

Questions and answers in Evidence-based Dentistry volume 11

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As in previous years, we highlight here the guidelines, questions and answers addressed by summaries in Evidence-based Dentistry.¹⁻⁸

Evidence levels⁹ are only given for those papers that achieved level 3A and above.

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Clinical Recommendations		
Topic Area		Page
Oral Cancer	Evidence-based clinical recommendations regarding screening for oral squamous cell carcinomas	101

Dental Evidence-based topics (DEBTs)			
Topic area	Question	Answer	Page
Restorative dentistry	In adult patients requiring a two surface or larger restoration on a posterior tooth, is a crown or onlay a better option than a composite or amalgam restoration for tooth survival?	There is no high quality evidence that supports or rejects the practice of placing a crown or onlay on a vital posterior tooth rather than a composite or amalgam restoration to ensure longer tooth survival.	116

Commentaries				
Topic	Question	Answer	Evidence level	Page
Caries	What is the relative effectiveness of fluoride toothpastes of different concentrations in preventing dental caries in children and adolescents?	This review confirms the benefits of using fluoride toothpaste in preventing caries in children and adolescents compared with placebo. However this is only statistically significant at fluoride concentrations of 1000 ppm and use for children aged under 6 years should be balanced with the risk of fluorosis. The relative caries preventive effects of fluoride toothpastes of different concentrations increase with higher fluoride concentration.	1A	6-7
	In children using topical fluorides what is the risk of developing fluorosis?	There should be a balanced consideration of the benefits of topical fluorides in caries prevention and the risk of the development of fluorosis. There is weak unreliable evidence that starting the use of fluoride toothpaste in children aged <12 months may be associated with an increased risk of fluorosis. The evidence if use begins between the age of 12 and 24 months is equivocal. If the risk of fluorosis is of concern, the fluoride level of toothpaste for young children (under 6 years of age) is recommended to be lower than 1000 parts per million (ppm).	1A	8-9
	Is sealant retention as good following tooth surface cleaning with a toothbrush compared with handpiece prophylaxis?	The results indicate that retention of sealants after a supervised toothbrush cleaning by the patient was at least as high as those associated with a traditional handpiece prophylaxis. These findings may translate into lower costs for materials, equipment and personnel.	1a	79-80
	In children and adolescents is chlorhexidine varnish effective in preventing caries?	Chlorhexidine varnish does not appear to be effective for caries prevention in children.	1b	108
	Is daily high dose xylitol chewing gum more effective than non-xylitol chewing gum at reducing plaque acidogenicity and salivary mutans streptococci?	This randomised clinical trial suggests that the use of high-dose xylitol chewing gum has beneficial effects on plaque pH and mutans streptococci in children at high risk of caries.	1b	109
	Is enamel matrix derivative as effective as calcium hydroxide for direct pulp capping of primary molars?	Direct pulp capping has been shown to be a successful technique where there is not carious exposure. Given the high treatment success rates of other techniques which are less invasive (indirect pulp cap, stepwise caries removal, partial caries removal or the Hall Technique), the clinician may wish to consider these options for asymptomatic primary molars with deep caries.	1b	45-6
	Which filling material should be used for the treatment of caries in the primary dentition?	There was insufficient evidence from trials to make any recommendations about which filling material to use.	2b	4-5

	Does casein phosphopeptide–amorphous calcium phosphate prevent caries?	There is preliminary evidence that casein phosphopeptide–amorphous calcium phosphate can prevent caries, but until its effectiveness has been quantified, practitioners should not rely on it as a primary preventive treatment.	2b	11-12
	Does dental prophylaxis provided at recall appointments reduce caries increments, or improve gingival health?	Dental prophylaxis at intervals of four months or more is not justified for the prevention of gingivitis in the general population.	2b	16-17
	Are glass ionomer cements as effective as resin-based fissure sealants when used on permanent teeth?	Glass ionomer cements and resin-based sealants exhibited significant caries preventive effects. This review found no evidence that either material was superior to the other in the prevention of caries. Therefore both materials appear to be equally suitable as fissure sealant materials.	N/A	10
Oral health promotion	Does motivational interviewing immediately before an oral health education session enhance the education effect?	Results suggest that motivational interviewing is effective at enhancing short term oral health behaviour change for people with severe mental illness and may be useful for the general population.	1b	14-15
	In routine care, does an evidence-based intervention, framed with psychological theory, improve patients' oral hygiene behaviour?	A simple, theory-based intervention delivered within the constraints of a primary care environment was more effective than routine care in influencing patients' oral hygiene cognitions, behaviour and health. As clinical outcomes were significantly better only in the cluster RCT, the impact of trial design on results needs to be explored further.	1b	41
	What health behaviour models are used in oral health promotion and are they effective?	There is a need to develop an effective model for chairside oral health promotion that incorporates this evidence and allows oral health professionals to focus more on the underlying social determinants of oral disease during the clinical encounter. There is potential to develop further the motivational interviewing approach within the oral health field.	N/A	13
Oral cancer	What are the reasons for delay in seeking help from a clinician among young oral cancer patients?	The study confirms gaps in understanding and awareness of oral cancer. Most survey participants had heard of oral cancer. However, they did not think their symptoms were indicative of cancer and they self-managed the problem. The culture of not bothering the GP/ GDP unless the condition was perceived as serious is a barrier to early diagnosis and treatment.	N/A	106
	Are current screening methods effective in reducing cancer mortality?	Although there is evidence that a visual examination as part of a population-based screening programme reduced the mortality rate of oral cancer in high-risk individuals, whilst producing a stage shift and improvement in survival rates across the population as a whole, the evidence is limited to one study and is associated with a high risk of bias.	1a	103
	Does the use of toluidine blue as an adjunctive tool for visual screening of the mouth result in the increased detection of oral premalignant lesions?	This trial does not provide any new evidence to support or refute the use of toluidine blue as an adjunctive tool for detection of oral premalignant lesions.	2b	104
	What is the risk of and interval to progression to oral cancer in patients diagnosed with oral dysplasia?	Oral dysplasia showed a significant rate of transformation to cancer, which was related to grade, and was decreased significantly but not eliminated by excision. Findings suggest the need for surgical excision and continued surveillance, particularly in high-grade lesions.	2b	91-92
	What is the effect of total exposure and exposure rate for alcohol and smoking on the risk of head and neck cancer?	The main findings reported were that fewer cigarettes smoked per day for many years gave a greater risk for head and neck cancer than many cigarettes smoked per day for fewer years. For alcohol consumption, it was the other way round; heavy drinking per day for a few years gave a greater risk for head and neck cancer than fewer drinks per day for many years.	3a	89-90
	Is diagnostic delay in oral cancer related to advanced stage disease at diagnosis?	The probability for people with delayed diagnosis to present with an advanced-stage tumour at diagnosis was significantly higher than that of individuals with no delay in diagnosis.	N/A	24
	What are the socioeconomic risk factors for head and neck cancers?	A high risk of head and neck cancer was consistently associated with poor socioeconomic circumstances. There were strong links for specific components but smoking dominated the overall profile of risk. More detailed research into the nature of such associations is needed in the future.	N/A	57-58
Oral medicine	What drugs can be used to treat oral submucous fibrosis?	There are few high-quality studies available and the present drug treatments are in general empirical and treat only symptoms. There is a need for high-quality RCTs in this area, especially studies involving combined and sequential therapy.	1b	56
Oral surgery	What is the effectiveness of primary insertion of dental implants in people who have head and neck cancer?	It remains unknown whether the outcomes of extra-oral and intraoral implants are comparable, as a function of primary or secondary placement, with or without subsequent radiotherapy. With regard to both intra- and extra-oral implants, international cooperative efforts are needed to determine which patients may benefit from primary implant placement and where a delayed strategy seems the most advantageous.	N/A	52-53

TOOLBOX

Orthodontics	What is the effect of orthodontic treatment on root resorption?	The key point to take from this review is that, whilst orthodontic treatment is associated with an increased incidence and severity of external apical root resorption, it is not currently possible to determine which patients are at particular risk. Until better evidence becomes available, all prospective orthodontic patients should be warned of the possibility of root resorption as part of the consent process	1a	88
	In patients requiring supplementing anchorage during orthodontic treatment are midpalatal implants as effective as headgear?	The use of palatal implants to reinforce anchorage was as effective as extraoral anchorage with headgear.	1b	115
	Does interceptive rapid maxillary expansion improve the eruption rates of palatally displaced canines?	The effectiveness of this technique is similar to success rates cited with extraction of deciduous canines alone or, combined with orthodontic treatment with fixed appliances.	1b	86-87
	What proportion of people undergoing orthognathic treatment to correct dentofacial deformities also have temporomandibular joint disorders (TMD)?	The diversity of diagnostic criteria and classification methods used in the included studies makes interstudy comparisons difficult. Well-designed studies are needed that have standardised diagnostic criteria and classification methods for TMD.	N/A	82-85
	What proportion of orthognathic patients who do not have signs or symptoms of TMD preoperatively then develop TMD signs or symptoms postsurgery?	Although orthognathic surgery should not be advocated solely for treating TMD, patients having orthognathic treatment for correction of their dentofacial deformities and who are also suffering from TMD appear more likely to see improvement in their signs and symptoms than deterioration.	N/A	82-85
Paediatric Dentistry	Is there a relationship between socioeconomic status and traumatic dental injuries?	The absence of a consistently demonstrable correlation between socioeconomic status and dental trauma may lie as much with the heterogeneity of study methodology as the presence of a true lack of association.	1b	78
	What is the best treatment option for permanent teeth with avulsion injuries?	The available evidence suggests that extra-oral endodontic treatment is not detrimental for teeth replanted after more than 60 min dry time. Studies with moderate/ high risk of bias indicate that soaking in thymosin alpha 1 and gentamycin sulphate followed by hyperbaric oxygen may be advantageous but these strategies have not previously been reported as interventions for avulsed teeth and await further validation. More evidence with low risk of bias is required and, with the low incidence of avulsed teeth, collaborative multicentre trials are indicated.	2a	42-43
	What is the link between parental and child dental fear?	The narrative synthesis as well as the meta-analysis demonstrate a significant relationship between parental and child dental fear, particularly in children aged 8 years and under.	2b	77
	In people who have ankylosed permanent anterior teeth, what treatment options are effective?	There is no evidence from RCTs about the comparative effectiveness of the different treatment options for ankylosed permanent front teeth. The lack of high-level evidence for the management of this health problem emphasises the need for well-designed clinical trials.	N/A	44
Periodontal disease	Is there a relationship between periodontal therapy and glycaemic control in people with diabetes?	There is some evidence of improvement in metabolic control in people with diabetes, after treating periodontal disease. There are few studies available and individually these lacked the power to detect a significant effect. Most of the participants in the study had poorly controlled type 2 DM and there were little data from randomised trials on the effects on people with type 1 DM. Improving periodontal health is an important objective in itself. However, in order to understand the potential of this treatment to improve glycaemic control among people with diabetes, larger, carefully conducted and reported studies are needed.	1a	73-74
	Does the treatment of periodontal disease in mid-pregnancy prevent preterm birth, foetal growth restriction, and preeclampsia?	The evidence provided by the present study does not support the hypothesis that treatment of periodontal disease during pregnancy in this population prevents preterm birth, foetal growth restriction, or pre-eclampsia. Periodontal treatment was not hazardous to the women or their pregnancies.	1b	18
	Is there an association between ischemic heart disease and periodontitis in middle-aged and elderly women?	In the present study, periodontitis did not seem to have a statistically significant relationship with IHD. The number of missing teeth showed a strong association with IHD, and this may act as a proxy variable tapping an array of different risk factors and behaviours.	1b	20-21
	In people undergoing periodontal treatment of multirooted teeth with furcation involvement, what is the survival rate and incidence of complication at 5 years?	The data suggest high levels of tooth retention comparable with implant-supported restorations in the posterior mandible and maxilla. The level of evidence is not high and there may be an overestimation of true retention rates, but similar comments are applicable to much of the relevant implant literature.	2b	38-39
	What is the effect of local and systemic risk factors on tooth loss during long-term periodontal maintenance ?	The considerable heterogeneity found among studies did not allow definitive conclusions. However, age, smoking and initial tooth prognosis were found to be associated with tooth loss during periodontal maintenance.	N/A	75-76
Restorative dentistry	Is modern surgical endodontic treatment effective and what factors influence the outcome?	Surgical endodontic treatment under magnification and illumination with no or minimal bevel root-end resection, ultrasonic retrograde canal preparation to a depth of 3–4 mm, and retrograde root canal filling is a highly successful treatment.	1a	71-72

	Does ozone application reduce dentine hypersensitivity?	The results showed a reduction in dentine hypersensitivity in both test and control groups, but the difference between the two groups was not statistically significant.	1b	70
	Do ceramic CAD/CAM crowns have similar long-term outcomes to conventional gold crowns?	This trial, at moderate risk for bias, found no statistically significant differences between gold and Everest HPC crowns for a 12-month observation period. A longer observation period, with a sample size calculation and low attrition rates is needed to establish clinically relevant findings.	1b	25-26
	What are the 5-year survival rates and incidences of complications associated with ceramic abutments compared with metal abutments?	All ceramic abutments for implants seem to be a good option for long term implant restoration in the aesthetic zone but due to the limited number of clinical studies found, the results should be interpreted with caution.	1b	68-69
	In symptomatic patients who have previously had endodontic treatment, is nonsurgical treatment more effective than endodontic surgery?	On the basis of these results it appears that endodontic surgery offers more favourable initial success, but nonsurgical retreatment offers a more favourable long-term outcome.	2b	54-55
	What are the indicators for success in prosthodontic treatment?	There remains a paucity of research in this area. From the best available data, construction of technically correct dentures, a well-formed mandibular ridge and accuracy of jaw relations are positive indicators for success. Patient neuroticism and a poorly formed mandibular ridge are negative indicators for success. Other prognostic indicators have not been shown to be of significant value. There exists a minority of patients who will never adapt to any conventional complete denture. This problem is more acute in the mandible than the maxilla. There is need for further research in this area.	N/A	47
	In adult patients with defective amalgam restorations is repair with amalgam more effective than replacement?	There are no published randomised controlled clinical trials relevant to this review question. There is therefore a need for methodologically sound randomised controlled clinical trials that are reported according to the CONSORT statement.	N/A	111
	In adult patients with defective resin composite restorations is repair with resin composite more effective than replacement?	There are no published randomised controlled clinical trials relevant to this review question. There is therefore a need for methodologically sound randomised controlled clinical trials that are reported according to the CONSORT statement.	N/A	112
	What is the frequency of tooth pain at 6 months in patients undergoing root canal therapy?	The frequency of all-cause persistent tooth pain after endodontic procedures was estimated to be 5.3%, with higher quality studies suggesting >7%.	N/A	114
	How do the survival and complication rates of implant-supported fixed partial dentures with cantilevers compare with implanted-supported single tooth and implanted-supported fixed partial dentures without cantilevers?	This review does add to our current knowledge base the observation that the implant-supported cantilever fixed bridge appears to give high success rates. Further data are needed to confirm or deny whether their survival and complication rates are as impressive as the non-cantilever implant-supported prosthesis, including the implant-supported single tooth crown.	N/A	48-9
	What are the survival rates of short-span implant-supported cantilever fixed dental prostheses and the incidence of technical and biological complications over 5 years?	There is growing evidence that implant-supported cantilever fixed dental prostheses are a viable treatment option, research that is larger in scope will be required before definitive recommendations can be made.	N/A	50-51
Service organisation and delivery of care	In dental practice are multifaceted guideline-implementation strategies more effective than dissemination alone?	Multifaceted intervention had a moderate but relevant effect on the performance of general dental practitioners, which is consistent with other findings in primary care.	1b	40
	Is there a difference between the oral health of adults with intellectual disabilities and the general population?	Preventive programmes for these groups and their carers are important, as they are for other sectors of the population. They need to be delivered by people who understand the needs of people with learning disabilities.	N/A	81

RCT - Randomised controlled trial
 GDP- general dental practitioner
 IHD - ischemic heart disease
 DM - diabetes mellitus
 GP - general medical practitioner
 CAD/CAM - computer-aided design/computer-aided manufacturing
 CONSORT - Consolidated Standards of Reporting Trials statement (www.consort-statement.org/)

1. Lawrence A, Richards D. Questions answered in EBD volumes 1 and 2. *Evid Based Dent* 2002; 3: 27–29.
2. Richards D. Questions and answers in EBD volumes 3 and 4. *Evid Based Dent* 2003; 4: 94–97.
3. Richards D. Questions and answers and guidelines in EBD volume 5. *Evid Based Dent* 2004; 5: 110–112.
4. Richards D. Questions and answers and guidelines in EBD volume 6. *Evid Based Dent* 2005; 6: 104–107.
5. Richards D. Questions and answers and guidelines in EBD volume 7. *Evid Based Dent* 2006; 7: 109–113.
6. Richards D. Questions and answers and guidelines in EBD volume 8. *Evid Based Dent* 2007; 8: 118–121.
7. Richards D. Questions and answers and guidelines in EBD volume 9. *Evid Based Dent* 2008; 9: 121–125.
8. Richards D. Questions and answers and guidelines in EBD volume 10. *Evid Based Dent* 2009; 9: 120–123.
9. Richards D. Not all evidence is created equal — so what is good evidence? *Evid Based Dent* 2003; 4: 17–18.