

Questions and answers in EBD Volume 15

Derek Richards

Editor, Evidence-based Dentistry

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

Evidence-Based Dentistry (2014) **15**, 122-126. doi:10.1038/sj.ebd.6401068

Guidelines

Topic	Page
Topical Fluoride	38-39
Periodontal disease	68-69

Summaries

Topic	Question	Answer	Evidence level	Page
Caries				
	In teeth where incomplete caries excavation is carried out (one- or two-step), what types of failures occur and do certain tooth- or treatment-related factors influence risk of failure?	Following incomplete removal of deep caries, pulpal failure (pain, clinical or radiographic signs of pathology) was the most common failure type. One-step incomplete excavation for deep caries lesions reduced the risk of failure compared to two-step removal, and multi-surface lesions had a higher risk of failure than single surface lesions.	1A	16-17
	In primary teeth with extensive decay what is the best pulp treatment?	No evidence to identify one superior pulpotomy medicament and technique clearly. Two medicaments may be preferable: MTA or FS. The cost of MTA may preclude its clinical use and therefore FS could be used in such situations.	1A	100-101
	Are systemic antibiotics provided with or without surgical intervention, with or without analgesics effective in treating symptomatic apical periodontitis or acute apical abscess in adults?	There is very low quality evidence that is insufficient to determine the effects of systemic antibiotics on adults with symptomatic apical periodontitis or acute apical abscess.	1A	104-105
	How effective is fluoride toothpaste in preventing dental caries in the primary dentition of preschool children?	Standard fluoride toothpastes are effective in reducing dental caries in the primary teeth of preschool children and thus their use should be recommended to this age group.	1B	5
	Is a high-fluoride toothpaste (5000 ppm F) effective for the management of root caries?	The application of a high-fluoride-containing dentifrice (5000 ppm F) in adults, twice daily, significantly improves the surface hardness of otherwise untreated root caries lesions when compared with the use of regular fluoride containing (1350 ppm F) toothpastes.	1B	8-9
	In carious primary molars is partial caries removal (PCR) more effective than total caries removal (TCR)?	Dental practitioners should consider the use of more conservative techniques like partial caries excavation over total caries excavation for patients presenting with symptomless, deep carious primary teeth, as it reduces pulp exposure and it does not have any harmful effect on the teeth.	1B	81-82
	Does application of fluoride varnishes in preschool children at six-monthly intervals decrease the incidence of caries and produce any adverse effects?	Whilst no significant difference was found, the authors note that this does not indicate ineffectiveness of fluoride varnish. Re-assessment of the power calculation following study completion demonstrated that a significantly larger sample size would have been indicated, preventing the drawing of any direct conclusions from the results of this study. The use of fluoride varnish amongst this group appears to be safe and overall well tolerated.	1B	83-84

What is the effect of sugar consumption on dental caries?	Consistent evidence of moderate quality supporting a relationship between the amount of sugars consumed and dental caries development. There is evidence of moderate quality to show that dental caries is lower when free-sugars intake is < 10% E. Dental caries progresses with age, and the effects of sugars on the dentition are lifelong. Even low levels of caries in childhood are of significance to levels of caries throughout the life course. Analysis of the data suggests that there may be benefit in limiting sugars to < 5% E to minimise the risk of dental caries throughout the life course.	2A	98-99
Are systemic antibiotics effective in the management of acute pulpitis?	In the light of an increased potential for antibiotic resistance and insufficient evidence to indicate the benefits of antibiotics in controlling pain due to irreversible pulpitis, dentists should desist from the practice of prescribing antibiotics for early irreversible pulpitis.	2B	10-11
Which caries prevention method for children is the most effective and economically viable?	The non-operative caries treatment and prevention regimen was more effective and more costly than regular dental care. Based on the limited available amount of evidence regarding the willingness to pay for dental care, the benefits seem to outweigh the additional costs, implying that this is a cost-effective strategy. Increasing the number of professional fluoride applications resulted in a slight reduction of caries increment, but at higher costs than the NOCTP strategy. The results of this study confirm the findings in previous research. Therefore, implementing NOCTP on a larger scale should be considered.	2B	41-42
In children with approximal dental caries lesions in primary molars do different treatment strategies affect behaviour and pain perception?	More negative behaviours reported with conventional treatment compared with Hall technique (HT) or non-restorative caries treatment (NRCT) with no local anaesthetic.	2B	43-44
What is the prevalence of caries in children with cystic fibrosis (CF)?	While children with CF may be at lower risk for dental caries, adolescents with CF may not be at lower caries risk than those without CF. Additional research is needed to evaluate a potentially flawed paradigm regarding caries risk in children and adolescents with CF.	3A	46-47
Is there a difference in caries prevalence between cleft lip and palate (CLP) and a non-CLP population?	Individuals with CLP, when compared with matched non-CLP controls, tend to have a higher prevalence of dental caries, as detected using the decayed, missing and filled index. This holds true both for permanent and for deciduous teeth. One must keep in mind, however, that relatively few studies were included in the present meta-analysis, and the reporting on the methods in the individual studies was not always transparent.	N/A	79

Dental Implants

Is periodontitis a risk factor for dental implant loss?	Strong evidence suggests that periodontitis is a risk factor for implant loss; moderate evidence revealed that periodontitis is a risk factor for peri-implantitis and that patients with periodontitis have higher implant-bone loss.	1A	59-60
In patients with severely resorbed posterior ridges are short (<10mm) implants with single crowns more effective than conventional implants and bone grafting?	Within the limitations of the present systematic review with meta-analysis, it is suggested that single crowns supported by short implants are an acceptable and predictable option in the short- and long-term treatment of the atrophic jaws.	1A	85-86
Do implant overdentures improve the nutritional status of edentate elders?	Provision of implant-retained overdentures did not result in a significant improvement in dietary intake compared to conventional removable dentures.	1B	89
Among patients receiving dental implants, does the use of antibiotics, when compared with a control group, reduce the frequency of implant failure and postoperative infection?	The review concluded that the use of antibiotics significantly reduces implant failure but shows no superiority on postoperative infections.	2A	58
What is the influence of diabetes on dental implant failure rates?	The results of the present systematic review should be interpreted with caution because of the presence of uncontrolled confounding factors in the included studies. Within the limits of the existing investigations, the difference between the insertion of dental implants in non-diabetic and diabetic patients did not statistically affect the implant failure rates.	2A	102-103
What are the survival rates of sandblasted and acid-etched (SLA) dental implants and modified surface (SLActive) implants submitted to immediate or early occlusal loading?	The reported clinical differences between the survival rates of the two types of surface topography and chemical composition analysed were very small (95% SLA and 97% SLActive survival rate). However few RCTs were available for analysis for SLActive implants so results should be interpreted with caution.	2B	87-88

TOOLBOX

	Does radiation therapy to the head, for treatment of cancer, decrease the survival rate of titanium dental implants placed in non-grafted mouths?	Irradiation of the head was linked to increased failure rate of implants compared to failure rates in patients who had not undergone radiotherapy. The failure rate was higher in the maxilla and HBO therapy did not improve implant survival.	3A	27-28
Endodontics				
	Are electronic apex locators (EALs) accurate?	There is a high agreement rate between radiographs and EALs. When the two methods were compared, it is suggested that working length determination by using EAL may perform better than radiography alone.	2A	120
Effective practice and organisation of care (EPOC)				
	Is using dental auxiliaries to provide care traditionally delivered by dentists effective?	We only identified five studies for inclusion in this review, all of which were at high risk of bias, and four were published more than 20 years ago, highlighting the paucity of high-quality evaluations of the relative effectiveness, cost-effectiveness and safety of dental auxiliaries compared with dentists in performing clinical tasks. No firm conclusions could be drawn from the present review about the relative effectiveness of dental auxiliaries and dentists.	2A	80
	What barriers to delivering oral health care to older people are experienced by dentists?	Lack of adequate dental equipment in a care home, concern for private practice and lack of adequate reimbursement were the most commonly reported barriers in the reviewed? publications. Lack of training and experience in providing oral care for this age group was also mentioned as a barrier.	N/A	14-15
Oral Health				
	Are triclosan/copolymer containing fluoride toothpastes more effective than fluoride toothpastes for control of caries, plaque and gingivitis in children and adults?	The volume of moderate to high quality evidence supports that triclosan improves oral health outcomes.	1A	6-7
	Are powered toothbrushes as effective as manual toothbrushes in maintaining oral health?	Powered toothbrushes reduce plaque and gingivitis more than manual toothbrushing in the short and long term. The clinical importance of these findings remains unclear.	1A	77-78
	Is motivational interviewing more effective than conventional education in changing oral health behaviours?	Trials demonstrated variable success in improving oral health: current evidence for benefit is inconclusive.	2A	35-37
	What is the optimum time period to have between one dental check-up and the next?	This was insufficient for drawing any conclusions about the potential beneficial and harmful effects of different dental check-up recall intervals. There is no evidence to support or refute practice of six-monthly intervals.	2B	40
Oral Medicine				
	What are the effects of non-pharmacological interventions to stimulate saliva production for the relief of dry mouth?	There is low quality evidence that acupuncture is no different from placebo acupuncture with regard to dry mouth symptoms, which is the most important outcome. This may be because there were insufficient participants included in the two trials to show a possible effect, or it may be that there was some benefit due to 'placebo' acupuncture, which could have biased the effect to the null. There is insufficient evidence to determine the effects of electrostimulation devices on dry mouth symptoms. It is well known that dry mouth symptoms may be problematic even when saliva production is increased, yet only two of the trials that evaluated acupuncture reported dry mouth symptoms, a worrying reporting bias. There is some low quality evidence that acupuncture results in a small increase in saliva production in patients with dry mouth following radiotherapy. There is insufficient evidence to determine the effects of electrostimulation devices on dry mouth symptoms or saliva production in patients with Sjögren's Syndrome. Reported adverse effects of acupuncture are mild and of short duration, and there were no reported adverse effects from electrostimulation.	1A	25-26
	Are antifungal treatments more effective than other therapies for the treatment of denture stomatitis?	The findings of this review and meta-analysis suggest that disinfection methods could be considered as an adjunct or alternative to antifungal medications in the treatment of denture stomatitis.	1A	61-62
	Are prophylactic antibiotics required before invasive dental procedures in people at risk or at high risk of bacterial endocarditis?	There remains no evidence that antibiotic prophylaxis is either effective or ineffective against bacterial endocarditis in people considered at risk who are about to undergo an invasive dental procedure. It is not clear whether the potential harms and costs of penicillin administration outweigh any beneficial effect. Ethically, practitioners need to discuss the potential benefits and harms of antibiotic prophylaxis with their patients before a decision is made about administration.	3A	12-13

Oral Surgery				
Does tranexamic acid reduce blood loss during orthognathic surgery?	This meta-analysis confirms that tranexamic acid can effectively reduce intraoperative blood loss in orthognathic surgery, especially by intravenous administration. But tranexamic acid cannot affect postoperative levels of haemoglobin and haematocrit.	1A	63	
Following third molar removal which analgesic is most effective?	There is high quality evidence that ibuprofen is superior to paracetamol at doses of 200 mg to 512 mg and 600 mg to 1000 mg respectively based on pain relief and use of rescue medication data collected at six hours postoperatively. The majority of this evidence (five out of six trials) compared ibuprofen 400 mg with paracetamol 1000 mg, these are the most frequently prescribed doses in clinical practice.	1A	106-107	
Should diseased teeth be extracted prior to radiotherapy to the jaw?	There are no randomised controlled trials to assess the effect of extracting teeth prior to radiotherapy compared to leaving teeth in the mouth during radiotherapy to the jaws. Current protocols based on evidence from quality observational studies for management of head and neck cancer patients provide comprehensive criteria for dental evaluation and treatment to be used for each case individually. None of the current practices recommends systematic extraction of healthy teeth.	N/A	76	
Orthodontics				
What is the best orthodontic treatment approach for prominent upper front teeth?	The evidence suggests that providing early orthodontic treatment for children with prominent upper front teeth is more effective in reducing the incidence of incisal trauma than providing one course of orthodontic treatment when the child is in early adolescence. There appear to be no other advantages for providing treatment early when compared to treatment in adolescence.	1A	18-20	
What is the most effective treatment for class III malocclusion in children?	There is some evidence that the use of a facemask to correct prominent lower front teeth in children is effective when compared to no treatment on a short-term basis. However, in view of the general poor quality of the included studies, these results should be viewed with caution. Further randomised controlled trials with long follow-up are required.	1A	21-22	
How effective are orthodontic appliances in distalising upper first molars in children and adolescents?	It is suggested that intraoral appliances are more effective than headgear in distalising upper first molars. However, this effect is counteracted by loss of anterior anchorage, which was not found to occur with headgear when compared with intraoral distalising appliance in a small number of studies. The number of trials assessing the effects of orthodontic treatment for distalisation is low, and the current evidence is of low or very low quality.	1A	23-24	
What is the best dental etchant and etching technique for bonding fixed orthodontic appliances?	There is limited evidence to suggest that no difference exists between orthodontic attachment failure rates with the acid-etch technique and self-etch primers.	1A	48-49	
Are surgical anchorage techniques more effective than conventional anchorage in preventing unwanted tooth movement during orthodontic treatment?	There is moderate quality evidence that reinforcement of anchorage is more effective with surgical anchorage than conventional anchorage, and that results from mini-screw implants are particularly promising. While surgical anchorage is not associated with the inherent risks and compliance issues related to extra-oral headgear, none of the included studies reported on harms of surgical or conventional anchorage.	1A	108-109	
Are vacuum-formed retainers (VFRs) more effective than Hawley retainers (HRs) following orthodontic treatment?	This systematic review suggests that further high-quality RCTs regarding the differences between HRs and VFRs during orthodontic retention are necessary to determine which retainer is the better selection for orthodontists.	1A	110-111	
In patients undergoing orthodontic treatment, can adjunctive interventions accelerate orthodontic tooth movement compared to conventional orthodontic treatment?	Limited evidence suggests that corticotomy may safely speed up the orthodontic tooth movement; however, its cost-effectiveness needs to be further assessed. Evidence is inconclusive for the effectiveness of other interventional techniques.	1A	116-117	
How do the characteristics of orthodontic brackets affect fixed appliance therapy?	There appears to be no advantage in the use of self-ligating brackets when compared to conventional brackets for orthodontic treatment.	2A	92	
What is the most effective archwire sequence for fixed appliance orthodontic treatment?	The available evidence is limited to produce strongly supported conclusions, but it seems that there are no differences among NiTi alloys to successfully complete orthodontic levelling and alignment. Other factors should be taken into account when selecting from the commercially available options.	2A	112-113	
How effective are surgical and non-surgical approaches for accelerated orthodontic tooth movement?	There is some evidence that low intensity laser therapy and corticotomy are effective, whereas the evidence is weak for interseptal bone reduction and very weak for photobiomodulation and pulsed electromagnetic fields. Overall, the results should be interpreted with caution given the small number of studies, allied to limited quality and heterogeneity of the included studies.	2A	114-115	

Paediatric dentistry				
	What are the characteristics of child dental neglect?	This systematic review clarifies the key signs to trigger consideration of dental neglect: failure to seek or a delay in seeking dental treatment; failure to follow dental advice; failure to administer medicine and provide basic oral care, more importantly it highlights what still needs to be done.	3A	2-4
Periodontal disease				
	Is routine scale and polish beneficial for oral health?	There is insufficient evidence to determine the effects of routine scale and polish treatments.	1A	74-75
	Does non-surgical periodontal treatment improve glycaemic control in diabetic patients?	While this review suggested a small benefit to glycaemic control, whether the improvement is clinically significant is questionable.	1A	93-94
	Is there an association between smoking and periodontitis?	This research confirmed the strong association between chronic smoking and periodontal disease.	1B	72-73
	What is the global prevalence and incidence of severe periodontitis (SP)?	Severe periodontitis affects 11% of the world's population.	2A	70-71
Restorative Dentistry				
	What factors affect the survival of posterior composite restorations?	The conclusion of the present meta-analysis of 12 clinical studies based on raw data is that caries risk and number of restored surfaces play a significant role in restoration survival, and that, on average, posterior resin composite restorations show a good survival, with annual failure rates of 1.8% at five years and 2.4% after ten years of service.	1A	118-119
	What is the failure rate of direct composite resin fillings versus amalgam fillings for permanent posterior teeth?	There is low-quality evidence to suggest that resin composites lead to higher failure rates and risk of secondary caries than amalgam restorations.	2A	50-51
	Is basic root canal treatment (BRT) with tactile working length determination as effective as standard endodontic treatment after 24 months?	Within the limits of this randomised controlled trial it was shown that tactile working length determination in BRT resulted in comparable treatment outcomes in radiographic and clinical aspects compared with standard endodontic treatment with radiographic working length determination. Tactile working length determination turned out to be an accurate method in BRT.	2B	56-57
	For patients with amelogenesis imperfect (AI) what are the most effective restorative materials and techniques?	There are no randomised controlled trials of restorative treatments for children and adolescents with AI, and therefore there is no evidence as to which is the best restoration. Well defined randomised controlled trials which recruit children and adolescents and focus on the type and severity of the disorder should be undertaken to determine the best intervention for restoring teeth affected by AI.	N/A	45
	Should we repair or replace defective composite restorations?	There are no published randomised controlled trials relevant to this review question. Therefore there is a need for methodologically sound randomised controlled trials that are reported according to the Consolidated Standards of Reporting Trials (CONSORT) statement (www.consort-statement.org/)	N/A	52-53
	Should we repair or replace defective amalgam restorations?	There are no published randomised controlled trials relevant to this review question. Therefore there is a need for methodologically sound randomised controlled trials that are reported according to the Consolidated Standards of Reporting Trials (CONSORT) statement (www.consort-statement.org/)	N/A	54-55
Temporomandibular disorders				
	In patients with temporomandibular joint (TMJ) disc displacement without reduction (DDwoR) are conservative or surgical interventions more effective?	Most interventions appear to alleviate DDwoR symptoms, with no significant differences between non-invasive conservative interventions and minimally invasive or invasive surgical interventions. Given the paucity of evidence and the difficulty in interpreting the minimal clinically important difference, this finding suggests that patients with DDwoR probably should be initially managed with the most minimal and least invasive intervention.	1B	90-91