

Questions and answers in Evidence-based Dentistry

Volume 13

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As in previous years we are highlighting the guidelines, questions and answers addressed by summaries in Evidence-based Dentistry. Evidence levels¹ are only given for those papers achieving level 3A and above.

Evidence-Based Dentistry (2012) **13**, 123-127. doi:10.1038/sj.ebd.6400905

Summaries

Topic	Question	Answer	Evidence level	Page
Caries				
	What is the effectiveness of fluoride supplements (tablets, drops, lozenges and chewing gums) for preventing dental caries in children?	This review suggests that the use of fluoride supplements is associated with a reduction in caries increment when compared with no fluoride supplement in permanent teeth. The effect of fluoride supplements was unclear on deciduous teeth. When compared with the administration of topical fluorides, no differential effect was observed. The included trials provide weak evidence about the efficacy of fluoride supplements.	1a	112
	Which type of sealant is retained longest?	This meta-analysis suggested that resin-based sealants can be recommended for clinical use. However, the faster and less error-prone clinical application of light-polymerising materials, makes them the preferred choice for daily dental practice.	1b	9–10
	Does chlorhexidine varnish reduce dental caries in at-risk adults over a period of 13 months?	A 10% chlorhexidine varnish coating did not show a reduction in caries in an adult population. This trial does not support the use of this concentration of chlorhexidine varnish to reduce caries in the adult population.	1b	45
	In newborn children do home visits compared with telephone contacts to mothers reduce early childhood caries when compared with a reference group of children?	Both home visits and telephone contacts conducted six-monthly from birth are effective in reducing caries compared to routine care by 24 months. There is only weak evidence that home visits are effective at reducing dental decay.	2b	39–40
	In caries-active adolescents how effective is a 5,000 ppm F dentifrice compared with a 1,450 ppm F dentifrice in preventing caries?	The 5,000 ppm toothpaste appears to be an important vehicle for the treatment and prevention of caries in patients with a high caries risk. 5,000ppm toothpaste may have a greater impact on individuals who do not use toothpaste regularly or do not brush twice a day.	2b	43–44
	What is the efficacy of 5% fluoride varnish in preventing decayed and filled surfaces increments among high-caries-risk children?	The results of this study suggest that applications of 5% NaF varnish can be recommended as a public health measure for reducing caries incidence in this high-caries-risk population.	2b	78–79
	Is there a relationship between asthma and dental caries?	Evidence from this review suggests that asthma doubles the risk of caries in both primary and permanent dentition. There may be overestimation of the relationship due to publication bias. Physicians and dentists should recommend preventive measures against caries for people with asthma.	3a	41
	Does caries progress in subjects who consume xylitol based candies or lozenges for at least one year?	Two of the three studies found a lower caries increment in the xylitol-based groups. The third found no difference. All were deemed to have high risk of bias.	N/A	7–8
Dental radiography				
	Can exposure from dental x-rays increase the risk of meningioma?	This study identified a possible association between dental x-rays and increased risk of meningioma. However, while it is generally agreed that exposure to artificial sources of radiation should be kept to a minimum, the numerous methodological and statistical issues present appear to render the study results unreliable.	N/A	37–38

Endodontics				
	What are the effects of irrigants used in the non-surgical root canal treatment of mature permanent teeth?	From clinical trials there is no quantitative evidence that suggests that one irrigant is better than another during root canal treatment.	1a	107
	In patients requiring endodontic surgery does endodontic microsurgery (EMS) result in better outcomes than traditional root-end surgery (TRS)?	On the basis of the meta-analysis presented, the probability of success for EMS proved significantly greater than the probability of success for TRS	2a	108
	Does endodontic microsurgery (EMS) have better outcomes than contemporary root-end surgery (CRS)?	The probability for success for EMS proved to be significantly greater than the probability for success for CRS, providing best available evidence on the influence of high-power magnification rendered by the dental operating microscope or the endoscope.	2a	109
	What is the diagnostic accuracy of available radiographic methods in use for imaging the periapical bone tissue area?	No conclusions can be drawn regarding the accuracy of radiological examination in identifying various forms of periapical bone tissue changes or about the pulpal condition.	N/A	106
Health promotion				
	Are one-to-one dietary interventions in a dental care setting effective in changing behaviour?	There is some evidence that one-to-one dietary interventions in the dental setting can change behaviour. The evidence is greater for interventions aiming to change fruit/vegetable and alcohol consumption than for those aiming to change dietary sugar consumption.	1a	42
Methodology				
	What is the quality of published qualitative research in dentistry and which aspects of quality require attention in future research?	The quality of much of the published qualitative dental research is mediocre when assessed using the CASP framework, and several specific areas have been identified for targeting improvement, including better methodological rigour and increased detail in reporting.	N/A	122
Oral Cancer				
	What is the prevalence of caries, periodontal disease and local and systemic odontogenic infections in cancer survivors?	Patients post-radiotherapy had the highest DMFT compared to those who were post-chemotherapy and healthy controls. One of the most important risk factors leading to problems is dental or periodontal disease that already exists, and poor oral care during cancer therapy. Initiating preventive measures before cancer therapy begins is important.	2c	70–73
	Is there a relationship between maté drinking and oral and pharyngeal cancers?	This meta-analysis of case-control studies supports the hypothesis of an association between maté drinking and risk of cancer of the oral cavity and pharynx. However, little is known about whether this increased risk is due to the high temperature of the beverage when consumed or due to certain carcinogenic constituents that are present in maté. More studies are needed before a conclusion can be made on the oral and pharyngeal carcinogenic risk of maté to humans.	N/A	18–19
Oral Medicine				
	How effective are systemic treatments for recurrent aphthous stomatitis (RAS)?	Systemic interventions are often reserved for those patients who have been unresponsive to topical treatments, and therefore may represent a select group of patients. No single treatment was found to be effective so the results remain inconclusive in regard of the best systemic intervention for RAS. This is likely to reflect the limited number of poor quality trials, rather than the true effect of the intervention.	1a	120
	Which topical treatments are effective for the management of dry mouth?	There is no strong evidence from this review that any topical therapy is effective for relieving the symptoms of dry mouth.	1b	16–17
	Is dexamethasone ointment safe and effective for the treatment of recurrent aphthous ulceration?	This short study revealed that dexamethasone ointment was safe and efficient in reducing ulcer size, alleviating ulcer pain and hastening ulcer healing in patients with recurrent aphthous ulceration.	1b	75
	In patients undergoing endodontic treatment for pulpal necrosis is ibuprofen/acetaminophen more effective in managing post-operative pain than ibuprofen alone?	Adding acetaminophen to a regimen of 600mg of ibuprofen every six hours does not seem to provide any additional benefit for pain relief to symptomatic necrotic teeth.	1b	105
	Is honey effective in preventing oral mucositis in cancer patients?	This review highlights the poor quality of the available studies so the finding that honey may be beneficial for the prevention of mucositis in patients undergoing treatment for head and neck cancer is only supported by weak and unreliable evidence.	2a	74

	Does the use of a tongue protector reduce pain in patients with burning mouth syndrome (BMS)?	Although the study found a statistically significant improvement these findings need to be reproduced in larger series, over longer periods of time and involving an adequate sample of patients.	2b	59–60
	Are mouthrinses effective in reducing oral malodour?	There is limited evidence that mouth rinses with active ingredients (chlorhexidine and cetyl pyridinium chloride with zinc) may be effective in reducing oral malodour.	2b	121
	What is level of toothbrush contamination and does it have a role in disease transmission?	The selected studies found that toothbrushes of healthy and oral diseased adults become contaminated with pathogenic bacteria from dental plaque, design, environment or a combination of factors. There are no studies that specifically examine toothbrush contamination and the role of environmental factors, toothbrush contamination, and vulnerable populations in the hospital setting (eg critically ill adults) and toothbrush use in nursing clinical practice.	N/A	111
Oral Surgery				
	In patients with a history of illicit drug and/or alcohol use and facial injuries requiring follow up does personalised motivational intervention (PMI) provided during the period reduce risky behaviours?	A culturally competent, motivational intervention integrated into the care of vulnerable patients with facial injury can reduce illicit drug use behaviours. Subgroups of injured patients appear to benefit most from such personalised motivational interventions. A better articulation of target populations, intervention content and delivery would allow for directed interventions and an appropriate focusing of limited time and health care resources.	1b	87–88
	Is chlorhexidine effective for the prevention of alveolar osteitis (AO)?	This review could not identify sufficient evidence supporting the use of chlorhexidine for the prevention of AO. Two protocols out of six did show significant decreases but the evidence was weak.	2a	91
	Is there a difference in outcome between retrograde root fillings with IRM and super-EBA?	This trial suggests that both IRM and Super-EBA can serve as satisfactory retrograde root-filling materials.	2b	20
	In patients with coronary artery disease on acetylsalicylic acid (ASA) therapy requiring dental extraction does stopping ASA affect degree of bleeding?	There was no difference in the amount of bleeding that occurred during tooth extraction between patients who continued ASA therapy and patients who suspended their ASA therapy. The platelet reactivity test demonstrated a reduction in platelet aggregation in the ASA therapy group, but this was without clinical consequence during extraction	2b	89–90
	Are screening and intervention programmes for dental and facial injuries effective at reducing or preventing domestic violence in adults?	No articles met these criteria so the authors were unable to draw a firm conclusion from the available information. Outcome measures in this area are always going to be difficult to assess and self-report is somewhat unreliable, however, it is unfortunate given the prevalence of domestic abuse that more good quality work has not been done in this area, as there is clearly a need for it.	N/A	86
	Are tooth extractions for dental infections compared with extractions for non-infection reasons associated with non-fatal myocardial infarction (MI)?	While the review found an increased association between MI and tooth extraction no conclusions about the nature of the relationship can be made.	N/a	110
Orthodontics				
	What is the effect of functional appliances on mandibular growth?	The analysis of the effect of treatment with functional appliances compared with an untreated control group showed statistically significant skeletal changes but these are unlikely to be clinically significant.	1a	23
	Is a vacuum-formed retainer more effective than a Hawley retainer in maintaining arch width and incisor alignment following orthodontic treatment?	There is no statistical or clinically significant difference over a 12-month period between Hawley and vacuum-formed retainers when worn full-time. Therefore, other factors may be more important when deciding on the more appropriate form of retainer.	1b	24
	What does systematic review evidence say about the management of temporomandibular joint disorders (TMD)?	There is some evidence that occlusal appliances, acupuncture, behavioural therapy, jaw exercises, postural training, and some pharmacological treatments can be effective in alleviating pain in patients with TMD. Evidence is insufficient for the effect of electrophysical modalities and surgery. Occlusal adjustment seems to have no effect according to the available evidence. One limitation of most of the reviews found was the considerable variation in methodology between the primary studies made definitive conclusions impossible.	1b	27–28
	In patients with palatally displaced maxillary canines (PDCs) is cervical pull headgear (HG) or rapid maxillary expansion and cervical pull headgear (RME/HG) more effective than no treatment in increasing the rates of eruption?	The optimal approach to interception of the ectopic maxillary canine is unclear Use of cervical pull headgear may increase the likelihood of successful eruption, although further research is required to confirm this.	1b	81

TOOLBOX

	Does the use of MI Paste Plus prevent or reduce the occurrence of white spot lesions (WSLs) in patients with orthodontic appliances compared to a placebo paste?	MI Paste Plus prevented and decreased the number of WSLs. However due to limitations in the trial this may not be sufficient to advocate use as there is good evidence for already established cheaper, easier methods.	1b	117
	What are the survival times of Hawley (HR) and clear overlay orthodontic retainers (CORs)?	This small trial suggests that the survival times of the HRs and CORs were not statistically significantly different. Therefore, clinicians could advise their patients to wear either of the two retainers without taking breakage into consideration. Both types fracture but patients have more losses with the clear retainer.	1b	119
	Does interceptive treatment in the mixed dentition prevent the impaction of the palatally displaced maxillary permanent canine (PDC)?	To obtain reliable scientific evidence as to whether interceptive treatment prevents impaction of PDC and which treatment modalities are the most effective, better controlled and well-designed RCTs are needed. Future studies should also include assessment of patient satisfaction and pain experience as well as analysis of the costs and side-effects of treatments.	2c	25–26
	What are the current and emerging technologies to prevent and reverse post-orthodontic white spot lesion (WSL)?	A regular professional application of fluoride varnish around the bracket base during the course of orthodontic treatment has best evidence to support use. For the treatment of post-orthodontic WSL, home-care applications of a remineralising cream, based on CPP-ACP, as adjunct to fluoride toothpaste could be beneficial but the findings were equivocal. Only studies with surrogate endpoints are available for technologies such as sugar alcohols and probiotics.	N/A	21–22
Paediatric Dentistry				
	In children does the use of analgesics prior to dental treatment reduce post-operative pain?	This review found that pre-operative analgesics may reduce pain after placing orthodontic separators. Due to the limitations of the included studies, it was unclear whether or not the use of pre-operative analgesics reduces pain during and/or after extractions or restorative dental procedures.	1a	104
	Which sedative agents are effective for behaviour management in children who are receiving dental care in order to allow completion of dental treatment?	There is some weak evidence that oral midazolam is an effective sedative agent for children undergoing dental treatment	1b	76–77
	When placing fissure sealants does rubber dam compared with cotton wool rolls reduce stress and treatment times?	The operator found cotton rolls more stressful to use, however, the children's results showed that they did not find either technique more stressful.	2b	48
	In permanent teeth with open apex is calcium hydroxide or MTA more effective in inducing apexification?	Calcium hydroxide and MTA may be suitable materials for the treatment of the immature teeth. However, more studies evaluating the factors influencing success and failure in teeth should be conducted.	N/A	11
	Are individuals born with isolated oral clefts more likely to have dental anomalies than unaffected individuals?	The evidence suggests that individuals who are born with isolated oral clefts are more likely to have dental anomalies in the permanent dentition than those with no oral clefts.	N/A	82–83
	What measures have been used to assess children's dental anxiety?	This review brings together the various measures of child dental anxiety which clinicians and researchers may find of value in their work. However readers have additional issues to discuss and contemplate within their teams before arriving at their final selection for their assessment purpose.	N/A	102
Periodontal disease				
	Is there an association between overweight or obese adults and periodontitis?	The review support an association between BMI overweight and obesity and periodontitis, although the magnitude is unclear. There is insufficient evidence to provide clinicians with guidelines on the clinical management of periodontitis in overweight and obese patients.	1a	12–13
	Is it beneficial to floss in addition to toothbrushing to help prevent dental caries and periodontal disease?	There is some evidence from 12 studies that flossing in addition to toothbrushing reduces gingivitis compared to toothbrushing alone. There is weak, very unreliable evidence from 10 studies that flossing plus toothbrushing may be associated with a small reduction in plaque at one and three months. No studies reported the effectiveness of flossing plus toothbrushing for preventing dental caries.	1b	5–6
	Does 0.05% chlorhexidine (CHX) and 0.05% cetyl-pyrimidine chloride (CPC) mouth rinse use in patients with moderate to severe chronic periodontitis reduce plaque and gingivitis?	A statistically significant difference was produced by the new mouthwash when compared to a placebo but clinicians should consider whether this result would be clinically significant for their own patients.	2b	52–53
	Are certain nutrient deficiencies associated with periodontal disease in elderly people?	The quality of the studies was too low to make reliable conclusions and therefore an association of vitamin B complex, vitamin C, vitamin D, calcium and magnesium deficiencies with periodontal disease in elderly people is not evident.	N/A	14–15

	What is the rate of tooth survival and clinical attachment level gain, probing pocket depth reduction and gingival recession increase, of teeth affected by periodontitis related intra-bony defect, 12 months after conservative periodontal surgery?	The treatment of intrabony defect with conservative surgery is associated with high tooth retention and improvement of periodontal clinical parameters. Clinical performance may vary according to the type of surgical flap used.	1a	115
	Is there any difference in gingival health outcomes for single-visit scale and polish when it is carried out at 6-, 12-, or 24-month intervals?	This trial did not identify any differences in gingival health associated outcomes for single-visit scale and polish provided at 6-, 12- and 24-month frequencies for healthy patients. However, the results are not conclusive and larger trials with more comprehensive measurements are needed	1b	114
	Do everyday oral activities result in bacteraemia?	What is clear from this review is that there is no good evidence that everyday oral activities increase the likelihood of systemic bacteraemia.	2b	80
Restorative dentistry				
	Do ceramic inlays have better longevity, aesthetic qualities and less postoperative discomfort than other restorative materials for permanent teeth?	Ceramic materials perform as well as alternative restorative materials for use as inlay restorations. However, a lack of long-term data means that this conclusion can only be supported for periods up to one year for longevity and 57 months for colour match.	1b	49
	What are the most effective treatments for peri-implantitis?	There is no reliable evidence suggesting which could be the most effective interventions for treating peri-implantitis. This is not to say that currently used interventions are not effective. Larger well-designed RCTs with follow-up longer than one year are needed.	1b	50–51
	Does platform switching preserve alveolar bone?	With only one long-term study available, the evidence supporting the use of platform-switching to preserve marginal bone level is certainly not definitive, but the results from this meta-analysis and other, more recent studies suggest this approach may preserve vertical crestal bone levels.	1b	56–57
	In patients requiring implant-supported overdentures do splinted implants have better outcomes compared with unsplinted implants?	This limited systematic review, concluded that there was no significant difference between the two different designs of implant-supported overdentures with respect to the soft tissue health status or patient satisfaction, although the bar-supported overdentures have been shown to need less prosthetic maintenance.	2b	54-55
	This systematic review update seeks to answer the question whether, in patients with carious cavities of any class in primary and permanent teeth, ART restorations with high-viscosity GIC have a higher failure rate than amalgam restorations placed with conventional rotary instruments, in tooth cavities of the same size, type of dentition and follow-up period after one or more years.	The current evidence indicates that the failure rate of high-viscosity GIC/ART restorations is not higher than, but similar to that of conventional amalgam fillings after periods longer than one year. These results are in line with the conclusions drawn during the original systematic review. There is a high risk that these results are affected by bias, and thus confirmation by further trials with suitably high numbers of participants is needed.	N/A	46-47
Temporomandibular disorders				
	Do psychosocial interventions alleviate chronic orofacial pain?	There is weak evidence to support the use of psychosocial interventions for chronic orofacial pain.	1a	58
	How effective is ultrasonography in detecting disc displacement of the temporomandibular joint?	The diagnostic efficacy of ultrasonography is acceptable and can be used as a rapid preliminary diagnostic method to exclude some clinical suspicions. However, positive ultrasonographic findings should be confirmed by magnetic resonance imaging. Also, the ability of ultrasonography to detect lateral and posterior displacements is still unclear.	2b	84-85

1. Richards D. Not all evidence is created equal – so what is good evidence? *Evid Based Dent* 2003; **4**: 17–18.