

Oral Disease Prevention for Older People

Rupert S Austin, Ryan C Olley, Arijit Ray-Chaudhuri and Jennifer E Gallagher

Key Words: Preventive Dentistry, Primary Prevention, Oral Health, Older Patients, Adult Dental Health Survey 2009

© Primary Dental Care 2011;18(3):101-106

This opinion paper reviews trends in oral disease and its management in older people, in response to a challenge, in an editorial in *The Lancet*, to the traditional curative model of dentistry and the publication of the most recent Adult Dental Health Survey. It highlights the challenge of an ageing population and its oral health

needs and management. Professional issues in relation to preventive care are discussed with emphasis on the importance of identifying patient risk and providing preventive care, together with improving the uptake of dental care among older people.

INTRODUCTION

An editorial in *The Lancet* has challenged the traditional model of dental healthcare provision in developed countries and has specifically cited dentists as 'preferring to treat rather than prevent oral diseases'.¹ This perception of dental professionals as being unwilling to expend time and money on actively promoting prevention, despite the fact that preventive techniques have been taught at all stages of dental education for several decades, has complex and varied reasons, which include the wider political context and the influence of oral healthcare funding systems in Western society. Historically, among Western governments there has been a lack of political commitment to integrate disease prevention into the design of publicly funded healthcare systems. In many countries, it is only recently that national policy makers have actively encouraged health professionals, including primary care

dentists, to focus on disease prevention and health promotion, as well as on the treatment of dental disease.^{2,3} National policy makers in the United Kingdom (UK) appear to have recognised that the recently introduced National Health Service (NHS) General Dental Services (nGDS) contract was 'a missed opportunity' because it 'did not directly reward dentists for prevention'.⁴ General dental practitioners (GDPs) are now increasingly being encouraged rigorously to promote and implement evidence-based and cost-effective strategies to prevent dental disease for the populations that they serve.³ National policy aims to create an oral healthcare system in which the outcomes of prevention are assessed and successful outcomes are financially rewarded.⁴ So what is leading to this paradigm shift in health service provision? There is a general recognition among those involved with healthcare that treatment is not the sole answer to disease, but that risk management and

health promotion have much to offer in achieving health improvement. The increasing emphasis from all parties on health, together with the cost of healthcare, limitations of the traditional medical model, and increasing understanding of disease and the evidence-base for prevention are contributing to this shift.

As the age structure of populations changes, so do oral health trends. The associated burdens of a curative model of healthcare provision for an ageing population with changing oral health needs have become an issue of acute concern to national policy makers worldwide.^{4,5} In the UK, the median age of the population will rise from 39.3 years in 2008 to 42.2 years by 2033.⁶ As the population ages, the numbers of older people (classified as those over 65 years of age) will increase at the fastest rate⁶ and for this section of the population it is estimated that by 2028, total tooth loss will be largely eliminated in those aged under 65 years and significantly reduced

RS Austin BDS, MJDF, AHEA. Clinical Research Fellow, Primary Dental Care, King's College London Dental Institute, London, UK.

A Ray-Chaudhuri BDS, MJDF, MFDS, LLM. Specialist Registrar in Restorative Dentistry, King's College Hospital NHS Foundation Trust and St George's Healthcare Trust, London, UK.

RC Olley BDS, BSc, MJDF. Clinical Research Fellow, Department of Prosthodontics, King's College London Dental Institute, London, UK.

JE Gallagher PhD, MSc, BDS, DCDP, FDS, DDPH, FHEA. Senior Lecturer/Honorary Consultant in Dental Public Health, Oral Health Services Research and Dental Public Health, King's College London Dental Institute, London, UK.

in the population under the age of 75 years.⁷ Only adults aged 85 years and over will have an appreciable proportion (20%) of their age group who will be edentate.⁷ Moreover, these older people grew up in the era before widespread use of fluoridated toothpaste and therefore had less protection from dental caries. As a result of this exposure to caries, they carry with them the greatest number of restored teeth. In 2009 in England, Wales and Northern Ireland, the average number of restored teeth among dentate adults aged 16–24 years was 1.8, whereas those aged 55–64 years had on average 10.1.⁸ With time, these restorations will inevitably fail and require ever more complex interventions. As these dentate older individuals become functionally dependent upon medication or mentally or physically frail, maintaining a functional, pain-free dentition may become increasingly difficult. As GPDs working to ameliorate the effects of these wider socio-political changes, we must identify those older people who are in need of effective, evidence-based prevention of dental disease before they reach a stage where their quality of life is affected.⁸

So what are the current concepts of care relevant to older people and which preventive strategies are most effective for preventing oral disease in an older person?

WHY DO OLDER PEOPLE NEED ORAL DISEASE PREVENTION?

Effective oral healthcare for this expanding section of the adult population requires the recognition of the diversity and heterogeneity of this group. This includes those in their sixties entering old age, through the transitional phase in the eighth and ninth decades, to frail older people in the tenth and eleventh decades of life. Moreover the diversity and heterogeneity is further complicated by the fact that chronological age does not necessarily match biological age.

Oral health has been defined as ‘...the state of the mouth and associated structures where no disease exists, future disease is inhibited’ and ‘the occlusion is sufficient to masticate food and the teeth are of a socially acceptable standard’.⁹ Disease leading to impairments such as tooth loss may result in social disabilities (such as difficulty in speaking and chewing) and in psychological disabilities such as those resulting from the patient’s perceived appearance.¹⁰ It is therefore important to consider perceived needs and attitudes as well as normative needs to contribute to a person-centred approach to care. Older people of today have higher expectations of oral health than previous generations, and positive oral health attitudes are more common in the ‘young’ older people (65–75 year olds) than in the older groups.¹¹ Superimposed on these challenges to the dental profession are future national trends, which predict reduced edentulousness among older people and increased numbers of restored but functional dentitions, requiring high levels of maintenance.^{8,12} In addition, older people may be less likely to access care, with only around 30% of those over 75 years of age accessing General Dental Services in the UK.¹³ For those older people based in institutions such as hospitals and care homes, there are likely to be high levels of periodontal disease, caries, xerostomia, dentures, toothwear and oral cancer.¹⁴

ORAL DISEASE IN OLDER PEOPLE

The prevalence of oral disease and likely future oral health needs of older people in the UK can be predicted by examining the results from the decennial Adult Dental Health Surveys (ADHSs). These have been carried out in the UK since 1968.¹² The first results of the 2009 survey have recently been published.⁸ The trend of a falling percentage of edentulous people seen in the four previous ADHSs⁷ persisted and the 2009 survey found that overall, only 6% of

adults in England, Wales and Northern Ireland were edentate. Furthermore, the likelihood of being edentate increased with age: only 1% of adults aged 45–54 years were edentate compared to 47% of those aged 85 years and over.⁸ It was of note that there was a greater prevalence of edentate older people in Scotland⁷ and Wales⁸ than in England and Northern Ireland. Older people are more likely to be wearing partial dentures, especially those in lower socio-economic classes. Older people may also be more likely to have poor oral cleanliness, which in combination with increased clinical attachment loss and the changes in the quality and quantity of saliva may result in greater incidence of root caries. In addition, the prevalence of toothwear increases in older people, affecting an estimated 85% of those aged 65 years and older.¹⁴ Finally, it is estimated that in developed countries more than 90% of all oral cancers occur in those aged over 50 years, with a mean time of onset during the sixth decade of life.¹⁵

PREVENTIVE STRATEGIES FOR COMMON DENTAL DISEASES

Following the Steele review of NHS dental services in England, proposals for changes in the dental contract have included performance-monitoring of dental disease prevention.³ A recent White Paper has proposed implementing this by rewarding practices whose patients are moving from a high-risk category to a lower-risk one.⁴ This change may be assessed, for example, by the percentage of patients with new active carious lesions recorded at review (recall), or the percentage of adults with an improving basic periodontal examination score at review (recall).⁴ However, despite patients and dentists being keen on the idea of prevention, there has traditionally been little consensus among dentists as to what active prevention may practically involve, and there is a perception among some patients and third-party funders that there

is little oral health benefit unless something is actively 'being done'.³ Although high-quality restorations and professional interventions can have a preventive function, even the best restorative dentistry begets more dentistry, with all the subsequent iatrogenic effects. Throughout a patient's lifetime, failing to address the causes of dental caries, periodontal attachment loss and tooth surface loss results in further cumulative irreversible damage, consequences and costs.

This is especially relevant for older people, considering the socio-demographic changes described above. For these individuals, the recognition by policy makers of the essential role of prevention as a first step in managing primary dental disease³ is good news because it implies prevention instead of restoration. Implementation of evidence-based guidelines, which crystallise the available strategies that help older people to enjoy a comfortable and functional dentition,¹⁶ may be facilitated by the proposed changes to the nGDS contract.⁴ These guidelines are at the fingertips of dental healthcare professionals and have the potential to improve dramatically the oral health of older people. Using the evidence-based toolkit for prevention,¹⁶ the following are key messages for a healthy mouth:

1. A healthy diet is important for a healthy mouth.
2. Good oral hygiene keeps teeth and gums healthy.
3. Teeth should be brushed at least twice a day with a fluoridated toothpaste.
4. Avoid tobacco and minimise alcohol intake.
5. Attend a dentist for a regular check-up (at least every two years for adults).

HIGH-RISK PATIENTS

Older patients who are unable to maintain their own oral hygiene independently or are predisposed to oral disease may be defined as high-risk.¹⁷ These patients will need to attend at more frequent, tailored recall visits for active prevention.¹⁸ Examples of predisposing

factors include:

- Inability to take adequate fluids.
- Insufficient saliva production.
- Poor nutritional status, especially high volume and/or frequency of sugar intake.
- Major interventions that impact on oral health (for example, salivary gland surgery, radiotherapy or chemotherapy). These patients are at risk of xerostomia and ulceration, caries, periodontal disease, and candidiasis.
- Lack of knowledge, motivation or ability to maintain oral hygiene.

Factors predisposing to periodontal breakdown include diabetes, genetic disorders, Down's syndrome, blood dyscrasias/haematological disorders, pregnancy, smoking, and medications which have a side-effect of gingival hyperplasia such as phenytoin and, sometimes, cyclosporin or nifedipine (and some other calcium-channel blockers).¹⁹

PREVENTIVE RESTORATIVE TREATMENT PLANNING FOR OLDER PEOPLE

Studies investigating how ageing and tooth loss affect oral health-related quality of life have concluded that tooth loss is associated with more negative impacts than increasing age *per se*. Therefore, those older people with a complete or almost complete natural dentition are likely to have the best oral health-related quality of life.²⁰ As far as an almost complete natural dentition is concerned, it is useful to remember the concept of the shortened dental arch (a minimum of 20 teeth, or a certain number of contacting pairs of posterior teeth).^{21,22} Research has suggested that a shortened dental arch is an acceptable goal to aim for to allow for satisfactory oral health at a functional and dietary level.^{23,24} In the 2009 ADHS, this concept was applied in that a functional dentition was defined as achieving a threshold of 21 or more standing teeth.⁸ Therefore, long-term restorative treatment planning should aim to retain ten occluding tooth pairs

as a minimum goal for older people. This requires balancing the investment, time and money required to repair restorable teeth, bearing in mind the factors that influence the long-term prognosis of such teeth, with a matching investment in preventive 'holistic' care and attention.²⁵

As previously mentioned, on average, the current cohort of middle-aged adults (55-64 years) in England, Northern Ireland and Wales have far greater numbers (10.1) of restored but otherwise sound teeth than those aged 16-24 (1.8).^{8,12} Therefore, adopting an approach that preserves as much sound enamel and dentine into the ninth, tenth and eleventh decades of a patient's life by maximising the use of modern adhesive restorative techniques is paramount for these individuals. The retention of sound enamel facilitates fixed prosthodontic options such as resin-bonded bridges, while postponing the need for removable partial dentures (RPDs). Therefore, over a patient's lifetime, effective prevention and the use of the shortened dental arch concept may help to avoid the detrimental side-effects that can result from both fixed and removable prosthodontics.

Although implant-supported prosthodontics plays an increasingly important role in replacing missing teeth of strategic importance (either functionally or aesthetically), provision of RPDs will still be necessary for elderly people who require replacement of missing teeth. Preventive removable prosthodontic treatment planning, involving use of open/hygienic connector design principles, can reduce the risk of tissue injury and reduce accumulation of mature plaque around gingival tissues. These factors are important to consider for maintaining long-term oral health for elderly people with RPDs.²⁶

Moreover, considering the potential for improved oral health-related quality of life for edentulous patients using implant-retained dentures, particularly in the lower jaw, they should perhaps be used as first-choice care for edentulous

older people, in line with the McGill consensus statement.²⁷ However, the availability and cost of implant-supported prostheses within a publicly funded healthcare system must be balanced against the oral health and quality of life benefits that such treatment would have for older people. Further work is required to identify those older people who have most to gain from such care. Research into this issue would be of great use in contributing to the professional debate with policy makers, in order to ensure that the best possible care is appropriately commissioned for these edentulous older people.

As the skill mix of the dental team evolves and widens, there is great potential for increased delegation and use of dental care professionals (DCPs) to deliver preventive treatments for older people.²⁸ This implementation of simple preventive care by DCPs will complement and prolong the long-term success of holistic restorative dentistry, while at the same time ensuring that GPs are able to optimise the use of their chairside time by managing more complex restorative dental treatments.

ACCESS TO ORAL HEALTHCARE

Past health service statistics have suggested that older people are less likely to attend for dental care,²⁹ despite high-risk older people needing to attend more frequently than once every two years. In 2005, the national strategy review *Meeting the Challenges of Oral Health for Older People: A Strategic Review* identified the potential for lower uptake of dental care in older people.²⁹ A recent study³⁰ has outlined the different historical use of NHS health services by older people and concluded that the volume of dental care provided for older people has been increasing at a rate that exceeds population growth, but remains low. Likewise, the 2009 ADHS suggested that the pattern of service use is changing, and that older people will increasingly

occupy more and more of GPs' time over the coming decades.⁸ Thus, as a profession, we need actively to promote the uptake of care by older people, in order to support their oral health and, if necessary, take the care to them.

In 2010, the *GP Patient Survey* included questions about dentistry for the first time and found that 59% of respondents had tried to get an appointment within the last two years and of those who did, 90% had been successful.³¹ However, less than one third of these patients were aged 65 years or older and so this may be an unrepresentative group for understanding the likelihood of older people accessing NHS dental services. Furthermore, the results of another recent study of older people living in the community suggested that the traditional barriers to dental care, which include dental anxiety, cost (and fear of cost) and a lack of perception of need, remain prevalent among older people.³²

Access problems are likely to be worst for older cohorts of older people³⁰ who are frail and/or based in institutions such as care homes. Here, a number of barriers to oral healthcare have been identified and these should also be taken into account by oral healthcare workers. They include professional barriers such as families and care staff with heavy workloads, low dental health priority,³³ limited understanding of oral health, lack of resources, and poor care home–dentist collaboration.³⁴ Social barriers include inadequate healthcare facilities and workforce³⁵ and patient barriers include difficulty accessing care,³⁶ treatment costs and fear, low perceived need³⁷ and poor understanding of the need for oral hygiene.²

Nevertheless, preventing oral disease in older people is important and achievable, by implementation of evidence-based, simple, and cost-effective preventive approaches by a range of healthcare workers who could include general medical practitioners, nurses, pharmacists and care workers. Ideally, care homes

should have access to dental services³⁸ and emergency dental care within 24 hours of the identification of a problem.³⁹ Members of the dental team, in collaboration with local care homes and other healthcare workers, can be involved in signposting older people to appropriate services.⁴⁰ The dental team can also place emphasis on standards of healthcare, for example through the Care Quality Commission. A simple acronym⁴¹ that may help healthcare workers, such as those in care homes, to assess whether or not a patient requires an oral investigation is D-E-N-T-A-L. The acronym stands for:

1. **D**ry mouth.
2. **E**ating difficulties.
3. **N**o dental care in the previous two years.
4. **T**ooth or mouth pain.
5. **A**lterations to food eaten.
6. **L**esions or sores in the mouth.

As a convenient way to use this screening tool, it has been proposed that each patient scores one point for each of the DENTAL statements marked 'yes' except for statement three, which scores two points. Patients with overall scores of two or more should be referred for dental care as soon as possible.⁴¹ This tool compares felt needs with normative need, which increases dental awareness, and expressed need, and may help to help reduce health inequalities between older people and their younger counterparts by facilitating an inexpensive and rapid assessment of the need for referral to a dental professional.⁴² However, it does require interpretation by healthcare professionals.⁴² Therefore by using judgement and knowledge in combination with a more structured assessment process, a more holistic assessment of older peoples' needs should help to focus it on those who need it the most.

Figure 1 shows a leaflet that uses the DENTAL statements and summarises the actions for mouth care, patients who may be at high risk of dental disease, key tips for a healthy mouth and guidelines on when to refer patients

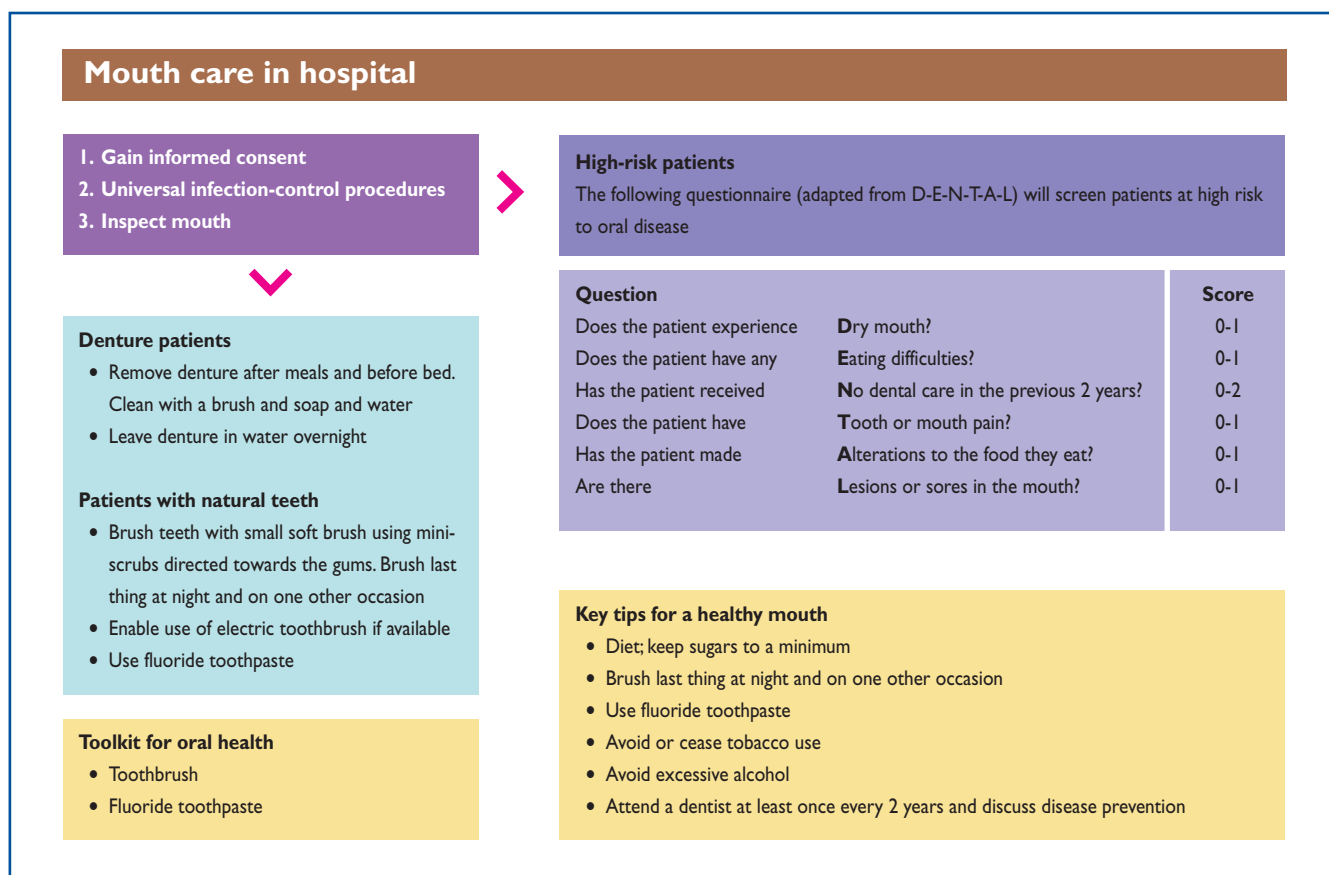


Figure 1 Mouth Care in Hospital leaflet (reproduced with permission from King's College Hospital NHS Foundation Trust).

to a dental healthcare professional for further oral assessment.¹⁷

Finally, it is important to recognise the wider determinants of health, which are partly psychosocial and perhaps beyond the normal influence of dental teams. However, given the demographic and oral health profile of the UK population, as a profession it is imperative that we serve older people within society to the best of our abilities in whatever ways we can, and that the challenge set out in the editorial in *The Lancet*¹ is fully met.

CONCLUSION

This paper has argued that preventing oral disease in older people is important. Prevention remains better than cure for ageing populations and as GDPs working to ameliorate the effects of wider socio-political changes, we must identify those older people who are in need of prevention before they reach a stage when their quality of life is affected. Prioritising prevention requires that all members of the dental team not only

have access to evidence-based, simple, and effective strategies for preventing oral disease, but also that the professional, financial and ethical stimulus exists to ensure that these guidelines are translated into practice. Prevention should be rewarded within both publicly and privately funded healthcare systems. Currently the opportunity exists to reorientate oral care towards prevention, a change that could and should include greater use of the dental team. As GDPs, we should be among the first to advocate that health policy and funding support this policy shift towards prevention of oral diseases alongside high-quality restorative management of ageing dentitions.

ACKNOWLEDGEMENTS

The authors wish to acknowledge King's College Hospital NHS Foundation Trust for permission to reproduce sections from the Trust's Mouth Care Policy and the Mouth Care in Hospital leaflet.

CONFLICT OF INTEREST STATEMENT

As far as the authors are aware, there is no conflict of interest.

CONTRIBUTIONS OF AUTHORS

All the authors contributed to the design, analysis, discussion and writing up of this paper.

REFERENCES

- The Lancet. Oral health: prevention is key. *The Lancet*. 2009;373:1.
- Department of Health (DH). *Choosing Better Oral Health: An Oral Health Plan for England*. London: DH; 2005.
- Department of Health (DH). *NHS Dental Services in England: An Independent Review Led by Professor Jimmy Steele*. London: DH; 2009.
- Department of Health (DH). *NHS Dental Contract: Proposals for Pilots*. London: DH; 2010.
- Petersen PE, Yamamoto T. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol*. 2005;33:81-92.
- Office for National Statistics. National population projections, 2008-based. *Statistical Bull*. 2009 Oct 21.
- Kelly MSJ, Nuttall N, Bradnock G, Morris J, Nunn J, Pine C, et al. *Adult Dental Health Survey: Oral Health in the United Kingdom, 1998*. London: Stationery Office; 2000; p. 257-88.
- NHS Information Centre for Health and Social Care. *Adult Dental Health Survey 2009—First Release*. London: Health and Social Care Information Centre; 2010.

9. Yewe-Dyer M. The definition of oral health. *Br Dent J*. 1993;174:224-5.
10. Elias AC, Sheiham A. The relationship between satisfaction with mouth and number and position of teeth. *J Oral Rehabil*. 1998;25:649-61.
11. Walls AW, Steele JG. Geriatric oral health issues in the United Kingdom. *Int Dent J*. 2001;51(3 Suppl):183-7.
12. NHS Information Centre for Health and Social Care. *Adult Dental Health Survey 2009*. London: Health and Social Care Information Centre; 2011. Available from: www.ic.nhs.uk/statistics-and-data-collections/primary-care/dentistry/adult-dental-health-survey-2009--summary-report-and-thematic-series
13. Peltola P, Vehkalahti MM, Wuolijoki-Saaristo K. Oral health and treatment needs of the long-term hospitalised elderly. *Gerodontology*. 2004;21:93-9.
14. Van't Spijker A, Rodriguez J, Kreulen C, Bronkhorst E, Bartlett D, Creugers N. Prevalence of tooth wear in adults. *Int J Prosthodont*. 2009;22:35-42.
15. McKenna G, Burke F. Age-related oral changes. *Dent Update*. 2010;37:519-23.
16. Department of Health. *Delivering Better Oral Health: An Evidence-Based Toolkit for Prevention 2007*. 2nd ed. London: DH; 2009.
17. Olley RC. *Mouthcare Policy*. London: King's College Hospital NHS Foundation Trust; 2009.
18. National Institute for Health and Clinical Excellence (NICE). *Dental Recall: Recall Interval Between Routine Dental Examinations*. London: NICE; 2004.
19. Nunn M. Understanding the etiology of periodontitis: an overview of periodontal risk factors. *Periodontology*. 2003;32:11-23.
20. Steele JG, Sanders AE, Slade GD, Allen PF, Lahti S, Nuttall N, et al. How do age and tooth loss affect oral health impacts and quality of life? A study comparing two national samples. *Community Dent Oral Epidemiol*. 2004;32:107-14.
21. Agerberg G, Carlsson G. Chewing ability in relation to dental and general health. *Acta Odontol Scand*. 1981;39:147-53.
22. Käyser A. Shortened dental arches and oral function. *J Oral Rehabil*. 1981;8:457-62.
23. Sheiham A, Steele J, Marcenes W, Lowe C, Finch S, Bates C, et al. The relationship among dental status, nutrient intake, and nutritional status in older people. *J Dent Res*. 2001;80:408-13.
24. Shimazaki Y, Soh I, Saito T, Yamashita Y, Koga T, Miyazaki H, et al. Influence of dentition status on physical disability, mental impairment, and mortality in institutionalized elderly people. *J Dent Res*. 2001;80:340-5.
25. McDonald A, Setchell D. Developing a tooth restorability index. *Dent Update*. 2005;32:346-8.
26. Owall B, Budtz-Jørgensen E, Davenport J, Mushimoto E, Palmqvist S, Renner R, et al. Removable partial denture design: a need to focus on hygienic principles? *Int J Prosthodont*. 2002;15:371-8.
27. Feine J, Carlsson G, Awad M, Chehade A, Duncan W, Gizani S, et al. The McGill consensus statement on overdentures. Mandibular two-implant overdentures as first choice standard of care for edentulous patients. *Gerodontology*. 2002;19:3-4.
28. Gallagher J, Kleinman E, Harper P. Modelling workforce skill-mix: how can dental professionals meet the needs and demands of older people in England? *Br Dent J*. 2010;208:E6.
29. Bedi R. Executive Summary: Meeting the Challenges of Oral Health for Older People: a strategic review. *Gerodontology*. 2005;22:3-5.
30. Kleinman E, Harper P, Gallagher J. Trends in NHS primary dental care for older people in England: implications for the future. *Gerodontology*. 2009;26:193-201.
31. Department of Health (DH). *GP Patient Survey Results (Dental) 2009/2010 Quarter 4*. London: DH; 2010.
32. Borreani E, Wright D, Scambler S, Gallagher J. Minimising barriers to dental care in older people. *BMC Oral Health*. 2008;8:7-22.
33. Quinn MJ. Establishing a preventive dentistry program in a long-term healthcare institution. *Gerodontology*. 1988;4:165-7.
34. Stiefel DJ, Truelove EL, Jolly DE. The preparedness of dental professionals to treat persons with disabling conditions in long-term care facility and community settings. *Spec Care Dentist*. 1987;7:108-13.
35. MacEntee MI. Oral care for successful aging in long-term care. *J Public Health Dent*. 2000;60:326-9.
36. Lester V, Ashley FP, Gibbons DE. Reported dental attendance and perceived barriers to care in frail and functionally dependent older adults. *Br Dent J*. 1998;184:285-9.
37. Ekelund R. National survey of oral healthcare in Finnish private old people's homes. *Community Dent Oral Epidemiol*. 1989;17:158-61.
38. Hoad-Reddick G, Heath JR. Identification of elderly in particular need: results of a survey undertaken in residential homes in the Manchester area. *J Dent*. 1995;23:273-9.
39. Department of Health. Meeting the challenges of oral health for older people: a strategic review. *Gerodontology*. 2005; 22 Suppl 1:3-48.
40. Gil-Montoya JA, de Mello AL, Cardenas CB, Lopez IG. Oral health protocol for the dependent institutionalized elderly. *Geriatr Nurs*. 2006;27:95-101.
41. Bush LA, Horenkamp N, Morley JE, Spiro A 3rd. D-E-N-T-A-L: a rapid self-administered screening instrument to promote referrals for further evaluation in older adults. *J Am Geriatr Soc*. 1996;44:979-81.
42. Lane EA, Gallagher JE. Role of the single assessment process in the care of older people. How will primary dental care practitioners be involved? *Prim Dent Care*. 2006;13:130-4.

Correspondence: R Austin,
Clinical Research Fellow, Primary Dental Care,
Floor 20, Prosthodontics Research Office,
Guy's Hospital, King's College London Dental Institute,
London Bridge, London SE1 9RT.
E-mail: ruperts.austin@kcl.ac.uk

Bruxism: Theory and Practice

Daniel A Paesani, editor
New Malden: Quintessence; 2010
£162; hardcover; 522 pp; 958 (mostly col) illus
ISBN: 978 1 85097 191 7

This extensive publication provides a detailed and comprehensive review of a subject that affects most clinicians on a daily basis. The book has an extensive list of multinational contributors on the subject, resulting in an excellent overall review on the diagnosis and management of bruxism in dentistry. The area of bruxism and parafunction is often a controversial one within the dental profession and the authors have been careful to ensure a thorough and exhaustive review of the subject. This is an area that has been in need of detailed review for some time and this publication goes a long way to providing this.

The book is divided into three main sections, with a total of 25 chapters providing a detailed summary on the problems and effects of parafunctional bruxism as well as numerous clinical approaches to managing bruxism, including restorative management and the concepts of centrally driven stimuli and peripheral sensory factors as possible causes for bruxism. All chapters are supported by a contemporary review of the published literature. Not unsurprisingly, a large proportion of the clinical management chapters are centred on the design and construction of occlusal splints and the relative advantages and disadvantages of the various designs that may be used. The use and manufacture of occlusal splints is especially well documented with numerous colour plates of both the clinical and laboratory stages, including some novel techniques in

refractory cases when bruxists even destroy hard acrylic splints. The combined aetiological link of erosion, abrasion and abfraction in tooth surface loss is also covered and there are a number of well-documented cases, ranging from the simple restoration of canine guidance with composite resin to more extensive dental rehabilitations.

The restorative management of patients with parafunctional bruxism is of particular relevance to most clinicians and the book also addresses the occlusal issues surrounding periodontal attachment loss in natural teeth and dental implants as a result of habitual bruxism, as well as the medical problems of associated conditions such as gastro-oesophageal reflux disorders.

The chapters are all interspersed with numerous colour pictures that provide an excellent catalogue of the various treatment modalities that are available. The book is well ordered in a logical sequence that makes for an excellent overall review. It is a brave subject area on which to attempt such a detailed review, given the many areas of possible conflict in this subject. The proposed links of parafunctional bruxism to facial pain, temporomandibular joint dysfunction and the concept of abfraction are all addressed but the editor has been careful to acknowledge these areas of controversy and provide comment. The reader may not agree with all of the views put forward on these areas but the information provided allows for an informed discussion. This text is arguably one of the most comprehensive and detailed in this subject area and would therefore be a valuable resource for all clinicians.

NICHOLAS LEWIS MSc, BDS, MFDS, FDS (REST DENT).
CONSULTANT IN RESTORATIVE DENTISTRY,
EASTMAN DENTAL HOSPITAL, UCLH NHS TRUST.

Book
review