

BDJ Team

APRIL 2016

OUR RESPONSIBILITY

to older patients

BDA
British Dental Association

April 2016

CPD:
ONE HOUR

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In the second extract from his book, Michael R. Young addresses leadership and recruiting new team members for your dental practice.





Ed's letter



Every dental professional knows that there seem to be strong links between looking after your oral health and your health in general. Research has probed many of these links, and in this issue of *BDJ Team* we present a study that reviewed the available evidence of the potential association between periodontitis and Alzheimer's disease. Are patients with gum disease at greater risk of developing Alzheimer's?



Periodontitis & Alzheimer's p6

Recently there has been a strong focus on dental care for the elderly in the *BDJ* portfolio – for as we all know, we have an ageing population placing high demands on dental services. However, in this issue we are pleased to include an original article from Paul Hellyer looking not at oral health and access to dental care in the elderly, but at spotting signs of elder abuse among older patients who may attend the practice accompanied by a family member or carer. Find out what elder abuse is and about the activities of the organisation Action on Elder Abuse (www.elderabuse.org.uk).

The cover story (and CPD article) in our March issue was about dental complaints, and this April we publish the second excerpt from Mike Young's book (2nd edition) *Managing a dental practice the Genghis Khan way*. Part 2 is all about managing employees – essential reading for all current and aspiring dental practice managers.

In our latest exclusive reader panel article, Nicole Sturzenbaum explains why conscious sedation is a good treatment option for certain child patients.

Did you catch the controversial letter to the editor published in the March issue of *BDJ Team: Pillaging from dental hygienists?* (<http://www.nature.com/articles/bdjteam201648>) It caused a storm on our Facebook page (www.facebook.com/bdjteam) so check it out if you haven't already done so.

You're more than welcome to send your own views or to send me a letter on another topic that you would like to raise. Just email k.quinlan@nature.com.

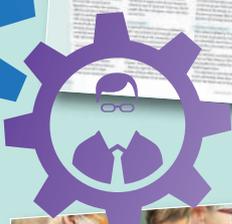
Likewise, if you would like to write an article for *BDJ Team* or nominate an interviewee who has a good story, let me know.

Kate

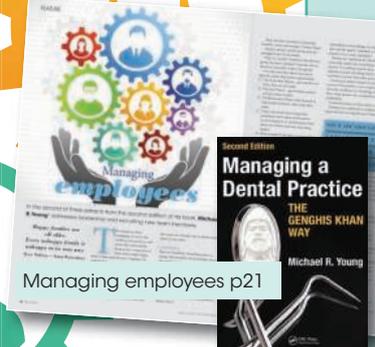
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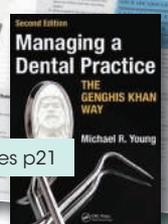
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THE TEAM

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President's Column

Jane Dalgarno BSc, BADN President

Life as President of the British Association of Dental Nurses (BADN) continues to be a busy, albeit enjoyable one as we endeavour to move the profession forward. I valued the opportunity to meet with Sara Hurley, Chief Dental Officer, to consider, among other things, the current training profile of dental nurses and how we can ensure that training today is able to meet tomorrow's challenges. I was delighted to share Sara's vision for the future and the possible opportunities for dental nurses wishing to expand their portfolio with NHS England. I also met with the FGDP Dean, Mick Horton, where we deliberated the possibilities for a 'new' mentoring qualification, to further support dental nurses' work-based learning.

I attended the recent FGDP (UK) bi-annual Pendlebury lecture where guest speaker Sara Hurley shared her observations

and views since taking up the role of Chief Dental Officer and her vision for the dental profession.

It was with great interest that I attended the GDC panel debate on reforming professional regulation and their commitment to make the case for and develop an improved model of dental regulation in the UK. It was evident that collaboration with other regulatory bodies is needed to ensure an efficient and effective reform system.

I am delighted to announce that the 2016 recipient of the BADN Outstanding Contribution to Dental Nursing Award is RAF Warrant Officer Pam Daley. This award will be presented at the BDA Honours and Awards Dinner on Saturday 28 May, in Manchester. Many congratulations, Pam! More details are on the BADN website.

To conclude, BADN will be conducting a survey in relation to dental nurse



demographics. Further details can be found on our website, www.badn.org.uk, and I would encourage all dental nurses, BADN members and non-members, to participate, as this will allow us to build up a dental nurse profile which can be used to better tailor our membership offering to the actual needs of dental nurses in the UK.

To remind you, I shall be at the Dentistry Show (NEC, April), the Scottish Dental Show (Glasgow, May), the British Dental Conference & Exhibition (Manchester, May), the BDA Scottish Scientific Conference (Glasgow, September) and BDIA Dental Showcase (ExCel, October), along with other events, and would be delighted to talk to any dental nurses who come along to the BADN stand.

BDHF LAUNCHES NEW TOOTH BRUSHING PROGRAMME



The British Dental Health Foundation (BDHF) launched their new school brushing programme, 'Brush Time', at the Nursery World Show 2016 in February in London.

The oral health charity have developed Brush Time to help nursery and school staff teach children how to brush their teeth

correctly; it provides all the information and tools they need to develop engaging, interactive and informative lessons for their pupils.

Brush Time is also a great resource for dental professionals who currently, or are looking to, visit schools to help deliver important oral health messages to children.

The charity developed the programme, which is free to download, in response to a recently published review by a Cochrane Oral Health Group which found that regular brushing with a fluoridated toothpaste results in 24% fewer cavities than brushing with non-fluoridated toothpaste.

The Brush Time programme has been developed with the help of oral health and education experts to meet the unique needs of children in an educational environment and

hopes to play a significant role in how dental health is taught in the UK.

'Educators will be excited to find a number of activities, songs and resources which they can use to make the children's education fun as well as sample permission forms to get them involved in the programme,' said Dr Nigel Carter OBE, Chief Executive of the BDHF. 'We believe there is a real need for Brush Time; this really is a fantastic opportunity for educators to help young children understand the importance of good oral health and can really help reinforce the message of good tooth brushing behaviour.'

For those who wish to get involved and contribute to students' dental health the programme can be downloaded in full for free from the Dental Buddy website www.dentalbuddy.org/brushitime.

BURSARIES TO BE REPLACED BY STUDENT LOANS

The proposed changes to NHS bursaries will mean many talented dental professionals will have their careers ended before they get a chance to begin, according to the British Society of Dental Hygiene and Therapy (BSDHT).

Under the new student funding proposals, the government will scrap NHS bursaries for nurses, midwives and Allied Health Professionals and replace with them with student loans, potentially freeing up about £800 million a year.

Dental care professionals (DCPs) who take courses that are not affiliated with a university will be unable to receive student loans and therefore either have to cover the fees themselves or miss out entirely.

Workforce planning has suggested that there is actually a need to increase the number

of dental hygienists and therapists in training. Michaela O'Neill, President of the BSDHT, said: 'This is a deeply concerning strategy which will affect at least three dental schools and lead to a significant decrease in the amount of DCP clinicians qualifying each year.'

'The cuts will lead to potentially dedicated, enthusiastic and knowledgeable dental hygienists and dental hygiene therapists being unable to enter their chosen profession and potentially diminish the quality of health services on offer for patients.'

'At a time in which we are facing a staffing crisis in the NHS this decision makes very little sense and we should do everything we can possibly do to get the government to reconsider the proposals.'

The changes are proposed to take effect for the 2017 academic year. If they go ahead then



it is predicted that many people from poorer backgrounds and those considering a change in career will see their path into the dental profession blocked.

'Without a bursary I am concerned that there will be a distinct lack of opportunity for people without the financial means to pursue their professional ambitions, and those that do will have to take on large amounts of personal debt to do so,' said Ms O'Neill.

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PIONEERING DENTAL AMBASSADOR SCHEME IS A SUCCESS



A team of adults with learning disabilities has successfully passed a training course as part of a pioneering dental ambassador scheme – the first of its kind in the UK.

Six people from Plymouth People First have completed their programme of training for the peer support project developed by the Community Engagement Team at the Peninsula Dental Social Enterprise (PDSE) and supported by Henry Schein.

The team – just the second group to complete the course – has spent six weeks learning from PDSE experts about oral hygiene, toothbrushing, the importance of fluoride, healthy eating, reducing sugar intake and accessing dental care.

Dental Ambassador Luke Garland said: 'The course was really interesting and enjoyable. I liked doing it.'

The programme culminated in an awards presentation held at PDSE's Dental Education Facility (DEF) at Plymouth Science Park where each dental ambassador received a certificate, badge and oral health pack.

They will now promote good dental hygiene and care to their peers through delivering presentations in workplaces and residential settings.

The dental ambassador scheme offers people with learning disabilities the understanding, awareness and confidence to encourage their peers to adopt better oral hygiene and make regular visits to the dentist. They are also supported with presentation skills training – last year's ambassadors delivered oral health presentations to more than 180 of their peers.

Martine Fletcher, Dental Ambassador Co-ordinator at Plymouth People First said: 'Plymouth People First are delighted to continue working with PDSE on the dental ambassador scheme. We already have three bookings for the spring and are looking forward to sharing our new-found knowledge of oral hygiene.'

CAMPAIGN LAUNCHED TO HELP ABUSED YOUNG PEOPLE ACCESS SUPPORT

The British Society of Paediatric Dentistry (BSPD) has announced that it supports a campaign launched by the National Society for the Prevention of Cruelty to Children (NSPCC) calling for better mental health support for abused and neglected children and young people.

The aim of the 'It's Time' campaign is to help abused or neglected young people access the support they need to recover from the trauma they have experienced. Minister of State for Community and Social Care, Alistair Burt MP, launched the campaign at the Houses of Parliament on 10 February 2016.

Alistair introduced an NSPCC young ambassador who told guests at the launch why the campaign was so important. His call for 'constant support, not just crisis support' silenced his audience as he told of young people who resorted to self-harm or threats of suicide before they could get help.

To find out how to support the campaign, go to: <https://www.nspcc.org.uk/fighting-for-childhood/campaigns/its-time/>.

Periodontitis: a potential risk factor for Alzheimer's disease



T. L. Cerajewska,¹ M. Davies² and N. X. West³ review the available evidence of the potential association between periodontitis and Alzheimer's disease.

Introduction

The role of periodontitis as a risk factor for multiple systemic diseases is widely accepted and there is growing evidence of an association between periodontitis and sporadic late onset Alzheimer's disease (SLOAD). Recent epidemiologic, microbiologic and inflammatory findings strengthen this association, indicating that periodontal pathogens are possible contributors to neural inflammation and SLOAD. The aim of this article is to present contemporary evidence of this association.

Alzheimer's disease

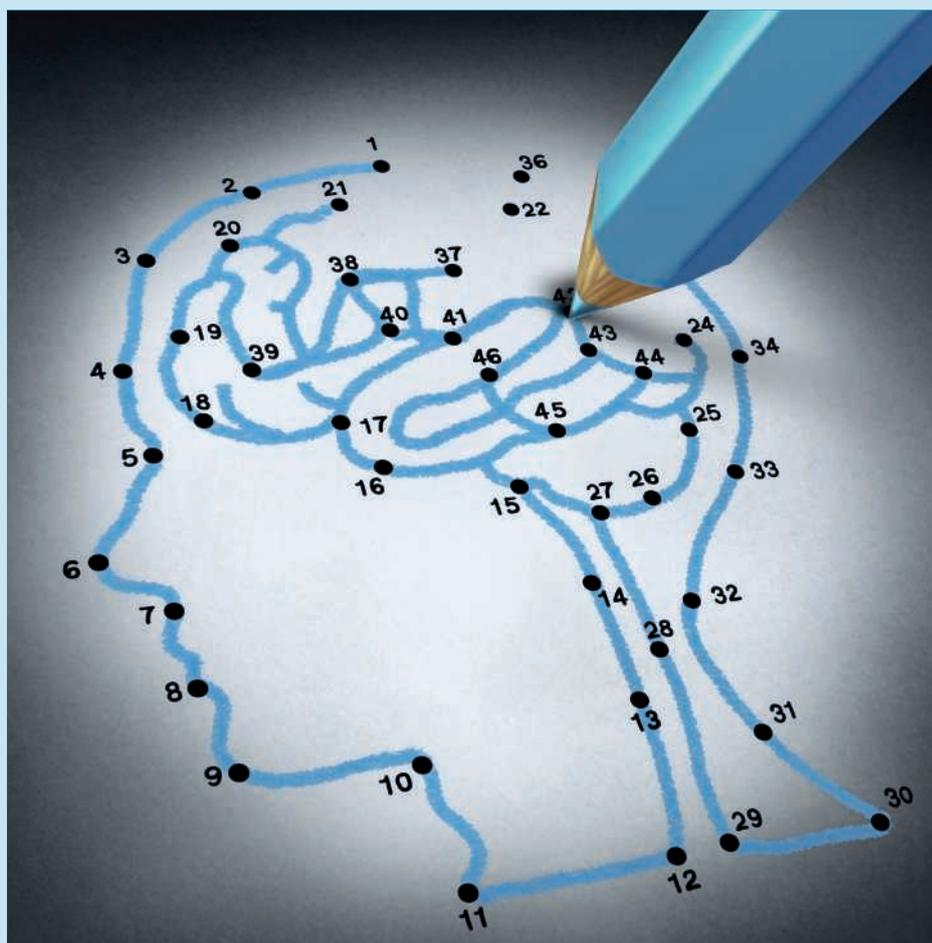
Dementia describes a set of symptoms which includes memory loss, mood changes, problems communicating and difficulty reasoning.¹ Dementia is defined as a reduction in intellectual ability when compared to previous aptitude, which results in impaired function during ordinary daily activities despite unimpaired consciousness.²

Alzheimer's disease (AD) is an irreversible progressive neurodegenerative condition and the most common cause of dementia. It is difficult to assess the prevalence of AD due to differing diagnostic criteria, the absence of specific biological markers and the requirement for post-mortem autopsy to establish a definitive diagnosis.² However, in 2010 it was estimated that more than 35 million people worldwide were living with AD,³ and in 2013 it was reported that around 496,000 people in the UK were affected.¹ AD is not necessarily an outcome of ageing,⁴ but its incidence approximately doubles every five years from the age of 65 years;⁵ the odds of receiving a diagnosis of AD over 85 years of age exceed 1:3.³ As the ageing population increases the number of people living with AD is set to rise considerably.

Pathogenesis of Alzheimer's disease

AD is characterised by neuronal loss and the

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**'IN 2010 IT WAS ESTIMATED THAT MORE THAN
35 MILLION PEOPLE WORLDWIDE WERE
LIVING WITH ALZHEIMER'S DISEASE'**

presence of senile plaques, which contain β -amyloid ($A\beta$) protein and neurofibrillary tangles of hyper-phosphorylated tau protein.⁶ However, it has been shown that plaque accumulation does not correlate with loss of cognitive function,⁷ by contrast soluble toxic forms of $A\beta$ and tau are thought to contribute to the disruption of synaptic function and neurodegeneration.^{8,9} Chronic inflammation is also characteristic of AD brains and inflammatory related proteins have been

shown to be involved in the generation of $A\beta$ and tangle formation.¹⁰

SLOAD is the most common form of AD, accounting for approximately 98% of all cases.¹¹ SLOAD has a complex multifactorial aetiology and a polymorphism of the apolipoprotein E4 allele (APOE- ϵ 4) has been found to be a major risk factor,¹² this gene encourages $A\beta$ to be deposited in the brain.¹³ Although APOE- ϵ 4 is thought to be the strongest genetic risk factor for SLOAD,¹³

it is only one of 20 loci known to increase the hosts susceptibility to AD.¹⁴ A number of polymorphisms in the genes associated with interleukin-1 (IL-1)^{15–19} and tumour necrosis factor alpha (TNF- α) are believed to alter host susceptibility.^{15,20–23}

A number of potentially modifiable risk factors are also thought to have a cumulative detrimental effect on the brain throughout life. These risk factors include infective agents, host immune response, cerebrovascular disease,²⁴ low cognitive reserve (that is, intelligence, occupation and education),²⁵ low physical activity levels,²⁶ alcohol intake,²⁷ early life depravants, tooth loss,²⁴ age,²⁸ head injury,²⁹ and female gender.³⁰ Current evidence for individual modifiable risk factors for AD is at best moderate and at worst inconclusive and misleading.³¹

ages.^{40,41} Over 38% of US adults aged 30 and over had either moderate or severe periodontitis, however, for adults aged 65 and over this figure increased to 64%.⁴¹

Periodontitis is a common source of chronic systemic infection.^{42–44} The non-keratinised periodontal pocket and junctional epithelium, particularly when ulcerated, can act as an entry portal for bacteria and their endotoxins to enter the systemic circulation.^{43,45–47} Presence of such bacteria in the circulatory system causes systemic immunomodulatory effects, which form part of the host response to periodontal pathogens.^{41,48,49} In addition to local intraoral effects periodontal disease has a potentially negative impact on general health due to associations with other chronic inflammatory diseases, such as atherosclerotic cardiovascular disease (AVCD),^{50–54} diabetes⁵⁵

hinder carer assistance with oral hygiene and result in lower self-esteem and quality of life in those affected.⁶⁰ This negative cycle leads to increased periodontal destruction; which has in the past been attributed to poor plaque control. It is also possible that the long-term inflammatory burden on the systemic circulation causes neural degeneration.⁶⁵

The possibility of periodontitis in early and mid-life acting as a precursor to dementia in later life is increasingly being recognised.⁵¹ In such cases the symptoms of dementia were not present in early and mid-life, so dementia impaired oral hygiene would be an unlikely causative factor for the periodontitis observed. Longitudinal data measuring periodontal status, inflammatory markers and cognitive status would be useful,⁵¹ however, such data are in short supply. Many previous studies that have associated periodontitis with AD have not measured periodontal indices or used clinical diagnoses as a measure of the presence and severity of periodontitis as one might expect, instead many relate AD to tooth loss.^{24,66–71} While it is likely that some tooth loss is due to periodontitis there are numerous other potential causes of tooth loss, thus an association between periodontitis and AD cannot be reasonably concluded from such studies. For example, patients who have fewer educational experiences and lower cognitive levels are more likely to have extractions^{66,72} and also more likely to develop the signs and symptoms of AD.⁷³ Nevertheless, periodontitis is a potential cause of tooth loss and many studies have associated AD in late-life with tooth loss in early and mid-life.^{24,66–71}

Some studies that provide more robust evidence for a causal link between periodontitis and AD have been published. In a longitudinal cohort study, which followed 152 subjects for 20 years, from 50 to 70 years of age, it was found that, for those subjects with fewer than ten missing teeth, greater levels of periodontal inflammation correlated with lower cognitive levels.⁶⁰ In another longitudinal ageing cohort study of 144 nuns in Milwaukee it was demonstrated that over time those with APOE- ϵ 4 and fewer teeth had more rapid rates of cognitive decline than those with neither or either of these risk factors.⁷¹ Moreover, the Veterans Affairs longitudinal cohort study, which followed 597 community dwelling men for 32 years, found that tooth loss, periodontal pockets and progression of alveolar bone loss were associated with impaired cognition particularly in those over 45 years.⁷⁴ Further analyses of the third US national health and nutrition survey which included 2,355 people aged 60 years and over, showed associations

‘POSITIVE CORRELATION BETWEEN ATTAINING PERIODONTAL STABILITY AND DIABETIC CONTROL HAS RECENTLY BEEN RECOGNISED.’

Periodontal disease

Periodontitis is a progressive destructive condition which affects the gingivae, periodontal ligament and alveolar bone due to chronic multifactorial inflammatory changes in the periodontal tissues as a result of the host response to periodontal pathogens.³² More than 400 bacterial and viral species have been found to colonise the periodontal pocket.³³ The most virulent bacterial communities tend to contain Gram-negative bacteria capable of tissue invasion. They include *Aggregatibacter actinomycetemcomitans*, *Tannerella forsythia*, *Porphyromonas gingivalis* and *Treponema denticola*.^{34,35} Host response to periodontal pathogens can be affected by gene polymorphisms, particularly those that code for IL-1 and TNF- α .^{23,36–38} Furthermore, the host response is known to be affected by many lifestyle factors, for example tobacco smoking and stress, which are similarly associated with increased risk of SLOAD.³⁹ Nutrition and other lifestyle factors are believed to affect gene expression.²³

In the UK the prevalence of severe periodontitis appears to have increased between 1998 and 2009.⁴⁰ UK and US epidemiologic studies indicate that periodontitis affects large numbers of the population and, similar to AD prevalence increases as the population

and cognitive decline.⁵⁶ Periodontal disease is recognised as a significant public health concern.⁵⁷

The pathogenesis of periodontitis, ACVD, diabetes and cognitive decline is not fully understood. However, there is an emerging awareness of co-dependent risk and pathogenesis for these diseases and positive correlation between attaining periodontal stability and diabetic control has recently been recognised.⁵⁵ Inflammatory and immune responses to infection are thought to provide a connection between these diseases at a fundamental level,⁵⁸ indeed, ACVD and diabetes as well as periodontitis are recognised risk factors for SLOAD.⁵⁹

Epidemiological evidence of an association between Alzheimer's disease and periodontal disease

Oral hygiene is significantly compromised in patients affected by AD because the cognitive processes of learning, attention and memory are progressively damaged. As the neurologic degeneration of AD progresses, daily activities are disrupted by temporal and spatial disorientation and reduced motor skills.² Poor oral hygiene and dental morbidity have been correlated with the presence and increased severity of AD.^{60–64} The resultant halitosis, discomfort and bleeding when brushing can

between periodontitis and cognitive impairment, and between measures of immunoglobulin to the common periodontal pathogen *Porphyromonas gingivalis* and cognitive test performance.⁷⁵ Another epidemiologic study, which included a cohort of 5,138 people aged between 20 and 59 years, revealed that after education and adjustment for other confounding variables, gingival bleeding and loss of periodontal attachment were significantly associated with cognitive impairment.⁷⁶

While epidemiologic evidence suggests periodontal disease may be a risk factor for SLOAD, both chronic periodontitis and SLOAD are multifactorial conditions which share many of the same lifestyle risk factors for example, tobacco smoking and previous education.^{40,41,59} Thus, an epidemiologic association between tooth loss/periodontal disease and cognitive impairment does not indicate causation.

Plausibility of a potential causal relationship between periodontal disease and Alzheimer's disease: microbial factors

Bacteraemia of oral origin has been recognised since the 1970s.^{46,47} It has been speculated that the proliferation and dilation of the periodontal vasculature and ulceration of the periodontal epithelium, seen in chronic periodontitis, provide a larger surface area for the entry of microorganisms into the blood stream compared to healthy gingival tissue.⁴⁵ Although this has not been proven beyond doubt, a recent systematic review and meta-analysis determined that plaque accumulation and gingival inflammation significantly increase the prevalence of bacteraemia following tooth brushing.⁴³ Gingival inflammation has also been significantly associated with the incidence of bacteraemia following scaling and root planing.⁴⁴ Thus patients with periodontitis may have a higher risk of developing systemic diseases of oral origin.⁷⁷

The viability of a number of periodontal pathogens in atherosclerotic plaques has recently been recognised,^{78,79} and adds credence to the possibility that oral bacteria can reach the brain via the systemic circulation. *Porphyromonas gingivalis*^{79,80} and *Treponema denticola*^{79,81} have both been implicated in aortic inflammation and atherosclerotic plaque formation with viable bacteria being isolated from both oral and atherosclerotic plaques in animal models. Thus, such pathogens have the potential to linger in the systemic circulation and prolong what was previously thought to be a transient bacteraemia.

It has been speculated that the permeability of the blood-brain barrier increases with age and precedes the development of AD. This has been demonstrated in animal models, where mice that were genetically modified with a mutation in the amyloid precursor protein gene, associated with early onset Alzheimer's disease (EOAD) in humans, were shown to have increased permeability of the blood-brain barrier and increased formation of senile plaques when compared to control mice.⁸² The effects became more apparent as the mice aged.

It has also been hypothesised that periodontal pathogens may enter the brain via the peripheral nerve pathways,⁸³ this being a potential route for the transfer of viruses,

Some of the spirochetes involved were known periodontal pathogens, such as *Treponema denticola*, *Treponema socranskii*, *Treponema pectinovorum* and other oral *Treponema*.

Herpes simplex virus and cytomegalovirus have been isolated from periodontal pockets^{95,96} and have also been detected in the brain tissue of older adults with and without AD.^{97,98} It has been suggested that latent viruses may be reactivated by immunosuppression, stress or inflammation in the brain and that the APOE-ε4 allele may also affect the reactivation and/or degree of damage caused by viruses within the brain.⁹⁹ Indeed the APOE-ε4 allele is likely to make the host more susceptible to a number of environmental risk factors for AD.

'PATIENTS WITH PERIODONTITIS MAY HAVE A HIGHER RISK OF DEVELOPING SYSTEMIC DISEASES OF ORAL ORIGIN.'

particularly herpes viruses. The identification of oral *Treponema* in the trigeminal ganglia also supports the neural route.⁸⁴ In addition it has been reported by a number of authors that peripheral infections and inflammatory markers can access the brain.⁸⁵⁻⁸⁷ Furthermore, the circum-ventricular organs are not protected by the blood-brain barrier,⁸⁸ and thus could potentially act as an entry portal for bacteria to reach other parts of the brain.⁶⁵

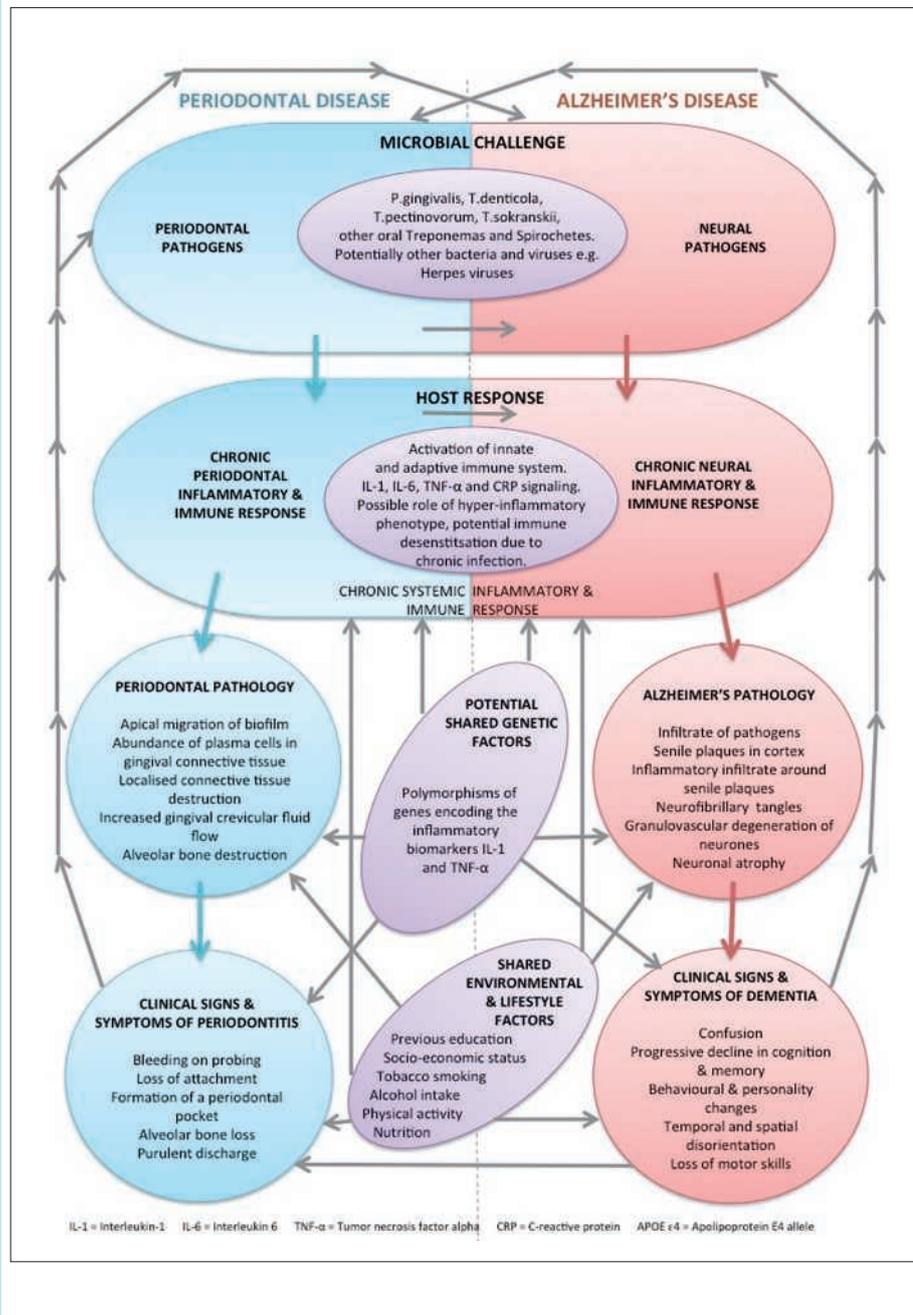
Microorganisms have been isolated more frequently from the brains of AD specimens than age-matched non-AD specimen's post-mortem. *Chlamydothyla pneumoniae*^{89,90} and the spirochetes *Treponema denticola*⁸⁴ and *Borrelia burgdorferi*⁹¹ have all been isolated from AD brain specimens post-mortem, but not always from areas of AD neurodegeneration. Furthermore, *Chlamydia pneumoniae* has been shown to cross the blood-brain barrier in an *in vitro* model⁹² and to be capable of inducing amyloid plaque formation in an animal model.⁹³ More recently, lipopolysaccharide from *Porphyromonas gingivalis* has been shown capable of crossing the blood-brain barrier in AD brain samples but not in non-AD control brain samples post-mortem.⁹⁴ A seminal article which assessed the available evidence for an association between spirochetes in the brain and Alzheimer's disease against Koch's and Hill's postulates found a causal relationship was probable.⁷³

Inflammatory mechanisms linking periodontal disease and Alzheimer's disease

Fundamental to the inflammatory hypothesis of AD is inflammation in the brain, which once begun continues and causes neurodegeneration.¹⁰⁰ This is believed to occur due to microbial stimulation of the immune response, which causes glial cells to release the Aβ and hyperphosphorylated tau proteins, found in senile plaques and neurofibrillary tangles, in a positively perpetuating cycle.⁸³ Chronic inflammation is not thought to be the primary cause of AD, rather a secondary phenomenon. However, reducing cerebral inflammation may slow the progress and delay the onset of AD.¹⁰¹ Chronic periodontitis has been shown to result in sustained and increased levels of inflammatory products in the circulation.¹⁰² Individuals vary in their susceptibility to infection, partly due to the components within the biofilm and partly due to their particular genotype.⁵¹ A hyper-inflammatory phenotype has been associated with periodontitis,^{103,104} that causes some individuals to have exaggerated inflammatory responses to pathogens.

Inflammatory biomarkers include cytokines (intercellular signalling molecules that have an immuno-modulatory effect) such as IL-1, interleukin 6 and TNF-α, as well as acute phase proteins including C-reactive protein. Inflammatory cytokines produced by the periodontal tissues during

Fig. 1 Shared features for periodontitis and Alzheimer's disease pathogenesis



periodontitis can enter into the blood stream,^{105–107} and have been implicated both in periodontitis^{23,51,102,108–111} and in the neurological changes of AD.^{23,51,112–122} It could be that AD and periodontitis share the same or similar hyper-inflammatory phenotypes, that when activated by certain environmental factors have a detrimental effect on host periodontal and neural tissue.

It remains uncertain whether systemic inflammation precedes AD, so it is also possible that the peripheral inflammatory response, mounted against periodontal pathogens or the pathogens themselves could induce or increase neural inflammation

and thus contribute to AD onset and progression. Regardless of the cause, systemic inflammation has been shown to predict dementia.^{51,116,118}

A β aggregation, central to the amyloid cascade hypothesis of AD, has been shown to be modulated in response to a number of environmental stressors, to act as ligand for a number of receptors and molecules which have been transported across the blood-brain barrier and to induce a number of pro-inflammatory activities. A β has been shown to be active against eight clinically relevant microorganisms *in vitro*.¹²³ It was proposed, therefore, that A β is an antimicrobial

peptide acting as an effector molecule of innate immunity. The same study found that temporal lobe samples from the AD brains contained significantly higher antimicrobial activity than the brains of age-matched, non-AD subjects.

Stimulation of the innate immune system by persistent sub-acute infection of the brain with bacteria or viruses may trigger an amyloid cascade leading to A β generation and deposition.¹²³ Genetic factors could also influence A β production and clearance. While the genes associated with EOAD are believed to cause A β accumulation without a trigger from the innate immune system,¹²⁴ individuals with APOE- ϵ 4 gene associated with SLOAD may be more susceptible to cerebral infection.¹²⁵ Transient cerebral infection or non-infective insult to the brain may lead to a persistent self-perpetuating innate immune response; this could be the result of traumatic brain injury,¹²⁶ stroke,¹²⁷ or gaseous anaesthetic agents.¹²⁸

Requirement for future clinical intervention studies

Predictions of a global AD epidemic estimate that the prevalence is set to quadruple from 2006 to 2050.¹²⁹ Without a cure for AD and in the face of an epidemic the cost of dementia to the global economy is set to rise significantly from the 2010 estimate of £604 billion.¹³⁰ It has been estimated that the annual cost for institutionalised dementia care in the UK will rise from £5.1 million in 2002 to £16.7 million in 2031.¹³¹ According to expert consensus opinion the disabling effects of dementia are surpassed only by terminal cancer and spinal cord injury,¹³² and place a vast physical, psychological and economic strain on those affected and their carers, friends and family.¹³³

While available drug treatments for AD, that is cholinesterase inhibitors and N-methyl-D-aspartate receptor antagonists, can provide symptomatic benefits, they do not alter the progressive neuro-degeneration or end-stage outcome of AD.^{134,135} In 2010 an independent expert consensus report concluded that recommendations for the prevention of AD and cognitive decline could not be made due to a lack of robust evidence.³¹ This highlights the need for further research into potential modifiable risk factors for AD including periodontitis.

Periodontal therapy has been shown to reduce peripheral infection and the systemic inflammatory biomarkers for periodontitis and AD.^{136,137} Further research is required to determine whether reducing the systemic bacterial and inflammatory load through effective periodontal therapy may delay the

onset and progression of Alzheimer's disease.

If effective periodontal therapy could delay the onset and progression of AD by one year it has been predicted that there could be almost 9.2 million fewer cases of AD by 2050, with much of the decline ascribed to those who require the most costly care.¹²⁹ Such an effect would also be likely to improve patients and their carers' quality of life.

Potential further research

As it remains to be determined whether periodontitis is a risk factor for Alzheimer's disease and whether effective treatment of periodontitis will delay the onset and progression of SLOAD further research studies are indicated, these include:

- Longitudinal epidemiologic cohort studies that follow a population and measure their periodontal and cognitive status from middle to old age to confirm a correlation
 - Post-mortem analysis to compare levels of periodontal pathogens in brain tissue from patients with AD and healthy controls. Identification of new periodontal pathogens not yet associated with Alzheimer's disease and determination of their micro-anatomical association to the histopathological hallmarks of AD
 - *In vitro* or mammalian model studies to determine how periodontal pathogens enter the brain, their ability to form biofilms in the brain once there and the mechanisms by which they and the immune and inflammatory response could induce the pathological changes associated with AD
 - Studies to determine whether the genetic polymorphisms associated with SLOAD are associated with periodontitis and vice versa
 - Pilot clinical and quality of life studies to determine whether it is feasible to effectively treat periodontal disease in those who suffer from AD
 - Clinical trials to measure the impact of periodontal treatment on inflammatory biomarkers, presentation, progression and quality of life of those who suffer from AD.
- Such research will be particularly challenging due to the multifactorial aetiology and chronic nature of periodontitis and AD.

The specific needs and disabilities of those who suffer from AD will also pose unique challenges. To validate findings research will require collaboration between experts from scientific, medical and dental disciplines, independent and multi-centre investigations, adequate funding support and large sample sizes for clinical intervention trials with careful statistical analysis to determine the effects of potential confounding variables. It is therefore likely that progress in this field will be gradual.

Conclusion

Current literature suggests an association and shared pathogenesis between periodontitis and AD, which has been summarised in Figure 1. The mechanisms of this association

are not fully understood. Therefore, further research is required to prove and determine the *raison d'être* for this association. Several potentially coexistent theories are proposed:

- The direct invasion of periodontal pathogens and/or their virulence factors into brain tissue is implicated in the pathogenesis of AD
- Chronic exposure to periodontal pathogens and their endotoxins result in modification of the systemic inflammatory mediators, which are implicated in the pathogenesis of AD
- Periodontitis and AD may share a common underlying cause due to expression of underlying hyper-inflammatory phenotypes
- The effects of periodontal pathogens on the systemic circulation are implicated in the formation of atherosclerotic plaques and therefore, AD is an outcome of inflammatory changes to vessel walls and reduced blood flow to the brain
- AD and periodontitis share risk factors and similar, but non-contributory, inflammatory pathogenesis
- The effects of AD have a negative effect on plaque control, which has a detrimental effect on periodontal health.

1. Alzheimer's Society. *What is Alzheimer's disease?* London: Alzheimer's Society, 2013.
2. Ghezzi E M, Ship J A. Dementia and oral health. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*

- 2000; **89**: 2–5.
3. Querfurth H W, LaFerla F M. Alzheimer's disease. *New Engl J Med* 2010; **362**: 329–344.
4. den Dunnen W F, Brouwer W H, Bijlard E *et al*. No disease in the brain of a 115-year-old woman. *Neurobiol Aging* 2008; **29**: 1127–1132.
5. Hirtz D, Thurman D J, Gwinn-Hardy K, Mohamed M, Chaudhuri A R, Zalutsky R. How common are the «common» neurologic disorders? *Neurology* 2007; **68**: 326–337.
6. Selkoe D J. Alzheimer's disease. *Cold Spring Harbor Perspectives Biology* 2011; **3**: 1–16.
7. Ingelsson M, Fukumoto H, Newell K L *et al*. Early Abeta accumulation and progressive synaptic loss, gliosis, and tangle formation in AD brain. *Neurology* 2004; **62**: 925–931.
8. Lesne S E. Breaking the Code of Amyloid-beta Oligomers. *Int J Cell Biol* 2013; 950783.
9. Spires-Jones T L, Hyman B T. The intersection of amyloid beta and tau at synapses in Alzheimer's disease. *Neuron* 2014; **82**: 756–771.
10. Eikelenboom P, Hoozemans J J, Veerhuis R, van Exel E, Rozemuller AJ, van Gool WA. Whether, when and how chronic inflammation increases the risk of developing late-onset Alzheimer's disease. *Alzheimers Res Ther* 2012; **4**: 15.
11. Noble J M, Scarmeas N, Papapanou P N. Poor oral health as a chronic, potentially modifiable dementia risk factor: review of the literature. *Curr Neurol Neurosci Rep* 2013; **13**: 384.
12. Corder E H, Saunders A M, Strittmatter W J *et al*. Gene dose of apolipoprotein E type 4 allele and the risk of Alzheimer's disease in late onset families. *Science* 1993; **261**: 921–923.
13. Potter H, Wisniewski T. Apolipoprotein e: essential catalyst of the Alzheimer amyloid cascade. *Int J Alzheimers Dis* 2012; 489428.
14. Lambert J C, Ibrahim-Verbaas C A, Harold D, Naj A C *et al*. Meta-analysis of 74,046 individuals identifies 11 new susceptibility loci for Alzheimer's disease. *Nat Genet* 2013; **45**: 1452–1458.
15. McGeer P L, McGeer E G. Polymorphisms in inflammatory genes and the risk of Alzheimer disease. *Arch Neurol* 2001; **58**: 1790–1792.
16. Yuan H, Xia Q, Ge P, Wu S. Genetic polymorphism of interleukin 1beta511C/T and susceptibility to sporadic Alzheimer's disease: a meta-analysis. *Mol Biol Rep* 2013; **40**: 1827–1834.
17. Di Bona D, Plaia A, Vasto S *et al*. Association between the interleukin-1beta polymorphisms and Alzheimer's disease: a systematic review and meta-analysis. *Brain Res Rev* 2008; **59**: 155–163.
18. Zhu X C, Tan L, Jiang T, Tan M S, Zhang W, Yu J T. Association of IL-12A and IL-12B polymorphisms with Alzheimer's disease susceptibility in a Han Chinese population. *J Neuroimmunol* 2014; **274**: 180–184.
19. Payao S L, Goncalves G M, de Labio R W *et al*. Association of interleukin 1beta polymorphisms and haplotypes with Alzheimer's disease. *J Neuroimmunol* 2012; **247**: 59–62.
20. Wang B, Zhou S, Yang Z *et al*. Genetic analysis of tumor necrosis factor-alpha (TNF-alpha) G-308A and Saitohin Q7R polymorphisms with Alzheimer's disease. *J Neurol Sci* 2008; **270**: 148–151.
21. Di Bona D, Candore G, Franceschi C *et al*. Systematic review by meta-analyses on the possible role of TNF-alpha polymorphisms in association with Alzheimer's disease. *Brain Res Rev* 2009; **61**: 60–68.
22. Lio D, Annoni G, Licastro F *et al*. Tumor necrosis factoralpha308A/G polymorphism is associated with age at onset of Alzheimer's disease. *Mech Ageing Develop* 2006; **127**: 567–571.
23. Kornman K S. Interleukin 1 genetics, inflammatory mechanisms, and nutrigenetic

- opportunities to modulate diseases of aging. *Am J Clin Nutr* 2006; **83**: 475S–483S.
24. Gatz M, Mortimer J A, Fratiglioni L *et al*. Potentially modifiable risk factors for dementia in identical twins. *Alzheimers Dement* 2006; **2**: 110–117.
 25. Valenzuela M J, Sachdev P. Brain reserve and dementia: a systematic review. *Psychol Med* 2006; **36**: 441–454.
 26. Hamer M, Chida Y. Physical activity and risk of neurodegenerative disease: a systematic review of prospective evidence. *Psychol Med* 2009; **39**: 3–11.
 27. Anstey K J, Mack H A, Cherbuin N. Alcohol consumption as a risk factor for dementia and cognitive decline: meta-analysis of prospective studies. *Am J Geriatr Psychiatry* 2009; **17**: 542–555.
 28. Ferri C P, Prince M, Brayne C *et al*. Global prevalence of dementia: a Delphi consensus study. *Lancet* 2005; **366**: 2112–2117.
 29. Sundstrom A, Nilsson L G, Cruts M, Adolphsson R, Van Broeckhoven C, Nyberg L. Increased risk of dementia following mild head injury for carriers but not for non-carriers of the APOE epsilon4 allele. *Int Psychogeriatrics* 2007; **19**: 159–165.
 30. Kocaeli H, Yaltirik M, Yargic L I, Ozbas H. Alzheimer's disease and dental management. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2002; **93**: 521–524.
 31. Anon. Alzheimer's disease prevention: a reality check. *Lancet Neurol* 2010; **9**: 643.
 32. American Association of Periodontology. *Glossary of periodontal terms*. Chicago, Illinois, USA: American Academy of Periodontology, 2001.
 33. Paster B J, Olsen I, Aas J A, Dewhirst F E. The breadth of bacterial diversity in the human periodontal pocket and other oral sites. *Periodontol 2000* 2006; **42**: 80–87.
 34. Socransky S S, Haffajee A D, Cugini M A, Smith C, Kent R L Jr. Microbial complexes in subgingival plaque. *J Clin Periodontol* 1998; **25**: 134–144.
 35. Socransky S S, Haffajee A D. Dental biofilms: difficult therapeutic targets. *Periodontol 2000* 2002; **28**: 12–55.
 36. Kornman K S, Crane A, Wang H Y *et al*. The interleukin-1 genotype as a severity factor in adult periodontal disease. *J Clin Periodontol* 1997; **24**: 72–77.
 37. Ding C, Ji X, Chen X, Xu Y, Zhong L. TNF-alpha gene promoter polymorphisms contribute to periodontitis susceptibility: evidence from 46 studies. *J Clin Periodontol* 2014; **41**: 748–759.
 38. Soga Y, Nishimura F, Ohyama H, Maeda H, Takashiba S, Murayama Y. Tumor necrosis factor-alpha gene (TNF-alpha)-1031/-863,-857 single-nucleotide polymorphisms (SNPs) are associated with severe adult periodontitis in Japanese. *J Clin Periodontol* 2003; **30**: 524–531.
 39. Singhrao S K, Harding A, Simmons T, Robinson S, Kesavalu L, Crean S. Oral inflammation, tooth loss, risk factors, and association with progression of Alzheimer's disease. *J Alzheimers Dis* 2014; **42**: 723–737.
 40. White D A, Tsakos G, Pitts N B *et al*. Adult Dental Health Survey 2009: common oral health conditions and their impact on the population. *Br Dent J* 2012; **213**: 567–572.
 41. Eke P I, Dye B A, Wei L, Thornton-Evans G O, Genco R J, Cdc Periodontal Disease Surveillance workgroup: James Beck G D R P. Prevalence of periodontitis in adults in the United States: 2009 and 2010. *J Dent Res* 2012; **91**: 914–920.
 42. Garcia R I, Henshaw M M, Krall E A. Relationship between periodontal disease and systemic health. *Periodontol 2000* 2001; **25**: 21–36.
 43. Tomas I, Diz P, Tobias A, Scully C, Donos N. Periodontal health status and bacteraemia from daily oral activities: systematic review/meta-analysis. *J Clin Periodontol* 2012; **39**: 213–228.
 44. Zhang W, Daly C G, Mitchell D, Curtis B. Incidence and magnitude of bacteraemia caused by flossing and by scaling and root planing. *J Clin Periodontol* 2013; **40**: 41–52.
 45. Parahitiyawa N B, Jin L J, Leung W K, Yam W C, Samaranyake L P. Microbiology of odontogenic bacteraemia: beyond endocarditis. *Clin Microbiol Rev* 2009; **22**: 46–64.
 46. Silver J G, Martin A W, McBride B C. Experimental transient bacteraemias in human subjects with varying degrees of plaque accumulation and gingival inflammation. *J Clin Periodontol* 1977; **4**: 92–99.
 47. Sconyers J R, Crawford J J, Moriarty J D. Relationship of bacteraemia to tooth-brushing in patients with periodontitis. *J Am Dent Assoc* 1973; **87**: 616–622.
 48. Page R C, Schroeder H E. Pathogenesis of inflammatory periodontal disease. A summary of current work. *Lab Invest* 1976; **34**: 235–249.
 49. Seymour G J, Gemmell E, Reinhardt R A, Eastcott J, Taubman M A. Immunopathogenesis of chronic inflammatory periodontal disease: cellular and molecular mechanisms. *J Periodontol Res* 1993; **28**: 478–486.
 50. Tonetti M S, Van Dyke TE, working group 1 of the joint EFPAAp. Periodontitis and atherosclerotic cardiovascular disease: consensus report of the Joint EFP/AAP Workshop on Periodontitis and Systemic Diseases. *J Periodontol* 2013; **84**: S24–29.
 51. Watts A, Crimmins E M, Gatz M. Inflammation as a potential mediator for the association between periodontal disease and Alzheimer's disease. *Neuropsychiatr Dis Treat* 2008; **4**: 865–876.
 52. DeStefano F, Anda R F, Kahn H S, Williamson D F, Russell C M. Dental disease and risk of coronary heart disease and mortality. *BMJ* 1993; **306**: 688–691.
 53. Arbes S J, Jr., Slade G D, Beck J D. Association between extent of periodontal attachment loss and self-reported history of heart attack: an analysis of NHANES III data. *J Dent Res* 1999; **78**: 1777–1782.
 54. Dietrich T, Sharma P, Walter C, Weston P, Beck J. The epidemiological evidence behind the association between periodontitis and incident atherosclerotic cardiovascular disease. *J Periodontol* 2013; **84**: S70–84.
 55. Chapple I L, Genco R, Working group 2 of joint EFPAAp. Diabetes and periodontal diseases: consensus report of the Joint EFP/AAP Workshop on periodontitis and systemic diseases. *J Clin Periodontol* 2013; **40**: S106–112.
 56. Linden G J, Lyons A, Scannapieco F A. Periodontal systemic associations: review of the evidence. *J Periodontol* 2013; **84**: S8–S19.
 57. Chapple I L, Wilson N H. Manifesto for a paradigm shift: periodontal health for a better life. *Br Dent J* 2014; **216**: 159–162.
 58. Van Dyke T E, van Winkelhoff A J. Infection and inflammatory mechanisms. *J Periodontol* 2013; **84**: S1–7.
 59. Ballard C, Gauthier S, Corbett A, Brayne C, Aarsland D, Jones E. Alzheimer's disease. *Lancet* 2011; **377**: 1019–1031.
 60. Cicciu M, Maticena G, Signorino F, Brugaletta A, Cicciu A, Bramanti E. Relationship between oral health and its impact on the quality life of Alzheimer's disease patients: a supportive care trial. *Int J Clin Exp Med* 2013; **6**: 766–772.
 61. Ribeiro G R, Costa J L, Ambrosano G M, Garcia R C. Oral health of the elderly with Alzheimer's disease. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2012; **114**: 338–343.
 62. Hugo F N, Hilgert J B, Bertuzzi D, Padilha D M, De Marchi R J. Oral health behaviour and socio-demographic profile of subjects with Alzheimer's disease as reported by their family caregivers. *Gerodontology* 2007; **24**: 36–40.
 63. Hatipoglu M G, Kabay S C, Guven G. The clinical evaluation of the oral status in Alzheimer-type dementia patients. *Gerodontology* 2011; **28**: 302–306.
 64. Syrjala A M, Ylostalo P, Ruoppi P *et al*. Dementia and oral health among subjects aged 75 years or older. *Gerodontology* 2012; **29**: 36–42.
 65. Poole S, Singhrao S K, Crean, St J. Emerging evidence for an association between periodontitis and the development of Alzheimer's disease. *Faculty Dent J* 2014; **5**: 39–42.
 66. Starr J M, Hall R J, Macintyre S, Deary I J, Whalley L J. Predictors and correlates of edentulism in the healthy old people in Edinburgh (HOPE) study. *Gerodontology* 2008; **25**: 199–204.
 67. Kim J M, Stewart R, Prince M *et al*. Dental health, nutritional status and recent-onset dementia in a Korean community population. *Int J Geriatr Psychiatry* 2007; **22**: 850–855.
 68. Grabe H J, Schwahn C, Volzke H *et al*. Tooth loss and cognitive impairment. *J Clin Periodontol* 2009; **36**: 550–557.
 69. Arrive E, Letenneur L, Matharan F *et al*. Oral health condition of French elderly and risk of dementia: a longitudinal cohort study. *Comm Dent Oral Epidemiol* 2012; **40**: 230–238.
 70. Paganini-Hill A, White S C, Atchison K A. Dentition, dental health habits, and dementia: the Leisure World Cohort study. *J Am Geriatr Soc* 2012; **60**: 1556–1563.
 71. Stein P S, Kryscio R J, Desrosiers M, Donegan S J, Gibbs M B. Tooth loss, apolipoprotein E, and decline in delayed word recall. *J Dent Res* 2010; **89**: 473–477.
 72. Treasure E, Kelly M, Nuttall N, Nunn J, Bradnock G, White D. Factors associated with oral health: a multivariate analysis of results from the 1998 Adult Dental Health survey. *Br Dent J* 2001; **190**: 60–68.
 73. Kamer A R, Morse D E, Holm-Pedersen P, Mortensen E L, Avlund K. Periodontal inflammation in relation to cognitive function in an older adult Danish population. *J Alzheimers Dis* 2012; **28**: 613–624.
 74. Kaye E K, Valencia A, Baba N, Spiro A 3rd, Dietrich T, Garcia R I. Tooth loss and periodontal disease predict poor cognitive function in older men. *J Am Geriatr Soc* 2010; **58**: 713–718.
 75. Noble J M, Borrell L N, Papananou P N, Elkind M S, Scarmeas N, Wright C B. Periodontitis is associated with cognitive impairment among older adults: analysis of NHANES-III. *J Neurol Neurosurg Psych* 2009; **80**: 1206–1211.
 76. Stewart R, Sabbah W, Tsakos G, D'Aiuto F, Watt R G. Oral health and cognitive function in the Third National Health and Nutrition Examination Survey (NHANES III). *Psychosom Med* 2008; **70**: 936–941.
 77. Olsen I. Update on bacteraemia related to dental procedures. *Transfus Apher Sci* 2008; **39**: 173–178.
 78. Reyes L, Herrera D, Kozarov E, Rolda S, Progulskje-Fox A. Periodontal bacterial invasion and infection: contribution to atherosclerotic pathology. *J Periodontol* 2013; **84**: S30–50.
 79. Rivera M F, Lee J Y, Aneja M *et al*. Polymicrobial infection with major periodontal pathogens induced periodontal disease and aortic atherosclerosis in hyperlipidemic ApoE(null) mice. *PLoS one* 2013; **8**: e57178.
 80. Velsko I M, Chukkappalli S S, Rivera M F *et al*. Active Invasion of Oral and Aortic Tissues by Porphyromonas gingivalis in Mice Causally Links Periodontitis and Atherosclerosis. *PLoS one* 2014; **9**: e97811.

81. Chukkapalli S S, Rivera M F, Velsko I M *et al.* Invasion of oral and aortic tissues by oral spirochete *Treponema denticola* in ApoE(-/-) mice causally links periodontal disease and atherosclerosis. *Infection Immun* 2014; **82**: 1959–1967.
82. Ujiie M, Dickstein D L, Carlow D A, Jefferies W A. Blood-brain barrier permeability precedes senile plaque formation in an Alzheimer disease model. *Microcirculation* 2003; **10**: 463–470.
83. Kamer A R, Craig R G, Dasanayake A P, Brys M, Glodzik-Sobanska L, de Leon M J. Inflammation and Alzheimer's disease: possible role of periodontal diseases. *Alzheimers Dement* 2008; **4**: 242–250.
84. Riviere G R, Riviere K H, Smith K S. Molecular and immunological evidence of oral *Treponema* in the human brain and their association with Alzheimer's disease. *Oral Microbiol Immunol* 2002; **17**: 113–118.
85. Branton W G, Ellestad K K, Maingat F *et al.* Brain microbial populations in HIV/AIDS: alpha-proteobacteria predominate independent of host immune status. *PLoS One* 2013; **8**: e54673.
86. Miklossy J. Alzheimer's disease neurospirochetosis. Analysis of the evidence following Koch's and Hill's criteria. *J Neuroinflammation* 2011; **8**: 90.
87. Rivest S. Regulation of innate immune responses in the brain. *Nat Rev Immunol* 2009; **9**: 429–439.
88. Fry M, Ferguson A V. The sensory circumventricular organs: brain targets for circulating signals controlling ingestive behavior. *Physiol Behav* 2007; **91**: 413–423.
89. Hammond C J, Hallock L R, Howanski R J, Appelt D M, Little C S, Balin B J. Immunohistological detection of *Chlamydia pneumoniae* in the Alzheimer's disease brain. *BMC Neurosci* 2010; **11**: 121.
90. Balin B J, Gerard H C, Arking E J *et al.* Identification and localization of *Chlamydia pneumoniae* in the Alzheimer's brain. *Med Microbiol Immunol* 1998; **187**: 23–42.
91. Miklossy J, Kis A, Radenovic A *et al.* Beta-amyloid deposition and Alzheimer's type changes induced by *Borrelia spirochetes*. *Neurobiol Aging* 2006; **27**: 228–236.
92. MacIntyre A, Abramov R, Hammond C J *et al.* *Chlamydia pneumoniae* infection promotes the transmigration of monocytes through human brain endothelial cells. *J Neurosci Res* 2003; **71**: 740–750.
93. Little C S, Hammond C J, MacIntyre A, Balin B J, Appelt D M. *Chlamydia pneumoniae* induces Alzheimer-like amyloid plaques in brains of BALB/c mice. *Neurobiol Aging* 2004; **25**: 419–429.
94. Poole S, Singhrao S K, Kesavalu L, Curtis M A, Crean S. Determining the presence of periodontopathic virulence factors in short-term postmortem Alzheimer's disease brain tissue. *J Alzheimers Dis* 2013; **36**: 665–677.
95. Parra B, Slots J. Detection of human viruses in periodontal pockets using polymerase chain reaction. *Oral Microbiol Immunol* 1996; **11**: 289–293.
96. Contreras A, Zadeh H H, Nowzari H, Slots J. Herpesvirus infection of inflammatory cells in human periodontitis. *Oral Microbiol Immunol* 1999; **14**: 206–212.
97. Aiello A E, Haan M, Blythe L, Moore K, Gonzalez J M, Jagust W. The influence of latent viral infection on rate of cognitive decline over 4 years. *J Am Geriatr Soc* 2006; **54**: 1046–1054.
98. Itzhaki R F, Lin W R, Shang D, Wilcock G K, Faragher B, Jamieson G A. Herpes simplex virus type 1 in brain and risk of Alzheimer's disease. *Lancet* 1997; **349**: 241–244.
99. Itzhaki R F, Wozniak M A. Herpes simplex virus type 1, apolipoprotein E, and cholesterol: a dangerous liaison in Alzheimer's disease and other disorders. *Prog Lipid Res* 2006; **45**: 73–90.
100. Akiyama H, Barger S, Barnum S *et al.* Inflammation and Alzheimer's disease. *Neurobiol Aging* 2000; **21**: 383–421.
101. McGeer P L, McGeer E G. Inflammation of the brain in Alzheimer's disease: implications for therapy. *J Leukocyte Biol* 1999; **65**: 409–415.
102. Loos B G. Systemic markers of inflammation in periodontitis. *J Periodontol* 2005; **76**: 2106–2115.
103. Kornman K S, Pankow J, Offenbacher S, Beck J, di Giovine F, Duff G W. Interleukin-1 genotypes and the association between periodontitis and cardiovascular disease. *J Periodontol Res* 1999; **34**: 353–357.
104. Beck J, Garcia R, Heiss G, Vokonas P S, Offenbacher S. Periodontal disease and cardiovascular disease. *J Periodontol* 1996; **67**: 1123–1137.
105. Page R C. The pathobiology of periodontal diseases may affect systemic diseases: inversion of a paradigm. *Ann Periodontol* 1998; **3**: 108–120.
106. Offenbacher S. Periodontal diseases: pathogenesis. *Ann Periodontol* 1996; **1**: 821–878.
107. Amar S, Han X. The impact of periodontal infection on systemic diseases. *Int Med J Exp Clin Res* 2003; **9**: RA291–299.
108. Galbraith G M, Hendley T M, Sanders J J, Palesch Y, Pandey J P. Polymorphic cytokine genotypes as markers of disease severity in adult periodontitis. *J Clin Periodontol* 1999; **26**: 705–709.
109. Bretz W A, Weyant R J, Corby P M *et al.* Systemic inflammatory markers, periodontal diseases, and periodontal infections in an elderly population. *J Am Geriatr Soc* 2005; **53**: 1532–1537.
110. D'Aiuto F, Parkar M, Andreou G *et al.* Periodontitis and systemic inflammation: control of the local infection is associated with a reduction in serum inflammatory markers. *J Dent Res* 2004; **83**: 156–160.
111. Masada M P, Persson R, Kenney J S, Lee S W, Page R C, Allison A C. Measurement of interleukin-1 alpha and 1 beta in gingival crevicular fluid: implications for the pathogenesis of periodontal disease. *J Periodontol Res* 1990; **25**: 156–163.
112. Kronfol Z, Remick D G. Cytokines and the brain: implications for clinical psychiatry. *Am J Psychiatry* 2000; **157**: 683–694.
113. Strauss S, Bauer J, Ganter U, Jonas U, Berger M, Volk B. Detection of interleukin-6 and alpha 2-macroglobulin immunoreactivity in cortex and hippocampus of Alzheimer's disease patients. *Lab Invest* 1992; **66**: 223–230.
114. Cox G J. Interleukin-6. In Remick DFJ (ed) *Cytokines in health and disease*. 2nd ed. New York: Marcel Dekker, 1997.
115. Rainero I, Bo M, Ferrero M, Valfre W, Vaula G, Pinessi L. Association between the interleukin-1alpha gene and Alzheimer's disease: a meta-analysis. *Neurobiol Aging* 2004; **25**: 1293–1298.
116. Holmes C, El-Okil M, Williams A L, Cunningham C, Wilcockson D, Perry V H. Systemic infection, interleukin 1beta, and cognitive decline in Alzheimer's disease. *J Neurol Neurosurg Psychiatry* 2003; **74**: 788–789.
117. Grammas P, Ovasse R. Inflammatory factors are elevated in brain microvessels in Alzheimer's disease. *Neurobiol Aging* 2001; **22**: 837–842.
118. Engelhart M J, Geerlings M I, Meijer J *et al.* Inflammatory proteins in plasma and the risk of dementia: the Rotterdam study. *Arch Neurol* 2004; **61**: 668–672.
119. Marx F, Blasko I, Pavelka M, Grubeck-Loebenstien B. The possible role of the immune system in Alzheimer's disease. *Exp Gerontol* 1998; **33**: 871–881.
120. Heneka M T, O'Banion M K. Inflammatory processes in Alzheimer's disease. *J Neuroimmunol* 2007; **184**: 69–91.
121. Perry V H. The influence of systemic inflammation on inflammation in the brain: implications for chronic neurodegenerative disease. *Brain Behav Immun* 2004; **18**: 407–413.
122. McCusker S M, Curran M D, Dynan K B *et al.* Association between polymorphism in regulatory region of gene encoding tumour necrosis factor alpha and risk of Alzheimer's disease and vascular dementia: a case-control study. *Lancet* 2001; **357**: 436–439.
123. Soscia S J, Kirby J E, Washicosky K J *et al.* The Alzheimer's disease-associated amyloid beta-protein is an antimicrobial peptide. *PLoS One* 2010; **5**: e9505.
124. Tanzi R E, Kovacs D M, Kim T W, Moir R D, Guenette S Y, Wasco W. The gene defects responsible for familial Alzheimer's disease. *Neurobiol Dis* 1996; **3**: 159–168.
125. Urosevic N, Martins R N. Infection and Alzheimer's disease: the APOE epsilon4 connection and lipid metabolism. *J Alzheimers Dis* 2008; **13**: 421–435.
126. Roberts G W, Gentleman S M, Lynch A, Graham D I. beta A4 amyloid protein deposition in brain after head trauma. *Lancet* 1991; **338**: 1422–1423.
127. Tesco G, Koh Y H, Kang E L *et al.* Depletion of GGA3 stabilizes BACE and enhances beta-secretase activity. *Neuron* 2007; **54**: 721–737.
128. Xie Z, Dong Y, Maeda U *et al.* Isoflurane-induced apoptosis: a potential pathogenic link between delirium and dementia. *J Gerontol A Biol Sci Med Sci* 2006; **61**: 1300–1306.
129. Brookmeyer R, Johnson E, Ziegler-Graham K, Arrighi H M. Forecasting the global burden of Alzheimer's disease. *Alzheimers Dement* 2007; **3**: 186–191.
130. Wimo A, Jonsson L, Bond J, Prince M, Winblad B. Alzheimer Disease I. The worldwide economic impact of dementia 2010. *Alzheimers Dement* 2013; **9**: 1–11 e3.
131. Comas-Herrera A, Wittenberg R, Pickard L, Knapp M. Cognitive impairment in older people: future demand for long-term care services and the associated costs. *Int J Geriatr Psychiatry* 2007; **22**: 1037–1045.
132. World Health Organisation. *World Health Report 2003 - Shaping the future*. Geneva: World Health Organisation, 2003.
133. Schneider J, Murray J, Banerjee S, Mann A. EURO CARE: a cross-national study of co-resident spouse carers for people with Alzheimer's disease: IFactors associated with carer burden. *Int J Geriatr Psychiatry* 1999; **14**: 651–661.
134. Turner L N, Balasubramaniam R, Hersh E V, Stoopler E T. Drug therapy in Alzheimer disease: an update for the oral health care provider. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008; **106**: 467–476.
135. Corbett A, Williams G, Ballard C. Drug repositioning: an opportunity to develop novel treatments for Alzheimer's disease. *Pharmaceuticals* 2013; **6**: 1304–1321.
136. Vidal F, Figueredo C M, Cordovil I, Fischer R G. Periodontal therapy reduces plasma levels of interleukin-6, C-reactive protein, and fibrinogen in patients with severe periodontitis and refractory arterial hypertension. *J Periodontol* 2009; **80**: 786–791.
137. Bresolin A C, Pronsatti M M, Pasqualotto L N *et al.* Effectiveness of periodontal treatment on the improvement of inflammatory markers in children. *Arch Oral Biol* 2014; **59**: 639–644.

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A precious tool

for children's dentistry



Nicole Sturzenbaum¹ extols the virtues of conscious sedation with nitrous oxide for children's dentistry.

Introduction

In the UK some 46,500 children were admitted to hospital for dental caries in 2013-14,¹ a process which can be distressing to the patient (and parents/carer) and is costly; the NHS spent £30 million on hospital based tooth extractions for children in 2012-13.²

It is unlikely that these figures are going to improve as the newest publication on the *Standards for conscious sedation in the provision of dental care* states that children

under the age of 12, who can't be treated with local anaesthesia alone or in combination with nitrous oxide, should be referred to a hospital for treatment by a consultant-led team (or equivalent facility with staff trained to an equivalent standard).³ At Toothbeary, a private practice dedicated to children in Richmond, London, the vast majority of patients referred to us after failed treatment are treated successfully with local anaesthesia alone or in combination with nitrous oxide.

¹ *Clinical Director of Toothbeary, a paediatric dental practice in London, and member of the BDJ Team reader panel*

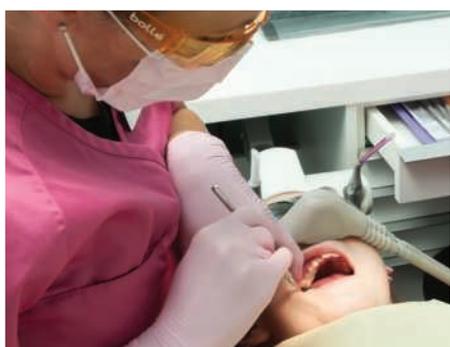


Fig. 1 Child wearing the nasal hood inhaling a nitrous oxide/oxygen mixture

In this article I would like to highlight how nitrous oxide can provide an alternative means to supporting treatment need in children's dentistry. My recommendations are based on our experience at Toothbeary and I hope readers will value the tips on how this technique can be implemented in your own practice.

Nitrous oxide

Nitrous oxide/oxygen inhalation is a safe and effective technique that reduces anxiety,

induces analgesia, and enhances the effective communication between a patient and dentist. Modern instruments facilitate the mixing of oxygen and nitrous oxide to a maximum ratio of 50/50. When inhaled, the gaseous mixture induces a rapid 'on/off' response, with relaxation and pain-killing properties developing within the first 2-3 minutes. This allows nitrous oxide/oxygen inhalation to be applied in a time-limited fashion (Fig. 1). It is non-addictive and exerts only minimal effects on cardiovascular and respiratory functions.

of the treatment: it is imperative to gain the trust of the child and obtain information concerning the child's medical, dental and social background, all of which can have an impact on the caries risk and possible anxiety levels of the child. As they say, patience is a virtue, so take your time and don't rush into the treatment. A very detailed assessment of the soft and hard tissue, and knowledge pertaining the developmental history and orthodontic situation are all essential.

'INSTRUMENTS WHICH MIGHT BE PERCEIVED AS BEING SCARY ARE GIVEN CHILD-FRIENDLY NAMES, FOR EXAMPLE THE SUCTION HOSE IS MR THIRSTY, THE RUBBER DAM IS REFERRED TO AS AN UMBRELLA AND THE INJECTION IS SLEEPING WATER.'

The patient remains fully conscious, responds normally to verbal commands and retains all natural reflexes. Contra-indications to inhalation sedation in the dental surgery are limited to airway problems, for example due to a cold, nasal blockage, obstructive airway or respiratory disease, or treatment with bleomycin sulphate chemotherapy.

Nitrous oxide in children's dentistry

Children observe and take in their surroundings very carefully, which starts as soon as they enter the practice. It is therefore helpful if every member of the practice team is trained in behaviour management and uses a universal child-friendly language. At Toothbeary, words such as injection or needle are never used and instruments which might be perceived as being scary are given child-friendly names, for example the suction hose is Mr Thirsty, the rubber dam is referred to as an umbrella and the injection is sleeping water. Likewise, we refrain from using anxiety inducing phrases such as 'don't worry it won't hurt'. Parents should also avoid terms which pre-condition children towards fear - therefore of the provision of a *do's and don'ts* leaflet can be a useful resource (Fig. 2).

The initial consultation

The initial consultation is a critical aspect

X-rays

The diagnostic benefits of X-rays need no justification, however the process is also a valuable indicator if treatment with nitrous oxide can be successful; if children struggle with X-rays, they will likely have difficulties with nitrous oxide treatment as well! The diagnosis, long-term plan and the expectations must be discussed in detail with the parents, as their relationship with us is interlocked with the child's behaviour; without the trust of the parents you cannot win over their child. A failed treatment is always a disappointment for everyone involved (and especially the child). On the flip side, a successful treatment will provide a measure of achievement and positive feelings towards the whole experience. If children have previously encountered a negative experience, it is important to start with a manageable task to foster the feeling of success. This can for example be a hygiene or positive reinforcement session or a simple fissure sealants treatment. Any time invested in meticulous planning will be paid back in the long run.

Treatment efficiency

Treatment efficiency is of paramount importance when using nitrous oxide, not only because children have a short attention span (typically around 20 minutes), but also

Do's and Don'ts – from Toothbeary www.toothbeary.co.uk

Our philosophy is about making each visit to the dentist child orientated, helping children to avoid the fears associated with dentistry.

Please take a little time to read our suggestions of **Do's** and **Don'ts**.

Please Do...

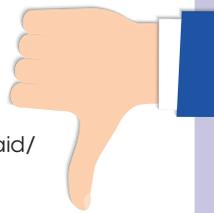


- Tell your child they are going to the dentist
- Tell your child the dentist will count their teeth
- You could also say that the dentist will show them how to brush their teeth or take a picture of their teeth

If you are nervous about visiting the dentist yourself, it is better to say as little as possible.

It is only with your support that we can achieve a positive first experience at Toothbeary.

Please Don't...



- Say 'there is nothing to worry about'
- Say 'don't be afraid/frightened'
- Say 'it won't hurt' as these type of statements imply that it might hurt
- Say 'the dentist will tell you off if you have not cleaned your teeth'
- Promise your child a reward as the feeling of 'must win the gift' is a great pressure on a child.

time, but once you walk around for a while, they will start to feel really comfortable, like your tooth'. Furthermore, use voice control techniques, positive reinforcement or tell/show/do, distraction techniques, and basic hypnosis techniques (slow speech rhythm, visual imagery and pacing). Following the treatment, post-hypnotic suggestions should aim to prepare the child for the next visit, for example 'you did really well today, just imagine how much easier it will be next time, because now you know everything, you are already a professional'.

All dental nurses should be trained in all treatment steps and engage in four-handed dentistry; this will ensure that the procedure is focused on the child, and will allow the effective use of behaviour management techniques.

Unfortunately, nitrous oxide is not suitable for all children. For example, it is less effective if children struggle to breathe through their nose (eg due to enlarged tonsils or habitual mouth breathing). Likewise, very young or traumatised children may not accept the nasal hood or resist behaviour management techniques. Finally, the effectiveness of nitrous oxide might be reduced if multiple treatment sessions are needed.

In summary, if you take your time during the initial consultation, manage expectations of parents and patients, maximise efficiency during treatment and make full use of behavioural management techniques, you will find that nitrous oxide is a safe and effective tool in children's dentistry.

Fig. 2 The text from a leaflet handed to parents at the author's practice to avoid the pre-conditioning of their child towards fear

'THE USE OF CLEAR VISUAL/PICTORIAL LANGUAGE

WILL POSITIVELY INFLUENCE AND GUIDE

THE CHILD THROUGH THE TREATMENT.'

because sedation time should be kept to a minimum whilst maximising the amount of treatment performed. Central is also the use of a rubber dam, to prevent the child patient breathing through their mouth. Nitrous oxide only works in conjunction with behaviour management techniques; the use of clear

visual/pictorial language will positively influence and guide the child through the treatment. An example of visual/pictorial language when using the rubber dam might be 'I know this is difficult and the umbrella is holding your tooth very tightly, it feels like a new pair of shoes you wear for the first

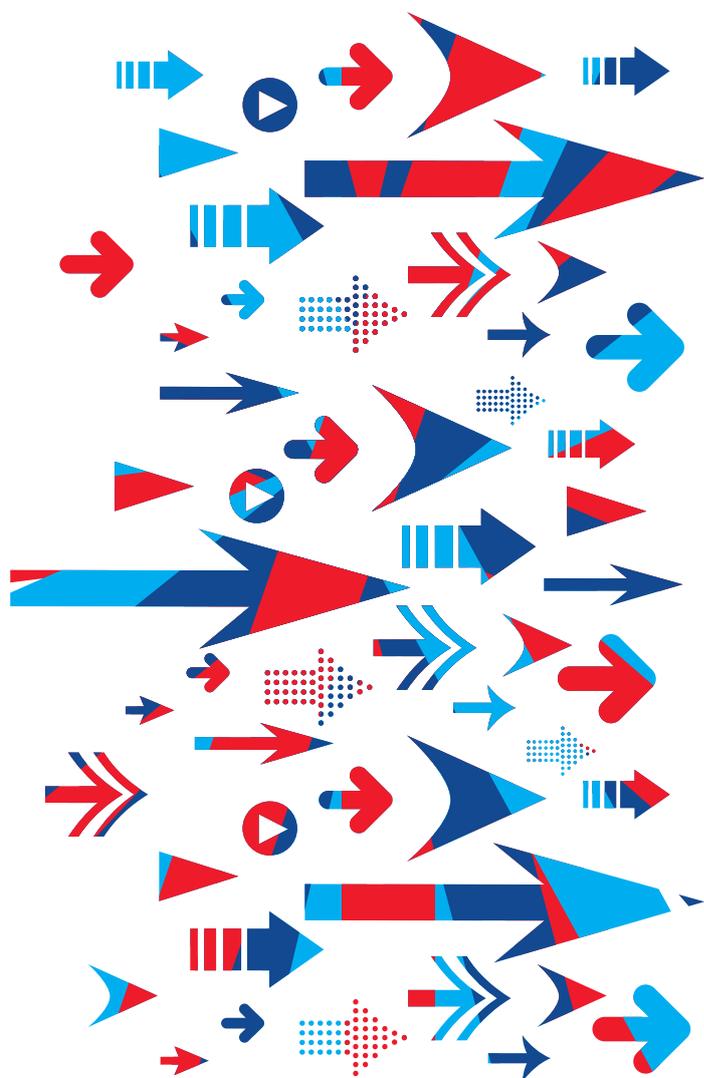
1. Royal College of Surgeons of England. Faculty of Dental Surgery. The state of children's oral health in England. January 2015. Available at: <http://www.rcseng.ac.uk/fds/policy/documents/fds-report-on-the-state-of-childrens-oral-health> (accessed March 2016).
2. Department of Health. NHS reference costs 2012 to 2013. London: DH, 2013. Available at: <https://www.gov.uk/government/publications/nhs-reference-costs-2012-to-2013> (accessed March 2016).
3. Royal College of Surgeons. Standards for Conscious Sedation in the Provision of Dental Care. The Report of the Intercollegiate Advisory Committee on Sedation (April 2015). Available at: <https://www.rcseng.ac.uk/fds/publications-clinical-guidelines/standards-for-conscious-sedation-in-the-provision-of-dental-care-2015> (accessed March 2016).

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Elder abuse

and the dental team

By Paul Hellyer¹

The population of the United Kingdom is ageing. More people are living for longer. Many of those older people want to retain their natural teeth and will continue to be regular attenders at the dentist. However, Age UK estimates that one in 20 older people are abused by a family member or carer. As health care professionals, the dental team have a responsibility to identify the signs of elder abuse and report them as appropriate. This article explains some of the causes and signs of abuse and the dental team's responsibilities to act.

INTRODUCTION

More of our patients are living for longer. The UK Office of National Statistics states that men reaching retirement age have a life expectancy of about an additional 18 years. For women life expectancy is a little longer. Of these post retirement years, however, about 40% of them can be expected to be spent in declining health.¹ This increasing frailty towards the end of life usually leads to dependency on others for assistance with the activities of daily living. This might be anything from some help with cleaning and shopping to more personal tasks such as washing and dressing. Increasing frailty may eventually lead to a person needing help with feeding and toileting.

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Any person, child or adult is at risk of abuse. However, dependency on others, for whatever reason, be it as a child or an adult dependent on others for everyday living, increases that risk.

The abuse of older people has become an increasing problem in recent years.² The dental team, from receptionist to clinicians, are in a particularly strong position to be able to identify cases of elder abuse. People tend to come to the dentist at regular intervals and changes in behaviour may be observed. These may also be people who have infrequent contact with other care services.

How many?

A national UK study which was published in 2007³ reported that 2.6% of people over 66 and living in the community (that is, not in care homes or rest homes) had experienced some form of mistreatment during the year of study. That equates to 227,000 people over 66 years experiencing some form of abuse, about the same number as the population of, for instance, Newcastle-upon-Tyne.

However, Age UK estimates that in 2015 the number of those subject to abuse has risen to 342,000. If residents of care homes are taken

into consideration then 500,000 older people are abused each year – approximately 5% of the older population in the UK.⁴ That means one in 20 of our older patients can be anticipated to have suffered some form of abuse.

Many older people are also now keeping their teeth for longer, and are often expecting to keep them till the end of life. Consequently it is expected that older people will become an increasing part of the dental professional's workload in the decades to come. It therefore becomes increasingly likely that some of these patients will be being abused.

What is elder abuse?

Elder abuse is defined as: 'A single or repeated act or lack of appropriate action, occurring in any relationship where there is an expectation of trust that causes harm or distress to an older person.'^{*}

This definition was proposed by the charity Action on Elder Abuse in 1993 and has subsequently been adopted by the World Health Organisation.

It is important to note that abuse is carried out 'in any relationship where there is an expectation of trust'. The abuser may be the patient's carer,

whether through a formal arrangement with statutory services or an informal carer such as a neighbour 'who just pops in now and again to check'. The abuser may also be a family member, such as a spouse, partner, sibling, son, daughter or even grandchild. The abuser may therefore be the person who brings an older, dependent patient to the practice.

Why abuse someone you care for?

Many carers, whether family, friend or professional, find looking after an older person to be a deeply satisfying and gratifying experience. However, sometimes these relationships become strained and difficult. If that relationship descends into an abusive one, then whatever the reason, elder abuse, just like child abuse, is always unacceptable and must be investigated.

The causes of elder abuse are often multifactorial. For instance:

- Financial difficulties – if the caring responsibilities are time consuming, leading to the carer being able to work less hours and thus reduce the family income
- Lack of respite care – the perception that there is no hope of a break from the continuity of providing care
- Inadequate support to give high quality care – the carer may be managing alone, with no support from family members or statutory services
- Heavy physical or emotional costs of being a carer – seeing a loved one decline physically or mentally and have no power to arrest the process
- Lack of recognition for the role of carers takes a heavy toll on the health and well-being of the carer
- Personal stress - the carer may be looking after two generations, his or her own children and a dependent parent. This 'sandwich' effect can create extreme stress
- Unfamiliarity with the caring role and its responsibilities – many people simply fall into the role of carer, as there is no one else available, and until maybe too late, they are unaware of what it entails.

A family history of abuse, whether as a child or an adult, increases the risk of abusive behaviour, as does drug or alcohol dependency.⁵

What form does it take?

Elder abuse can take many forms. In general, changes in personality or behavior may be signs of abuse, although, of course, other causes must also be considered.

- Physical – any non-accidental use of force, such as hitting or punching the victim or any form of restraint or confinement is considered

to be abuse. The signs visible to the dental team may be unexplained bruising on the face, arms or legs, broken spectacles or even broken bones

- Financial – any form of misappropriation of funds from an older person is abuse. This can include misuse of bank accounts, forging of signatures or stealing state benefits intended for the older person. The signs may be a change in the patient's ability to pay for dental treatment. A patient who for instance has always been happy to pay for treatment becomes unwilling to do so, or apparently no longer has access to their own cheque book, credit or debit cards
- Sexual – this includes not only sexual assault in any form, but forcing the older person to undress or to watch sex acts. This may be an unlikely abuse to become apparent in a dental practice, but a change in behaviour, for instance a previously amenable patient who suddenly dislikes being touched in any way or who develops a gag reflex, may be a significant sign
- Emotional – any form of verbal abuse, including shouting and intimidation, bullying or threatening behaviour is abuse. However, this may occur in more subtle forms such

A carer for a patient brought in from such a home claiming that there was regularly insufficient time for mouth care of patients, might be a case for further enquiry at the home.

Some organisations consider that discrimination on the grounds of age can be considered to be abuse.

The dental team's responsibilities

The Care Act (2014) lays down specific responsibilities on health care professionals to act on suspected abuse and report it as appropriate. The local authority has specific responsibilities for investigating suspected abuse and while the pathway will differ from local authority to local authority, and be different within the individual nations of the United Kingdom, it is incumbent on dental practices to be aware of the pathway of referral for their area. Safeguarding procedures are applicable to any adult who:

- Has care and support needs
- Is experiencing, or is at risk of, abuse or neglect
- Is unable to protect themselves because of their care and support needs.

'EVERYONE SHOULD BE AWARE THAT ONE IN 20 OF OUR OLDER PATIENTS APPEARS TO BE AT RISK OF ABUSE AND EVERYONE NEEDS TO KNOW THE SIGNS AND UNDERSTAND HOW TO RAISE A CONCERN.'

as humiliation or isolation of the victim, or continually making them the scapegoat. This may become apparent in a dental practice if the victim is brought for an appointment by a caregiver who appears controlling or threatening towards the victim

- Neglect – failure to provide adequate care is the cause of more than half reported cases of abuse. Signs may include dirty or soiled clothing on a previously well-groomed patient. Malnutrition and dehydration may have oral signs and symptoms of relevance to oral health. A sharp decline on oral hygiene in an increasingly dependent patient may be a sign of inadvertent neglect, due to ignorance of the need to provide mouth care for the patient
- Institutional – if the routines of a care home, for instance, override the care needs of a resident, this would be considered abuse.

Each practice should have in place a policy for safeguarding adults, including vulnerable older people and all staff should be aware of their responsibilities in reporting such issues to the appointed person within the practice.⁶

The General Dental Council (GDC) has recently added the safeguarding of vulnerable adults to its guidance for recommended continuing professional development (CPD) topics for registrants (Table 1).⁷

The Care Quality Commission (CQC) lays down clear responsibilities for service providers with regard to safeguarding.

All providers must make sure that they have, and implement, robust procedures and processes that make sure that people are protected. Safeguarding must have the right level of scrutiny and oversight, with overall responsibility held at board level or equivalent.⁸

The CQC goes on to stress the importance

Table 1 Standards for the dental team

The GDC's *Standards for the dental team* states:

8.5.1

'You must raise any concerns you may have about the possible abuse or neglect of children or vulnerable adults. You must know who to contact for further advice and how to refer concerns to an appropriate authority such as your local social services department.'

8.5.2

'You must find out about local procedures for the protection of children and vulnerable adults. You must follow these procedures if you suspect that a child or vulnerable adult might be at risk because of abuse or neglect.'

of staff training, understanding procedures for reporting and working with other agencies. They state that 'Staff must be aware of their individual responsibilities to prevent, identify and report abuse when providing care and treatment. This includes referral to other providers.'

Clearly the whole dental team has a role to play in observing changes in patient behaviour which *might* indicate an abusive relationship is present. From the receptionist noting the relationship between patient and carers, to hygienists observing deterioration in oral health, to a dental nurse noting unexplained bruising – everyone should be aware that one in 20 of our older patients appears to be at risk of abuse and everyone needs to know the signs and understand how to raise a concern.

The author acknowledges the support and assistance of Maggie Evans from Action on Elder Abuse in the preparation of this article.

- Office for National Statistics. Increase in years males and females at birth expected to live with a disability. 24 July 2014. Available at: <http://www.ons.gov.uk/ons/rel/disability-and-health-measurement/sub-national-health-expectancies/disability-free-life-expectancy-by-upper-tier-local-authority--england-2009-11/sty-dfle.html> (accessed February 2016).
- Action on elder abuse. What is elder abuse. Available at: <http://elderabuse.org.uk/what-is-elder-abuse/> (accessed February 2016).
- O'Keeffe M, Hills A, Doyle M *et al.* UK study of abuse and neglect of older people. Prevalence Survey Report. Prepared for Comic Relief and the Department of Health. June 2007. Available at: <http://www.natcen.ac.uk/media/308684/p2512-uk-elder-abuse-final-for-circulation.pdf> (accessed February 2016).
- Age UK. Later life in the United Kingdom. February 2016. Available at: http://www.ageuk.org.uk/Documents/ENGB/Factsheets/Later_Life_UK_factsheet.pdf?dtrk=true (accessed February 2016).

CASE STUDY

An 85-year-old patient whom you have seen regularly for the past ten years attends for his six-monthly hygienist appointment.

You know that he has a complete upper denture which he manages well, and a partial lower denture replacing his lower incisors. His remaining lower teeth (46, 45, 44, 43, 33, 34, 35) are all grade 1-2 mobile but have been symptomless for many years.

The patient is co-operative and allows a full examination of his mouth. However, he keeps repeating that all his lower teeth should be removed as he is frightened of swallowing them and 'doesn't want to be a bother to anyone anymore'. His oral hygiene deteriorated since his last visit. Extra-orally, he has a bruise on his cheek on the left side.

The patient still lives at home, and has carers who now come in daily to assist with his personal care but none of them attends with him. He was dropped off by his son who does not stay for the appointment. When he collects the patient you try to speak to him. However, he is in a rush and tells the receptionist he does not have time to speak to you.

The importance of observing changes in a regular patient cannot be overstressed. None of the presenting issues individually necessarily raise alarm bells. The bruise on the cheek may be as a result of a fall or walking into a cupboard door. The request to remove all his teeth may be an early sign of confusion. The son may indeed be busy. The deterioration in oral hygiene may be a result of increasingly arthritic fingers.

However, all these issues may require further questioning. Opening a discussion about the bruise on the cheek may give a

sense of the patient's mental state and short term memory. Showing the patient how his oral hygiene had deteriorated and explaining the consequences may again give the clinician a sense of the patient's mental capacity. Asking why he doesn't want to be a bother to anyone may elicit an idea of the state of the relationships with his carers and family. Seeking the receptionist's view of how the patient had appeared to relate to the son when he was dropped off and collected would be helpful. All discussions and observations should be carefully recorded.

Assuming that the patient can explain the bruising, or doesn't reveal information that his family are making it clear they cannot cope with him (in which an immediate referral to the Local Authority would be appropriate), then a further appointment could be arranged, requesting that a family member or carer attends with the patient. A discussion with the patient's dentist and the practice safeguarding lead is indicated. If the patient consents, a phone call to the family may be indicated, expressing your concerns about his oral health.

At the follow up appointment, a better assessment of relationships can hopefully be made. If no one attends with him again and there appears to be little change or further deterioration in his condition, then sharing your concerns again with the dentist is essential. With consent, a discussion with the patient's medical practitioner would be helpful and a referral to the local adult safeguarding team may be appropriate. However, if a family member or carer attends with him, and genuinely appreciates the concern being shown, then again, clearly noting the conversations, dental care can proceed in co-operation with his home carers and an appropriate review date set.

***Action on Elder Abuse** works to protect, and prevent the abuse of, vulnerable older adults and by doing so also protects other adults at risk of abuse. They were the first charity to address these problems and are the only charity in the UK and in Ireland working exclusively on the issue today.

FREEPHONE HELPLINE: 080 8808 8141

<http://www.elderabuse.org.uk>

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Where the dental world meets

INSPIRE

LEARN

INNOVATE

Find out what's in store at this year's British Dental Conference and Exhibition.

Dentistry can be a rather lonely or claustrophobic profession to work in at times, particularly if you work in a single chair practice. Even for those in a fantastic team, it's all too easy to get caught up in the day-to-day travails of practice and miss the wider developments taking place in dentistry, so it can be enormously beneficial to be exposed to new ideas and techniques and get together with other dental professionals who are in the same boat and face similar challenges.

One such opportunity to do just that is the British Dental Conference and Exhibition, where the dental world meets and comes together. Over 5,000 dental professionals gather in Manchester in May over three days to learn, be inspired by great speakers, and discover the latest innovations in dental technology.

Dentistry never stands still so it's important that you keep your knowledge and skills up to date. For those who need to, the Conference and Exhibitions offers up to 15 hours' verifiable CPD over the three days.

It's a great place to see the great and the good of the dentistry world, listen to what they have to say on the key issues facing dentistry and hear about the very latest tools and techniques in dentistry and practice management.

The Conference is being addressed by the minister responsible for dentistry, the Rt Hon Alistair Burt MP, and attendees can quiz Sara Hurley, Chief Dental Officer for England, who will be taking part in a question and answer session on the BDA stand.

There are talks by Linda Greenwall and James Goolnik on tooth whitening, Gary DeWood on recognising occlusal problems, and Chris Orr exploring whether it's time to say goodbye to traditional posterior crown preparations. With over 125 other speakers, there are numerous opportunities to develop your learning further.

Alongside the Conference, there will also be opportunities to learn in the Exhibition Hall, where there will be a personal development theatre, demonstration theatre, speakers' corner, advice and workshop zones. Practice managers can benefit from free sessions on patient marketing, complaint handling, child and adult safeguarding and team management amongst others, whilst dental care professionals (DCPs) can attend free sessions on impression taking, periodontology, treatment planning, scope of practice, implants and communication in the dental team.

With exhibitors keen to show off their wares and latest inventions, the Exhibition Hall is great for keeping abreast of the latest software and kit to help your practice thrive – and picking up the odd freebie or two.

Amidst the excited hubbub of the event, you get a real sense of the enormous breadth of the dental profession with all its specialisms, various dental professionals, and all the different suppliers whose products, software and advice help the profession function. With so many dental professionals all together in one place it's a great place to network, make connections and feel a part of the wider dental world.

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To register for the British Dental Conference and Exhibition go to www.bda.org/conference or call 0844 3819 769 – lines are open 08.30-17:30, Monday to Friday.



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In the second of three extracts from the second edition of his book, **Michael R. Young**¹ addresses leadership and recruiting new team members.

Happy families are all alike.

Every unhappy family is unhappy in its own way

(Leo Tolstoy – Anna Karenina)

¹ Michael R. Young is a former clinician, practice owner, and independent clinical negligence expert witness. His practice was one for the first in the UK to be awarded the British Dental Association Good Practice. He is now an author.

This chapter is about managing *everyone* who works in your practice, and some who work outside the practice, irrespective of their contractual or legal status. I have used the term ‘employee’ for convenience.

A dental practice is like a family, with its own peculiar habits and ways, but I am willing to bet that the happy ‘families’ are the practices that are well managed, and that the unhappy ones are the ones that aren’t. Your experience of the ‘family’ before you created your own (bought your first practice) was hopefully a happy one. However, now you

have your own ‘family’, one in which everyone plays by your rules.

Leadership

There are hundreds, if not thousands, of sayings about leaders and leadership: here is a very small sample.

You manage things; you lead people. (Rear Admiral Grace Murray Hopper)

Outstanding leaders go out of their way to boost the self-esteem of their personnel. If people believe in themselves it’s amazing what they can accomplish. (Sam Walton)

Leaders think and talk about the solutions. Followers think and talk about the problems. (Brian Tracy)

There are three essentials to leadership: humility, clarity and courage. (Fuchan Yuan)

Practice owners (and by proxy, practice managers) have to be leaders.

What is a 'leader'? Someone who directs a group of people, perhaps? Someone who is the most successful in his or her group?

Over the years there have been many theories about what makes a great leader.

- The Great Man Theory - great leaders are born, they are not made.
- The Trait Theory - great leaders possess certain common traits.
- The Behavioural Theory that focused on how leaders behaved rather than their traits.
- Those who study these things have postulated that leaders performed in certain situations or environments; take them out of these and they stop being leaders.
- More recently it has been recognised that there is often an exchange of benefits between leaders and their followers, and that the environment in which they operate is one of mutual positive reinforcement. People work better when their good points are valued rather than the focus always being on their bad points.

Hold this thought: excellent leaders value those around them.

How do you become or make yourself a great leader? First, you must examine what it is you are leading and the things you are trying to achieve.

Your aim should always be to put together a winning team who all get along with one another, who are all willing to work for each other, and who are all strongly motivated by your inspired leadership. Now might be a good time for you to revisit Chapter 8 *Developing your practice's core values*, the values you are going to instil into everyone that works for you [see book].

When you analyse your business there are several fundamental values that everyone working in your practice should embrace:

- Employees
- Quality
- Patients
- Continuous improvement
- Communication.

Employee involvement is critical: success is a team effort.

Quality, that thing we all talk about but struggle to define: some people think of quality as being the standard of something as measured against other things of a similar kind, while others think of it as the degree

of excellence of something. In your practice, who sets the 'quality' standard, is it the practice or is it your customers?

Patients are (and must be) the focus of every task carried out or performed in the practice. Everything must be done with patients in mind, providing better treatments and better services than other practices.

Continuous improvement is essential to the success of the practice: every employee must strive for excellence in everything; treatments, their value, patient care, competitiveness and profitability.

Communication, as I have said, is crucial.

Getting your employees to understand and appreciate the true significance of these core

YOUR AIM SHOULD ALWAYS BE TO PUT TOGETHER

A WINNING TEAM WHO ARE ALL WILLING TO WORK

FOR EACH OTHER, AND WHO ARE ALL STRONGLY

MOTIVATED BY YOUR INSPIRED LEADERSHIP.'

values is essential. Once you have achieved this, you can then start to develop a practice philosophy, one with real meaning and one that you can all espouse. It should incorporate all of the above plus anything else that you feel is important to you, your practice and your patients.

This was my practice philosophy:

The practice is dedicated to delivering service of the highest quality to its patients.

We place a great deal of emphasis on excellent communication, effective treatments and continuous professional development to enable us to completely satisfy our patients' needs.

Patients can expect to receive dental care of a high standard carried out in a calm, relaxed and safe environment.

It focuses on employees, quality, patient needs, continuous improvement, and the one thing that holds all of these together, communication.

You should try to come up with your own set of core values, and not simply pinch someone else's.

This practice philosophy is sometimes known as a mission statement or a statement of intent. Whatever you call it, you should display a copy in a prominent position in your reception area or waiting room for patients

to see. Put a copy in each surgery and in the employee tearoom as a constant reminder to everyone. Make sure it's on your website.

As a practice owner and/or its manager, you have to be a leader. Leadership is never easy. To me there are several key things that make someone a leader:

- They always focus on the positive
- They acknowledge the efforts of others
- They don't get bogged down by problems; they only see solutions
- They are very focused about what they want to achieve and are able to convey this to others
- They are innovative and are always looking for new (untried) ways of doing things.

Leadership comes from within.

Hold this thought: leaders have to pull from the front and push from the back.

(See Chapter 13 [of the book] Do you know where your practice is heading?)

Finding the (b)right people

Digressing from the military metaphor and Genghis Khan for a minute, in some ways building your team is similar to building a winning football team. Buying the right players, not just the best in the world, but ones who you think will blend in with the others at the club and whose style of play is suited to your vision, is the sign of a good football manager. One poor signing can disrupt the harmony of the team both on and off the field, and destroy seasons of careful planning. On the other hand, how many successful teams have fallen apart when their manager has left the club?

Leadership is easier if you have the right people around you and supporting you. Also, management is about getting things done through other people, so if you want things done right, get the right people.

Hold this thought: everyone you recruit must possess certain personal qualities and skills so they will be able to perform to the highest standards.

You want people around you who:

- Are excellent communicators
- Possess motivation
- Are team players
- Show a definite interest in self-development
- Demonstrate that they could handle stress
- Are they able to plan and organise
- Are good at using information
- Can analyse and interpret information
- Use their judgement when weighing up information and deciding on an appropriate course of action
- Can make decisions
- Use initiative
- Can cope with changing situations
- Understand the organisational environment of the practice.

This list of qualities and skills could equally be used to recruit someone to a senior post in a multinational company. There is no reason why you shouldn't look for the same qualities and skills in your employees, is there?

If you (or any of your employees) want to get things done through other people, it's important that you all are able to communicate clearly the things that need to be done. The ability to communicate is one of the most important skills you and your team must possess, not just the ability to communicate well with those within the practice, but also with those without.

Before communicating anything to anyone, you must have all of the relevant information, be very clear about what it is you are communicating, and know the preferred outcome.

Hold this thought: if you only have half of the information you can only ever communicate half a message.

To be effective, communication should always be short and simple. Brevity is a virtue. Communication comes in all shapes and sizes: body language (non-verbal), which includes gestures, posture and facial expression; verbal, which is almost always reinforced or negated by body language; and written.

It is a sobering thought that if your body language, tone of voice and your words are not saying the same thing, then body language and tone will be believed more than the words you say. Face-to-face verbal communication allows both parties to observe each other's body language. The eyes give away what the mouth tries to hide. It is not only the eyes that reveal your true thoughts.

Verbal communication can be problematic because most of what people hear is forgotten, which is why misunderstandings occur. People retain little or only part of a verbal message and filter out much of what they hear.

You have to repeat verbal messages if they are to be remembered.

Hold this thought: having employees who know the subtleties and art of communication helps build trust with your patients.

Being an excellent clinician is wasted if you lack the ability to communicate properly with your team and/or your patients. Similarly, surrounding yourself with a team of poor communicators is a recipe for disaster. Is poor communication inhibiting the performance of your practice?

Your employees must be able to work with others in a positive, co-operative and helpful manner. They should set an example through their own efforts for the team, and motivate others through their enthusiasm.

Surround yourself with people who actively seek self-development opportunities, and who want to reach their full capability in their current job and grow to their full potential.

A dental practice is a stressful place: stressed patients (adults and children), stressed clinicians, a stressed practice manager, stressed nurses and stressed receptionists. Your employees must be able to deal with stressful situations effectively, allowing work to continue, whilst they tackle the underlying problem(s).

Many of the skills and qualities listed above are those you would expect a good manager to possess. Should all of your employees be thought of as managers?

Not every new recruit will possess all of these qualities and skills. You must therefore learn to spot potential, especially in younger people, and be prepared to put time and effort into nurturing them to draw out their full potential.

Once you have assembled your dream team, your employees must 'wow' your patients with their professionalism, their friendliness and their expertise.

In a single-handed practice, if your nurse leaves you obviously need to replace them. But in a larger practice you might want to ask yourself, 'Do I actually have a vacancy?' 'Does the role have to be full-time or could it be part-time?' 'Is it a permanent job or would a temporary employee do?' 'Do you already have someone working for you who might like the job: a receptionist who wants to train as a nurse; a part-time employee who now wants to work full-time? Don't rush into bringing in outsiders; re-deploy your existing forces if you can so as to buy yourself time to find the right replacement.

Once you have decided that you do need to recruit (and this does not just apply to finding a replacement nurse) then you will have to:

'FACE-TO-FACE VERBAL COMMUNICATION

ALLOWS BOTH PARTIES TO OBSERVE EACH

OTHER'S BODY LANGUAGE. THE EYES GIVE

AWAY WHAT THE MOUTH TRIES TO HIDE.'

I involved my employees in the day-to-day and some of the more strategic management of my practice long before it was an obligation under CQC. Now that employees are expected to know much more about the business in which they work, it seems that a great opportunity has opened up for them to take a more active role in helping to shape the practice, the way it is managed, and for them to personally improve their managerial knowledge and skills. Enlightened employers should embrace this idea and welcome any employee contribution, as long as it is positive, of course.

- Work out what sort of person you are looking for (does such a person actually exist?)
- Decide how you are going to find them
- Advertise
- Draw up a shortlist
- Interview
- Appoint.

The person you want could either already have the necessary qualifications and/or experience, or you could employ someone with neither but whom you can train. This is time consuming, but it can be very rewarding.

Qualified or not, work out the personal attributes your new employees must possess.

Your wish list of your ideal candidate might produce a person that simply does not exist, or if they do, could be too expensive to employ. Your ideal might have to be a compromise between what you'd like and what you can afford.

have a vacancy. Get in touch with the careers advice teacher at your local high school and ask them to put anyone who is planning a career as a dental nurse in touch with you. Make and maintain contact with the nearest dental school; dental nurses wanting to move from hospital into practice, or student hygienists about to qualify, can all be pointed

Employment law is such a tricky area that you must not unwittingly lay yourself open to an allegation of discrimination from a disgruntled applicant. At this stage of the recruitment process, make sure that the same letter bearing exactly the same wording is sent to every applicant.

I was caught out once by false references, so I would urge you to check, preferably in writing, the references of anyone you are thinking about employing.

'YOUR PATIENTS ALL HAVE FRIENDS, RELATIVES AND NEIGHBOURS WHO MIGHT BE LOOKING FOR A JOB IN A DENTAL PRACTICE AS A NURSE OR AS A RECEPTIONIST OR EVEN AS A PRACTICE MANAGER.'



in your direction. Basically, keep your eyes and ears open for any prospective employees.

Among my patients were several dental nurses and receptionists from other practices. Some of them asked me to bear them in mind if a vacancy ever came up at my practice. Here was a ready-made source of recruits.

Bear in mind every practice in town is looking in the same places for their new recruits. So how do you gain an advantage over them and hopefully uncover someone that no one else has found? You could of course rely on an advert under 'Dental Nurse wanted' in the local newspaper, or you could contact the job centre or try dental recruitment agencies. Remember that now you have to be so careful about so many aspects of recruitment. (I am sure we've all heard stories of male dentists who claim that they will only employ glamorous females in their practice!) Then you have to ask yourself, 'Do I really need to spend money on expensive adverts that are probably not going to be read by the kind of people I want to work for me?' Why waste money on expensive agency fees? Why not look somewhere different?

You probably have lots of patients, some of whom will be school-leavers, who might be interested in making a career as a dental nurse. Your patients all have friends, relatives and neighbours who might be looking for a job in a dental practice as a nurse or as a receptionist or even as a practice manager. Make a mental note of anyone you come across who you think might fit into your team, and contact them if and when you

However, if you decide to advertise you must make sure that the advert presents a picture of a professional and interesting organisation. Always check that your advert does not contravene current employment legislation. At the very least the advert should briefly state the following:

- The duties and responsibilities of the job
- The qualifications and experience needed
- The personal qualities you are looking for
- The location of the practice
- An indication of the salary
- How anyone who is interested in the job is to reply
- Whether further information is available.

You might want to draw up an application form and put together an information pack containing a copy of your practice brochure (they might be looking for a dentist even if they don't apply for the job) and a job description, which you can send to applicants. Always ask for a curriculum vitae and references (preferably two) from anyone who applies, because if you are going to attract the right calibre of applicants you must present a professional image, and that means going about things in the right way. Any time-wasters will not take it any further once they see that you run a professional organisation.

A job description is an extremely important and useful document that you should give to every employee, but it is especially important when you are recruiting.

A job description should contain the following basic information:

- The job title
- The location(s) of the job (if they are going to work for you at more than one practice)
- Who they are responsible to
- Who they are responsible for
- The purpose of the job
- The main duties.

You might receive applications from people who have never worked in dentistry; do not dismiss them out-of-hand. In any case, you cannot discriminate against them for this sole reason. You should not restrict yourself to people who have only ever worked in dentistry, because you need to explore the possibility of introducing some fresh thinking into the practice, perhaps from people who have had a wide experience of working in customer care related jobs. Don't be insular.

I know a practice where the receptionist is a former manager of cabin crew personnel for a leading airline. She knows about customer care; it's such a shame the practice owner doesn't listen to her ideas and suggestions.

Interview all suitable candidates. Again, make sure that the same letter bearing exactly the same wording is sent to everyone you invite for interview. To avoid problems under the Disability Discrimination Act (DDA) 1995 it is wise to include a paragraph in the letter asking the recipient if there are any adjustments you will need to make to the place in which they will be interviewed. (It is unlawful for you or any other employers to discriminate against someone with a disability for a reason related to their disability.) Use a comfortable room for the interview and never rush proceedings. Be aware of your body language, posture, gestures, and watch theirs. How do you spot if someone is lying?

It is tempting to ‘play it by ear’ in an interview and to ask the candidates questions as they pop into your head. This is a dangerous strategy. Why? Again, it is all to do with discrimination and the employment laws. How can you reliably judge, compare and contrast the performance, responses and

I made some horrendous mistakes recruitment-wise, especially in the early days. I recruited one person who produced forged references, which I didn’t discover until much later; one who I took on as a receptionist who said she could work chair side, but then when asked to help out in the surgeries refused; people who brought their domestic and personal problems into work; and one person who while she was supposedly on sick leave was actually working somewhere else.

job as a dental nurse, do you?’ She replied, ‘Yes please! I’ve always wanted to be a dental nurse.’ She came to work for me and passed her nurse exams at the first attempt after one year of study. She loved her new career. She too was very good with people. All three were technically very good at their jobs, but more importantly they were all mature enough to know that excellent customer care was what really mattered.

‘EMPLOYING PEOPLE WHO DO NOT TAKE THEIR WORK SERIOUSLY OR WHO SHOW LITTLE RESPECT FOR YOU, YOUR WORK, THEIR COLLEAGUES OR YOUR PATIENTS, IS A RECIPE FOR DISASTER.’

suitability of each candidate if you don’t ask them exactly the same questions and score them accordingly?

Conclude the interview by telling them when you will contact them with your decision, which should always be in writing. Again, to avoid allegations of discrimination, I would always write the same letter to everyone who wasn’t successful.

I have been told by a reliable source that there are people who apply for numerous jobs and then, when they are told that they haven’t got the job, lodge a claim for discrimination and seek compensation against the hapless employer. A cautionary tale.

Hold this thought: wherever you recruit from, never short-circuit the selection process, and always apply strict selection criteria.

Before you employ anyone, check the latest CQC guidelines and requirements, the person’s eligibility to work in the UK, and don’t forget to do an ID check.

Once you have appointed your new recruit you are legally obliged to give them a written contract of employment within a specified period of starting work. All of your employees must by law have a written contract.

Finding the right people can be a nightmare. The problem is that when one of your employees resigns you are then often panicked into having to find a replacement straightaway.

There are probably other examples that I have chosen to forget about.

I gave up using adverts and job centres; the quality of the people they produced was generally very poor. That’s when I began to scout for potential employees among my patients and from anywhere other than adverts and the job centre.

The best team I ever had was in the last six or so years before I retired.

My practice manager/receptionist was a friend of my wife but someone I had never met; we bumped into her in the supermarket one day. She was looking for a job and I needed a receptionist. I interviewed her, obtained references and offered her the job. By the time she left the practice she had done every job except the dentistry! She learnt how to be a nurse and so took on the responsibility for training new nurse recruits. She ran the practice induction programme. She was a superb people-person; the patients loved her.

The receptionist had been my patient since I had taken over the practice. She was looking for a job and I was looking for a second receptionist. She’d never worked in a dental practice before but she turned out to be very efficient and also very good with the patients.

My nurse was someone who worked in a local café where I used to go for lunch. On this particular day I’d just found out that my current nurse had been working somewhere else while supposedly on sick. I jokingly said to the woman in the café ‘You don’t fancy a

When you are looking for a receptionist or a new dental nurse it is worth remembering that dentistry is a profession, so the only people you should be interested in are those people who demonstrate a professional approach to their work. Employing people who do not take their work seriously or who show little respect for you, your work, their colleagues or your patients, is a recipe for disaster. When you meet a prospective employee for the first time ask yourself ‘Do they look the part?’

I had a lot of dealings with solicitors and barristers in my capacity as an expert witness. I was always struck by the smart appearance, the nice way they spoke and the professional way in which receptionists, clerical and secretarial staff all conducted themselves in law firms.

Another thing to bear in mind is that all of your staff must feel at ease talking to a wide range of people from a wide range of social backgrounds. They must have an interest in the world around them, be able to talk about a wide range of subjects (not contentious issue such as religion or politics) ranging from popular television to sports, the arts etc. However, you must not employ someone who doesn’t know when to stop talking.

Taken from **Managing a Dental Practice the Genghis Khan Way, Second Edition**

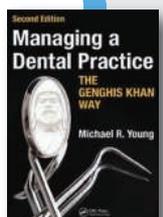
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HELP YOUR PATIENTS ADAPT TO DENTURES



Birmingham NEC, to showcase one of the UK's leading denture brands, Poligrip. Visit stand 630 to find out more about the Poligrip range of cleansers and fixatives and understand how they can help make your patients' denture experience more comfortable.

The stand will feature additional materials to help support your patients in adapting to life with their new dentures and the Poligrip team will be on hand to answer your questions.

Visit the DTS Education Forum for a GSK sponsored lecture session on 'Implants are great, but we still need dentures'. The lecturer, Tim Friel, has been a fully qualified Clinical Senior Lecturer for 28 years. He has a clinical interest in all aspects of fixed and removable prosthodontics and dental care of older people with special care requirements – all which will become evident in his presentation.

Visit the DTS Lecture Theatre on Friday 22 April at 12:45 for this unmissable opportunity!

By 2050, 22% of the global population will be aged over 60. This increase in the elderly population may present a greater stress on your dental practice and the need for specialist oral health products.

This year the GSK Consumer Healthcare team will be at the Dental Technology Showcase 2016 (DTS) on 22-23 April at

ADVANCED DENTAL NURSING APPRENTICESHIPS

Employer-led, the Advanced Apprenticeship in Dental Nursing presents the perfect opportunity for practices to develop their team and grow their own talent.

The 18-month programme is designed to teach apprentices all the skills, knowledge and behaviours they need to fulfil the role of dental nurse successfully.

Candidates complete a level 3 Diploma in Dental Nursing while employers benefit from staff who gain the practical experience they need to become highly engaged and skilled members of the team.

With extensive government funding available to subsidise the cost of training each apprentice, this really is a great opportunity for all to get involved with.

Provided by Healthcare Learning and Barnet and Southgate College, London, the

majority of the course is delivered through online webinars and eLearning resources, with only a few classroom based workshop days required for added convenience.

Stay one step ahead and find out more about the Advanced Apprenticeship in Dental Nursing today.

For more information or applications contact Healthcare Learning on 020 7400 8989 or email qualifications@healthcare-learning.com.



CELEBRATE 31 YEARS OF TALKING POINTS

The 2016 Talking Points in Dentistry lecture series, presented by the Sensodyne brand, offers tailored sessions for different team members to maximise relevance for the whole dental team.

The personal and social impact of dentine hypersensitivity

Lecture one: for dentist, hygienists and therapists

*Professor Peter Robinson,
Professor Barry Gibson*

Dealing with nervous patients

Lecture two: for dental nurses and other practice staff

*Professor Tim Newton,
Brid Hendron*

This year's venues

5 May – Hastings Europa, Belfast

12 May – Watford Colosseum, Watford

17 May – GSK House Brentford, London

19 May – ICC Birmingham, Birmingham

Book your tickets now at www.gsk-dentalprofessionals.co.uk.

If you can't make it to a venue, this year a special bitesize video of the speaker's lectures will be available on www.gsk-dentalprofessionals.co.uk website after the events.

LEADING WITH INTEGRITY COURSE LAUNCHED

UMD Professional has launched a new course for dentists and managers, leading to the Institute of Leadership and Management's (ILM) Level 5 Certificate in Leading with Integrity, in conjunction with the Cass Business School.

This practical three-day course provides a foundation in leadership with particular focus on the importance of leadership styles, culture, values, and integrity, and the practical application of leadership skills within the dental context today.

For more information contact UMD Professional on 020 8255 2070 or email anniewalker@umdprofessional.co.uk.

THE EVIDENCE-BASED MOUTHWASH

On Wednesday 9 March, Johnson & Johnson, the makers of LISTERINE, were delighted to welcome members of the dental press to the BDA's headquarters to learn more about the findings of a unique meta-analysis¹ that may assist dental professionals committed to evidence-based preventive care.

Plaque bacteria is considered a major cause of gum disease and, according to the Group B consensus report of the fifth European Workshop in Periodontology, gingivitis and periodontitis are a continuum of the same inflammatory disease.²

The Group also revealed that: '...oral plaque biofilm disruption is the most effective way to treat and prevent both conditions [gingivitis and periodontitis]'.² However, the mechanical regimen of brushing and interdental cleaning alone to remove plaque is often insufficient to control gum disease.³

'CLINICIANS MANAGING PATIENTS WITH POOR ORAL HYGIENE SHOULD CONSIDER RECOMMENDING ESSENTIAL OIL MOUTHRINSES'

Given the potential limitation of mechanical cleaning, the 11th European Workshop in Periodontology reached the following consensus: 'There is evidence for beneficial effects from adjunctive use of anti-plaque chemical agents in [...] preventing plaque accumulation...', and subsequently managing gingivitis.⁴

It would seem therefore that there is a case to be made for the use of an effective antimicrobial mouthrinse as an adjunct to mechanical cleaning. Further evidence is provided by Araujo and colleagues (2015) in their meta-analysis demonstrating the clinically significant benefit of using an essential oil mouthrinse (Listerine) as an adjunct to mechanical cleaning over a six-month period.¹

The key points provided by this the meta-analysis are:

- With over 5,000 participants, this is the largest meta-analysis on the efficacy of essential oil-containing mouthrinse,

establishing the benefits of daily essential oils as an adjunct to mechanical cleaning

- This is the first meta-analysis using responder analysis over a six-month period to demonstrate a clinically significant, site-specific benefit of a mouthrinse containing essential oils on plaque levels, which may help to prevent tooth decay and gingivitis when used in conjunction with mechanical cleaning

- By presenting the percentage of plaque-free tooth surfaces that achieved health, the meta-analysis provides a novel form of data to help dental healthcare professionals make evidence-based decisions to manage plaque in their patients.

When looking at plaque levels, Araujo and colleagues concluded that 36.9% of participants using an essential oil mouthrinse in addition to mechanical cleaning would have at least 50% of sites without plaque at six months. Only 5.5% using mechanical cleaning alone achieved a similar effect.

Clinicians who are managing patients with sub-optimal oral hygiene should consider recommending essential oil mouthrinses as an adjunctive treatment to help to reduce plaque levels, which may assist in the prevention of dental decay and gingivitis.

Alongside plaque reduction data, Araujo *et al.* also reviewed the impact on gingival health from adjunctive use of the essential oil-containing mouthrinse Listerine. For further details, read the full article at [http://jada.ada.org/article/S0002-8177\(15\)00336-0/pdf](http://jada.ada.org/article/S0002-8177(15)00336-0/pdf).

1. Araujo M W B, Charles C A, Weinstein R B *et al.* Meta-analysis of the effect of an essential oil-containing mouthrinse on gingivitis and plaque. *J Am Dent Assoc* 2015; **146**: 610-622
2. Kinane D F, Attström R. Advances in the pathogenesis of periodontitis. Group B consensus report of the fifth European Workshop in Periodontology. *J Clin Periodontol* 2005; **32**(Suppl. 6): 130-131
3. Sharma N, Charles C H, Lynch M C *et al.* Adjunctive benefit of essential oil-containing mouthrinse in reducing plaque and gingivitis in patients who brush and floss regularly: a six-month study. *J Am Dent Assoc* 2004; **135**: 496-504.
4. Chapple I L C, Van der Weijden, Doerfer C *et al.* Primary prevention of periodontitis: managing gingivitis. *J Clin Periodontol* 2015; **42** (Suppl. 16): S71-S76

REMOVE TEN YEARS OF STAINS IN TWO WEEKS



Love it or loath it, the 'selfie'-culture is here to stay. With practically every phone having a built in camera is it surprising that the younger generation seem to be documenting their life in images? Aesthetics tend to rule when it comes to taking a picture. Celebrity culture has a lot to answer to, and whilst the stereotypical 'TOWIE' smile might want to be discouraged, teeth that have been professionally whitened can do much to boost an individual's confidence.

With Oral-B's 3D White Whitestrips patients can have whiter teeth with minimal fuss and nominal cost. With the ability to remove ten years of stains in just two weeks, James Goolnik, from the Bow Lane Dental Group, believes they will simplify at-home whitening regimes.

James explains: 'Dentists can diagnose the cause of the discolouration and prescribe the correct product to treat it and give patients a white smile. One of the reasons some of the public avoid a visit to the dentist is cost. But, with Whitestrips, they can get a white smile for an affordable price.'

'It's imperative that teeth are professionally whitened. The demand is evident and we do not want our patients undergoing treatment by untrained individuals. Moreover, having the patient in the surgery I can then use it as an opportunity to review their general oral health and ensure they're dentally and not just cosmetically fit!'

3D White Whitestrips are exclusively distributed in Europe by Henry Schein.

If you would like to promote your products or services direct to the dental industry in BDJ Team, call Andy May on 020 7843 4785 or email a.may@nature.com.

CPD questions April 2016

Periodontitis: a potential risk factor for Alzheimer's disease



- Which of the following is one of the characteristic features of Alzheimer's disease?
 - Lewy bodies
 - neurofibrillary tangles
 - neuronal scoliosis
 - scleral plaques
- Which one of the following periodontal pathogens has previously been isolated from Alzheimer's disease brain specimens?
 - Prevotella intermedia*
 - Prevotella nigrescens*
 - Tanarella forsythia*
 - Treponema denticola*
- The APOE ε4 allele is known to be associated with Alzheimer's disease. Which of the following statements is most likely?
 - it is most commonly associated with early onset Alzheimer's disease
 - it probably makes the host less susceptible to a number of environmental risk factors associated with Alzheimer's disease
 - it may make the host more susceptible to cerebral infection
 - those with the allele often demonstrate less rapid rates of cognitive decline than those without it
- Which one of the following proteins has been associated in the pathogenesis of both periodontitis and Alzheimer's disease?
 - Aβ (beta amyloid)
 - BMP-1 (bone morphogenetic protein-1)
 - Hyper-phosphorylated tau
 - TNF-α (tumour necrosis factor alpha)

BDJ Team CPD



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