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Kind regards,

**Associate Professor Nick Chandler**

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## *In vitro* comparison of conventional film and direct digital imaging in the detection of approximal caries

**Authors:** Castro VM et al

**Summary:** This study compares conventional and digital radiographs for the detection of incipient carious lesions, and also investigates the use of the inversion grayscale digital mode. One hundred and seventy four extracted permanent molars and premolars were selected and evaluated clinically and radiographically for depth of lesions. They were then arranged in plaster blocks in groups of three and 150 mesial and distal surfaces selected, including some with no caries. The three image types were viewed by 7 dental school staff with similar experience. Teeth were then sectioned and examined under a microscope to see presence of lesion(s) and depth. There was no statistically significant difference in the 3 image types. Dentine lesions were identified with greater accuracy than enamel lesions in all cases.

**Comment:** There are many studies in cariology which report that digital images have no diagnostic advantage over conventional radiographs for detecting approximal caries. In the inversion grayscale image caries appears as a brighter area surrounded by a darker background. The eye is more sensitive to slight changes in intensity changes in dark regions of images. It may be that in this experiment the observer's lack of familiarity with the grayscale image was a major factor. As they were used to seeing caries as a dark region on a conventional film, the potential value of the digital enhancement may have been lost.

**Reference:** *Dentomaxillofacial Radiology* 2007;36:138-142  
<http://dmfr.birjournals.org/cgi/content/full/36/3/138>



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## Frequency and location of traumatic ulcerations following placement of complete dentures

**Authors:** Kivovics P et al

**Origin:** Hungary

**Summary:** This study included 61 edentulous patients who received new full dentures provided by the same dentist and made by the same technician. The mean patient age was 68 and all patients had worn complete dentures for at least 6 years. All the patients were recalled for adjustments at one week and scheduled for visits at weeks 2 and 3 if the patient wished to attend. The location and size of denture-induced lesions were mapped on anatomical illustrations. All patients attended the one week recall with 87% having their dentures adjusted. Fifty percent attended a second visit and 7% the third visit. No patients needed a fourth visit. The most common sites for denture irritation were the maxillary vestibular sulcus between the labial and buccal fraenum and the maxillary tuberosity. Mandibular problems were less frequent. Men had different ratios of lesions at some sites than women at the first visit.

**Comment:** The authors did not expect to find more detectable lesions in men at the first visit, and speculate that women adopt a softer diet after insertion of new dentures. The study excluded patients with bony deformations or problems such as flabby ridges and these people may have different problems with new dentures. The study makes it clear that scheduling appointments for adjustments is an essential aspect of this aspect of prosthodontics. Clearly the legendary tales of mailing new dentures to the patient and hoping that the telephone will be silent are unacceptable- now we have them scientifically proved as well!

**Reference:** *International Journal of Prosthodontics* 2007;20:397-401  
<http://www.quintpub.com/journals/ijp/abstract.php>

## In vitro antibacterial efficacy of endodontic irrigants against *Enterococcus faecalis*

**Authors:** Oliveira DP et al

**Summary:** *Enterococcus faecalis* has been implicated in persistent root canal infections. This experiment infected 80 extracted teeth with the organism and examined the effectiveness of 1.5% and 5.25% sodium hypochlorite (NaOCl) and 2% chlorhexidine gel (CHX) as antibacterial irrigants. The teeth were prepared with Profile rotary instruments and 1 mL of test material used between each file change. The 2% CHX and 5.25% NaOCl were effective even 7 days after instrumentation.

**Comment:** Microorganisms such as *Enterococcus faecalis* are resistant to NaOCl at low concentrations but high concentrations may irritate periapical tissues. These experiments showed the importance of mechanical instrumentation itself, and also revealed that the CHX was absorbed and released from the dentine even 7 days after instrumentation. Most dentists consider the tissue-dissolving qualities of NaOCl as an important feature of the solution and it is their irrigant of choice. It is also cheap, has a long shelf life, and is readily available.

**Reference:** *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics* 2007;103:702-706

<http://dx.doi.org/doi:10.1016/j.tripleo.2006.11.007>

## Cross-sectional radiographic survey of amalgam and resin-based composite posterior restorations

**Authors:** Levin L et al

**Summary:** The population studied were 459 18-19 year olds being screened prior to military service. Standardized bitewings were taken. Restored interproximal surfaces, the material used, distinct caries gingival to the restored surface and the presence of overhangs were recorded. Failure of restorations was defined as evidence of secondary caries or overhanging margins. Some 650 restored surfaces were present; 86 demonstrated caries and 22 overhanging margins. The overall failure rate of amalgam was 12% and that of composite 44%, a significant difference ( $P < 0.001$ ). Caries was the main problem.

**Comment:** While the use of amalgam for posterior restorations is decreasing it is still the material of choice for Class 1 and Class 2 lesions in many dental schools. The limitations of composite have been well documented. This study did not consider material choice, operator technique and patient selection. The evaluator was an experienced practitioner practicing mainly restorative dentistry, and the authors comment that the study could be strengthened by a reliability test for the evaluation of the carious lesions.

**Reference:** *Quintessence International* 2007;38:511-514

[http://iadr.confex.com/iadr/israe05/preliminaryprogram/abstract\\_66666.htm](http://iadr.confex.com/iadr/israe05/preliminaryprogram/abstract_66666.htm)

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## Efficacy of an automated flossing device in different regions of the mouth

**Authors:** Hague AL & Carr MP

**Summary:** The test group were 102 men and women with a mean age of 23 years and a 10 week, two-treatment crossover design experiment was performed. Subjects were placed in control, manual flossing and automated flossing groups. Plaque index and gingival index were measured. No regional treatment effect on the gingival index was found. The majority of subjects had lower plaque and gingival scores at days 15 and 30 using the automated flosser compared to manual floss.

**Comment:** Dental floss provides an effective way to remove interproximal plaque, and the automated flosser was a safe device when properly used. Previous work suggested comparable performance between manual and automated devices. The participants in this study were mostly young female university students, so further research is needed with a wider sample. The device might be particularly beneficial for persons who rarely floss or do not floss at all.

**Reference:** *Journal of Periodontology* 2007;78:1529-1537

<http://dx.doi.org/doi:10.1902/jop.2007.060512>

## The reproducibility of the Denplan Oral Health Score (OHS) in general dental practitioners

**Authors:** Delargy S et al

**Summary:** An oral health index to assess patient comfort and satisfaction in addition to assessing caries, periodontal disease, tooth wear, mucosa, occlusion and dentures was modified by Denplan, a UK-based dental capitation company. Ten patients were selected and examined by 10 general dental practitioners. At the first appointment they used the examination method from their everyday practice. They then indicated oral health by marking a point on a 10 cm line. A week later the same patients were examined again, and a second linear scale score recorded. At the third session the OHS was explained and a different group of 10 patients examined. This second group was examined again in a final session and a second OHS calculated. Five of the ten patients assessed using the dentists own system also participated in the OHS sessions and their scores could be compared across 4 visits. The majority of the dentists had better intra-examiner reproducibility with the OHS than with their own method of examination (estimates ranging from 81% to 97%). The OHS system also had better inter-examiner reproducibility.

**Comment:** An index of oral health covering a wide range of conditions may be valuable to compare populations and help allocate resources. The structured nature of the OHS appeared to minimize operator error and improve recording of all aspects of oral health. This is likely to benefit patients.

**Reference:** *Community Dental Health* 2007;24:105-110

<http://www.cdh.org.uk/abstracts/v24p105.html>

## An up to 16-year prospective study of 304 porcelain veneers

**Authors:** Layton D & Walton T

**Summary:** This work reports on 304 porcelain veneers placed by one operator for 100 patients between 1988 and 2003. Sixteen veneers in 14 patients failed. The cumulative survival was 96% at 5 to 6 years, 93% at 10 to 11 years and 73% (+ or - 16%) at 15 to 16 years. The low number of veneers in the extended period and the death of one patient explained the final result for survival. Most failed veneers were associated with aesthetics and mechanical complications. Porcelain veneers offer a predictable long-term restoration with a low failure rate.

**Comment:** The age of the patients treated ranged from 15 to 73 years, and cases were rejected if more than 20% of the preparations were in dentine. With increasing emphasis on dentine bonding, more aggressive preparations mean that more modern veneers could survive less well. The teeth in this study were prepared with chamfer margins and a 1 or 2 mm incisal reduction and palatal overlap; the authors note how there is still no consensus regarding the optimal design. The apparent outcome in these studies can be affected by the statistical tests used to calculate cumulative survival, and so these must be clearly stated in studies to allow comparisons to be made.

**Reference:** *International Journal of Prosthodontics* 2007;20:389-396

[http://www.quintpub.com/journals/ijp/abst\\_ract.php?iss2\\_id=239&article\\_id=2856&article=6&title=An%20Up%20to%2016-Year%20Prospective%20Study%20of%20304%20Porcelain%20Veneers](http://www.quintpub.com/journals/ijp/abst_ract.php?iss2_id=239&article_id=2856&article=6&title=An%20Up%20to%2016-Year%20Prospective%20Study%20of%20304%20Porcelain%20Veneers)

*Independent commentary by Associate Professor Nick Chandler and the Department of Oral Rehabilitation, University of Otago*

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## Methamphetamine abuse and dentistry: A review of the literature and presentation of a clinical case

**Authors:** Goodchild JH et al

**Summary:** The dental presentation of a 'meth' patient includes xerostomia, rampant caries and evidence of bruxism. This has been termed 'meth mouth', although some consider the term overused. The drugs acidic nature and a high intake of carbohydrate rich soft drinks are implicated, while some point to the lack of oral hygiene and xerostomia as the main factors. The xerostomia may be worsened by other medications such as antidepressants, antipsychotics and antihistamines. At times of active drug use the patients are hyperactive and rarely stop to eat or drink. Rather than drinking water, non-diet soft drinks are favourite beverages. During and after drug use the individuals have a tendency to grind and clench their jaws.

**Comment:** This is a very good review of a relatively 'new' subject and it is followed by a brief but interesting case report. The pharmacology is reviewed and the increasing scope of the problem (at least in the USA) is outlined. The article comments that often the only treatment is extraction and dentures, with one news report saying 'meth mouth' will create a new young generation of denture wearers.

**Reference: Quintessence International 2007;38:583-590**  
<http://www.quintpub.com/index.php>



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## Are sugar-free medicines more erosive than sugars-containing medicines? An in vitro study of paediatric medicines with prolonged oral clearance used regularly and long-term by children

**Authors:** Maguire A et al

**Summary:** The erosive potential *in vitro* of 97 paediatric medicines was assessed. Endogenous pH was measured with a pH meter and titratable acidity using NaOH. Overall, 57% of the formulations had a pH of <5.5, below the critical pH for the dissolution of enamel. The sugar free paediatric medicines were no more erosive than the sugar containing variety, with the dose form being a more significant predictor of erosive potential.

**Comment:** Sugar containing medicines have become less common in recent years while effervescent and chewable tablets have increased. Acids may be added to improve flavour and also to promote the dispersal of medicines on contact with water. Thirty-six percent of the medicines tested were either gastrointestinal or central nervous system medicines. These are often for regular and long-term use and many of them are also used by older people. Sugar free medicines do not seem to have increased erosive potential, but *in vivo* research is necessary.

**Reference: International Journal of Paediatric Dentistry 2007; 17:231-238**

<http://dx.doi.org/doi:10.1111/j.1365-263X.2007.00826.x>

## Eye care habits of dentists registered in the United Kingdom

**Authors:** Chadwick RG et al

**Summary:** Four hundred dentists were selected at random from the UK Dentists Register of 2004 and sent a postal questionnaire. They were questioned on their eyesight status, interval since their last eye test and reason for attendance. Comments on their use of magnification and protective eyewear were included. The return rate was 63%, with most respondents being male and working in general dental practices. Dentists with known eyesight deficiencies were more likely to have regular eye examinations, but 16% failed to attend at least every 2 years. The mean age at which the dentists detected changes in their eyesight was 43.6 years (males) and 39.1 years (females). This was almost identical to the age at which they adopted magnification aids. Eye protection use was as low as 57%, even when using laboratory cutting equipment.

**Comment:** It has been recommended that all dentists have their eyesight tested every two years until age 50, when they are tested even more frequently. One study in a dental school setting found that eye injuries made up 10% of occupational injuries. It seems there is room for considerable improvement in eye protection among dental workers, who demonstrate a higher prevalence of eye infections than the general population. It is likely that the use of magnification aids mirrors their deteriorating eye accommodation. The data collected suggests that dentists require regular eye testing from age 40 onwards rather than 50.

**Reference: British Dental Journal 2007;203:(4 Epub ahead of print)**

<http://dx.doi.org/doi:10.1038/bdj.2007.748>

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