

Dental Review™

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Issue 18 - 2009

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Welcome to the Christmas edition, which starting with an item about alcopops has a slightly festive flavour. Here also are items on alcohol-related facial injuries and gastritis. Touch wood none of the readership will encounter these problems over the holiday period. A special thank you to readers who have called with comments on items presented over the year. It is encouraging to know that the Review is widely read by a growing audience, and that the sometimes eclectic mix of material is thought-provoking.

Kind regards,

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The erosive potential of some alcopops using bovine enamel: An *in vitro* study

Authors: Ablal MA et al

Summary: Alcoholic soft drinks contain citric acid as well as alcohol and so may have erosive potential. This experiment tested 4 alcopops and orange juice (positive control) and deionised water (negative control) on slabs of bovine enamel. Three methods were used to determine their effect on the enamel. Enamel loss occurred with all the alcopops and the positive control.

Comment: The pH values of the alcopops in this report are quite scary, being between pH 3 and 3.75. When one considers these drinks are aimed at a young and mostly female market this must be of concern to dentists, especially when even more enamel erosion will arise as a result of vomiting because of the alcohol content.

Reference: *J Dent* 2009;37:835-9.

<http://www.jodjournal.com/article/S0300-5712%2809%2900161-4/abstract>



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Ex vivo accuracy of an apex locator using digital signal processing in primary teeth

Authors: Leonardo MR et al

Summary: This experiment involved passing instruments into multirrooted extracted primary teeth (with or without apical resorption) and then measuring them again using an apex locator while fixed in a saline-soaked sponge. The locator was able to accurately determine the root canal length.

Comment: While not replacing radiographs, modern apex locators are known to be accurate and to reduce the number of radiographs taken during root canal treatment of permanent teeth. In children lingual or buccal physiological resorption can make radiographic assessment difficult and excessive numbers of radiographs must be avoided. There may be a risk of underfilling (reducing success) or overinstrumentation, which could damage the developing permanent tooth. There is little data about apex locator use in the primary dentition so the results of this laboratory study are encouraging.

Reference: *Pediatr Dent* 2009;31:320-2.

<http://tinyurl.com/yb3jdr8>

The role of the health services in the prevention of alcohol-related facial injury

Authors: McHugh EE et al

Summary: This paper reports the increasing alcohol-related problems faced in Irish society with the focus on facial injury. Ireland's per capita alcohol consumption is the third highest in Europe. Tables are presented on the aetiology and distribution of facial fractures. Increased funding, legislative change and involvement of the media are seen as keys to assist the health services with the problem.

Comment: This paper has amazing parallels with events and current debate on the alcohol issue in New Zealand. The minimum legal drinking age in Ireland is 18. Females aged 18-24 are the most likely to engage in high risk drinking but males are more likely to binge drink overall. While education is widely implemented as a preventive measure it lacks effectiveness.

Reference: *Surgeon* 2009;7:307-15.

<http://tinyurl.com/ycarc4g>

Dental implants in the diabetic patient: Systemic and rehabilitative considerations

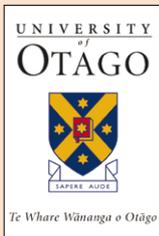
Authors: Michaeli E et al

Summary: Diabetes is the most prevalent endocrine disease causing huge disability and morbidity. Some recent publications suggest implant success in diabetic patients is similar to that of the general population, while others and animal experiments show an increased risk of implant failure. This review outlines possible mechanisms for failure while noting that the literature on implant success in diabetics remains scarce.

Comment: This review seems to raise as many questions as answers. It may be difficult to judge the severity and even duration of the disease in a patient and these will clearly have an impact. A history of impaired wound healing, especially in the mouth, may be relevant, but the authors were unable to find any literature to relate implant treatment outcome to target organ damage in the retina or kidney.

Reference: *Quintessence Int* 2009;40:639-45.

<http://tinyurl.com/ybzswss>



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

Merry Christmas and happy new year from all of us at Research Review

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Petra C Guess, Ricardo Zavanelli, Nelson Silva and Van P Thompson, New York University, March 2009

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A revised classification for direct tooth-colored restorative materials

Authors: Mount GJ et al

Summary: Composites and glass ionomers were introduced in the 1960s and 1970s. They have been greatly modified and other groups of materials developed to give us an array of materials with diverse properties. A classification was introduced in 1994 but further changes have inspired this update. Is adhesion or strength the primary concern? A list of characteristics provides an evidence base on materials to use for our patients.

Comment: The first white fillings, the silicates, are now 100 years old. While not that old I suspect many of us use tooth-coloured materials that we have become familiar with over the years and have given relatively little thought to their recent evolution. Time spent reading this interesting paper may reveal what dinosaurs some of us have become!

Reference: *Quintessence Int* 2009;40:691-7

<http://tinyurl.com/yesxs38>

DIAGNOdent laser fluorescence assessment of endodontic infection

Authors: Sainsbury AL et al

Summary: Thin (but rigid) sapphire probes for periodontal use allow the DIAGNOdent to identify subgingival calculus. In this experiment they were used to elicit fluorescence emissions in infected and uninfected root canals. Biofilms of *E. faecalis* and *S. mutans* in root canals were compared to bacterial cultures, pulp tissues and sound dentine.

Comment: The ability to determine if a root canal was infected or not in real-time would help us decide when canal preparation was complete. It would be particularly useful if we wanted to treat patients in a single visit. The problem (common with almost everything in laser endodontics) is the need for long and flexible laser tips which can reach the depths of canals.

Reference: *J Endod* 2009;35:1404-7.

<http://www.jendodon.com/article/S0099-2399%2809%2900615-3/abstract>

Topical anesthesia for rubber dam clamp placement in sealant placement: comparison of lidocaine/prilocaine gel and benzocaine

Authors: Yoon RK, Chussid S

Summary: Sealant placement is a highly moisture-sensitive technique and a rubber dam is recommended. Clamp placement may be uncomfortable for some young patients, and this experiment compared the topical anaesthetic Oraqix (2.5% lidocaine, 2.5% prilocaine, Dentsply) with 20% benzocaine gel in a split-mouth study. Oraqix was more effective in patients older than 9 years, but more work is needed to determine its value for this purpose in younger individuals.

Comment: The sample size was small (45) and this will need to be considered in further studies. Oraqix sets into an elastic gel at body temperature and remains in the gingival sulcus, so it may be useful for many procedures which do not need conventional local anaesthesia.

Reference: *Pediatr Dent* 2009;31:377-81.

<http://tinyurl.com/ychgzm>

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Periodontal therapy improves gastric *Helicobacter pylori* eradication

Authors: Zarić S et al

Summary: Elimination of *Helicobacter pylori* reduces the risk of gastric ulcer relapse and rebleeding. This is carried out with a triple therapy of antibiotics, antimicrobials and proton pump inhibitors. Unfortunately, the organism is not always eliminated in a single treatment. People with *H. pylori* in their mouths have a lower rate of eradication of the organism after triple therapy. This study found a strong association between the elimination/persistence of oral and gastric *H. pylori*. Combining triple therapy with periodontal care increased successful eradication from 47.6% to 77.3%.

Comment: Routine check-ups of dental condition are recommended when patients undergo *H. pylori* reduction therapy and periodontal treatment should improve the clinical outcome. This also has the potential to reduce the risk of development of gastric cancer.

Reference: *J Dent Res* 2009;88:946-50.

<http://tinyurl.com/ya3afnk>



New Zealand Dental Therapists' Association
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How dentists diagnose and treat defective restorations: evidence from the Dental Practice-based Research Network

Authors: Gordan VV et al

Summary: A questionnaire was sent to 901 dentists in a practice network who reported doing some restorative dentistry. It included clinical case scenarios with text and clinical photographs of defective restorations. Dentists were asked what treatment if any they would provide. Logistic regression was used to study associations between surgery (repair or replace decisions) and the dentist, practice and patient characteristics. Sixty-five percent of dentists would replace a composite with a defective margin on dentine, and 49% would repair it if the margin was on enamel. Most (52%) would not intervene at all if the restoration in the scenario was an amalgam. Dentists who did not routinely assess caries risk were more likely to intervene surgically. The treatment chosen was strongly related to type of practice – dentists in solo or small private practices were more likely to intervene surgically.

Comment: In some studies half the restorations for adults provided in general practices are replacements. As the population gets older the “cycle of restorations” will change, and the age at which patients receive their first restorations takes on greater significance. Our lack of standards to determine restoration failure tend to favour cutting things, and whether recurrent lesions are active or arrested is often not considered.

Reference: *Oper Dent* 2009;34:664-73.

<http://tinyurl.com/yapek93>

Missing posterior teeth and risk of temporomandibular disorders

Authors: Wang MQ et al

Summary: These workers investigated 741 individuals to determine whether the number of missing posterior teeth, their distribution, and patient age and gender were associated with temporomandibular disorders (TMD). The patients were aged 21–60 years and approximately equal numbers were symptom-free or complained of TMD. Logistic regression analysis was used to determine statistical significance. Individuals who lost posterior teeth, especially with fewer missing teeth but in more quadrants, had a higher prevalence of TMD, especially young women.

Comment: The results of this work support the effect of abnormal occlusion in the aetiology of TMD. How long the patients had suffered from TMD and when the teeth had been lost (and why) were not included in the study. Whether correcting the occlusal changes that may arise when teeth are extracted would help reduce TMD is also unknown.

Reference: *J Dent Res* 2009;88:942-5.

<http://jdr.sagepub.com/cgi/content/abstract/88/10/942>

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Another useful summary from Research Review takes a closer look at general oral health. This quarterly publication will be ideal for those working as hygienists or dental technicians or for anyone with a keen interest in evidence based oral health management. Expert commentary will be supplied by Dr Jonathan Leichter, DMD, Cert Perio (Harvard), University of Otago.

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