



# Dental Review™

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Issue 12 - 2008

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## Welcome to the latest edition of Dental Review.

As the season to be jolly approaches I have done my best searching the literature to find a Christmas-themed dentistry paper to discuss. The closest I have got is one on spontaneous smiles. I hope all Dental Review readers will indulge in this activity over the festive season, whether or not a video camera is running.

Kind regards,

**Nick Chandler**

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## Prophylaxis against infective endocarditis for dental procedures: summary of the NICE guideline

**Authors:** Wray D et al

**Summary:** The National Institute for Clinical Excellence (NICE) in the UK has developed a guideline 'Prophylaxis against infective endocarditis' (IE) ([www.nice.org.uk/CG064](http://www.nice.org.uk/CG064)). This paper presents a shortened form of the guideline and a cost-effectiveness assessment of antibiotic prophylaxis.

**Comment:** The findings and recommendations are sure to generate considerable discussion. Among the conclusions are the findings that there is no consistent association between dental procedures and IE, that regular toothbrushing almost certainly is a greater risk than a single dental procedure and that the effectiveness of antibiotic prophylaxis is unproven. Prophylaxis is not cost-effective and its use for dental procedures may cause more deaths through anaphylaxis than through no antibiotic prophylaxis. It will be interesting to see how the Heart Foundation's New Zealand recommendations evolve over the next few years.

**Reference:** *Br Dent J.* 2008;204:555-7

<http://www.nature.com/bdj/journal/v204/n10/abs/sj.bdj.2008.404.html>



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### Denture cream. An unusual source of excess zinc, leading to hypocupremia and neurologic disease

**Authors:** Nations SP et al

**Summary:** Four patients presented with neurological abnormalities together with low levels of copper and high levels of zinc in their blood. Chronic high intakes of zinc can lead to low levels of copper. The researchers discovered that the patients were wearing dentures and that they were using very large amounts of denture cream. Two brands of denture adhesives were then analysed for their zinc concentrations, as no other sources of zinc or causes of low levels of copper could be found.

**Comment:** Three patients had lower levels of zinc when denture cream was no longer used and two had neurological improvement following copper supplementation. The nature of the neurological problems the patients suffered from is not disclosed in the paper, but both creams tested contained zinc. The paper does not reveal if the patients wore one or two dentures or how frequently the cream was applied.

**Reference:** *Neurology*. 2008; 71:639-43

<http://tinyurl.com/67qxb1>

### Permanent tooth development in children with cleft lip and palate

**Authors:** Borodkin AF et al

**Summary:** The researchers examined charts and panoramic radiographs of 6- to 13-year-old patients with cleft lip and palate and those of an age- and gender-matched group of controls. The study showed that the presence of any cleft caused a delay in tooth development of about 0.5 years, whether one or both sides of the face were affected. There was no greater delay on the side closest to a cleft, as individual tooth delays seemed to be symmetrical. The teeth most delayed were both the maxillary premolars and the second molar, showing the effects of the cleft some distance from the cleft area itself.

**Comment:** While efforts were made to have the examiners work 'blind', the presence of clefts would be noticeable on the radiographs; the authors report no systematic bias in their analyses. No racial/ethnic data were recorded. There is controversy in the literature regarding whether these patients 'catch-up' in the pre-teenage years.

**Reference:** *Pediatr Dent*. 2008;30:408-13

[http://www.aapd.org/searcharticles/article.asp?ARTICLE\\_ID=2273](http://www.aapd.org/searcharticles/article.asp?ARTICLE_ID=2273)

### The cracked tooth conundrum: Terminology, classification, diagnosis, and management

**Authors:** Kahler W

**Summary:** A cracked tooth should always be considered when diagnosing the reason for a tooth which is sensitive to bite on or which responds to a temperature change. Cracks may arise in the crowns of teeth or from inside the root, and they may involve healthy or root treated teeth.

**Comment:** This is a long overdue review of a quite common clinical problem. It carefully considers the terminologies and classifications involved; 80 papers are cited, with early work on this subject appearing in the 1950s. The paper also features a very useful decision flow chart which helps when considering treatment options.

**Reference:** *Am J Dent*. 2008;21:275-82

<http://www.amjdent.com/Archive/Abstracts/October 2008 Abstracts.htm>

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

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## Tooth display and lip position during spontaneous and posed smiling in adults

**Authors:** Van Der Geld P et al

**Summary:** This work compared tooth display and other factors in a posed smile (such as might be used in orthodontic diagnosis using a photograph) and in a spontaneous smile of joy. The subjects were a randomly selected group of males from those working on an air force base. The spontaneous smile was recorded with a video camera while the subjects watched an amusing film. The posed smile had reduced tooth display, lip-line heights and width.

**Comment:** Spontaneous smiles differ from photographic posed smiles and represent how patients are perceived socially. The fast onset and loss of spontaneous smiles make them impossible to capture instantaneously with a still camera. The authors cite four publications which support the feasibility of using video recordings in clinical practice for smile-capture purposes.

**Reference:** *Acta Odontol Scand.* 2008;66:207-13

<http://www.informaworld.com/smpj/content~content=a794948295~db=all~order=page>

## Sickle cell toothache

**Authors:** Ali R et al

**Summary:** A young African patient was admitted to hospital with a fever of unknown cause. His medical history included hepatitis C and sickle cell anaemia. He developed toothache in a caries-free, unrestored molar tooth which had no evidence of a crack. The tooth did not respond to pulp tests, and the patient declined treatment and was advised about analgesics. One month later and out of hospital he developed a swelling and had an abscess drained by an emergency dentist.

**Comment:** This letter alerts us to an unusual cause of toothache. It is thought that sickle cells become trapped in the pulp and impede blood flow; how this can lead to infection so rapidly in a healthy tooth is unclear. The item cites a publication in which patients with sickle cell disease spontaneously developed pulpitis.

**Reference:** *Br Dent J.* 2008;205:524

<http://www.nature.com/bdj/journal/v205/n10/full/sj.bdj.2008.990.html>

## Radiographic investigation of location and angulation of curvatures in human maxillary incisors

**Authors:** Willershausen B et al

**Summary:** A total of 286 extracted maxillary incisors were radiographed and the distance from the cemento-enamel junction (CEJ) to the first curvature in the root canal and the angle there were recorded. The mean distance between CEJ and first curvature was 10.4 mm for centrals and 11.1 mm for laterals. Over 94% of the centrals and all of the laterals exhibited curvatures.

**Comment:** Endodontic teaching starts with lectures on root canal morphology and an important lesson is that there is no such thing as a straight root canal. There are little data in textbooks on the location and distances to root canal curvatures. This paper examines teeth which we all think of as straight, but curvature started at about 10 mm from the CEJ. There are obvious implications when placing posts, as well as during root canal treatment itself. The lateral incisor is not as simple as we think.

**Reference:** *J Endod.* 2008; 34:1052-6

<http://tinyurl.com/65w5nx>

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### **In vitro fluoride release and the antimicrobial effect of glass ionomers containing chlorhexidine gluconate**

**Authors:** Hoszek A et al

**Summary:** Glass ionomer luting cement powder was added to 10% chlorhexidine and the antibacterial effect of the set specimens towards mutans streptococci evaluated in the laboratory. The experimental material was designed as a form of short term varnish for patients with elevated caries risk. The chlorhexidine increased the antibacterial properties of the material but decreased its release of fluoride.

**Comment:** Fluoride release from glass ionomers may be important to prevent secondary caries. Adding chlorhexidine to glass ionomer made as a filling material resulted in poor mechanical qualities. Any anti-cariogenic effect will depend on the release of chlorhexidine and fluoride and how long the material is retained. The addition of chlorhexidine or other antibacterial compounds to glass ionomer seems a fertile area for further research.

**Reference:** *Oper Dent.* 2008;33-6:696-701

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### **A clinical evaluation of all-ceramic bridges placed in UK general dental practices: first-year results**

**Authors:** Crisp RJ et al

**Summary:** Fixed all-ceramic (zirconia) bridges (Lava) were made for adult patients. The work was then reviewed at least a year after placement by the dentist involved and a calibrated second examiner. All of the 38 bridges were performing well, with one having a chip in its veneering porcelain which the patient was not aware of. Two molar abutments had been root canal treated after bridge placement – both had large amalgam cores at the start of treatment.

**Comment:** CAD-CAM techniques and new all-ceramic materials help to satisfy the patient demand for metal free restorations. While only a one-year result, this is 'real world' research with the work done by 4 experienced dentists from around the UK. The bridges were made by the same technician using identical laboratory procedures and cemented with the same material. Thirteen of the bridges were 3-unit designs to replace anterior teeth and the remaining 25, which included three of 4-units, replaced premolars or molars. The requirement for endodontic treatment is comparable to that in other trials and suggests that the access cavities cut do not excessively compromise the strength of the bridge material. The trial will continue for a further 2 years.

**Reference:** *Br Dent J.* 2008;205:477-82

<http://www.nature.com/bdj/journal/v205/n9/abs/sj.bdj.2008.937.html>

### **Survival of 534 incisors after intra-alveolar root fracture in patients aged 7-17 years**

**Authors:** Cvek M et al

**Summary:** This paper reports the survival rate of 534 teeth with horizontal root fractures. Fracture location was categorised into four sites. Some 78% of teeth demonstrated healing; a conclusion was that survival was high for up to 10 years of observation. The highest frequency of tooth loss was in teeth fractured in the cervical part of the root. With these teeth excluded, survival was 88%.

**Comment:** Many readers will recognise the name Cvek from his work on trauma research, particularly with calcium hydroxide and its use in creating apical barriers and for pulp capping procedures. The 'Cvek pulpotomy' is well known and must have saved thousands of pulps/teeth around the world. Cvek passed away in June and this paper is his last article, another very impressive long-term follow-up clinical study. It included all teeth with fractures of this type treated in a single Department in Stockholm between 1959 and 1995.

**Reference:** *Dent Traumatol.* 2008;24:379-87

<http://www.ingentaconnect.com/content/mksg/edt/2008/00000024/00000004/art00008>

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