990s.[11]

Dentists and oral health professionals play a crucial role in the early detection of mouth cancer. A Cochrane Oral Health review has highlighted that visual inspection of the mouth by a front-line health professional is the most effective method of diagnosing such cancers and successfully detects between 59% and 99% of cases, which is superior to other techniques.[12] In addition, involving oral health professionals in providing wider dietary and lifestyle advice could also support overall efforts to reduce cancer incidence, given the significant role that lifestyle factors are known to play in this.

There is also an association between oral hygiene and head and neck cancer, something that was found to be independent of factors such as alcohol and tobacco consumption in one pooled study drawing on data from 13 different countries. This suggested that improvements in oral hygiene – particularly in terms of brushing daily and taking annual trips to the dentist – may be protective against head and neck cancer, although the extent of the risk reduction is modest.[13]

5. HPV and sexual health

The human papilloma virus (HPV) is known to increase the risk of some mouth and throat cancers.[14] HPV is commonly transmitted via sexual routes, so it is important that dentists are able to have sensitive conversations with patients about these issues if the need arises. This has been discussed in a U.S. context in a study in the *Journal of the American Dental Association*, which examined awareness of the connection between HPV and oropharyngeal (throat) cancer amongst American dentists.[15]

It is of course important to be realistic about how dentists should approach this. If a patient has presented with oral lesions which can be a sign of infection, it is essential that dentists are trained to discuss this sensitively and answer any questions that patients have appropriately. There may also be a place for dentists to raise HPV as part of a wider conversation about improving oral health and wider wellbeing in this context.

In the UK, teenage girls are routinely offered vaccinations against HPV, and in July 2018 the Department for Health and Social Care announced that a vaccinations programme will also be introduced for boys aged 12-13 in England (similar commitments have been made in Scotland, Wales and Northern Ireland). ***The FDS has strongly welcomed this, but has also called for a catch-up programme to be introduced for all boys up to the age of 18.*** Furthermore, older cohorts of men will not receive the vaccine, and in some areas take-up amongst girls has historically been low, so there remains a need for oral health professionals to understand the risks posed to their patients by HPV, and be able to manage sensitive conversations with patients about this.

6. Older people's health

Poor oral health has been described as "a new geriatric giant in frail older people", deserving urgent attention from scientists, health care professionals and policymakers.[16]

In its 2017 report on *Improving Older People's Oral Health*, the FDS estimated that 1.8 million people aged 65 years and over in England, Wales and Northern Ireland could have an urgent dental condition such as dental pain, oral sepsis or extensive untreated decay. Moreover, by 2040 this number could increase by over 50% to more than 2.7 million due to population growth alone.

The report also highlighted that poor oral health can impact on older people's wider health, and has been linked to conditions such as malnutrition and aspiration pneumonia.[17] Other studies have reinforced this. A *British Dental Journal* rapid review has suggested that oral hygiene habits can have an impact on the incidence and outcomes of lung diseases, particularly pneumonia, amongst frail populations living in community care facilities or staying in hospital.[18] Separately, a Cochrane Oral Health review has found high quality evidence that oral hygiene care for critically ill patients receiving mechanical ventilation can reduce the risk of ventilator-associated pneumonia from 24% to 18% if chlorhexidine mouth rinse or gel is used as part of treatment.[19]

The link between oral health and dementia is also an emerging area of interest for researchers, although a *British Dental Journal* rapid review has highlighted that at present evidence around this is weak as there are still only a limited number of studies examining the issue. There are also specific challenges to conducting research in this area – for example, there

International perspectives on the role of dentists and oral health professionals

A broader role for dentists and oral health professionals has already been proposed in a number of other countries.

In a U.S. context, *Oral Health in America: A Report of the Surgeon General* was published in 2000 which emphasised the significant link between oral health and general health and wellbeing, and identified opportunities for the dental profession to support the nation's overall health.[22]

More recently, a 2017 article in the *Journal of Dental Education* suggested that in the U.S. the combination of an ageing population, rising numbers of older patients who are retaining their natural teeth and the increasing prevalence of non-communicable diseases in which gum disease has been identified as a factor presents an opportunity for oral health providers to broaden the scope of traditional dental practice. In particular, the authors called for dentists to play a role in screening for medical conditions that are directly affected by oral disease, and for more emphasis to be placed on prevention that focuses on lifestyle behaviours.[23]

Separately, the common causes that poor oral health shares with chronic diseases including obesity, diabetes and cardiovascular disease has been noted in the *Annals of the Royal Australasian College of Dental Surgeons*, which suggested that undertaking risk assessments for systemic diseases in a dental setting can promote better overall health for patients.[24]

are believed to be different pathological mechanisms for various types of dementia, each of which may have different relationships to oral disease. However, the review does highlight that daily oral care is vital regardless of whether or not someone has experienced dementia or cognitive decline, so it is essential to ensure older people receive support with this.[20] Other studies have examined some of the practical issues around providing oral care to those with dementia, such as the need for well tested tools to enable the diagnosis of pain in the mouth, jaw and facial region (so-called "orofacial" pain) for patients who have difficulty communicating.[21]

The FDS has proposed a number of actions to improve older people's oral health. We have recommended that all health and social care professionals who work regularly with older people should receive training in oral care, including the importance of ensuring that care home residents and hospital patients are supported to maintain a regular mouth care regime. Access to dental services also needs to be improved for older people, including those living in care homes, and UK's health and care regulators should assess standards of oral care in their inspections of care homes and hospitals.

7. Other conditions

There are a number of other conditions where links to oral health have been proposed.

Pregnancy outcomes are one such area. Gum health is known to worsen during pregnancy, and some research has suggested that adverse pregnancy outcomes could be reduced through treatment for gum disease. This has been examined through a Cochrane Oral Health

Case Study: Healthy Living Dentistry

Greater Manchester are implementing a new Healthy Living Dentistry model in their dental practices. This focuses on improving the health and wellbeing of the local population and reducing health inequalities through the provision of inclusive, holistic high quality care in general dental practice.

Practices which participate in the scheme nominate an "oral health lead" and at least one "dental champion" who are responsible for leading the practice's wider health work (Health Education England provides them with training on how to approach this).

Practices are accredited as part of the programme once they meet a number of "Level 1" requirements, including promoting public health campaigns such as *Stoptober*, *Dry January* and *National Smile Month*, and providing very brief advice to patients about risks to their oral and general health. They can then progress to "Level 2" by taking further actions such as implementing a dementia-friendly dentistry toolkit. "Advanced" status can also be achieved by meeting additional requirements, such as having conversations with patients to raise awareness around key health issues including long-term conditions, alcohol, smoking, oral health assessments, oral screening and a *Baby Teeth Do Matter* campaign.

Although dental practices participating in the scheme do not receive any additional funding, the resources that enable them to do so are provided for free by Health Education England, and the model is now being built into wider commissioning in Greater Manchester.

review, which has found some evidence that treating gum disease may reduce the incidence of low birth weight (i.e. the number of babies born under 2500g), although the certainty of this finding is limited and more research is needed to develop our understanding.[25]

Separately, research has also suggested that a "strong interaction exists between oral health and mental health", and argued that those experiencing mental health problems are often at greater risk of poor oral health. This is due to a combination of poor oral hygiene, unhealthy lifestyles and barriers to accessing dental care, all of which can be exacerbated by a mental health problem. Closer collaboration between mental health clinicians and dentists has been identified as one way of tackling barriers to care encountered by those experiencing a mental health problem, examples of which include the "Dental as anything" outreach programme in Australia.[26]

Tooth wear is one increasingly common oral health problem which has recognised links to mental health. Tooth wear can result in sharp and sensitive teeth which may look shorter on smiling and lead to self-consciousness for many patients – even speaking or chewing can become difficult and patients often experience jaw and muscle discomfort. "Attritional" tooth wear can be a problem for patients who are highly stressed, or who use certain medications or recreational drugs, as they will often grind or clench their teeth more than usual. Meanwhile, "erosive" tooth wear is frequently observed in patients with a history of eating disorders such as anorexia nervosa or bulimia nervosa, as their teeth will be regularly exposed to stomach acid if self-induced vomiting is used as a weight management strategy. Consequently, oral health professionals may be amongst the first healthcare providers to be able to identify that a patient has an eating disorder.[27]

Lastly, it is important to recognise the specific impact that oral health has on general health for children. Tooth decay is the most common childhood disease and may present significant wider health risks for children, as well as a variety of negative psycho-social impacts. A comprehensive review has highlighted the potential for children with early childhood tooth decay to have impaired growth and development as a result of poor nutrition, iron deficiency anaemia and chronic infection. In addition, concerns have been raised that tooth decay could impact on children's school performance due to pain-related disturbances in sleeping, mood and attention.[28]

It has been suggested that oral health professionals are ideally placed to monitor a child's overall growth and development, alongside their oral health. As part of comprehensive and proactive care, oral health professionals can help to identify and refer children who are below or above a healthy weight to appropriate services.[29]

Policy recommendations

A number of current policy initiatives are set to shape the direction of the oral health profession for years to come. These include the *NHS Long Term Plan* (which has placed a major emphasis on the importance of preventing ill health and includes commitments around improving the oral health of children, older people and those with learning disabilities) as well as Health Education England's *Advancing Dental Care* review, which is examining how the education and training of oral health professionals needs to change to meet future need. In addition, the Government has also said it will publish a new Green Paper on Prevention this year,

which provides a further opportunity to set out its plans for improving oral health.

In this context there is an opportunity to reflect on what dentistry is for and how oral health professionals can provide the best possible care for their patients. The evidence review presented here suggests that they could potentially play a broader role in supporting patients' general health, both by helping to diagnose certain wider health problems and by providing healthy lifestyle advice.

Dentists and oral health professionals are well positioned to engage in this sort of activity. Figures from NHS Digital indicate that over half (50.4%) of adults in England were seen by an NHS dentist in the 24 months to 31 December 2018.[30] Given that oral health professionals always inspect a patient's mouth in the course of treatment, this provides a unique opportunity to monitor how a patient's health is changing on an ongoing basis.

Community pharmacies provide a model that dentistry can potentially follow in this regard. In 2009 the concept of "Healthy Living Pharmacies" was developed in Portsmouth, which extended the scope of pharmacies' work beyond the safe supply of medicines to the provision of self-care advice to patients and healthy lifestyle interventions. The Healthy Living Pharmacies programme sought to build on pharmacies' existing strengths, including their extensive patient reach, and has subsequently been rolled out nationwide with the initiative now being led by Public Health England. Healthy Living Pharmacies appoint a "Health Champion" who receives training to identify local health issues that the pharmacy can help address,[31] and the scheme is also underpinned by a tiered commissioning framework which promotes workforce development, engagement with the local community and ensuring that the pharmacies' premises are fit for purpose.[32]

There have already been local initiatives which apply the principles of the Healthy Living Pharmacy programme to dentistry. In Greater Manchester, a Healthy Living Dentistry programme has been established which utilises dentists and oral health professionals in the delivery of wider public health objectives – this is discussed in detail in the case study box, and the FDS believes there is a strong case for adopting this sort of model nationwide.[33]

Overall, in order to maximise the impact that dentists and oral health professionals can have in supporting their patients' general health, the FDS recommends that:

- Oral health should be one of the issues addressed in the Government's upcoming Green Paper on Prevention.
- All healthcare professionals should cover the links between oral health and general health as part of their initial training and continuing professional development, so that this is understood across different disciplines.
- National and local public health campaigns should always utilise dentists in the delivery of health and lifestyle advice. Awareness should also be raised amongst the general public about the links between oral health and general health, and particularly the importance of seeing a dentist on a regular basis.
- Initiatives to diagnose diabetes and cardiovascular disease, as well as other conditions such as child obesity and eating disorders, should engage dentists and oral

health professionals wherever possible.

- To support this it is important to ensure that there are clear mechanisms in place locally to enable dentists and oral health professionals to signpost and refer patients to non-dental services (including general practice, weight management services and mental health services). Where these are not in place there should be local action to address this.
- The Healthy Living Dentistry programme, which has already been established in Greater Manchester, should be rolled out nationally, with lessons learned from the successful Healthy Living Pharmacy scheme.
- Concerted action is needed to improve oral care and access to dental services for older people, including those living in care homes.

References

[1] C. Klass, K. Wanyonyi, S. White, A. D. Walmsley, N. Hunt and J. E. Gallagher (2017) "A recipe for future research", *British Dental Journal*, 222 (5) 310

[2] NHS (2014) *Five Year Forward View*, p. 9

[3] Diabetes UK (2017) *Diabetes Prevalence 2017 (November 2017)*, accessed on 18 May 2018 via https://www.diabetes.org.uk/professionals/position-statements-reports/statistics/diabetes-prevalence-2017

[4] F. D'Aiuto, D. Gable, Z. Syed and J.E. Gallagher (2017) "Evidence summary: The relationship between oral diseases and diabetes", *British Dental Journal*, 222 (2), 944-948

[5] Nascimento GG, Leite FRM, Vestergaard P, Scheutz F, López R (2018) "Does diabetes increase the risk of periodontitis? A systematic review and meta-regression analysis of longitudinal prospective studies" *Acta Diabetologica*, 55 (7), 653-667

[6] NHS Digital (2018) *Health Survey for England 2017: Adult and child overweight and obesity tables* (Table 1: Adults' body mass index (BMI), overweight and obesity prevalence, by age and sex)

[7] NHS Choices, "Obesity", accessed on 27 September 2018 via https://www.nhs.uk/conditions/obesity/

[8] P.W. Franks and N. Atabaki-Pasdar (2017) "Causal inference in obesity research", *Journal of Internal Medicine*, 281 (3), 222-232

[9] Harris R, Gamboa A, Dailey Y, Ashcroft A (2012) "One-to-one dietary interventions undertaken in a dental setting to change dietary behaviour", *Cochrane Database of Systematic Reviews*, 2012 Issue 3, accessed on 1 October 2018 via https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD006540.pub2/full

[10] T. Dietrich, I. Webb, L. Stenhouse, A. Pattni, D. Ready, K. L. Wanyonyi, S. White and J. E. Gallagher (2017) "Evidence summary: the relationship between oral and cardiovascular disease", *British Dental Journal*, 222 (5), 381-385

[11] Cancer Research UK, "Head and neck cancer statistics", accessed on 1 October 2018 via https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/head-and-neck-cancers#heading-Zero

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[12] Walsh T, Liu JLY, Brocklehurst P, Glenny AM, Lingen M, Kerr AR, Ogden G, Warnakulasuriya S, Scully C (2013) "Clinical assessment to screen for the detection of oral cavity cancer and potentially malignant disorders in apparently healthy adults", *Cochrane Database of Systematic Reviews*, 2013 Issue 11, accessed on 1 October 2018 via https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010173.pub2/full

[13] D Hashim et al (2016) "The role of oral hygiene in head and neck cancer: results from International Head and Neck Cancer Epidemiology (INHANCE) consortium", *Annals of Oncology*, 27(8), 1619-1625

[14] Cancer Research UK, "HPV and cancer", accessed on 1 October 2018 via https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/infections-eg-hpv-and-cancer/hpv-and-cancer

[15] Coralia Vázquez-Otero et al (2018) "Assessing dentists' human papillomavirus–related health literacy for oropharyngeal cancer prevention", *Journal of the American Dental Association*, 149 (1), 9-17

[16] G.J. Van Der Putten et al (2013) "The importance of oral health in (frail) elderly people – A review", *European Geriatric Medicine*, 4 (5), 339-344

[17] Faculty of Dental Surgery at the Royal College of Surgeons of England (2017) *Improving Older People's Oral Health*

[18] D. Manger, M. Walshaw, R. Fitzgerald, J. Doughty, K. L. Wanyonyi, S. White and J. E. Gallagher (2017) "Evidence summary: the relationship between oral health and pulmonary disease", *British Dental Journal*, 222 (7), 527-533

[19] Hua F, Xie H, Worthington HV, Furness S, Zhang Q, Li C (2016) "Oral hygiene care for critically ill patients to prevent ventilator-associated pneumonia", *Cochrane Database of Systematic Reviews*, 2016 Issue 10, accessed on 1 October 2018 via https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD008367.pub3/full

[20] B. Daly, A. Thompsell, J. Sharpling, Y. M. Rooney, L. Hillman, K. L. Wanyonyi, S. White and J. E. Gallagher (2017) "Evidence summary: the relationship between oral health and dementia", *British Dental Journal*, 223 (11) 846-853

[21] Lobbezoo F, Weijenberg RA, Scherder EJ (2011) "Topical review: orofacial pain in dementia patients. A diagnostic challenge", *Journal of Orofacial Pain*, 25 (1) 6-14

[22] Caswell A. Evans and Dushanka V. Kleinman (2000) "The Surgeon General's Report on America's Oral Health: Opportunities for the Dental Profession", *Journal of the American Dental Association*, 2000, 131 (12), 1721-28

[23] I.B. Lamster and N. Myers-Wright (2017) "Oral Health Care in the Future: Expansion of the Scope of Dental Practice to Improve Health", *Journal of Dental Education*, 81 (9), eS83-eS90

[24] M. Cullinan (2012) "The role of the dentist in the management of systematic conditions", *Annals of the Royal Australasian College of Dental Surgeons*, 21, 85-87

[25] Iheozor-Ejiofor Z, Middleton P, Esposito M, Glenny AM (2017) "Treating periodontal disease for preventing adverse birth outcomes in pregnant women", *Cochrane Database of Systematic Reviews*, 2017 Issue 6, accessed on 1 October 2018 via https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD005297.pub3/full

[26] Steve Kisley (2016) “No Mental Health without Oral health”, *Canadian Journal of Psychiatry*, 61 (5), 277-282

[27] Ana Cecilia Correa Aranha, Carlos de Paula Eduardo, Taki Athanassios Cordas (2008) “Eating Disorders Part I: Psychiatric Diagnosis and Dental Implications”, *Journal of Contemporary Dental Practice*, 9 (6), 73-81

[28] Casamassimo PS, Thikkurissy S, Edelstein BL, Maiorini E (2009) “Beyond the dmft: the human and economic cost of early childhood caries”, *Journal of the American Dental Association*, 140 (6), 650-7

[29] Garcia FI, Kleinman D, Holt K, et al (2017) “Healthy futures: Engaging the oral health community in childhood obesity prevention – Conference summary and recommendations”, *Journal of Public Health Dentistry*, 77, S136-S140

[30] NHS Digital (2018) *NHS Dental Statistics for England, 2018-19, Second Quarterly Report*

[31] HealthyLivingPharmacies.org, “What is a Healthy Living Pharmacy?”, accessed on 12 November 2018 via https://www.healthylivingpharmacies.org/index.php/what-is-a-healthy-living-pharmacy

[32] Pharmaceutical Services Negotiating Committee, “Healthy Living Pharmacies”, accessed on 12 November 2018 via https://psnc.org.uk/services-commissioning/locally-commissioned-services/healthy-living-pharmacies/

[33] Case study based on information taken from: Greater Manchester Combined Authority, “Healthy Living Dentistry Guidance”, accessed on 21 May 2018 via http://nebula.wsimg.com/79e743e5f232a5a5f6a51dcbceab1097?AccessKeyId=D53ACF903E48FED9E8A6&disposition=0&alloworigin=1