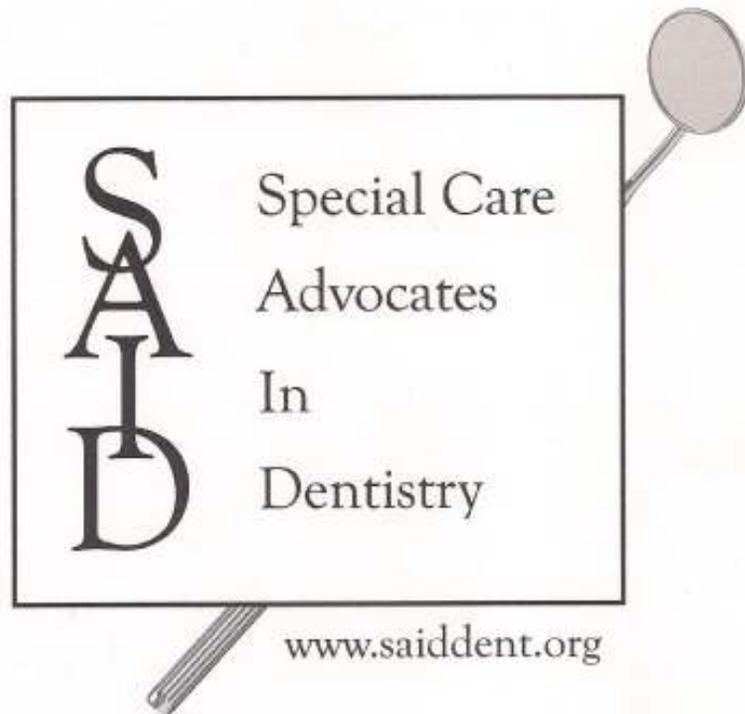


2014 ANNUAL SEMINAR RALEIGH, NC

Special Care Advocates in Dentistry 2013 Lit. Review

(SAID's Search of Dental Literature Published
in Calendar Year 2013*)



Compiled by:
Dr. Robert G. Henry
Dr. Douglas Veazey

Special Acknowledgement to Ms. Sandy Challman who provided computer support, literature searches, and collecting and compiling the final articles which are seen here. Without her help and support this review would not have been possible.

Recent journal articles related to oral health care for people with mental and physical disabilities.

Search Program = PubMed

Database = Medline

Journal Subset = Dental

Publication Timeframe = Calendar Year 2013*

Language = English

SAID Search-Term Results = 2,437

Initial Selection Result = 438 articles

Final Selection Result = 114 articles

SAID Search-Terms Employed:

- | | |
|------------------------------------|---------------------------------|
| 1. Intellectual disability | 21. Protective devices |
| 2. Mental retardation | 22. Moderate sedation |
| 3. Mental deficiency | 23. Conscious sedation |
| 4. Mental disorders | 24. Analgesia |
| 5. Mental health | 25. Anesthesia |
| 6. Mental illness | 26. Dental anxiety |
| 7. Dental care for disabled | 27. Nitrous oxide |
| 8. Dental care for chronically ill | 28. Gingival hyperplasia |
| 9. Self-mutilation | 29. Gingival hypertrophy |
| 10. Disabled | 30. Glossectomy |
| 11. Behavior management | 31. Sialorrhea |
| 12. Behavior modification | 32. Bruxism |
| 13. Behavior therapy | 33. Deglutition disorders |
| 14. Cognitive therapy | 34. Community dentistry |
| 15. Down syndrome | 35. State dentistry |
| 16. Cerebral palsy | 36. Gagging |
| 17. Epilepsy | 37. Substance abuse |
| 18. Enteral nutrition | 38. Syndromes |
| 19. Physical restraint | 39. Tooth brushing |
| 20. Immobilization | 40. Pharmaceutical preparations |

Program: EndNote X3 used to organize search and provide abstract. Copyright 2009 Thomson Reuters, Version X3 for Windows.

***NOTE:** The American Dental Association is responsible for entering journal articles into the National Library of Medicine database; however, some articles are not entered in a timely manner. Some articles are entered years after they were published and some are never entered.

1. **"Collaborative effort in Washington state slashes non-essential use of the ED by Medicaid patients, delivering millions in projected savings." *ED Manag* 25(4): 41-44.**

Early data suggest a coordinated, state-wide effort has reduced non-essential use of the ED by 10% among Medicaid recipients in Washington state, and is projected to save the state an estimated \$31 million in the first year of the approach. The effort includes the adoption of seven best practices by hospitals across the state. These include the creation of an Emergency Department Information Exchange, so that EDs can immediately access a patient's utilization history, strict narcotic prescribing guidelines, and regular feedback reports to hospitals regarding ED utilization patterns. The effort was prompted by threats by the state legislature to limit Medicaid payments for ED visits deemed not medically necessary in the emergency setting. The legislature backed down when emergency physicians in the state countered with their own proposal to reduce nonessential use of the ED. They worked with other health care groups in the state to develop the plan. Data on the first six months of the effort are included in a report to the state legislature by the Washington State Health Care Authority. Among the findings are a 23% reduction in ED visits among Medicaid recipients with five or more visits, a 250% increase in providers who have registered with the state's Prescription Monitoring Program, aimed at identifying patients with narcotic-seeking behavior, and a doubling in the number of shared care plans, intended to improve care coordination. Emergency providers say big challenges remain, including a need for more resources for patients with mental health and dental care needs.
2. **"Committee Opinion No. 569: oral health care during pregnancy and through the lifespan." *Obstet Gynecol* 122(2 Pt 1): 417-422.**

Oral health is an important component of general health and should be maintained during pregnancy and through a woman's lifespan. Maintaining good oral health may have a positive effect on cardiovascular disease, diabetes, and other disorders. In 2007-2009, 35% of U.S. women reported that they did not have a dental visit within the past year and 56% of women did not visit a dentist during pregnancy. Access to dental care is directly related to income level; the poorest women are least likely to have received dental care. Optimal maternal oral hygiene during the perinatal period may decrease the amount of caries-producing oral bacteria transmitted to the infant during common parenting behavior, such as sharing spoons. Although some studies have shown a possible association between periodontal infection and preterm birth, evidence has failed to show any improvement in outcomes after dental treatment during pregnancy. Nonetheless, these studies did not raise any concern about the safety of dental services during pregnancy. To potentiate general health and well-being, women should routinely be counseled about the maintenance of good oral health habits throughout their lives as well as the safety and importance of oral health care during pregnancy.
3. **"Guideline on protective stabilization for pediatric dental patients." *Pediatr Dent* 35(5): E169-173.**
4. **Abichandani, S., S. Shaikh, et al. (2013). "Carpal tunnel syndrome - an occupational hazard facing dentistry." *Int Dent J* 63(5): 230-236.**

BACKGROUND: The authors wished to evaluate the comprehensive literature on carpal tunnel syndrome to discover work specific to carpal tunnel syndrome among dentists in order to determine whether there is any correlation with dentists having a higher prevalence of its occurrence. METHODS: A review of dental literature involving carpal tunnel syndrome was undertaken. Details appearing in the literature before 1995 was reviewed in a comprehensive manner and the literature after 1995 were reviewed electronically. RESULTS: The prevalence of carpal tunnel syndrome is higher in dental professionals involved in various aspects of dental specialties. CONCLUSIONS: Abnormal postures, including muscle imbalances, muscle necrosis, trigger points, hypomobile joints, nerve compression and spinal disk herniation or degeneration may result in serious detrimental physiological changes in the body. These changes often result in pain, injury or possible neuroskeletal disorders. CLINICAL IMPLICATIONS: Dentists have an increased risk of carpal tunnel syndrome and precautions and care should be exercised to prevent detrimental irreversible changes occurring.
5. **Ackerman, M. B. (2013). "First impressions: how to "wow" students into special care dentists." *Spec Care Dentist* 33(2): 47.**
6. **Anabtawi, M. F., G. H. Gilbert, et al. (2013). "Rubber dam use during root canal treatment: findings from The Dental Practice-Based Research Network." *J Am Dent Assoc* 144(2): 179-186.**

BACKGROUND: The Dental Practice-Based Research Network (DPBRN) provided a means to investigate whether certain procedures were performed routinely. The authors conducted a study to quantify rubber dam use during root canal treatment (RCT) among general dentists and to test the hypothesis that certain dentist or practice characteristics were associated with rubber dam use. METHODS: DPBRN practitioner-investigators (P-Is) answered a questionnaire that included items about rubber dam use and other forms of isolation during RCT. DPBRN enrollment questionnaire data provided information regarding practitioner and practice characteristics. RESULTS: A total of 729 (74 percent) of 991 P-Is responded; 524 were general dentists who reported providing at least some RCTs and reported the percentage of RCTs for which they used a rubber dam. Of these 524 P-Is, 44 percent used a rubber dam for all RCTs, 24 percent used it for 51 to 99 percent of RCTs, 17 percent used it for 1 to 50 percent of RCTs, and 15 percent never used it during RCT. Usage varied significantly by geographic region and practice type.

The use of cotton rolls and other forms of isolation also was reported. CONCLUSIONS: Similar to other reports in the literature, not all DPBRN general dentists used a rubber dam during RCT. CLINICAL IMPLICATIONS: Because the clinical reference standard is to use a rubber dam during RCT, increasing its use may be important.

7. **Aps, J. K. (2014). "Number of accessory or nutrient canals in the human mandible." *Clin Oral Investig* 18(2): 671-676.**
 OBJECTIVES: The aim of the study was to assess the presence, location and the number of accessory or nutrient canals in the body of the mandible by means of cone beam CT images, obtained with the Planmeca ProMax(R) 3D Max device. MATERIAL AND METHODS: Seventy-four cone beam images of the mandible from adult patients (37 males and 37 females) who were imaged for dental implantology planning or third molar extraction were used to assess the number and location of accessory or nutrient canals. All images were taken with the same machine (Planmeca(R) ProMax 3D Max) at 200-, 400- or 600-mum resolution. Distinction was made between canals entering or exiting the mandible superior or inferior of the inferior alveolar canal and between similar canals superior or inferior of the genial tubercula. RESULTS: The number of accessory canals varied between nil to 11. No statistical significant difference between males and females was found with regard to the number or location of accessory canals in the mandible. Only 5.4% of patients had no accessory canals. One to five accessory canals were found in 71.6%, and 23% of patients had more than five accessory canals. The majority (81%) of patients had between two and six accessory canals. CONCLUSION: It seems that subjects showing no accessory canals whatsoever should be considered exceptional as more subjects with than without accessory canals in the body of the mandible were found. CLINICAL RELEVANCE: These results are clinically relevant for mandibular surgery and mandibular local anaesthesia.

8. **Araghi, M. H., A. Jagielski, et al. (2013). "The complex associations among sleep quality, anxiety-depression, and quality of life in patients with extreme obesity." *Sleep* 36(12): 1859-1865.**
 INTRODUCTION: Sleep duration and quality have been associated with obesity. Sleep disturbance has been reported to be associated with stress and depression among non-obese populations, but these relationships have not been previously examined in the obese population. The objective of the current study was to examine the complex associations among sleep disturbance, quality of life, anxiety, and depression in a patient sample with severe obesity. METHODS: Two hundred seventy consecutively recruited patients with a mean body mass index (BMI) of 47.0 kg/m(2) were studied. The correlation coefficient, multiple linear regressions, and structural equation modeling (SEM) analysis were used to evaluate the association between the Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Impact of Weight on Quality of Life-Lite (IWQOL-Lite) and Hospital Anxiety and Depression Scale (HADS). RESULTS: The mean (standard deviation; SD) PSQI score was 8.59 (5.11), and mean ESS score was 8.84 (5.79). After controlling for potential confounders, poor sleep quality and excessive daytime sleepiness were found to be significantly associated of all the components of IWQOL-Lite; physical function (beta = -0.32, beta = -0.27; P < 0.01), self-esteem (beta = -0.23, beta = -0.30; P < 0.05), sexual-life (beta = -0.30, beta = -0.35; P < 0.05), public distress (beta = -0.39, beta = -0.39; P < 0.01), and work (beta = -0.26, beta = -0.48; P < 0.01). We also found that the PSQI global score had a positive significant association with anxiety (beta = 0.29; P = 0.01) and depression (beta = 0.31; P = 0.01) components of HADS. CONCLUSION: Poor sleep quality was strongly associated with mood disturbance and poor quality of life among extremely obese patients. Future interventions are needed to address sleep disturbance to prevent further development of psychological co-morbidity and potentially worsening of obesity among these individuals.

9. **Ashkenazi, M., Y. Yaish, et al. (2013). "The relationship between nurses' oral hygiene and the mouth care of their patients." *Spec Care Dentist* 33(6): 280-285.**
 To investigate the extent to which a relationship may exist between nurses' own oral hygiene and their commitment and capability of following instructions for tooth brushing with conventional and triple-headed toothbrushes, to cerebral palsy (CP) children. The study included 43 individuals with CP and their 44 nurses. A structured questionnaire was designed to assess I. Demographic characteristics of the nurses II. Nurses' knowledge and maintenance of their own oral-hygiene and that of their CP patients. Nurses' ability to follow instruction for tooth-brushing was evaluated and scored using the TB-PS-I/Ashkenazi index following the first brushing, as well as on a recall visit one month later. More nurses (72.7%) reported routine tooth-brushing in the morning than in the evening (40.9%). Most nurses (73%) reported not flossing their teeth at all, and more than half reported visiting their dentist only when they suffer pain. A positive correlation was found between the nurses' knowledge of preventive oral measures and their compliance with their own oral hygiene and with that of their CP patients. Similarly, a positive correlation was found between nurses' receiving previous instruction for correct oral hygiene and their maintenance of their patients' oral hygiene. Institutions for CP patients should disseminate information on oral hygiene to staff, as a means of increasing their maintenance of their patients' oral health.

10. **Barasch, A., G. H. Gilbert, et al. (2013). "Random plasma glucose values measured in community dental practices: findings from the Dental Practice-Based Research Network." *Clin Oral Investig* 17(5): 1383-1388.**
 OBJECTIVES: This study aimed to examine feasibility of testing and frequency of abnormal plasma glucose among dental patients in The Dental Practice-Based Research Network. METHODS: Eligible dental patients were >=19 years old and had at least one American Diabetes Association-defined risk factor for diabetes mellitus or an existing diagnosis of diabetes or pre-diabetes. Random (fasting not required) plasma glucose was measured in standardized fashion using a commercial glucometer. Readings <70 or >300 mg/dl triggered re-testing. Patients with glucose >=126 mg/dl were referred for medical follow-up.

RESULTS: Of 498 subjects in 28 dental practices, 491 (98 %) consented and 418 (85.1 %) qualified for testing. Fifty-one patients (12.2 %) had diabetes; 24 (5.7 %) had pre-diabetes. Glucose ranged from 50 to 465 mg/dl. One hundred twenty-nine subjects (31 %) had readings outside the normal range; of these, 28 (6.7 %) had readings <80 mg/dl and 101 (24.2 %) had readings \geq 126 mg/dl; in nine patients (seven with diabetes), glucose was >200 mg/dl. CONCLUSIONS: A significant proportion of patients tested had abnormal blood glucose. Routine glucose testing in dental practice of populations at risk or diagnosed with diabetes may be beneficial and community dental practices hold promise as settings for diabetes and pre-diabetes screening and monitoring. CLINICAL RELEVANCE: Results suggest that implementation of glucose measurement in dental practice may provide important clinical and health information for both patients and practitioners.

11. **Becker, D. E. (2013). "Antimicrobial drugs." *Anesth Prog* 60(3): 111-122; quiz 123.**
Antibiotics play a vital role in dental practice for managing orofacial infections. They are used to manage existing infection and they are also used as prophylaxis for certain medical conditions and surgical procedures. This article will review pharmacological and therapeutic considerations for the proper use of these agents for dental infections.
12. **Becmeur, F., A. Schneider, et al. (2013). "Which surgery for drooling in patients with cerebral palsy?" *J Pediatr Surg* 48(10): 2171-2174.**
BACKGROUND: Surgery for drooling in patients with cerebral palsy should not produce xerostomia in order not to deteriorate speech, taste, or the status of oral hygiene. It must be a compromise between drooling and quality of life. The purpose of the present report is to describe our surgical strategy that respects the above principles. MATERIALS AND METHODS: Patients were initially operated on depending on the drooling severity. The results were evaluated according to the frequency of residual drooling and the Thomas-Stonel and Greenberg classification. Quantitative assessment was proposed 6 months after surgery. The data have been compared using the nonparametric Wilcoxon matched-pairs test. RESULTS: Thirty-five patients underwent surgery between 1991 and 2012. Owing to incomplete data, only 31 patients could be included, aged 5 to 24 years (mean: 12 years). All patients underwent surgery on the submandibular duct. Only 16 patients underwent a simultaneous surgery on the parotid duct. Six patients were reoperated: 3 because of an insufficient result and 3 because of a surgical complication. Changes/Day ranged from 1 to 7 (median: 3) before surgery and 0 to 2 (median: 1) after surgery ($p < 0.01$). Number of bibs/day ranged from 0 to 30 (median: 4) before surgery and 0 to 4 (median: 1) after surgery ($p < 0.01$). No dental deterioration and no caries occurred after surgery. CONCLUSION: Good results for drooling can be obtained with a simple surgical procedure on the submandibular ducts, maintaining quality of life, avoiding deterioration of speech, taste, and the status of oral hygiene.
13. **Beninati, F., R. Pruneti, et al. (2013). "Bisphosphonate-related osteonecrosis of the jaws (BRONJ)." *Med Oral Patol Oral Cir Bucal* 18(5): e752-758.**
Bisphosphonate-related osteonecrosis of the jaws (BRONJ) is an extremely therapy resistant osteomyelitis-like disease exclusively involving the jaw bones of patients in treatment with bisphosphonates (BPs). OBJECTIVES: The aim of this study was to evaluate the radiological and clinical findings and management of 51 patients with BRONJ diagnosed from 2004 to 2009 in our Reference Center. STUDY DESIGN: A prospective study was performed. The patients were examined every 2-6 months, depending on their clinical conditions. Positive outcome variables were the resolution of symptoms, persistence of bone exposure and /or fistula and the status of the lesional mucosa. RESULTS: The higher prevalence of the disease was noted in 2006 and 2007 and at the time of diagnosis 90% of patients had been treated with iv BPs. The main precipitating event leading to BRONJ was an invasive dental procedure in 61% of patients while no traumatic event could be identified in 16% of patients. The median time of follow-up was 19 months (range: 2-57), during which 31% of patients healed and 39% succumbed. In 78% of patients the therapy was medical, in 16% it consisted in surgical deep curettage and only in 6% it was necessary to perform an osteotomy to avoid a mandibular pathological fracture. All the patients in treatment with oral BPs healed from BRONJ with a median time of conservative treatment of 19 months. CONCLUSIONS: Prevention has led to a progressive reduction in the prevalence of BRONJ. In our experience medical treatment is often sufficient to keep the disease under control and to lead to the healing of the lesions by spontaneous loss of the sequestrum. This approach seems to be very effective in patients who were in treatment with oral Bps preparations; BRONJ seems to have a more benign clinical behaviour in these patients.
14. **Bhandary, S., V. Shetty, et al. (2013). "Knowledge of care providers regarding the oral health care of visually impaired children." *J Clin Pediatr Dent* 37(4): 385-389.**
OBJECTIVE: To assess the awareness of care providers of visually impaired children regarding their oral hygiene. METHOD: A simple pre-structured questionnaire was given to the care providers and the awareness regarding their oral health was assessed. RESULTS: There was a general lack of awareness among the care providers of these children regarding dental diseases and its prevention. Furthermore, the importance of oral hygiene was found to be very low. CONCLUSION: The results obtained showed that most of the caretakers were unaware of the difficulties faced by these children in the maintenance of their oral health.

15. **Boonsiriseth, K., N. Sirintawat, et al. (2013). "Comparative study of the novel and conventional injection approach for inferior alveolar nerve block." *Int J Oral Maxillofac Surg* 42(7): 852-856.**
 This study aimed to evaluate the efficacy of anesthesia obtained with a novel injection approach for inferior alveolar nerve block compared with the conventional injection approach. 40 patients in good health, randomly received each of two injection approaches of local anesthetic on each side of the mandible at two separate appointments. A sharp probe and an electric pulp tester were used to test anesthesia before injection, after injection when the patients' sensation changed, and 5 min after injection. This study comprised positive aspiration and intravascular injection 5% and neurovascular bundle injection 7.5% in the conventional inferior alveolar nerve block, but without occurrence in the novel injection approach. A visual analog scale (VAS) pain assessment was used during injection and surgery. The significance level used in the statistical analysis was $p < 0.05$. For the novel injection approach compared with the conventional injection approach, no significant difference was found on the subjective onset, objective onset, operation time, duration of anesthesia and VAS pain score during operation, but the VAS pain score during injection was significantly different. The efficacy of inferior alveolar nerve block by the novel injection approach provided adequate anesthesia and caused less pain and greater safety during injection.

16. **Bots-VantSpijker, P. C., J. N. Vanobbergen, et al. (2014). "Barriers of delivering oral health care to older people experienced by dentists: a systematic literature review." *Community Dent Oral Epidemiol* 42(2): 113-121.**
 OBJECTIVE: To identify barriers of delivering oral health care to older people experienced by dentists. METHODS: A comprehensive literature search was carried out for studies published in the period January 1990-December 2011, using free text and MESH term search strategies for PubMed (Medline), EMBASE and CINAHL. RESULTS: The initial search identified 236 potentially relevant publications: PubMed (Medline; $n = 127$), EMBASE ($n = 108$) and CINAHL ($n = 1$). After screening of titles and abstracts, 14 publications were revealed as relevant for further review. Seven articles, focusing on dentists delivering oral health care to older people in care homes, were suitable for this review, and seven articles did not meet the previously determined quality criteria. One of these articles also focused on barriers experienced by dentists working in their own practice and delivering oral health care to community-dwelling older people. CONCLUSIONS: The most common barriers of delivering oral health care to older people were identified respectively as: the lack of adequate equipment in a care home and no area for treatment available ($n = 4$) and the lack of adequate reimbursement for working in a care home ($n = 5$). In addition, the inadequate training and experience in delivering oral health care to older care home residents ($n = 2$) were mentioned. Four publications indicated the loss of time from private practice as a barrier to deliver oral health care in a care home. We suggest that additional research should be initiated to investigate more in detail the barriers dentists experience in delivering oral health care to older people in their own dental practices.

17. **Cagetti, M. G., G. Campus, et al. (2013). "A systematic review on fluoridated food in caries prevention." *Acta Odontol Scand* 71(3-4): 381-387.**
 OBJECTIVE: This paper aims to provide a systematic review of the caries-prevention effect of fluoridated food, excluding water. The main aim of this review was to evaluate the presence of scientific evidence relating to the effects of fluoride intake via food on the occurrence of carious lesions. The outcome was defined as a clinical outcome, so only papers evaluating a decrease in caries indices were included. MATERIALS AND METHODS: Relevant databases (Medline(R), Embase(R), The Cochrane Library) were searched. The date range was set from 01.01.1966 to 03.31.2011. One hundred and thirty-nine reports were identified and assessed. Only three papers fulfilled the inclusion criteria and were discussed in detail. RESULTS: No paper related to the use of fluoridated salt in caries prevention fulfilled the inclusion criteria. The use of milk as a vehicle for providing additional fluoride in a dental public health programme was evaluated in two papers. The consumption of fluoridated milk was an effective measure to prevent caries in the primary teeth. The use of fluoridated sugar demonstrated a reduction in caries increment in the permanent dentition in one paper. CONCLUSIONS: Literature on the effectiveness of fluoridation in foods in caries prevention is scant and almost all the studies have been conducted in children. There is low evidence that the use of milk fluoridation is effective in reducing the caries increment..

18. **Chen, X., J. J. Clark, et al. (2013). "Oral health in nursing home residents with different cognitive statuses." *Gerodontology* 30(1): 49-60.**
 OBJECTIVE: To compare oral health in nursing home (NH) residents with different cognitive statuses. BACKGROUND: Oral health is a significant issue for NH residents because of its relationships to quality of life, systemic health and well-being. It is known that oral health is poor in NH residents. However, how oral health differs in NH residents with different cognitive statuses remains unclear. MATERIALS AND METHODS: Nine hundred and two NH residents were retrospectively recruited from a community-based geriatric dental clinic in Minnesota, USA. Comprehensive medical, dental, cognitive and functional assessments were completed for the participants. On the basis of medical history and cognitive status, participants were categorized into three groups: without cognitive impairment (non-impaired group), with cognitive impairment but no dementia (impaired group) and with dementia (demented group). ANOVA, Chi-square and Fisher's exact tests were used to compare medical, dental and functional statuses between groups. RESULTS: Oral hygiene was poor in NH residents. Forty per cent of participants in the impaired group were edentulous, significantly higher than the edentulism rate in the demented group (29%, $p = 0.01$). More than 60% of the participants lost 16 or more teeth prior to examination. Depending on their cognitive status, 82-92% of the participants arrived with one or more caries or retained root. Dentate participants in the impaired and demented

groups averaged about six caries or retained roots, significantly more than 4.7 caries or retained roots in the non-impaired group ($p = 0.01$). CONCLUSION: Oral health was poor but slightly different in NH residents with different cognitive and functional statuses.

19. **Cherieux, K. C., T. H. Nijhuis, et al. (2013). "Osteoradionecrosis of the jaws: a review of conservative and surgical treatment options." *J Reconstr Microsurg* 29(2): 69-75.**
 Although surgery still is the most important treatment modality in the management of head and neck cancer, radiotherapy is increasingly being used. Consequently, the majority of head and neck cancer patients are at risk of developing osteoradionecrosis of the jaws, which is the most serious and important complication of radiotherapy. This review presents the etiology, pathophysiology, diagnosis, classification, and prevention of osteoradionecrosis. In addition, the body of evidence regarding conservative as well as surgical treatment of osteoradionecrosis is reviewed, and studies on complications, tumor recurrence and patient survival, dental rehabilitation, and functional and aesthetic outcome after surgical treatment for osteoradionecrosis are discussed.

20. **Cunha-Cruz, J., J. C. Wataha, et al. (2013). "The prevalence of dentin hypersensitivity in general dental practices in the northwest United States." *J Am Dent Assoc* 144(3): 288-296.**
 BACKGROUND: The prevalence of dentin hypersensitivity is uncertain, yet appropriate diagnosis and treatment of dentin hypersensitivity require accurate knowledge regarding its prevalence. The authors conducted a study to estimate the prevalence of dentin hypersensitivity in general dental practices and to investigate associated risk factors. METHODS: The authors conducted a cross-sectional survey of 787 adult patients from 37 general dental practices within Northwest Practice-based Research Collaborative in Evidence-based DENTistry (PRECEDENT). Dentin hypersensitivity was diagnosed by means of participants' responses to a question regarding pain in their teeth and gingivae, and practitioner-investigators conducted a clinical examination to rule out alternative causes of pain. Participants recorded their pain level on a visual analog scale and the Seattle Scales in response to a one-second air blast. The authors used generalized estimating equation log-linear models to estimate the prevalence and the prevalence ratios. RESULTS: The prevalence of dentin hypersensitivity was 12.3 percent; patients with hypersensitivity had, on average, 3.5 hypersensitive teeth. The prevalence of dentin hypersensitivity was higher among 18- to 44-year olds than among participants 65 years or older; it also was higher in women than in men, in participants with gingival recession than in those without gingival recession and in participants who underwent at-home tooth whitening than in those who did not. Hypersensitivity was not associated with obvious occlusal trauma, noncarious cervical lesions or aggressive toothbrushing habits. CONCLUSIONS: One in eight participants from general practices had dentin hypersensitivity, which was a chronic condition causing intermittent, low-level pain. Patients with hypersensitivity were more likely to be younger, to be female and to have a high prevalence of gingival recession and at-home tooth whitening. PRACTICAL IMPLICATIONS: Given dentin hypersensitivity's prevalence, clinicians should diagnose it only after investigating all other possible sources of pain.

21. **Czarkowski, G., S. Allroggen, et al. (2013). "[Oral health hygiene education programme for nursing personnel to improve oral health of residents in long-term care facilities 2010 in Frankfurt/Main, Germany]." *Gesundheitswesen* 75(6): 368-375.**
 BACKGROUND: Many studies have shown the urgent need for improving oral health hygiene in nursing home residents. Deficits in the knowledge of the personnel about dental and oral hygiene are often cited as one of the causes. Therefore, an oral health education programme was provided to the personnel of 20 nursing homes in Frankfurt/Main. Here the results of the assessment of the impact of the education programme on knowledge and attitudes of the personnel as well as on oral health of the residents are presented. METHODS: In May/June 2010, 471 nurses in 20 nursing homes in the Frankfurt/Main, Germany, received a two-hour education programme on oral health. The lessons were held by dentists with special education in geriatric dentistry. The personnel were asked to complete a questionnaire regarding knowledge and attitudes on oral health care before the education programme and 4-6 months afterwards. The oral health status of 313 residents (i. e., about 10% of the total residents) was examined by two dentists. Before and 4-6 months after education of the caregivers, the following data were recorded in the residents: number of teeth, caries, plaque index (PI), sulcus bleeding index (SBI), community periodontal index of treatment needs (CPITN) and denture hygiene index (DHI). RESULTS: By attending the lessons, good improvements in knowledge of the caregivers could be obtained. The education programme was rated as very good/good by 85% of the nurses, having reduced their fear of oral care in the seniors and having gained more competence in practical oral hygiene procedures. Mean age of the residents was 80+/-13 years. About 32% of the residents were edentulous. Teeth were carious in 53% of the residents. Initially, one half of the residents exhibited plaque index >2, in 29% of the residents a severe and in 59% of them a very severe parodontitis was found (CPITN 3 or, respectively, 4). At 4-6 months after the education programme, an improvement in oral and dental hygiene of the residents could be demonstrated, significant for plaque index, cleanliness of the tongue and denture hygiene index. CONCLUSION: The positive assessment of the nursing personnel as well as the positive effects on oral hygiene in the residents are in agreement with the results of many other studies in many countries. Therefore, these education programmes will be continued in the long-term care facilities in Frankfurt/Main, Germany.

22. De Rossi, S. S. (2013). "Orofacial pain: a primer." *Dent Clin North Am* 57(3): 383-392.
 Orofacial pain refers to pain associated with the soft and hard tissues of the head, face, and neck. It is a common experience in the population that has profound sociologic effects and impact on quality of life. New scientific evidence is constantly providing insight into the cause and pathophysiology of orofacial pain including temporomandibular disorders, cranial neuralgias, persistent idiopathic facial pains, headache, and dental pain. An evidence-based approach to the management of orofacial pain is imperative for the general clinician. This article reviews the basics of pain epidemiology and neurophysiology and sets the stage for in-depth discussions of various painful conditions of the head and neck.
23. Deppe, H., T. Mucke, et al. (2013). "Bleeding complications following Nd:YAG laser-assisted oral surgery vs conventional treatment in cardiac risk patients: a clinical retrospective comparative study." *Quintessence Int* 44(7): 513-520.
 OBJECTIVE: Thermal Nd:YAG laser energy is well known for the purpose of blood coagulation. However, little is known about the bleeding frequency following laser-assisted oral surgery in patients on coumarin drugs. Therefore, the purpose of this study was to compare retrospectively the frequency of bleeding complications following Nd:YAG laser-assisted versus conventional local coagulation of blood in oral surgery. METHOD AND MATERIALS: In October 2002, minor oral surgical interventions were found to be indicated in a total of 45 cardiac risk patients. In Group 1, blood coagulation was yielded in 24 patients with a Nd:YAG laser system, whereas in Group 2, treatment was performed in 21 patients with conventional means of local hemostasis. All therapies were performed continuing anticoagulant therapy between November 2002 and March 2003. Clinical data were recorded retrospectively from patient charts in May 2007. RESULTS: In both Groups 1 and 2, a total of two bleeding complications were recorded. However, local re-interventions were sufficient for local hemostasis. CONCLUSION: These results indicate that Nd:YAG laser-assisted local hemostasis was not able to prevent bleeding complications completely. Within the limitations of this retrospective study it was concluded that in patients with anticoagulant treatment undergoing minor oral surgery, Nd:YAG laser-assisted local hemostasis is not superior to conventional methods of blood coagulation with respect to the frequency of bleeding complications.
24. **Deutsch, O., A. Palmon, et al. (2013). "[Screening saliva]." *Refuat Hapeh Vehashinayim* 30(2): 16-23, 78.**
 Oral Fluids (OF) are a complex mixture including components deriving from, salivary glands, blood, nasal and bronchial secretions, mucosal lining cells and microbiota. Therefore, OF as a mirror of the body, were suggested as an important diagnostic fluid for the detection of both, oral and systemic diseases. OF as diagnostic fluids have several advantages; their collection is easy, inexpensive and noninvasive, they are suitable for home use and for epidemiology researches, they are easy to store and ship, do not clot and enable fast detection. OF based diagnostics research accomplished a great advance during the last decade. This is mainly due to biotechnology improvements such as 2-D Fluorescence Difference Gel Electrophoresis, quantitative Mass Spectrometry and bioinformatics systems. These technologies enabled the detection of more than 3000 proteins in oral fluids, as well as the establishment of a panel of biomarkers to different human pathological conditions (i.e. periodontitis, Sjogren's Syndrome, oral cancer, pancreatic cancer etc). However, this diagnostic field has several drawbacks, mainly due to oral fluids variance composition, blood contamination as a result of gingivitis or mucosal injuries, the lack of a single established collection protocol and the presence of high abundant components in OF. This article summarizes the current research, and provides an outlook toward the foundation of this unique body fluid as a major player in the diagnostic field.
25. **Diz, P., C. Scully, et al. (2013). "Dental implants in the medically compromised patient." *J Dent* 41(3): 195-206.**
 OBJECTIVE: It has been suggested that some local and systemic factors could be contraindications to dental implant treatment. The objective of this paper was to evaluate whether success and survival rates of dental implants are reduced in the medically compromised patient. DATA/SOURCES: An extensive literature search was conducted using PubMed/Medline, Scopus, Scirus and Cochrane databases up to November 8, 2012. CONCLUSIONS: There are very few absolute medical contraindications to dental implant treatment, although a number of conditions may increase the risk of treatment failure or complications. The degree of systemic disease-control may be far more important than the nature of the disorder itself, and individualized medical control should be established prior to implant therapy, since in many of these patients the quality of life and functional benefits from dental implants may outweigh any risks.
26. **Dolan, T. A. (2013). "Professional education to meet the oral health needs of older adults and persons with disabilities." *Spec Care Dentist* 33(4): 190-197.**
 A well-prepared dental workforce is critical to improving the oral health of special needs patients. This paper, originally presented at the National Coalition Consensus Conference: Oral Health of Vulnerable Older Adults and Persons with Disabilities, reviews and suggests opportunities to enhance the professional education of the dental workforce, including enhanced faculty training in gerontology, geriatrics and special patient care, and opportunities for improved curricula and team training both within the dental team and among the diverse group of health professional that often collaborate in the care of special needs patients. Other considerations include the creation of a specialty of Special Care Dentistry, and the effective use of dental team members in the care of special needs patients.

27. **Dolim, S. J. (2013). "Is your dental office accessible to people with disabilities?" J Calif Dent Assoc 41(9): 695-698.**
It has been estimated that more than 90 percent of the offices of health professionals in California have one or more accessibility issues, which commonly lead to lawsuits. Is your office among them?
28. **Donaldson, M. and R. Touger-Decker (2013). "Dietary supplement interactions with medications used commonly in dentistry." J Am Dent Assoc 144(7): 787-794.**
BACKGROUND: Because nearly 70 percent of prescription drug users do not discuss their dietary supplement use with their health care providers, clinicians must be proactive in questioning patients about their use of these agents. A complete and accurate pharmacological history will help clinicians avoid potential interactions between dietary supplements and drugs. METHODS: The authors reviewed the literature regarding interactions between popular dietary supplements and medications used commonly in dentistry. They used clinical databases and decision support tools to classify interactions according to their level of risk for the patient. The authors address the interactions of greatest clinical concern with a high-quality evidence-based foundation in either randomized controlled clinical trials or meta-analyses. CONCLUSIONS: Provided that patients are not taking ginkgo, St. John's wort, evening primrose or valerian, oral health care providers can prescribe or administer any of the medications used commonly in dentistry without concern about possible dietary supplement-drug interactions. PRACTICAL IMPLICATIONS: Recognition and avoidance of potential interactions between dietary supplements and drugs will help clinicians optimize treatment while emphasizing patients' safety.
29. **Dou, L., J. Luo, et al. (2013). "The effectiveness of an additional lingual infiltration in the pulpal anesthesia of mandibular teeth: a systematic review." Quintessence Int 44(5): 457-464.**
OBJECTIVES: The aim of this systematic review is to investigate the effect of an additional lingual infiltration on the pulpal anesthesia of mandibular teeth. METHOD AND MATERIALS: Prospective clinical trials were searched from Medline, EMBASE, Cochrane Library, Pubmed, SCI, and the China National Knowledge Infrastructure. Papers that met the inclusion criteria were accepted. Data was extracted by two investigators using a designed extraction form. The anesthetic efficacy of an additional lingual infiltration on the pulpal anesthesia of mandibular teeth was analyzed. RESULTS: Seven prospective randomized controlled trials were included. All subjects of these studies were volunteers with healthy pulps, without patients with pulpitis. Compared to buccal infiltration alone, an additional lingual infiltration following buccal infiltration is more likely to achieve a successful pulpal anesthesia in the mandibular incisor area, with a relative risk for success of 2.00 [1.08, 3.72] for 2% lidocaine and 1.32 [1.15, 1.51] for 4% articaine. For mandibular canines and premolars, the additional lingual infiltration following inferior alveolar nerve block did not enhance the anesthetic efficacy. In the mandibular molar area, no significant difference was found after an additional lingual infiltration with either 2% lidocaine or 4% articaine. CONCLUSION: An additional lingual infiltration following buccal infiltration can enhance the anesthetic efficacy compared with buccal infiltration alone in the mandibular incisor area. For mandibular canines, premolars, and molars, an additional lingual infiltration is not recommended, since no data exist to support such usage. Lingual infiltration of articaine in the mandibular teeth with pulpitis should be studied further.
30. **Dougall, A., S. A. Thompson, et al. (2014). "Guidance for the core content of a Curriculum in Special Care Dentistry at the undergraduate level." Eur J Dent Educ 18(1): 39-43.**
Given the rapidly changing demography of populations worldwide, dental professionals of the future need to be able to meet the challenge posed by the evolving landscape in health care needs. Leading institutions are now embedding teaching and learning in special care dentistry (SCD) within their curricula, to provide students with the knowledge, skills and attitudes to meet the oral health needs of vulnerable groups within their communities. The International Association for Disability and Oral Health (iADH) has initiated the development of undergraduate curriculum guidance in SCD through a consensus process. The curriculum in SCD is defined in statements of learning outcomes with many of the skills being transferable across the undergraduate course. This curriculum includes examples of teaching and assessment, designed to enhance critical thinking in relation to SCD and to promote positive attitudes towards disability and diversity. The learning outcomes are designed to be readily adapted to conform to the generic profiles and competencies, already identified in undergraduate frameworks by global educational associations, as well as meeting the requirements of professional regulatory bodies worldwide. Suggestions for teaching and learning are not intended to be prescriptive; rather, they act as a signpost to possible routes to student learning. Ideally, this will require that students have a sufficiently diverse patient case mix during their undergraduate studies, to achieve the required levels of confidence and competence by the time they graduate. Clinical care competencies in SCD emphasise the need for learners to broaden their theoretical knowledge and understanding through practical experience in providing care for people with special health care needs. It is crucial to the development of equitable dental services for all members of a community, that these learning outcomes are embedded into evolving curricula but most importantly, that they are evaluated and refined in a dynamic way with shared learning for all teachers.

31. **Edelstein, B. L. (2013). "Engaging the U.S. Congress in the oral health of special-needs adults: lessons from pediatric oral health policy." *Spec Care Dentist* 33(4): 198-203.**
The U.S. Congress has a long history of attending to insurance coverage for children's oral health services while being relatively silent about adult dental care. Yet many adults, made vulnerable by their disabilities and illnesses, are dependent upon governmental programs. This paper contrasts the robust history of federal legislative action in support of children's oral health with the lack of attention to adults' oral health to identify approaches that advocates may consider when engaging Congress in improving oral health for disabled and older adults. It provides a historical context of Congressional action on dental coverage from Medicaid and Medicare in the 1960s through passage of the Affordable Care Act in 2010 and explicates the misconception that Congress has demonstrated about the importance of oral health for adults' well-being and general health. Drivers and strategies for policy change are described and recommendations are made to expand coverage for vulnerable adults.
32. **Eick, S., A. Renatus, et al. (2013). "Hyaluronic Acid as an adjunct after scaling and root planing: a prospective randomized clinical trial." *J Periodontol* 84(7): 941-949.**
BACKGROUND: The study is designed to determine the effect on clinical variables, subgingival bacteria, and local immune response brought about by application of hyaluronan-containing gels in early wound healing after scaling and root planing (SRP). METHODS: In this randomized clinical study, data from 34 individuals with chronic periodontitis were evaluated after full-mouth SRP. In the test group (n = 17), hyaluronan gels in two molecular weights were additionally applied during the first 2 weeks after SRP. The control group (n = 17) was treated with SRP only. Probing depth (PD) and clinical attachment level (CAL) were recorded at baseline and after 3 and 6 months, and subgingival plaque and sulcus fluid samples were taken for microbiologic and biochemical analysis. RESULTS: In both groups, PD and CAL were significantly reduced ($P < 0.001$). The changes in PD and the reduction of the number of pockets with PD ≥ 5 mm were significantly higher in the test group after 3 ($P = 0.014$ and 0.021) and 6 ($P = 0.046$ and 0.045) months. Six months after SRP, the counts of *Treponema denticola* were significantly reduced in both groups (both $P = 0.043$), as were those of *Campylobacter rectus* in the test group only ($P = 0.028$). *Prevotella intermedia* and *Porphyromonas gingivalis* increased in the control group. CONCLUSION: The adjunctive application of hyaluronan may have positive effects on PD reduction and may prevent recolonization by periodontopathogens.
33. **Ekstrand, K. R., J. E. Poulsen, et al. (2013). "A randomized clinical trial of the anti-caries efficacy of 5,000 compared to 1,450 ppm fluoridated toothpaste on root caries lesions in elderly disabled nursing home residents." *Caries Res* 47(5): 391-398.**
Root caries is prevalent in elderly disabled nursing home residents in Denmark. This study aimed to compare the effectiveness of tooth brushing with 5,000 versus 1,450 ppm of fluoridated toothpaste (F-toothpaste) for controlling root caries in nursing home residents. The duration of the study was 8 months. Elderly disabled residents (n = 176) in 6 nursing homes in the Copenhagen area consented to take part in the study. They were randomly assigned to use one of the two toothpastes. Both groups had their teeth brushed twice a day by the nursing staff. A total of 125 residents completed the study. Baseline and follow-up clinical examinations were performed by one calibrated examiner. Texture, contour, location and colour of root caries lesions were used to evaluate lesion activity. No differences (p values > 0.16) were noted in the baseline examination with regards to age, mouth dryness, wearing of partial or full dentures in one of the jaws, occurrence of plaque and active (2.61 vs. 2.67; SD, 1.7 vs. 1.8) or arrested lesions (0.62 vs. 0.63; SD, 1.7 vs. 1.7) between the 5,000 and the 1,450 ppm fluoride groups, respectively. Mean numbers of active root caries lesions at the follow-up examination were 1.05 (2.76) versus 2.55 (1.91) and mean numbers of arrested caries lesions were 2.13 (1.68) versus 0.61 (1.76) in the 5,000 and the 1,450 ppm fluoride groups, respectively ($p < 0.001$). To conclude, 5,000 ppm F-toothpaste is significantly more effective for controlling root caries lesion progression and promoting remineralization compared to 1,450 ppm F-toothpaste.
34. **Eltas, A., S. Kartalci, et al. (2013). "An assessment of periodontal health in patients with schizophrenia and taking antipsychotic medication." *Int J Dent Hyg* 11(2): 78-83.**
BACKGROUND AND OBJECTIVE: Severe periodontal disease is prevalent among patients with schizophrenia and is caused by the side effect of their medication, poor dental hygiene and smoking. The objective of this study was to evaluate whether the rate of periodontal disease could be modulated by changing the salivary flow rate (SFR) because of the use of antipsychotic medications in patients with schizophrenia. METHODS: Group A (n=33) included patients who used medications that may cause xerostomia, or dry mouth and Group B (n=20) included patients who used medications that may cause sialorrhoea, an excessive secretion of saliva. The participants' periodontal status was assessed using the plaque index (PI), assessing bleeding on probing (BoP), probing pocket depth (PPD) and clinical attachment levels (CAL). RESULTS: The mean of PI and BoP was significantly higher in Group A than in Group B ($P < 0.001$), but the PPD, CAL and decayed, missing and filled teeth (DMFT) scores were not significantly different in the two groups according to the statistical results ($P > 0.05$). CONCLUSIONS: The researcher concluded that there is a high risk of periodontal disease among patients with schizophrenia, and there is an even higher risk of periodontal disease induced by medication that increased SFR. Preventive dental protocol should be increased during the dental health care of this disadvantaged patient group.

35. **Eltas, A., F. Oguz, et al. (2013). "The effect of periodontal treatment in improving erectile dysfunction: a randomized controlled trial." *J Clin Periodontol* 40(2): 148-154.**
 OBJECTIVE: The aim of the study was to evaluate changes in the International Index of Erectile Dysfunction (IIEF) score following periodontal treatment in patients who had severe or moderate erectile dysfunction (ED) and chronic periodontitis (CP).
 MATERIALS AND METHODS: The authors declare that they have no conflict of interest. The study population consisted of 120 patients with severe or moderate ED and CP. The treatment group (n = 60) comprised patients who received periodontal treatment, whereas the control group (n = 60) comprised patients who did not receive periodontal treatment. The clinical assessments were recorded at baseline, and at 1 month (R1) and 3 months (R2) after intervention for both groups. The periodontal examination involved assessment of the plaque index, bleeding on probing, probing depth and clinical attachment level. The IIEF questionnaire was used to assess the severity of ED. RESULTS: In the treatment group, the improvement in all clinical periodontal parameters was greater than that in the control group, at both R1 and R2 ($p < 0.05$). The increase in the IIEF scores of the treatment group at R2 was higher than that of the control group ($p < 0.05$), whereas the IIEF scores were similar for both groups at R1 ($p > 0.05$). CONCLUSION: The findings of the study suggest that periodontal treatment can provide additional benefits in the improvement of ED. However, further studies are needed to understand the mechanisms of interaction between these diseases.
36. **Eshghpour, M. and A. H. Nejat (2013). "Dry socket following surgical removal of impacted third molar in an Iranian population: incidence and risk factors." *Niger J Clin Pract* 16(4): 496-500.**
 INTRODUCTION: Dry socket (DS) is the most common post-surgical complication following extraction of impacted molar teeth. Various risk factors have been mentioned for this complication including gender, age, amount of trauma during extraction, difficulty of surgery, inappropriate irrigation, infection, smoking, and oral contraceptive use. The aim of the current study was to evaluate the incidence of DS among surgical removal of impacted third mandibular molar in an Iranian Oral and Maxillofacial Clinic and also identifying the background risk factors. MATERIALS AND METHODS: A total of 189 patients with a total of 256 surgeries entered this study. Surgeries to remove impacted third mandibular molar teeth between April 2009 and August 2010 were included in this study. A questionnaire containing two sections was designed; in the first section demographic data along with smoking status, oral contraceptive use, menstrual cycle phase, systemic disorders, and use of antibiotics prior to surgery collected; in the second section data regarding difficulty of surgery according to radiograph and surgeon perception after surgery, length of surgery, and number of anesthetic carpules along with data regarding cases returning with DS recorded. Data were reported descriptively and analyzed with Fisher's exact test and Chi-square with the confidence interval of 95%. RESULTS: The incidence of DS was 19.14%. Age, gender, systemic disorder, and antibiotics use prior to surgery revealed no significant associations with DS ($P > 0.05$). However, incidence of DS was significantly relevant to smoking, oral contraceptive use, menstruation cycle, difficulty of the surgery according to pre-surgery radiograph evaluation and perception of surgeon post-surgery, length of surgery, and number of carpules used to reach anesthesia ($P < 0.05$). CONCLUSION: It is recommended to identify high risk groups when performing extraction surgeries to consider measures in order to reduce postoperative complications.
37. **Ezirganli, S. and H. O. Kazancioglu (2013). "An unforeseen complication arising from inferior alveolar nerve block: is anemia possible?" *J Craniofac Surg* 24(6): 2178-2179.**
 Complications after administration of local anesthesia for dental procedures are well recognized. We present here 2 cases of patients with anemic areas on their faces resulting from inferior alveolar nerve block (IANB). The precise cause of this complication is unknown; however, it may be derived from anastomosis of the maxillary artery, rapid injection of local anesthetic solution, misdirection of the needle, and spread of the solution to the upper region of the mandible. Although neurologic occurrences resulting from IANB are rare, dentists should keep in mind that certain dental procedures such as administering IANB could cause anemic areas on the face. Henceforth, dentists should consider the possibility of anemia after administration of IANB and pay attention to avoid complications during the procedure.
38. **Finkelman, M. D., P. C. Stark, et al. (2014). "Relationship between duration of treatment and oral health in adults with intellectual and developmental disabilities." *Spec Care Dentist* 34(4): 171-175.**
 The purpose of this study was to evaluate how dental outcomes changed over time among subjects with intellectual and developmental disabilities (IDD) who were under treatment. This retrospective study included 107 subjects who were treated at a Tufts Dental Facilities clinic. Data from each subject were collected at three time points: initial visit, midpoint visit, and most recent visit. Generalized estimating equations were used to assess the relationship between time in treatment and several outcome variables (cooperation level, hygiene rating, presence of caries, periodontitis, dental pain, and infection). Statistically significant decreases in caries ($p < .001$) and increases in periodontitis ($p = .002$) were found over time. Associations between time and other outcome variables were not statistically significant. The prevalence of caries decreased and the prevalence of periodontitis increased over time among patients with IDD's receiving regular comprehensive dental care. Even among patients under routine maintenance, significant oral health problems remain.

39. **Fox, T. R., J. Li, et al. (2013). "A performance improvement prescribing guideline reduces opioid prescriptions for emergency department dental pain patients." *Ann Emerg Med* 62(3): 237-240.**
 STUDY OBJECTIVE: In an effort to reduce prescription opioid abuse originating from our institution, we implement and measure the effect of a prescribing guideline on the rate of emergency department (ED) opioid prescriptions written for patients presenting with dental pain, a complaint previously associated with drug-seeking behavior. METHODS: After implementing a departmental guideline on controlled substance prescriptions, we performed a structured before-and-after chart review of dental pain patients aged 16 and older. RESULTS: Before the guideline, the rate of opioid prescription was 59% (302/515). After implementation, the rate was 42% (65/153). The absolute decrease in rates was 17% (95% confidence interval 7% to 25%). Additionally, in comparing the 12-month period before and after implementation, the dental pain visit rate decreased from 26 to 21 per 1,000 ED visits (95% confidence interval of decrease 2 to 9 visits/1,000). CONCLUSION: A performance improvement program involving a departmental prescribing guideline was associated with a reduction in the rate of opioid prescriptions and visits for ED patients presenting with dental pain.
40. **Fulda, K. G., K. L. Johnson, et al. (2013). "Do unmet needs differ geographically for children with special health care needs?" *Matern Child Health J* 17(3): 505-511.**
 The purpose of this study was to identify geographic differences in health indicators for children with special health care needs (CSHCN). It was hypothesized that geographic differences in unmet health care needs exist among CSHCN by region in the United States. Data were obtained from the National Survey of Children with Special Health Care Needs, 2005-2006. Nine variables representing unmet needs were analyzed by geographic region. The region with the highest percent of unmet needs was identified for each service. Logistic regression was utilized to determine differences by region after controlling for age, gender, ethnicity, race, federal poverty level, relationship of responder to child, insurance status, severity of condition, and size of household. A total of 40,723 CSHCN were represented. Crude analysis demonstrated that the greatest unmet need for routine preventive care, specialist care, prescription medications, physical/occupational/speech therapy, mental health care, and genetic counseling occurred in the West. The greatest unmet need for preventive dental care, respite care, and vision care occurred in the South. Significant differences between regions remained for six of the nine services after controlling for potential confounders. Geographic differences in unmet health care needs exist for CSHCN. Further delving into these differences provides valuable information for program and policy planning and development. Meeting the needs of CSHCN is important to reduce cost burden and improve quality of life for the affected child and care providers.
41. **Gao, X., S. H. Hamzah, et al. (2013). "Dental fear and anxiety in children and adolescents: qualitative study using YouTube." *J Med Internet Res* 15(2): e29.**
 BACKGROUND: Dental fear and anxiety (DFA) refers to the fear of and anxiety towards going to the dentist. It exists in a considerable proportion of children and adolescents and is a major dilemma in pediatric dental practice. As an Internet social medium with increasing popularity, the video-sharing website YouTube offers a useful data source for understanding health behaviors and perceptions of the public. OBJECTIVE: Using YouTube as a platform, this qualitative study aimed to examine the manifestations, impacts, and origins of DFA in children and adolescents from the public's perspective. METHODS: To retrieve relevant information, we searched YouTube using the keywords "dental fear", "dental anxiety", and "dental phobia". Videos in English expressing a layperson's views or experience on children's or adolescent's DFA were selected for this study. A video was excluded if it had poor audiovisual quality, was irrelevant, was pure advertisement or entertainment, or contained only the views of professionals. After the screen, we transcribed 27 videos involving 32 children and adolescents, which were reviewed by a panel of 3 investigators, including a layperson with no formal dental training. Inductive thematic analysis was applied for coding and interpreting the data. RESULTS: The videos revealed multiple manifestations and impacts of DFA, including immediate physical reactions (eg, crying, screaming, and shivering), psychological responses (eg, worry, upset, panic, helplessness, insecurity, resentment, and hatred), and uncooperativeness in dental treatment. Testimonials from children, adolescents, and their parents suggested diverse origins of DFA, namely personal experience (eg, irregular dental visits and influence of parents or peers), dentists and dental auxiliaries (eg, bad manner, lack of clinical skills, and improper work ethic), dental settings (eg, dental chair and sounds), and dental procedures (eg, injections, pain, discomfort, and aesthetic concerns). CONCLUSIONS: This qualitative study suggests that DFA in children and adolescents has multifaceted manifestations, impacts, and origins, some of which only became apparent when using Internet social media. Our findings support the value of infodemiological studies using Internet social media to gain a better understanding of health issues.
42. **Gesek, D. J., Jr. (2013). "Respiratory anesthetic emergencies in oral and maxillofacial surgery." *Oral Maxillofac Surg Clin North Am* 25(3): 479-486, vii.**
 Respiratory anesthetic emergencies are the most common complications encountered during the administration of anesthesia in both the adult and pediatric populations. Regardless of the depth of anesthesia, a thorough review of the patients' health history, including the past medical history, education list, prior anesthesia history, and complex physical examination, is critical in the promotion of safety in the oral and maxillofacial surgery office. The effective management of respiratory anesthetic emergencies includes both strong didactic and clinical skills.

43. **Giovannitti, J. A., Jr. (2013). "Pharmacology of intravenous sedative/anesthetic medications used in oral surgery." *Oral Maxillofac Surg Clin North Am* 25(3): 439-451, vi.**
 This article provides an overview of historical and current sedative agents available to the dentist anesthetist. The surgeon is given rational choices for sedation and the individualization of drug selection for each patient. Total intravenous anesthesia is becoming increasingly popular for dental sedation because of the availability of ultra-short-acting drugs and computerized infusion technology. Levels of sedation are more easily achieved and maintained, and recovery is enhanced, which gives the operator extreme, moment-to-moment control of the anesthetic experience and improves patient outcomes.
44. **Giovannitti, J. A., Jr., M. B. Rosenberg, et al. (2013). "Pharmacology of local anesthetics used in oral surgery." *Oral Maxillofac Surg Clin North Am* 25(3): 453-465, vi.**
 This article provides a comprehensive review of the pharmacology of local anesthetics as a class, and provides details of the individual drugs available in dental cartridges. Maximum recommended doses of local anesthetics and vasoconstrictors are presented for healthy adult and pediatric patients, and for patients with cardiovascular system impairments. Various complications and reasons for failure of local anesthesia effectiveness are discussed, and current and future trends in local anesthesia are presented to provide an overview of current research in local anesthesia..
45. **Gok, G., N. Cox, et al. (2013). "Ultrasound-guided injection of botulinum toxin A into the submandibular gland in children and young adults with sialorrhoea." *Br J Oral Maxillofac Surg* 51(3): 231-233.**
 Hypersalivation is a common and distressing complaint in children with neuromuscular disorders such as cerebral palsy. Complications associated with severe drooling include daily changes of clothing, perioral dermatitis, dental problems, dehydration, and aspiration pneumonia, which potentially have a detrimental effect on the quality of life of the patient and carer. In this paper we update our previous work to show the potential benefits of ultrasound-guided injection of botulinum toxin A (BTX-A) into the submandibular gland and report on new patients and follow-up data on the existing group.
46. **Gong, X., J. Zhang, et al. (2013). "Long-term therapeutic efficacy of oral appliances in treatment of obstructive sleep apnea-hypopnea syndrome." *Angle Orthod* 83(4): 653-658.**
OBJECTIVE: To investigate the long-term efficacy and safety of oral appliances (OAs) in treating obstructive sleep apnea-hypopnea syndrome (OSAHS) by length of treatment. **MATERIALS AND METHODS:** This is a retrospective study to review the usage of OAs in Chinese OSAHS patients in recent decades. Ninety-four valid questionnaires were returned by 412 patients with OSAHS receiving OA treatment. Among the wearers, 22 agreed to follow-up polysomnography, and 25 agreed to follow-up cephalograms. Tolerance and side effects of OAs were assessed by a survey. Comparisons of efficacy were carried out between the initial and follow-up polysomnography measurements. Cephalometric analysis was used to investigate skeletal and occlusal changes to determine safety of the OAs. **RESULTS:** The longest treatment extended to 147 months, with a median of 74 months (first and third quartiles, 30 and 99 months, respectively). Among the participants, 14.9% had been treated for more than 120 months. Side effects were temporary and relatively minimal and included tooth soreness (37.2%), dry mouth (33.0%), odd bite feeling (31.9%), and excess salivation (30.8%). Polysomnography proved that OAs remained effective for the treatment of OSAHS in the long term; initial Apnea-Hypopnea Index values were reduced from a median of 24.50 (quartiles, 14.65, 54.05) without the OA to 7.40 with the OA (2.12, 10.00), and follow-up median values were 25.55 without the OA (11.71, 43.65) and 4.25 with the OA (1.38, 7.70). Cephalometric analysis indicated mild and slow changes in the skeleton and occlusion after average treatment duration of 5 years. **CONCLUSION:** OAs provided effective and safe long-term therapy for patients with OSAHS. Follow-up supervision is recommended since long-term alterations take place, although these appear to be minimal.
47. **Gonzalez, E. E., C. N. Nathe, et al. (2013). "Training caregivers: disabilities and dental hygiene." *Int J Dent Hyg* 11(4): 293-297.**
OBJECTIVES: The purpose of the study was to measure the effectiveness of oral health education and training among caregivers. **METHODS:** Controlled study design. Participants were randomized from the sample n = 30. n = 14 participants in the experimental group and n = 10 in the control group. The experimental group received a lecture and hands-on training in oral hygiene procedures. The control group received a facilitated group discussion. Both groups received a pre-post test. **RESULTS:** Considering the two groups independently, using a paired t-test, the experimental group, n = 14 had a score difference of 0.0607 (P-value = 0.01) and the control group n = 10, had a score difference of 0.035 (P-value = 0.14). **CONCLUSION:** This study found that knowledge was improved among caregivers following the implementation of formal oral hygiene training. Although the control group also showed some improvements with the facilitated discussion, the results are not significant to say that both the formal training and the facilitated discussion are equally important in training caregivers effectively.
48. **Greenwood, G. (2013). "Tips on radiology for those challenging moments." *Br Dent J* 214(4): 199-200.**
 We must be able to think 'outside the box' when taking radiographs for patients with challenging needs. The aim of this article and associated presentation at the 2013 British Dental Conference & Exhibition is to give an overview of methods to achieve radiographs for patients with special or additional care needs.

49. **Gupta, S., G. Mandlik, et al. (2014). "Combating inadequate anesthesia in periapical infections, with sodium bicarbonate: a clinical double blind study." *Oral Maxillofac Surg* 18(3): 325-329.**
 INTRODUCTION: Local anesthetics are generally much less effective when administered in inflamed tissues. PURPOSE: This study was conducted to validate the addition of sodium bicarbonate in local anesthetics to increase its effectiveness as local infiltrations in teeth associated with periapical infections. METHODS: Two hundred subjects requiring extraction of maxillary teeth with periapical infections were enrolled. These subjects were divided in two groups of 100 subjects each. One group received local infiltration with 2 % lignocaine and 1:80,000 adrenaline, and the other group received local infiltration with sodium bicarbonate as an adjunct to the above mentioned local anesthetic solution. All extractions were performed using a consistent intra-alveolar technique by a single operator. Both the patient and the operator were blinded to the contents of local anesthetic solution. Data related to the onset of action of local anesthesia, pain experienced by the patient while undergoing extraction on two scales-"the visual analog scale and the verbal response scale", and any requirement of repeated injections during the procedure was recorded. RESULTS: Clinical and statistical data confirmed that the addition of sodium bicarbonate in local anesthetics did increase the efficacy of local anesthesia in inflamed tissues. CONCLUSION: It has been observed in this study that the action of sodium bicarbonate in local anesthetics increases the pH levels of these solutions, thus possibly making them more effective in an acidic environment..
50. **Heaton, L. J., L. A. Mancl, et al. (2013). "Unmet dental need in community-dwelling adults with mental illness: results from the 2007 Medical Expenditure Panel Survey." *J Am Dent Assoc* 144(3): e16-23.**
 BACKGROUND: Mental illness (MI) affects approximately one in five U.S. adults, and it is associated with oral disease and poor dental treatment outcomes. Little is known about dental care utilization or unmet dental need in this population. METHODS: The authors examined data regarding presence or absence of dental visits and unmet dental need in community-dwelling adults with MI from the 2007 Medical Expenditure Panel Survey. They tested differences between adults with and without MI by using multivariate logistic regression. RESULTS: Eighteen percent of adults (N = 19,368) had MI, and of these, 6.8 percent had unmet dental need. Although people with MI were not significantly more likely to have had a dental visit (46.3 percent) than were those without MI (42.2 percent; odds ratio [OR], 1.09; 95 percent confidence interval [CI], 0.97-1.23), they were significantly more likely to report unmet need (11.0 versus 5.3 percent; OR, 2.00; 95 percent CI, 1.67-2.41). Those with mood or anxiety disorders were most likely to report having an unmet dental need (P < .001 for all values). CONCLUSIONS: Although people with MI did not visit the dentist significantly more often than did adults without MI, their higher level of unmet need suggests that current use of dental services is not addressing their needs adequately. PRACTICAL IMPLICATIONS: Dentists should be familiar with MI conditions as patients with MI may have greater unmet dental need.
51. **Henry, R. K. and A. L. Molnar (2013). "Examination of social networking professionalism among dental and dental hygiene students." *J Dent Educ* 77(11): 1425-1430.**
 Becoming a dental professional requires one to apply ethical decision making skills and demonstrate high standards of professionalism in practice, including the way professionals present themselves to the public. With social media as an evergrowing part of personal and professional communications, this study aimed to determine the accessibility, amount, and type of unprofessional content on Facebook profiles of dental hygiene and dental students in a college of dentistry. The authors evaluated the online profiles of all 499 dental and dental hygiene students at The Ohio State University using objective measures that included existence of a profile, current privacy settings, and access to personally identifiable information. A sample of profiles were evaluated for unprofessional content including photos, comments, and wall posts. The majority of these students were found to use Facebook, with 61 percent having Facebook profiles. Dental hygiene students were more likely to have a Facebook profile than were dental students: 72.6 percent and 59.1 percent, respectively (p=0.027). The majority of the students' profiles had some form of privacy setting enabled, with only 4 percent being entirely open to the public. Fewer than 2 percent of the students allowed non-friends access to personal information. Based on in-depth analysis of the profiles, fourteen (5.8 percent) instances of unprofessionalism were recorded; the most common unprofessional content involved substance abuse. This study found that these dental and dental hygiene students frequently possessed an identifiable Facebook account and nearly half had some kind of personal information on their profile that could potentially be shared with the public. In some instances, the students gave patients, faculty, and potential employers access to content that is not reflective of a dental professional. Academic institutions should consider implementing policies that bring awareness to and address the use of social media in a professional environment..
52. **Hermont, A. P., I. A. Pordeus, et al. (2013). "Eating disorder risk behavior and dental implications among adolescents." *Int J Eat Disord* 46(7): 677-683.**
 OBJECTIVE: To compare the occurrence of tooth erosion (TE) and dental caries (DC) in adolescents with and without risk behavior for eating disorders (EDs). METHOD: A controlled cross-sectional study involving 1,203 randomly selected female students aged 15-18 years was conducted in Brazil. Risk behavior for EDs was evaluated through the Bulimic Investigatory Test of Edinburgh and dental examinations were performed. RESULTS: The prevalence of risk behavior for EDs was 6%. Twenty adolescents (1.7%) were identified with severe risk behavior for EDs and matched to 80 adolescents without such risk. Among the severe risk group, 45% of adolescents were affected by TE and 80% by DC compared with 8.8 and 51.3%, respectively, in the

matched group. Adolescents with severe risk had higher chances for TE (OR = 10.04; 95% CI = 2.5-39.4). DISCUSSION: In this study, a severe risk behavior for EDs was significantly associated with TE, but not with DC.

53. **Hilton, T. J., J. L. Ferracane, et al. (2013). "Comparison of CaOH with MTA for direct pulp capping: a PBRN randomized clinical trial." J Dent Res 92(7 Suppl): 16S-22S.**
 This practice-based, randomized clinical trial evaluated and compared the success of direct pulp capping in permanent teeth with MTA (mineral trioxide aggregate) or CaOH (calcium hydroxide). Thirty-five practices in Northwest PRECEDENT were randomized to perform direct pulp caps with either CaOH (16 practices) or MTA (19 practices). Three hundred seventy-six individuals received a direct pulp cap with CaOH (n = 181) or MTA (n = 195). They were followed for up to 2 yrs at regular recall appointments, or as dictated by tooth symptoms. The primary outcomes were the need for extraction or root canal therapy. Teeth were also evaluated for pulp vitality, and radiographs were taken at the dentist's discretion. The probability of failure at 24 mos was 31.5% for CaOH vs. 19.7% for MTA (permutation log-rank test, p = .046). This large randomized clinical trial provided confirmatory evidence for a superior performance with MTA as a direct pulp-capping agent as compared with CaOH when evaluated in a practice-based research network for up to 2 yrs.
54. **Hupp, J. R. (2013). "Emergency department ban--dental pain used to obtain narcotics." J Oral Maxillofac Surg 71(12): 2009-2010.**
55. **Imai, T. and M. Michizawa (2013). "Necrotizing sialometaplasia in a patient with an eating disorder: palatal ulcer accompanied by dental erosion due to binge-purging." J Oral Maxillofac Surg 71(5): 879-885.**
 This report describes a case of necrotizing sialometaplasia (NS) accompanied by significant dental erosion of the maxillary teeth of the palatal surfaces owing to chronic self-induced vomiting. This observation contributed to the determination of an immediate and appropriate provisional diagnosis of NS in a patient with an eating disorder, which subsequently was confirmed histopathologically as NS. The diagnostic challenges presented by NS associated with eating disorders and its management are discussed.
56. **Jordan, R. A., H. M. Hong, et al. (2014). "Efficacy of straight versus angled interdental brushes on interproximal tooth cleaning: a randomized controlled trial." Int J Dent Hyg 12(2): 152-157.**
 BACKGROUND: To investigate interproximal biofilm reduction with an angled interdental brush as compared to a straight interdental brush (standard control) in a clinical, single-centre, single-blind, controlled, parallel-group trial. METHODS: Recruitment and examinations of the subjects were performed at the Witten/Herdecke University School of Dental Medicine. 128 volunteers, aged 20-65 years, were recruited and stratified according to sex and age. Two groups with 64 subjects each used either straight (standard control) or angled (test group) handgripped interdental toothbrushes of the same bristle stiffness. After a 12-day home-care habituation period, participants received a professional tooth cleaning followed by a 48-h plaque regrowth period. At the intervention appointment, plaque was recorded with a fluorescent revelator and soft tissue damage was noted (T0). Interdental brushing was performed by the participant for 2 min, and clinical parameters were recorded again (T1). The primary efficacy end point was the difference in modified Proximal Plaque Index (mPPI) after brushing compared to baseline. Secondary efficacy end points were mPPI differences in subgroups (anterior vs. posterior teeth; vestibular vs. oral tooth surfaces). Safety end point was the Danser gingival abrasion index (DI). RESULTS: mPPI showed lower scores after brushing within all (sub)groups (P < 0.01). mPPI brushing efficacy (DeltaT0 - T1) in subjects using straight interdental brushes was significantly higher as compared to angled interdental brushes (P < 0.0001). Straight interdental brushes were significantly more effective in posterior teeth, when used from vestibular and from oral tooth surfaces (P < 0.0001, P < 0.01 and P < 0.0001, respectively). No significant differences were found between the groups in anterior teeth and concerning soft tissue damage. CONCLUSIONS: Straight interdental brushes may better remove plaque interproximally when compared to angled interdental brushes.
57. **Kamath, P. S. (2013). "A novel distraction technique for pain management during local anesthesia administration in pediatric patients." J Clin Pediatr Dent 38(1): 45-47.**
 AIM: The aim of this study was to assess the effect of an active and novel distraction technique WITAU (Writing In The Air Using Leg) on the pain behavior observed and reported by children receiving local anesthesia injections prior to dental treatment. STUDY DESIGN: The study was conducted on 160 children (80 in control and 80 in intervention group) between the ages of 4- 10 years. During the administration of anesthesia the children in the control group were made to relax by means of deep breathing and those in the intervention group were taught to use the WITAU distraction technique. the behavior of the children aged 4- 5 years was noted using the Modified Toddler- Preschooler Post operative Pain Scale (TPPPS) and that of children aged above 6 years was measured using the FACES Pain Scale-Revised (FPS-R). RESULTS: The use of WITAU was found to be statistically significant (p value < 0.0001) compared to the control method in serving as a distraction and hence in managing pain during local anesthesia administration. The mean Modified TPPPS scores (4- 5 year olds) for the WITAU group was 2.46 +/- 1.752 and that of the control was 5.64 +/- 2.328. The mean FPS-R scores (6 - 10 year olds) for the WITAU group was 3 +/- 1.748 and that of the control group was 6.26 +/- 1.858. CONCLUSION: The WITAU technique therefore appears to be a simple and effective method of distraction during local anesthesia administration in pediatric patients.

58. Kandreli, M. G., N. R. Vadachkoriia, et al. (2013). "[Pain management in dentistry]." *Georgian Med News*(225): 44-49. The aim of the study was to determine the most effective dose of Ibuprofen - one of the non-steroidal anti-inflammatory drugs frequently used in dental practice for pain management. According to our observations, Ibuprofen markedly softens and quickly reduces procedural pain in 55 (91.67%) patients and post-procedural pain in 44 (73.33%) patients, reduces the post-procedural need for or the amount of the drug, removes the fear of anesthesia and endodontic treatment; with irreversible pulpitis significantly increases the efficiency of the inferior alveolar nerve block by local anesthetics. Our clinical observation of taking ibuprofen pre-procedurally demonstrates its effectiveness not only as a means for the relief of pain episodes, but also as an excellent anti-inflammatory treatment for chronic toothache Based on our research, the appointment of non-steroidal anti-inflammatory drugs before dental interventions, in this case - Ibuprofen turned out to be the key to the success of effective pain management. We suggest that administration of analgesics in order to relieve and effectively pre-empt pain before, during or after treatment should start before surgery and furthermore, this treatment should be extended into the postoperative period. Premedication with ibuprofen significantly increased the success rates of inferior alveolar nerve block anesthesia in teeth with irreversible pulpitis.
59. Kelly, S. E. and P. D. Waite (2013). "The role of the general dentist in the management of obstructive sleep apnea, application of oral appliance therapy, and the indication for surgery." *Gen Dent* 61(7): 30-37. The general dentist can play an important role in the recognition and initial diagnosis of patients with obstructive sleep apnea syndrome. Obstructive sleep apnea is defined as the repetitive airway obstruction during sleep due to the collapse of the pharyngeal airway potentially causing cessation of breathing. Although many Americans suffer from symptoms of sleep apnea syndrome, most remain undiagnosed until significant problems occur, such as cardiopulmonary and neurologic dysfunction. In recent years, sleep apnea has become a significant public health concern. Both medical and dental practitioners have become increasingly aware of sleep apnea. Early detection of this condition by the dental practitioner can lead to the prevention of comorbid diseases and improved quality of life for many patients. This article will provide a greater understanding of the pathophysiology, diagnosis, indications, risks, and benefits of treatments available so that dental practitioners can make better treatment recommendations.
60. **Keukenmeester, R. S., D. E. Slot, et al. (2013). "The effect of sugar-free chewing gum on plaque and clinical parameters of gingival inflammation: a systematic review." *Int J Dent Hyg* 11(1): 2-14.**
OBJECTIVE: The aim of this study was to systematically review the current literature on the clinical effects of sugar-free chewing gum on plaque indices and parameters of gingival inflammation. **MATERIAL AND METHODS:** The MEDLINE-PubMed, Cochrane-CENTRAL and EMBASE databases were searched up to 20 April 2012 to identify any appropriate studies. Plaque indices and parameters of gingival inflammation were selected as outcome variables. **RESULTS:** An independent screening of the 594 unique titles and abstracts identified six non-brushing and four brushing studies that met the eligibility criteria. In the non-brushing studies, the use of chewing gum did not significantly affect the parameters of interest. In the descriptive analysis of the brushing studies, four of five comparisons showed a statistically significant effect in favour of the sugar-free chewing gum with respect to plaque scores. The meta-analysis for the Quigley & Hein (*J Am Dent Assoc* 1962; 65: 26) plaque index scores in the brushing studies also showed a significant difference (DiffM -0.24, 95% CI [-0.41; -0.08]). For bleeding tendency, the descriptive analysis showed that one of the two comparisons identified a significant difference in favour of chewing gum. The meta-analysis, however, did not substantiate this difference. **CONCLUSION:** Within the limitations of this systematic review, it may be concluded that the use of sugar-free chewing gum as an adjunct to toothbrushing provides a small but significant reduction in plaque scores. Chewing sugar-free gum showed no significant effect on gingivitis scores. In the absence of brushing, no effect on plaque and gingivitis scores could be established.
61. **Kim, S. Y., S. H. Kim, et al. (2013). "Different treatment protocols for different pulpal and periapical diagnoses of 72 cracked teeth." *J Endod* 39(4): 449-452.**
INTRODUCTION: The treatment plan for cracked teeth depends on the extent of the crack. A tooth with an extensive crack of long duration may be more likely to require root canal treatment. The purpose of this study was to analyze the characteristics of cracked teeth and to assess the outcome of different treatment protocols depending on the pulpal and periapical diagnoses. **METHODS:** Seventy-two of 476 crown-restored teeth were diagnosed as cracked teeth. The location of the cracked teeth, age and sex of the patients, restoration materials, a diagnosis of pulp and apex, and the periodontal probing depth were analyzed. Cracked teeth were treated by different treatment protocols depending on the pulpal and periapical diagnoses. **RESULTS:** Mandibular first molars (27.8%) were the most frequently involved teeth followed by maxillary first molars (25%), maxillary second molars (22.2%), and mandibular second molars (19.4%). The most frequently involved ages were 40-49 and 50-59 years. Cracks occurred mainly in nonbonded restorations such as gold (26.4%) and amalgam (12.5%), and 48.6% of cracks were found in intact teeth. In this study, 60 teeth (83.3%) were treated with root canal treatment before being restored with a permanent crown, and only 12 teeth (16.7%) remained vital and were restored with a permanent crown without root canal treatment. The proportion of teeth treated with root canal treatment increased along with a deep periodontal probing depth corresponding to the crack. The prognosis was less favorable in cracked teeth with a deep probing depth. **CONCLUSIONS:** In this study, the proportion of root canal treatment in the cracked teeth was higher than other studies. Many patients are referred to an

endodontist in a university hospital after a long time has passed since the symptom started. Early recognition can help to avoid the propagation of a crack into the pulp chamber or subgingival level. Furthermore, it is important to investigate factors related to cracked teeth and develop different treatment protocols for different pulpal and periapical diagnoses.

62. **Klasser, G. D., H. A. Gremillion, et al. (2013). "Dental treatment for patients with neuropathic orofacial pain." *J Am Dent Assoc* 144(9): 1006-1008.**
63. **Koo, J. and A. Zavras (2013). "Antiepileptic drugs (AEDs) during pregnancy and risk of congenital jaw and oral malformation." *Oral Dis* 19(7): 712-720.**
 In the United States, an estimate of 1.3 million women suffering from epilepsy are in their childbearing age. Potential teratogenicity of antiepileptic drugs (AEDs) is of concern to these women considering pregnancy because discontinuing pharmacotherapy during pregnancy may not be advised due to the risk of seizures that may be dangerous to the mother as well as the fetus. Using a Relational Online Analytical Processing (ROLAP) software licensed by Simultek, we searched for medications reported for congenital jaw and oral cavity malformation on the FDA Adverse Event Reporting System (AERS), a voluntary adverse event reporting program that contains over 55 million adverse event reports of medical products in the United States. Our results indicate that various forms of valproic acid, and more importantly, newer generation antiepileptic agents including lamotrigine, topiramate, and gabapentin show signals for either congenital jaw or oral malformation. Although teratogenic potential of valproic acid has long been confirmed, information on teratogenicity of the newer generation antiepileptic drugs is relatively scarce and inconclusive. Early safety signals on the teratogenic potential of AEDs detected in this study are crude statistics that do not establish causation nor exclude confounding. The results require validation and further investigation via properly controlled epidemiological studies.
64. **Kossioni, A. E., G. E. Kossionis, et al. (2013). "Self-reported oral complaints in older mentally ill patients." *Geriatr Gerontol Int* 13(2): 358-364.**
 AIM: The aim of this study was to investigate the prevalence of self-reported oral complaints in older hospitalized mentally ill patients and relate them to the primary psychiatric diagnosis. METHODS: A total of 89 older hospitalized psychiatric patients consented to participate in the study, and were interviewed and clinically examined. The medical data were obtained from the hospital's medical records. RESULTS: The mean age of the patients was 73 years (range 59-94 years). A total of 54% suffered from psychotic disorders, 26% from dementia and 20% from mood disorders. The most common oral complaint was xerostomia (45%), followed by dysgeusia (28%), oral malodor (26%), pain when chewing (25%), burning mouth (23%), chewing difficulties (12%) and sialorrhoea (2%). The prevalence of burning mouth, dysgeusia and oral malodor differed significantly among psychiatric diagnoses and was increased in patients with mood disorders. A close association was recorded between burning mouth, dysgeusia, xerostomia and oral malodor complaints. Stepwise logistic regression showed that the use of antidepressants and burning mouth complaints were significantly associated with mood disorders. CONCLUSIONS: An increased prevalence of oral complaints was recorded in the elderly psychiatric patients with mood disorders. Those patients should be systematically evaluated and managed for oral complaints, and particularly for burning mouth. The close association between burning mouth complaints and mood disorders requires further investigation to clarify the potential diagnostic value of the symptom for mood disorders.
65. **Kuo, Y. W., M. Yen, et al. (2013). "Toothbrushing versus toothbrushing plus tongue cleaning in reducing halitosis and tongue coating: a systematic review and meta-analysis." *Nurs Res* 62(6): 422-429.**
 BACKGROUND: Halitosis affects people of all ages. Among hospitalized patients, oral care includes toothbrushing and mouth rinses. Tongue cleaning is not included in most guidelines or nursing education curricula. OBJECTIVES: The aim of this study was to compare the effectiveness of two types of oral care, toothbrushing alone and toothbrushing plus tongue cleaning, on halitosis and tongue coating (TC). METHODS: A systematic review and meta-analysis of randomized controlled trials were conducted to compare toothbrushing and toothbrushing plus tongue cleaning during oral care to reduce halitosis and TC. The databases included PubMed, ProQuest, CINAHL, the Cochrane Central Register of Controlled Trials, experts, and bibliographic review. A quality assessment of study reports and methodology was conducted using the CONSORT checklist and the Jadad Scale. The measurement of volatile sulfide compounds (VSCs) evaluated halitosis, whereas TC was measured with assessment indexes. RESULTS: Seven experimental data sets were obtained from five randomized clinical trials. There were 188 male and 63 female subjects within an age range of 17-80 years. All intervention groups indicate a large effect size of toothbrushing plus tongue cleaning decreases volatile sulfur compounds and TC by 0.745 and 0.922, respectively, compared with toothbrushing only. DISCUSSION: The use of toothbrushing plus tongue cleaning compared with toothbrushing alone significantly reduced the indicators of halitosis and TC. However, there is insufficient evidence to recommend frequency, duration, or delivery method of tongue cleaning. Further research is needed to articulate a comprehensive clinical guideline. Oral care is an important nursing intervention. Tongue cleaning should be incorporated into current nursing procedures.

66. **Kuwahara, H., Y. Nishida, et al. (2013). "[Blood-brain barrier and Alzheimer's disease]." *Brain Nerve* 65(2): 145-151.** Alzheimer's disease (AD) is the most common cause of dementia, and its pathological hallmarks are senile plaques and neurofibrillary tangles in the brain, which eventually induce neuronal death. The prevailing hypothesis for the pathomechanism of AD is the amyloid cascade hypothesis: amyloid-beta peptide (A β) deposition in the brain initiates a sequence of events leading to dementia. The blood-brain barrier (BBB) is crucial for AD pathomechanism because the transport of A β across the BBB is regulated by the receptor for advanced glycation end products, low-density lipoprotein receptor-related proteins, and the P-glycoprotein. Many studies have elucidated that these transport proteins are impaired in AD patients. Moreover, it is now widely recognized that most cases of AD show vascular pathology. Vascular risk factors such as diabetes mellitus, hypertension, hypercholesterolemia, and obesity are risk factors for AD. Recently, the vascular hypothesis for AD pathomechanism has been proposed; vascular risk factors first lead to BBB dysfunction and oligoemia and then induce A β deposition, toxic accumulates, and capillary hypoperfusion in the brain, ultimately leading to neuronal dysfunction. Therapeutic strategies for A β clearance from the brain to blood across the BBB have been increasingly developed. The "peripheral sink" approaches are now challenged by anti-A β antibodies, the agents with high affinity to A β , and the modification of molecules that influence the A β transport across the BBB. This review highlights the roles of the BBB in AD pathomechanism and its importance in designing therapeutic strategies.
67. **Lee, S. H. and N. Y. Lee (2013). "An alternative local anaesthesia technique to reduce pain in paediatric patients during needle insertion." *Eur J Paediatr Dent* 14(2): 109-112.**
 AIM: Pain control, which is necessary during most dental procedures, is administered by injecting a local anaesthetic. Because the injection itself can be painful, the procedure via which pain is reduced warrants continued investigation. Only a few studies regarding the reaction of children to dental needle insertion without the use of topical anaesthetics have been reported. This study was conducted to evaluate the efficacy of the local anaesthetic procedure without topical application as compared to the conventional insertion technique for alleviating pain in children receiving local anaesthesia injections. MATERIALS AND METHODS: For the alternative injection procedure, the dentist quickly and gently pulled or pushed the clean and dried loose tissue at the injection site over the tip of the needle to a depth of 1 to 1.5 mm. When the end of the bevel of the needle tip entered the tissue, a few drops of solution were released, after which the needle was advanced to its proper and intended depth to continue anaesthetic release. RESULTS: There was a significant difference regarding the pain response between the alternative insertion technique (less painful) and the conventional one according to Sound, Eye, and Motor (SEM) scale ratings ($P < 0.000$). No significant difference was observed in the response between the maxilla and mandible, nor between boys and girls, between the conventional and alternative techniques. CONCLUSION: This alternative technique can reduce discomfort in paediatric dental patients and allow the clinician to administer a superficial local anaesthesia injection before the needle is advanced into deeper tissue. This technique is simple, quick, devoid of additional costs, and potentially more effective than the conventional needle insertion method.
68. **Limeres, J., F. Martinez, et al. (2014). "A new indicator of the oral hygiene habits of disabled persons: relevance of the carer's personal appearance and interest in oral health." *Int J Dent Hyg* 12(2): 121-126.**
 OBJECTIVE: To investigate whether there is a relationship between the oral hygiene habits of individuals with severe disability the carer's personal appearance and interest in oral health. PATIENTS AND METHODS: The study group was formed of 60 disabled persons and their respective carers who came for the first time to consultation in the Special-Needs Dentistry Unit of the University of Santiago de Compostela, Spain. All the carers answered a standardised questionnaire of 28 questions divided into four sections: disabled individual's demographic data, disabled individual's general medical details, social aspects of the carer (personal appearance of the carer and interest in oral health), and disabled individual's oral hygiene habits. The personal appearance of the carers and their interest in the disabled individual's oral health were evaluated using independent scales designed specifically for the study, with five binary items in each scale. RESULTS: The carer's personal appearance and interest in the disabled individual's oral health showed a statistically significant relationship with the individual's oral hygiene habits, particularly with respect to the frequency and duration of toothbrushing, need for physical restraint during toothbrushing, use of a manual toothbrush and use of toothpaste. CONCLUSIONS: The carer's personal appearance and interest in the disabled individual's oral health are good indicators of the oral hygiene habits of an individual with severe disability. Consideration should be given to the inclusion of these aspects as a complementary element of the dental record.
69. **Lippert, F. (2013). "An introduction to toothpaste - its purpose, history and ingredients." *Monogr Oral Sci* 23: 1-14.**
 Toothpaste is a paste or gel to be used with a toothbrush to maintain and improve oral health and aesthetics. Since their introduction several thousand years ago, toothpaste formulations have evolved considerably - from suspensions of crushed egg shells or ashes to complex formulations with often more than 20 ingredients. Among these can be compounds to combat dental caries, gum disease, malodor, calculus, erosion and dentin hypersensitivity. Furthermore, toothpastes contain abrasives to clean and whiten teeth, flavors for the purpose of breath freshening and dyes for better visual appeal. Effective toothpastes are those that are formulated for maximum bioavailability of their actives. This, however, can be challenging as compromises will have to be made when several different actives are formulated in one phase. Toothpaste development is by no means complete as many challenges and especially the poor oral substantivity of most active ingredients are yet to overcome.

70. **Logemann, J. A., F. A. Curro, et al. (2013). "Aging effects on oropharyngeal swallow and the role of dental care in oropharyngeal dysphagia." *Oral Dis* 19(8): 733-737.**
 Difficulty with oropharyngeal swallow requires careful diagnosis and treatment from a team of professionals including the patients' physicians and the speech-language pathologist specializing in dysphagia. The dentist can be a critical team member in prevention, early identification, and management of oropharyngeal dysphagia. This manuscript reviews the physiology of normal oropharyngeal swallow and the effects of normal aging on this physiology. Typical etiologies for oropharyngeal dysphagia are defined as is the most commonly used physiologic diagnostic procedure, the modified barium swallow (MBS). The critical role of the dentist in identifying risk of oropharyngeal dysphagia, making appropriate referrals, and improving oral hygiene to prevent aspiration pneumonia in the elderly is discussed.
71. **Madani, A. S., E. Abdollahian, et al. (2013). "The efficacy of gabapentin versus stabilization splint in management of sleep bruxism." *J Prosthodont* 22(2): 126-131.**
PURPOSE: This study aimed to determine if the use of gabapentin is more efficacious than a stabilization splint with regard to the intensity of masseter muscle contractions and/or sleep quality for patients experiencing sleep bruxism (SB). **MATERIALS AND METHODS:** Twenty patients with SB participated in this clinical study. They were randomly divided into two treatment groups: stabilization splint group (n = 10) and gabapentin group (n = 10). The first polysomnographic examination was performed before the beginning of the experiment for all the participants. At the end of a 2-month period of stabilization splint therapy or gabapentin usage, a second polysomnographic recording was made. **RESULTS:** Statistically significant reductions in the number of SB episodes per hour and per night, bruxism time index, total duration of SB episodes per night and number of SB episodes in stages NR I and NR II ($p < 0.05$) were observed in both groups after treatment. Both treatments significantly reduced the mean intensity of masseter muscle contractions during SB episodes. Moreover, the participants treated with gabapentin showed a significant improvement in total sleep time, slow wave sleep (stage III), and sleep efficiency ($p < 0.05$). **CONCLUSIONS:** Gabapentin could be an effective treatment modality in SBs, especially in those with poor sleep quality.
72. **Mante, F. K., F. Ozer, et al. (2013). "The current state of adhesive dentistry: a guide for clinical practice." *Compend Contin Educ Dent* 34 Spec 9: 2-8.**
 Adhesive dentistry is key to minimally invasive, esthetic, and tooth-preserving dental restorations. These are typically realized by bonding various restorative materials, such as composite resins, ceramics, or even metal alloys, to tooth structures or other materials with composite resin luting agents. For optimal bond strengths and long-lasting clinical success, however, these material and tooth substrates require their respective pretreatment steps, based on their natures and compositions. Today, dental adhesion is used in almost all dental specialties. This article summarizes key aspects and guidelines for clinical success with adhesive dentistry and summarizes information presented at the 5th International Congress on Adhesive Dentistry.
73. **Marei, H. F. (2013). "Medical litigation in oral surgery practice: lessons learned from 20 lawsuits." *J Forensic Leg Med* 20(4): 223-225.**
 The aim of this study was to investigate all the lawsuits related to oral surgery practice over a period of three years, and to analyze the different causes of litigation. Inclusion criteria involved all the closed cases that proved malpractice against an oral and maxillofacial surgeon or involved a dentist who performed an oral and maxillofacial surgical procedure. The most common causes of litigation were oro-antral communication, neurological deficit, and bleeding. The study presented the lessons learned from 20 cases, and concluded that most of the lawsuits in oral surgery practice can be prevented either through preoperative measures or by dealing with the impact of the surgical error through good patient rapport and communication.
74. **Merchant, V. A. (2013). "The new AAOS/ADA clinical practice guidelines for management of patients with prosthetic joint replacements." *J Mich Dent Assoc* 95(2): 16, 74.**
75. **Mohan, R. P., K. Rastogi, et al. (2013). "Phenytoin-induced gingival enlargement: a dental awakening for patients with epilepsy." *BMJ Case Rep* 2013.**
 Drug-induced gingival enlargement is the term now used to describe medication-related gingival hypertrophy or hyperplasia, a condition commonly induced by three main classes of drugs: anticonvulsants, antihypertensive calcium channel blockers and the immunosuppressant cyclosporine. The pathogenesis of drug-induced gingival enlargement is uncertain and there appears to be no unifying hypothesis that links together the three commonly implicated drugs. Phenytoin-induced gingival overgrowth is a well known and frequently reported gingival lesion, which was first detected in 1939. This case report consists of phenytoin usage, duration and poor oral hygiene.
76. **Mohangi, G. U., S. Singh-Rambirich, et al. (2013). "Periodontal disease: Mechanisms of infection and inflammation and possible impact on miscellaneous systemic diseases and conditions." *SADJ* 68(10): 462, 464-467.**
 Periodontitis is a chronic inflammatory disease, resulting from a predominantly gram-negative microbial infection within the sub-gingival dental plaque biofilm. The resulting inflammatory response in the periodontal tissues may facilitate intravascular dissemination of micro-organisms and their products, throughout the body. The total surface area of this inflammatory field is estimated to be the size of the palm of the hand. A skin lesion of this size would prompt immediate medical intervention.

However, the intra-oral (and similar-sized) infection is frequently ignored by health professionals, despite the fact that it may be associated with a range of systemic diseases/conditions.

77. **Mombelli, A., N. Cionca, et al. (2013). "Are there specific benefits of amoxicillin plus metronidazole in *Aggregatibacter actinomycetemcomitans*-associated periodontitis? Double-masked, randomized clinical trial of efficacy and safety." *J Periodontol* 84(6): 715-724.**
 BACKGROUND: It has been suggested that prescription of amoxicillin plus metronidazole in the context of periodontal therapy should be limited to patients with specific microbiologic profiles, especially those testing positive for *Aggregatibacter actinomycetemcomitans*. The main purpose of this analysis is to determine if patients positive for *A. actinomycetemcomitans* with moderate to advanced periodontitis benefit specifically from amoxicillin plus metronidazole given as an adjunct to full-mouth scaling and root planing. METHODS: This is a double-masked, placebo-controlled, randomized longitudinal study including 41 participants who were positive for *A. actinomycetemcomitans* and 41 participants who were negative for *A. actinomycetemcomitans*. All 82 patients received full-mouth periodontal debridement performed within 48 hours. Patients then received either systemic antibiotics (375 mg amoxicillin and 500 mg metronidazole, three times daily) or placebo for 7 days. The primary outcome variable was persistence of sites with a probing depth (PD) >4 mm and bleeding on probing (BOP) at the 3-month reevaluation. Using multilevel logistic regression, the effect of the antibiotics was analyzed according to the following factors (interaction effect): *A. actinomycetemcomitans*-positive or -negative at baseline, sex, age, smoking, tooth being a molar, and interdental location. RESULTS: At reevaluation, participants in the test group had significantly fewer sites with a persisting PD >4 mm and BOP than control patients ($P < 0.01$). Being *A. actinomycetemcomitans*-positive or -negative did not change the effect of the antibiotics. Patients benefited from the antibiotics irrespective of sex, age, or smoking status. Molars benefited significantly more from the antibiotics than non-molars (P for interaction effect = 0.03). CONCLUSIONS: Patients who were positive for *A. actinomycetemcomitans* had no specific benefit from amoxicillin plus metronidazole. Sites on molars benefited significantly more from the antibiotics than non-molar sites.
78. **Moore, P. A. and E. V. Hersh (2013). "Combining ibuprofen and acetaminophen for acute pain management after third-molar extractions: translating clinical research to dental practice." *J Am Dent Assoc* 144(8): 898-908.**
 BACKGROUND: Effective and safe drug therapy for the management of acute postoperative pain has relied on orally administered analgesics such as ibuprofen, naproxen and acetaminophen, or N-acetyl-p-aminophenol (APAP), as well as combination formulations containing opioids such as hydrocodone with APAP. The combination of ibuprofen and APAP has been advocated in the last few years as an alternative therapy for postoperative pain management. The authors conducted a critical analysis to evaluate the scientific evidence for using the ibuprofen-APAP combination and propose clinical treatment recommendations for its use in managing acute postoperative pain in dentistry. TYPES OF STUDIES REVIEWED: The authors used quantitative evidence-based reviews published by the Cochrane Collaboration to determine the relative analgesic efficacy and safety of combining ibuprofen and APAP. They found additional articles by searching the Ovid MEDLINE, PubMed and ClinicalTrials.gov databases. CONCLUSIONS: The results of the quantitative systematic reviews indicated that the ibuprofen-APAP combination may be a more effective analgesic, with fewer untoward effects, than are many of the currently available opioid-containing formulations. In addition, the authors found several randomized controlled trials that also indicated that the ibuprofen-APAP combination provided greater pain relief than did ibuprofen or APAP alone after third-molar extractions. The adverse effects associated with the combination were similar to those of the individual component drugs. Practical Implications. Combining ibuprofen with APAP provides dentists with an additional therapeutic strategy for managing acute postoperative dental pain. This combination has been reported to provide greater analgesia without significantly increasing the adverse effects that often are associated with opioid-containing analgesic combinations. When making stepwise recommendations for the management of acute postoperative dental pain, dentists should consider including ibuprofen-APAP combination therapy.
79. **Mourao, J., J. Neto, et al. (2013). "Dental injury after conventional direct laryngoscopy: a prospective observational study." *Anaesthesia* 68(10): 1059-1065.**
 This observational study assessed the frequency and risk factors of dental damage after classic direct laryngoscopy for tracheal intubation in 536 adult patients. The patients' sex, age, height, weight, dental condition, dental mobility, Mallampati class, interincisor gap, thyromental distance, neck circumference, and head and neck extension were recorded. From anaesthesia records, the difficulty of intubation, the number of attempts, type of neuromuscular blocking agent used and duration of anaesthesia were recorded. After anaesthesia, examination revealed that 134 patients (25.0%) had dental damage affecting 162 teeth (147 maxillary; 15 mandibular). Enamel fracture was the commonest injury. In tooth number 21, the interincisor gap (OR 2.5 (95% CI 1.0-5.9)) and in tooth number 22, the number of intubation attempts (OR 5.3 (95% CI 1.3-22.0)) were considered a risk factor for dental injury. Conventional direct laryngoscopy is associated with a strikingly high incidence of dental damage, although specific risk factors remain unclear.

80. **Mozzati, M., G. Galesio, et al. (2014). "Efficacy of plasma-rich growth factor in the healing of postextraction sockets in patients affected by insulin-dependent diabetes mellitus." *J Oral Maxillofac Surg* 72(3): 456-462.**
 PURPOSE: To evaluate the efficacy of plasma-rich growth factor (PRGF) in improving socket healing after tooth extraction in diabetic patients. MATERIALS AND METHODS: This was a split-mouth study in which each patient also served as the control: the study socket was treated with PRGF, whereas the control socket underwent natural healing. The outcome variables were the Healing Index, residual socket volume, visual analog scale score, postsurgical complications, and outcome of a patient questionnaire. The investigation considered the impact of hyperglycemia, glycated hemoglobin, End Organ Disease Score, and smoking habits. Follow-up included 4 postextraction checkups over a 21-day period. Pairs of correlated continuous variables were analyzed with the Wilcoxon test, independent continuous variables with the Mann-Whitney test, and categorical variables with the chi(2) test or Fisher test. RESULTS: From January 2012 to December 2012, 34 patients affected by insulin-dependent diabetes mellitus underwent contemporary bilateral extractions of homologous teeth. The treatment-versus-control postoperative comparison showed that PRGF resulted in significantly smaller residual socket volumes and better Healing Indices from days 3 to 14. The patients' questionnaire outcomes were unanimously in favor of PRGF treatment. The small sample of patients with glycemia values of at least 240 mg/dL showed worse Healing Index and minor socket decreases. CONCLUSION: PRGF application after extraction improved the healing process in diabetic patients by accelerating socket closure (epithelialization) and tissue maturation, proving the association between PRGF use and improved wound healing in diabetic patients.
81. **Mun, S. J., W. G. Chung, et al. (2014). "Reduction in dental plaque in patients with mental disorders through the dental hygiene care programme." *Int J Dent Hyg* 12(2): 133-140.**
 OBJECTIVE: To develop a dental hygiene care programme based on the specific needs of patients with mental disorders and to suggest practical guidelines to improve the oral health care of these patients. METHODS: A total of 73 patients with mental illness participated in the study. The patients were randomly classified into three groups and followed over 12 weeks at 4-week intervals. A newly designed dental hygiene care programme using flash-based video, brochures and a toothpick method was implemented by five dental hygienists. Plaque index, stimulated saliva, subjective oral dryness and dental caries activity were analysed as outcome variables. RESULTS: Results showed that the dental plaque index significantly decreased after each session ($P < 0.0001$) in all three groups, and significant differences were found between groups ($P = 0.036$). Patients' oral dryness decreased significantly, but stimulated saliva and dental caries activity did not improve. CONCLUSION: The results of this study suggest that the dental hygiene care programme, which made use of a short, 10-min flash-based video and brochures every 4 weeks, was effective in reducing the dental plaque index of patients with mental disorders.
82. **Muralidharan, D., N. Fareed, et al. (2013). "Qualitative and quantitative changes in saliva among patients with thyroid dysfunction prior to and following the treatment of the dysfunction." *Oral Surg Oral Med Oral Pathol Oral Radiol* 115(5): 617-623.**
 OBJECTIVE: Animal studies have shown thyroid dysfunction affects salivary gland functioning, however conclusive human studies are lacking. We sought to assess the qualitative and quantitative changes in saliva among subjects with thyroid dysfunction prior to and following treatment. MATERIAL AND METHODS: A longitudinal observational study of 153 newly diagnosed subjects who had hypothyroidism ($n = 107$) or hyperthyroidism ($n = 46$), aged 18-45 years, fulfilling the inclusion/exclusion criteria was conducted. Analysis of salivary parameters (stimulated salivary flow rate (SSFR), pH and buffering capacity) was performed at diagnosis (baseline), on attaining euthyroid state and 3 months thereafter. RESULTS: Subjects were 86% females, and at baseline 13% of subjects had hyposalivation. Mean SSFR, pH, buffering capacity as well as percentage of hypothyroid subjects having normal salivation increased following thyroid treatment. CONCLUSIONS: Thyroid dysfunction affects salivary gland function. Subjects with **chronic hyposalivation should have thyroid function assessment if the known established causes are excluded.**
83. **Nizarali, N. and S. Rafique (2013). "Special Care Dentistry: Part 2. dental management of patients with drug-related acquired bleeding disorders." *Dent Update* 40(9): 711-712, 714-716, 718.**
 The first of this series of three articles discussed the dental management of patients with inherited bleeding disorders. This paper will discuss and outline the dental management of patients with acquired bleeding disorders that can result from drug therapy. These may be associated with vascular defects, platelet defects or coagulation defects. In an age when people are living longer, and medical interventions are continually becoming more advanced, clinicians will need to be aware of systemic disorders and treatments that may cause complications in the dental setting. According to National Statistics, the UK population is projected to increase by 0.7% by 2016. This trend is shared with other European countries which also have ageing populations. The proportion of people aged over 65 is predicted to increase from 16% in 2006 to 22% in 2031. CLINICAL RELEVANCE: Being able to recognize which drugs may cause bleeding problems at an early stage will lead to good patient management, particularly in planning and delivering treatment following invasive procedures such as dental extractions. Whilst most patients can be successfully treated in general dental practice, the clinician may need to make a decision on whether or not to refer a patient to specialist services

84. **Oguz, F., A. Eltas, et al. (2013). "Is there a relationship between chronic periodontitis and erectile dysfunction?" J Sex Med 10(3): 838-843.**
 INTRODUCTION: Chronic periodontitis (CP) is characterized with inflammation of the gingival tissues, which causes endothelial dysfunction in different organs. AIM: In this study, we investigated the association of CP with the erectile dysfunction (ED). METHODS: The study group included 80 male patients with ED and 82 male patients without ED (control), aged between 30 and 40 years. The International Index of Erectile Function (IIEF) questionnaire was used to assess male sexual function, particularly the presence or absence of ED. MAIN OUTCOME MEASURES: The patients in the study and control groups were statistically compared according to their plaque index (PI), bleeding on probing (BoP), probing depth (PD), and clinical attachment level (CAL). RESULTS: In the non-ED and the ED groups, the mean age was 35.7 +/- 4.8 and 34.9 +/- 4.9 years, respectively. Patients' characteristics including body mass index, household income, and education status were similar in both groups (P > 0.05). Nineteen patients (23%) had severe CP in the non-ED group; 42 patients (53%) had severe CP in the ED group. Logistic regression analysis showed a significantly high association between ED and the severity of CP (odds ratio: 3.29, 95% confidence interval: 1.36-9.55, P < 0.01). The mean values of PI, BoP, and the percentages of sites with PD >4 mm and sites with CAL >4 mm were significantly higher in the ED group than in the control group (P < 0.05). The mean values of PD and CAL were not significantly different in the two groups (P > 0.05). The decayed, missing, filled teeth scores were also significantly higher in the ED group than in the non-ED group (P < 0.05). CONCLUSION: Our results have suggested that CP had a high association with ED in young adults at 30-40 years. We think that it will be of benefit to consider periodontal disease as a causative clinical condition of ED in such patients.
85. **Ortega, O., C. Parra, et al. (2014). "Oral health in older patients with oropharyngeal dysphagia." Age Ageing 43(1): 132-137.**
 BACKGROUND: oropharyngeal dysphagia (OD), aspiration and poor oral health status are potential risk factors in elderly patients with aspiration pneumonia (AP). AIM: to assess the oral hygiene status and the prevalence of periodontal disease and dental caries in elderly patients with OD. PATIENTS AND METHODS: fifty elderly patients (79.7 +/- 6.64 years) with OD associated with ageing or neurological diseases and 15 elderly patients without OD (77.01 +/- 4.51 years) were enrolled in this observational-transversal study. OD and aspiration were evaluated by videofluoroscopy (VFS). Oral health was assessed by: (i) the Simplified Oral Hygiene Index (OHI-S); (ii) a complete periodontal examination, assessing the periodontal pocket depth, clinical attachment loss and bleeding on probing to study periodontal diseases (periodontitis, gingivitis); and (iii) the presence of dental caries. RESULTS: 8/50 elderly patients with OD presented VFS signs of aspiration, half of them silent; 40/50, signs of penetration into laryngeal vestibule and 16/50, oropharyngeal residue. Prevalence of edentulism and caries was higher in patients with OD. Dentate older patients with OD (30/50) presented the following complications (i) poor oral hygiene in 18 patients (OHI-S 3.1-6), (ii) gingivitis in 2 and periodontitis in 28 and (iii) caries in 16. CONCLUSIONS: older patients with OD presented polymorbidity and impaired health status, high prevalence of VFS signs of impaired safety of swallow and poor oral health status with high prevalence of periodontal diseases and caries. These patients are at great risk of developing AP. We recommend a policy of systematic oral health assessment in elderly patients with OD.
86. **Prabhu, S. R. and D. F. Wilson (2013). "Human papillomavirus and oral disease - emerging evidence: a review." Aust Dent J 58(1): 2-10; quiz 125.**
 Human papillomavirus (HPV) infections have received considerable attention in recent years. Of the 120 or so known types of the virus, some cause a variety of benign wart-like lesions of the skin and genital and oral mucosae, whilst others are aetiologically associated with cervical and anogenital cancers. Recent epidemiologic evidence suggests that HPV may also be an independent risk factor for oropharyngeal cancer. In this context it has been suggested that HPV virus may modulate the process of carcinogenesis in some tobacco and alcohol induced oropharyngeal cancers and act as the primary oncogenic agent for inducing carcinogenesis among non-smokers. Dental practitioners have a major role in detecting all lesions of the oral mucosa caused, or possibly caused, by HPV. This paper briefly reviews the current state of knowledge of molecular and clinical aspects of HPV infections of the oral mucosa.
87. **Pujar, P. and V. V. Subbareddy (2013). "Evaluation of the tooth brushing skills in children aged 6-12 years." Eur Arch Paediatr Dent 14(4): 213-219.**
 AIM: To evaluate the tooth brushing skills in children aged between 6 and 12 years and its relation with age, type of grip used, duration of brushing and gender. METHOD: A total of 105 children aged between 6 and 12 years were divided into seven groups and their plaque scores, type of grip used and duration of brushing were assessed. RESULTS: The most preferred grip was the distal oblique (58.1 %). Oblique, distal oblique and power grips were more efficient (plaque reduction up to 70 %). Plaque removal efficacy improved with age (57 % in 6-year-olds and 82 % in 12-year-old children). Plaque reduction was greater when the duration of brushing was longer (82 % plaque reduction when the brushing time was >2.5 min). Overall, the mean duration of tooth brushing in children aged 6-12 years was 1.71 min (103 s). CONCLUSIONS: Tooth brushing skills improved with age and the duration of tooth brushing made a significant difference to the oral hygiene status of the child. The type of grip used and gender did not influence tooth brushing ability in this group of children. Tooth brushing skills were low in children younger than 10 years of age. Hence, parental supervision is considered necessary and recommended until 10 years of age.

88. **Rada, R. E. (2013). "Treatment needs and adverse events related to dental treatment under general anesthesia for individuals with autism." *Intellect Dev Disabil* 51(4): 246-252.**
 Individuals with autism can be quite challenging to treat in a routine dental-office setting, especially when extensive dental treatment and disruptive behavioral issues exist. Individuals with autism may also be at higher risk for oral disease. Frequently, general anesthesia is the only method to facilitate completion of the needed dental treatment. General anesthesia is not without complications, and unique occurrences are a necessary consideration for special-needs populations. In addition, behavior challenges may occur which can be disruptive to hospital staff. This article describes treatment needs and determines adverse events during the perioperative period for individuals with autism who have had general anesthesia for comprehensive dental treatment in the hospital.
89. **Radcliffe, R. A., D. Bixler, et al. (2013). "Hepatitis B virus transmissions associated with a portable dental clinic, West Virginia, 2009." *J Am Dent Assoc* 144(10): 1110-1118.**
BACKGROUND: Although hepatitis B virus (HBV) transmission in dental settings is rare, in 2009 a cluster of acute HBV infections was reported among attendees of a two-day portable dental clinic in West Virginia. **METHODS:** The authors conducted a retrospective investigation by using treatment records and volunteer logs, interviews of patients and volunteers with acute HBV infection as well as of other clinic volunteers, and molecular sequencing of the virus from those acutely infected. **RESULTS:** The clinic was held under the auspices of a charitable organization in a gymnasium staffed by 750 volunteers, including dental care providers who treated 1,137 adults. Five acute HBV infections-involving three patients and two volunteers-were identified by the local and state health departments. Of four viral isolates available for testing, all were genotype D. Three case patients underwent extractions; one received restorations and one a dental prophylaxis. None shared a treatment provider with any of the others. One case volunteer worked in maintenance; the other directed patients from triage to the treatment waiting area. Case patients reported no behavioral risk factors for HBV infection. The investigation revealed numerous infection control breaches. **CONCLUSIONS:** Transmission of HBV to three patients and two volunteers is likely to have occurred at a portable dental clinic. Specific breaches in infection control could not be linked to these HBV transmissions. **PRACTICAL IMPLICATIONS:** All dental settings should adhere to recommended infection control practices, including oversight; training in prevention of bloodborne pathogens transmission; receipt of HBV vaccination for staff who may come into contact with blood or body fluids; use of appropriate personal protective equipment, sterilization **and disinfection procedures; and use of measures, such as high-volume suction, to minimize the spread of blood.**
90. **Radfar, L., S. Settle, et al. (2013). "Antibiotic prophylaxis: a literature review." *Compend Contin Educ Dent* 34(3): e33-37.**
 Antibiotic prophylaxis has been a matter of great interest and has been discussed by researchers and clinicians over the years. Changes and recommendations have been made in order to clarify protocol and make it safer for patients. Various organizations such as the American Heart Association, American Academy of Oral Surgeons, American Dental Association, and American Academy of Oral Medicine have played vital roles in formulating guidelines for antibiotic prophylaxis. These recommendations for prevention of infective endocarditis have been based on clinical experiences and research as well as expert opinion. This paper summarizes the most recent guidelines for general readers so that informed decisions may be made that are in the interest of patients and practitioners.
91. **Rahman, N., M. Clarke, et al. (2013). "Case report: management of broken dental needles in practice." *J Ir Dent Assoc* 59(5): 241-245.**
 Breakage of a dental needle is a rare but significant complication of local anaesthetic injections, which causes great anxiety for the patient and dental surgeon, and necessitates investigations and further treatment. It may have important medico-legal considerations. We describe a case where a dental needle broke during the routine administration of an inferior alveolar nerve block for a dental procedure. This broken needle subsequently migrated to the lateral aspect of the neck, confirming that these 'migrations' do occur. **We discuss the various causes, and clinical and dentolegal implications, as well as methods of treatment.**
92. **Rashad, A., R. Smeets, et al. (2013). "Extraction bradycardia: a pilot case-crossover study." *Head Face Med* 9: 29.**
PURPOSE: Significant vasovagal reaction is one of the untoward events in the course of simple extractions. The present study were obtained in advance. Patients were placed in the dental chair and their heart rate was measured before /and prior to the anesthetic injection, during, and after dental extraction on a pulse oxymeter device. Data were analyzed using paired t-test. **RESULTS:** Sixty one patients were included. The mean heart rates of these patients prior, during, and after extraction were 88, 86 and 81, respectively. Two by two comparisons showed a significant decrease in the mean heart rate during extraction compared to the baseline and also after extraction compared to both before and during extraction ($p < 0.05$ for all three). **CONCLUSIONS:** Despite the presence of sufficient **local anesthesia and performing the extraction with the least trauma, a significant decrease in heart rate is evident.**
93. **Riley, C. (2013). "Dentists versus auto mechanics: are there ethical differences?" *J Am Coll Dent* 80(2): 25-31.**
 The different ethical perspectives of dentists and auto mechanics include primary concern, billing procedures, advertising, emergency care, the level of autonomy granted to their patients/ clients, the amount of disclosure given to their

patients/clients, the ability to judge the work of others, and the freedom to pursue romantic relationships with their patients/clients. In analyzing these differences, one finds dentists to have much greater ethical obligations than auto mechanics. There are subtle differences between the ethical expectations of Canadian and United States dentists.

94. **Rosenberg, M. B., J. C. Phero, et al. (2013). "Management of allergy and anaphylaxis during oral surgery." *Oral Maxillofac Surg Clin North Am* 25(3): 401-406, vi.**
 Minor and major allergic reactions occur during oral and maxillofacial treatment. Immediate diagnosis and pharmacologic intervention are imperative. Signs and symptoms may be variable. The early administration of epinephrine is critical.

95. **Sajjan, P. G., L. Nagesh, et al. (2013). "Comparative evaluation of chlorhexidine varnish and fluoride varnish on plaque *Streptococcus mutans* count--an in vivo study." *Int J Dent Hyg* 11(3): 191-197.**
 AIM: The aim of the study was to assess and compare the effect of chlorhexidine varnish and fluoride varnish application on *Streptococcus mutans* counts in plaque of occlusal pits and fissures of permanent mandibular first molars. MATERIALS AND METHODS: The study was an in vivo comparative study, conducted among 50 schoolchildren aged 7-8 years under a field setting. The 50 subjects were randomly allocated into two groups. Baseline plaque samples were collected from all the subjects followed by the application of two varnishes, Cervitec and Duraphat. The varnish was applied to pit and fissures of occlusal surface of mandibular first molar. The varnish application was carried out on the first day, fifth day and tenth day after baseline plaque sampling. Subsequent plaque samples were collected at the end of 1 month and at the end of 3 months after the varnish application. RESULTS: The Cervitec varnish has shown a statistically significant reduction at the end of 1 month and at the end of 3 months ($P < 0.05$). Duraphat varnish did not show a statistically significant difference in reducing the plaque *S. mutans* count at the end of 1 month and third month ($P > 0.05$). CONCLUSION: Cervitec varnish was found to be effective in reducing *S. mutans* count for a 3-month period, when compared to Duraphat varnish.

96. **Sanz, M., J. Serrano, et al. (2013). "Anti plaque and antigingivitis toothpastes." *Monogr Oral Sci* 23: 27-44.**
 Dentifrices are a general term used to describe preparations that are used together with a toothbrush with the purpose to clean and/or polish the teeth. Active toothpastes were first formulated in the 1950s and included ingredients such as urea, enzymes, ammonium phosphate, sodium lauryl sarcosinate and stannous fluoride. Later, therapeutic agents were included. Today's toothpastes have two objectives: to help the toothbrush in cleaning the tooth surface and to provide a therapeutic effect. The therapeutic effect may have an antiplaque or anti-inflammatory basis when the nature of the agents is antimicrobial. Plaque inhibitory and antiplaque activity of toothpastes used for chemical plaque control is evaluated in distinct consecutive stages, the last being home use randomized clinical trials of at least 6 months' duration. In this chapter, the scientific evidence supporting the use of the most common antiplaque agents, included in toothpaste formulations, is reviewed, with a special emphasis on 6-month clinical trials, and systematic reviews with meta-analyses of the mentioned studies. Among the active agents, the following have been included in toothpastes: enzymes, amine alcohols, herbal or natural products, triclosan, bisbiguanides (chlorhexidine), quaternary ammonium compounds (cetylpyridinium chloride) and different metal salts (zinc salts, stannous fluoride, stannous fluoride with amine fluoride). Dentifrices are the ideal vehicles for any active ingredient used as an oral health preventive measure since they are used in combination with toothbrushing, which is the most frequently employed oral hygiene method. The most important indications of dentifrices with active ingredients are associated with long-term use to prevent bacterial biofilm formation, mostly in gingivitis patients or in patients on supportive periodontal therapy.

97. **Seymour, R. A. (2013). "Antibiotics in dentistry--an update." *Dent Update* 40(4): 319-322.**
 This review article considers the changes in antibiotic usage over the past 40 years. Perhaps the most significant advance is in the prophylactic use of these drugs to reduce the effect of dentally induced bacteraemia. A greater understanding of various dental infections and, in particular, the role of bacteria in the pathogenesis of periodontal disease, has led to further interest in the indications for these drugs as adjunctive measures. Whilst new indications for the use of antibiotics become more widespread, all members of the healthcare professions need to be aware that these drugs have significant adverse effects and their misuse can lead to life-threatening infection. CLINICAL RELEVANCE: Antibiotics have revolutionized the control of infectious diseases and have a significant role in dental practice. Dentists should be fully apprised of the benefits of these drugs and when they should be prescribed. Antibiotics usage should not be a substitute for interventional procedures, such as drainage of pus or removal of sources of infection. Indications for the use of these drugs as prophylactic measures are now reducing.

98. **Shephard, M. K., E. A. Macgregor, et al. (2014). "Orofacial pain: a guide for the headache physician." *Headache* 54(1): 22-39.**
 Orofacial pain represents a significant burden in terms of morbidity and health service utilization. It includes very common disorders such as toothache and temporomandibular disorders, as well as rare orofacial pain syndromes. Many orofacial pain conditions have overlapping presentations, and diagnostic uncertainty is frequently encountered in clinical practice. This review provides a clinically orientated overview of common and uncommon orofacial pain presentations and diagnoses, with an emphasis on conditions that may be unfamiliar to the headache physician. A holistic approach to orofacial pain management is important, and the social, cultural, psychological and cognitive context of each patient needs to be considered in the process of

diagnostic formulation, as well as in the development of a pain management plan according to the biopsychosocial model. Recognition of psychological comorbidities will assist in diagnosis and management planning.

99. **Smith, M. M., D. W. Barbara, et al. (2014). "Morbidity and mortality associated with dental extraction before cardiac operation." *Ann Thorac Surg* 97(3): 838-844.**
 BACKGROUND: Dental extraction of abscessed or infected teeth before cardiac operation is often performed to decrease perioperative infection and late endocarditis. Literature to support dental extraction before cardiac operation is limited. The goal of this study was to evaluate the risk of major adverse outcomes in patients undergoing dental extraction before cardiovascular surgical procedures. METHODS: A retrospective review was performed to identify patients who underwent dental extraction before planned cardiac operation. Major adverse outcomes within 30 days after dental extraction or until time of cardiac operation were recorded and defined as death, acute coronary syndrome, stroke, renal failure requiring dialysis, and need for postoperative mechanical ventilation. RESULTS: Two hundred five patients underwent 208 dental extractions before 206 planned cardiac operations. Major adverse outcomes occurred in 16 of 205 patients (8%). Twelve patients (6%) died within 30 days after dental extraction, of which 6 (3%) occurred before cardiac operation, and 6 (3%) occurred after cardiac operation. CONCLUSIONS: Patients with planned dental extraction before cardiac operation are at risk for major adverse outcomes, including a 3% risk of death before cardiac operation and an 8% risk of a major adverse outcome. The prevalence of major adverse outcomes should advise physicians to evaluate individualized risk of anesthesia and surgical procedures in this patient population.

100. **Su, N., H. Wang, et al. (2014). "Efficacy and safety of bupivacaine versus lidocaine in dental treatments: a meta-analysis of randomised controlled trials." *Int Dent J* 64(1): 34-45.**
 The objective of this study was to assess the efficacy and safety of bupivacaine compared with lidocaine in local anaesthesia in dental treatment. Medline, Cochrane Central Register of Controlled Trials, EMBASE, Chinese BioMedical Literature Database, China National Knowledge Infrastructure, and the World Health Organisation (WHO) International Clinical Trials Registry Platform were searched electronically. Relevant journals and references of studies included were hand-searched for randomised controlled trials comparing bupivacaine with lidocaine in terms of efficacy and safety. Sixteen studies were included, of which nine had low, six had moderate and one had high risk of bias. In comparison with 2% lidocaine plus 1:100,000 adrenaline, 0.5% bupivacaine plus 1:200,000 adrenaline showed a higher success rate in inflamed pulp ($P = 0.03$) but a lower success rate in vital pulp ($P < 0.00001$), a lower percentage of patients using postoperative analgesics ($P < 0.00001$), a longer onset times of pulpal anaesthesia and a longer duration of pulpal anaesthesia ($P < 0.00001$). In comparison with 2% lidocaine plus 1:80,000 adrenaline, 0.75% bupivacaine plus 1:200,000 adrenaline had same level of success rate ($P = 0.29$), and was better in postoperative pain control ($P = 0.001$) while 0.75% levobupivacaine had same level of postoperative pain control ($P = 0.16$); 0.5% levobupivacaine had higher success rate ($P = 0.04$) and was better in postoperative pain control ($P = 0.001$) than 2% lidocaine. There was no statistically significance in adverse events between two groups. Given the efficacy and safety, the bupivacaine group is better than the lidocaine group in dental operations that take a relatively long time, especially in endodontic treatments **or where there is a need for postoperative pain management.**

101. **Surabian, S. R. (2013). "Americans with Disabilities Act: understanding complexities and dentistry's role." *J Calif Dent Assoc* 41(9): 674-676.**

102. **Swee, J., A. R. Silvestri, Jr., et al. (2013). "Inferior alveolar nerve block and third-molar agenesis: a retrospective clinical study." *J Am Dent Assoc* 144(4): 389-395.**
 BACKGROUND: Children often receive inferior alveolar nerve blocks (IANBs) when their third molars are just beginning to develop. The location of the third-molar follicle is close to where the needle penetrates during an IANB. The authors examined the possible association between IANBs and missing third molars. METHODS: The authors examined 439 potential sites of third-molar development for evidence of third-molar follicles on panoramic radiographs of randomly selected children 7 years and older. The authors conducted a statistical comparison of the incidence of missing third-molar follicles in a control group of children who had no history of receiving IANBs with children in a test group who had a definitive history of receiving IANBs by means of generalized estimating equations. RESULTS: The authors found a statistically significant greater incidence of missing third-molar follicles in mandibular quadrants that had a definitive history of receiving IANBs compared with mandibular quadrants that had no history of receiving IANB. CONCLUSION: IANBs administered to young children when the third-molar tooth bud is immature may stop third-molar development. Owing to the significant clinical implications, further research is needed to verify these results. PRACTICAL IMPLICATIONS: Dentists inadvertently may be stopping the development of third molars when administering IANBs to children.

103. **Tan, V. L., A. Andrawos, et al. (2014). "Applied anatomy of the lingual nerve: relevance to dental anaesthesia." *Arch Oral Biol* 59(3): 324-335.**
 OBJECTIVES: (1) to classify the external morphology of the lingual nerve and investigate any relationship between its external and internal morphology, (2) to explore the fascicular structure, nerve tissue density and capillary density of the lingual nerve, and (3) to provide an anatomical explanation as to why adverse clinical outcomes more commonly affect the

lingual nerve following local dental anaesthesia. Where possible, comparisons were made between the lingual and inferior alveolar nerves. **MATERIALS AND METHODS:** The lingual and inferior alveolar nerves were examined in 23 hemi-sectioned heads macroscopically and microscopically 2mm above the lingula. The lingual nerve was also examined in the regions of the third and second molars. Specimens underwent histological processing and staining with Haematoxylin & Eosin, Masson's Trichrome, anti-GLUT-1 and anti-CD 34. **RESULTS:** The lingual nerve became flatter as it traversed through the pterygomandibular space. There was an increase in the connective tissue and a decrease in nerve tissue density along the lingual nerve ($p < 0.001$). At 2mm above the lingula, the lingual nerve was uni-fascicular in 39% of cases, whilst the inferior alveolar nerve consistently had more fascicles ($p < 0.001$). The lingual nerve fascicles had thicker perineurium but the endoneurial vascular density was not significantly different in the two nerves. **CONCLUSIONS:** The greater susceptibility of lingual nerve dysfunction during inferior alveolar nerve blocks may be due to its uni-fascicular structure and the thicker perineurium, leading to increased endoneurial pressure and involvement of all axons if oedema or haemorrhage occurs due to trauma.

104. **Tanaka, N., K. Nohara, et al. (2013).** "Swallowing frequency in elderly people during daily life." *J Oral Rehabil* 40(10): 744-750. Disuse atrophy of swallowing-related organs due to an excessive decrease in swallowing frequency is suspected to occur in patients with poor oral intake, especially elderly people. However, swallowing frequency in daily life has not previously been examined in the elderly. This study examined swallowing frequency in elderly people and compared these findings to those in a younger population and differences in the degree of activity in daily life. (i) We compared swallowing frequency in 20 elderly people (82.0 +/- 8.3 year) and 15 healthy young people (26.5 +/- 3.5 year). (ii) 20 elderly people were divided into two groups according to the degree of activity in daily life: a semi-bedridden group and bedridden group; the swallowing frequency was compared between these groups. (i) The swallowing frequency in the elderly people was 2-19 times per hour and the mean was 9.4 +/- 4.9, and that in the healthy young people was 16-76 times per hour and the mean was 40.7 +/- 19.5. Swallowing frequency in elderly people was significantly lower than that in young healthy people ($P < 0.0001$). (ii) The swallowing frequency in bedridden group was 2-11 times per hour and the mean was 6.8 +/- 3.3, and that in semi-bedridden group was 3-19 times per hour and the mean was 11.9 +/- 5.1. Swallowing frequency in bedridden group was significantly lower than that in semi-bedridden group ($P < 0.05$). These results indicate that in daily life, elderly people tend to swallow less frequently than young people. In addition, swallowing frequency was lower in elderly subjects with a low degree of activity in daily life.
105. **Tanchyk, A. (2013).** "The absolute contraindication for using nitrous oxide with intraocular gases and other dental considerations associated with vitreoretinal surgery." *Gen Dent* 61(6): e6-7. Nitrous oxide is absolutely contraindicated after vitreoretinal surgery that uses intraocular gas, as the mixture of gas and nitrous oxide can cause catastrophic vision loss. Professional awareness and communication are vital to prevent this iatrogenic complication. This case report identifies a side effect of vitreoretinal surgery with a benign outcome--specifically, a referred pain or pressure from left eye surgery or an associated gas bubble to the upper left quadrant. Such cases underscore the need for a dentist and staff to inquire about all ocular procedures to avoid patient vision loss due to nitrous oxide. Dentists should communicate with the patient's ophthalmologist before proceeding with any dental procedure.
106. **Torres-Pereira, C. C., A. Morosini Ide, et al. (2013).** "Teledentistry: distant diagnosis of oral disease using e-mails." *Telemed J E Health* 19(2): 117-121. **OBJECTIVE:** The purpose of this study was to evaluate the applicability of telediagnosis in oral medicine, through the transmission of clinical digital images by e-mail. **SUBJECTS AND METHODS:** The sample included 60 consecutive patients who sought oral medicine services at the Federal University of Parana, in the state of Parana, located in southern Brazil. The clinical history and oral lesion images were recorded using clinical electronic charts and a digital camera, respectively, and sent by e-mail to two oral medicine consultants. The consultants provided a maximum of two clinical hypotheses for each case, which were compared with biopsy results that served as the gold standard. **RESULTS:** In 31 of the 60 cases (51.7%), both consultants made the correct diagnosis; in 17 cases (28.3%), only one consultant made the correct diagnosis; and in 12 cases (20%), neither consultant made the correct diagnosis. Therefore, in 80% of cases, at least one consultant provided the correct diagnosis. The agreement between the first consultant and the gold standard was substantial ($kappa=0.669$), and the agreement between the second consultant and the gold standard was fair ($kappa=0.574$). **CONCLUSIONS:** The use of information technology can increase the accuracy of consultations in oral medicine. As expected, the participation of two remote experts increased the possibility of correct diagnosis.
107. **Tyagi, P., S. Tyagi, et al. (2013).** "Sedative effects of oral midazolam, intravenous midazolam and oral diazepam in the dental treatment of children." *J Clin Pediatr Dent* 37(3): 301-305. **OBJECTIVE:** To evaluate and compare the behavioral changes and effect of sedative techniques in pediatric dental patients using Oral Midazolam, Intravenous Midazolam and Oral Diazepam as sedative agents. **METHOD:** Triple blind randomized control trial with 40 patients aged between 2-10 years, exhibiting definitely negative behavior was considered. Patients were randomly assigned to one of the four treatment groups. Group I received midazolam 0.5 mg/kg orally, Group II received 0.5 mg/kg diazepam orally, Group III received 0.06 mg/kg midazolam intravenously and Group IV received oral placebo. Behavioral changes (sleep, crying, movement, and overall behavior) and effect of sedative techniques on pediatric patients were assessed.

RESULTS: All the patients in group 3 were significantly better in post administrative behavior viz. sleep, crying and movement. Over all behavior scores for group 3 patients were significantly better than other three groups ($p < 0.001$). Positive behavior of patients in group 2 and 3 did not show significant difference but positive behavior in group 3 was significantly ($p < 0.05$) more than group 2. Placebo group showed the highest negative behavior CONCLUSION: Sedative effects of oral midazolam and oral diazepam were comparable, where as intravenous midazolam produced more sedation. Anxiolysis was found to be more in both the midazolam groups than the diazepam group. Most number of positive changes were observed in midazolam groups as compared to diazepam group.

108. **van der Maarel-Wierink, C. D., J. N. Vanobbergen, et al. (2013). "Oral health care and aspiration pneumonia in frail older people: a systematic literature review." *Gerodontology* 30(1): 3-9.**
OBJECTIVE: To systematically review the literature on oral health care interventions in frail older people and the effect on the incidence of aspiration pneumonia. **BACKGROUND:** Oral health care seems to play an important role in the prevention of aspiration pneumonia in frail older people. **METHODS:** Pubmed, Web of Science, Cochrane Library, EMBASE and CINAHL were searched for eligible intervention studies. Only publications with regard to hospitalized or institutionalized older people, who were not dependent on mechanical ventilation were eligible. Two authors independently assessed the publications for their methodological quality. **RESULTS:** Five publications were included and reviewed. Two studies showed that improvement of oral health care diminished the risk of developing aspiration pneumonia and the risk of dying from aspiration pneumonia directly. The three studies remaining showed that adequate oral health care decreased the amount of potential respiratory pathogens and suggested a reduction in the risk of aspiration pneumonia by improving the swallowing reflex and cough reflex sensitivity. **CONCLUSIONS:** According to the results of the current systematic literature review oral health care, consisting of tooth brushing after each meal, cleaning dentures once a day, and professional oral health care once a week, seems the best intervention to reduce the incidence of aspiration pneumonia.
109. **Vanderbilt, A. A. and M. M. Husson (2013). "Current sedation and anesthesia practices among dentists: a statewide survey." *Oral Health Dent Manag* 12(4): 230-236.**
INTRODUCTION: The purpose of this survey was to describe the current sedation training and practices among dentists in the state of Virginia, and to determine what areas of sedation training may need to be improved or maintained. **METHODS:** A survey was developed by two faculty members at the VCU School of Medicine and School of Dentistry, focused on sedation practices of dentists within the state of Virginia. The survey contained several key domains: background, education and training, implementation in practice, and continuing education. The survey consisted of thirty questions. **RESULTS:** Four hundred and thirty nine dentists responded of the 1,982 (22% response rate) surveys were completed and used in analysis. Almost half of the dentists that responded use oral medication to administer sedation within their office and of those 67% re-dose the oral sedative medication to the patient. Over 75% of dentists indicated that they have had some type of sedation related emergency in their office; despite this number, 11% reported that they do not practice for sedation emergency scenarios. Over 70% of dentists reported that they solely monitor their patient during simultaneous sedation and dental treatment, while others reported having a dental assistant (20%) or other medical provider (10%) assisting with monitoring while they are providing dental care. **CONCLUSION:** With 75% of dentists that responded to the survey practicing sedation, experiencing some type of medical emergency related to sedations, and 4% of these not using any type of patient monitoring system, all providers offering sedation should follow the monitoring guidelines set forth by the ADA and/or AAPD. With an increase in demand from patients for sedation services during dental procedures, additional training should be recommended to dentists to assure that they have the skills and knowledge necessary to rescue a patient should a medical emergency arise.
110. **Vasconcelos, L. R., R. L. Consani, et al. (2013). "Effect of chemical and microwave disinfection on the surface microhardness of acrylic resin denture teeth." *J Prosthodont* 22(4): 298-303.**
PURPOSE: The purpose of this study was to evaluate the effect of simulated disinfections (2% glutaraldehyde, 1% sodium hypochlorite, and microwave energy) on the surface hardness of Trilux, Biocler, Biotone, New Ace, and Magister commercial artificial teeth. **MATERIALS AND METHODS:** Specimens ($n = 10$) were made with the teeth included individually in circular blocks of acrylic resin, leaving the labial surface exposed. Cycles of simulated chemical disinfection were accomplished with the specimens immersed in the solutions at room temperature for 10 minutes, followed by tap water washing for 30 seconds and storage in distilled water at room temperature for 7 days until the next disinfection. Simulated disinfection by microwave energy was carried out in a domestic oven with 1300 W at a potency of 50% for 3 minutes with the specimens individually immersed in 150 ml of distilled water. Control (no disinfection) and the experimental groups (first and third disinfection cycles) were submitted to Knoop hardness measurements with indentations at the center of the labial tooth surface. Data were submitted to repeated measure two-way ANOVA and Tukey's test ($\alpha = 0.05$). **RESULTS:** Biocler, Magister, and Trilux showed lower surface microhardness when submitted to microwave. Lower microhardness for Biotone was promoted by hypochlorite, while no significant difference was shown for New Ace. The third disinfection cycle significantly decreased the tooth surface hardness only for microwave. **CONCLUSIONS:** Different disinfection methods promoted different effects on the microhardness of different types of artificial teeth. Surface microhardness of the teeth was less affected by the simulated chemical disinfections when compared to microwaved specimens.

111. **Waldman, H. B. and M. R. Truhlar (2013). "Impact of residency requirement for dental licensure: an update." N Y State Dent J 79(5): 30-32.**
 As of 2007, New York State Education Law requires successful completion of dental school training and completion of an approved dental residency program for dental licensure. In a transitional period, from 2003-2006, a dental licensure applicant could select the path of an approved residency program or the New York State-recognized regional standardized clinical examination. By contrast, in 2007, the state of Connecticut adopted and continues to abide by regulations that permit licensure by either completion of an approved residency program or passage of the recognized regional standardized clinical examination. A review of the changing number of dentists licensed in these two adjoining Northeastern states under new licensure guidelines is considered in terms of the possible relationship to the new licensing process.
112. **Wilson, T. D., D. W. McNeil, et al. (2014). "Effects of conscious sedation on patient recall of anxiety and pain after oral surgery." Oral Surg Oral Med Oral Pathol Oral Radiol 117(3): 277-282.**
OBJECTIVE: This study examined the effect of conscious ("moderate") sedation with amnestic effects and local anesthetic, versus local anesthetic alone, on recall of pain and anxiety related to surgical tooth extraction. Greater anxiety and pain were hypothesized in the local anesthesia-alone group. **STUDY DESIGN:** Patients undergoing tooth extraction, receiving moderate sedation plus local anesthetic (n = 27) or local anesthetic alone (n = 27), were assessed on trait dental anxiety, preextraction state pain and anxiety, anticipated pain and anxiety, and 1-month recall of pain and anxiety. **RESULTS:** Patients with moderate sedation, compared with those administered only local anesthetic, recalled less procedural pain and anxiety after 1 month. The local anesthetic-alone group reported more preextraction pain and anticipated more procedural anxiety. **CONCLUSIONS:** Moderate sedation had the desired effect of lower recalled pain and anxiety associated with extraction, even 1 month later. Anticipating moderate sedation also prompts expectation of less anxiety during the procedure.
113. **Zandbergen, D., D. E. Slot, et al. (2013). "The clinical effect of scaling and root planing and the concomitant administration of systemic amoxicillin and metronidazole: a systematic review." J Periodontol 84(3): 332-351.**
BACKGROUND: The treatment of periodontitis frequently begins with a non-surgical phase that includes scaling and root planing (SRP) and, on occasion, the use of systemic antibiotics. The goal of this review is to systematically evaluate the data concerning the effect of the concomitant administration of amoxicillin and metronidazole adjunctive to SRP in adults who are otherwise healthy. **METHODS:** The PubMed-MEDLINE, Cochrane-Central, and EMBASE databases were searched to April 1, 2012, to identify appropriate studies. Probing depth (PD), clinical attachment level (CAL), bleeding on probing, and plaque index were selected as outcome variables. Based on the extracted mean values and number of individuals, changes in weighted means were calculated and a meta-analysis conducted. **RESULTS:** The search yielded 526 unique titles and abstracts. Ultimately, 35 studies were selected, describing 28 clinical trials meeting the eligibility criteria. The full-mouth weighted mean change for PD showed an improvement of 1.41 mm. The full-mouth weighted mean change for CAL showed a gain of 0.94 mm. **CONCLUSION:** Systemic antimicrobial therapy using a combination of amoxicillin and metronidazole as an adjunct to SRP can enhance the clinical benefits of non-surgical periodontal therapy in adults who are otherwise healthy.
114. **Zenthofer, A., R. Dieke, et al. (2013). "Improving oral hygiene in the long-term care of the elderly--a RCT." Community Dent Oral Epidemiol 41(3): 261-268.**
BACKGROUND: Oral hygiene and health of the institutionalized elderly are frequently described as inadequate. **OBJECTIVES:** This randomized and single-blinded (outcome evaluation) study compared three types of intervention for improving oral hygiene with a control. The purpose was to investigate whether there were any significant differences between the intervention and control groups. **METHODS:** One hundred and six participants living in long-term care homes in South-West Germany were recruited and randomly divided into four groups-three therapy groups and one control group. For all three therapy groups, teeth and dentures were cleaned professionally and individual instruction was given. One of these groups was also re-instructed and remotivated by a dentist (n = 27). One also received help from, and was remotivated by, staff educated in dental hygiene (n = 26). The third therapy group was not remotivated after professional cleaning of teeth and dentures (n = 26). For the control group, there was no intervention (n = 23). The main target clinical data were mean plaque (plaque-control record, O'Leary), gingival bleeding (Ainamo/Bay), and denture hygiene indices. For assessment of the difference between being in an intervention group and in a control group, mixed-model analysis for repeated measurements was performed for each main target variable. In addition, target clinical data were evaluated in long-term follow-up after 3 years. **RESULTS:** Compared with controls, denture hygiene, plaque, and gingival bleeding indices were significantly lower in the intervention groups over a twelve-week period (mixed model for repeated measurements; $P < 0.023$). Estimates of effects between control and each treatment group were comparable among the three therapy groups; however, even though two of the groups received further help and instruction. Long-term follow-up showed that all indices were significantly worse than at the last study recall ($P < 0.001$). **CONCLUSIONS:** Professional cleaning of teeth and dentures, with individual instruction, can be recommended to improve oral hygiene. However, the effect decreases over time and renewal of the intervention is necessary.