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Abstracts from other journals

Editor: Chris Deery

Abstracts are presented as originally published or with only minor modifications

The cost of treating children and adolescents with injuries to their permanent incisors at a dental hospital in the United Kingdom. Wong FS, Kolokotsa K. *Dental Traumatology* 2004; **20** (6): 327–333.

The aim was to estimate the total cost, including the direct costs (outpatient costs) and indirect costs (missed working day), of treating children and adolescents with traumatic injuries to their incisors. Factors such as the number of treatment visits and the success of the outcome were also investigated. The sample was taken from patients who attended the dental trauma clinic at a London teaching hospital between 1990 and 2001. Eighty-one patients, with 111 traumatized incisors were included in this study. The mean age was 9·9 years (SD = 2·33 years), and the male:female ratio was 3:2. The median number of visits and median treatment duration were eight visits and 21 months, respectively. Sixty-two per cent of the patients lived > 5 miles and 25% lived > 10 miles from the hospital; 44% of the patients had uncomplicated and 56% had complicated trauma to their incisors. Accidental falls, falls involving a second person, sports-related injuries and road accidents accounted for 30%, 22%, 22% and 17% of the total injuries. For uncomplicated trauma, 97% of the patients had a successful outcome, but this was reduced to 58% for complicated trauma. The average total cost of treating a patient with one traumatic injury was £856. The best predictor for a higher number of visits and an unsuccessful outcome was complicated trauma with odd ratios of 4·5 and 24 (95% confidence intervals = 1·5–13·7 and 2·9–194·2), respectively. It was concluded that the indirect cost was a considerably large proportion (39%) of the total cost. More specialists in paediatric dentistry are needed to improve access to care locally, thus reducing the indirect travelling cost.

Children's coping with pain during dental care. Versloot J, Veerkamp JS, Hoogstraten J, Martens LC. *Community Dentistry and Oral Epidemiology* 2004; **32** (6): 456–461.

OBJECTIVES: The purpose of this study was (i) to assess the coping strategies of 11-year-old children when dealing with pain at the dentist, (ii) to determine the extent to which the level of the children's dental fear and their experience with pain at the dentist are related to their ability to cope and their choice of strategies, and (iii) to analyse the possible differences between subsamples concerning dental caries. METHODS: The coping strategies were investigated using the Dental Cope Questionnaire (n = 597), the level of dental fear was assessed using the Children's Fear Survey Schedule (CFSS-DS), a question was asked about whether a child had experienced pain at the dentist in the past and dental caries was assessed using the DMFS index. RESULTS: The results show that 11-year-olds use a variety of coping strategies. Internal strategies are used most frequently, external coping strategies are used less frequently and destructive strategies are hardly used. The subjects rate internal and external strategies as effective. Children with pain experience and fearful children use more coping strategies, with fearful children using more internal strategies. Reported pain and anxiety were related to the dental status. CONCLUSIONS: The use and choice of coping strategies seem to be at least partly determined by the level of dental fear and the child's experience of pain.

Development of clinical and radiographic signs associated with dark discoloured primary incisors following traumatic injuries: a prospective controlled study. Holan G. *Dental Traumatology* 2004; **20**: 276–287.

The purpose was to evaluate late complications of asymptomatic traumatized primary incisors with dark coronal discoloration. The clinical and radiographic signs of 97 teeth of the study group were recorded along a follow-up period that ranged between 12 and 75 months (mean > 36 months). The children's age at the time of injury ranged between 18 and 72 months (mean 40 months). The control group consisted of 102 non-discoloured maxillary primary central incisors in 51 children older than 54 months with no history of dental trauma. In 50 teeth (52%), the colour faded or became yellowish, and in 47 (48%), it remained dark. Clinical signs of infection that were diagnosed 5–58 months after the injury were associated significantly more with dark than yellowish hues (83% and 17%, respectively). Teeth that had changed their colour to become yellow presented more PCO than teeth with black/grey/brown coronal discoloration (78% and 6%, respectively). Arrest of dentine apposition was found in 15 teeth, one had yellow coronal discoloration and the remaining 14 had a dark shade. Eleven teeth showed inflammatory root resorption, all with dark discoloration. Two atypical types of root resorption were observed: a surface resorption restricted to the lateral aspects of the apical half of the root while the root length remained unchanged; and in the other, expansion of the follicle of the permanent successor was observed. Expansion of the dental follicle was observed in 72% of all teeth with no significant difference between the various types of coronal discoloration, but only half of the cases were associated with resorption of the root of the primary incisor. The various pathologic findings observed in the study group were either absent or rarely seen in the control group. It can be concluded that more than 50% of the primary incisors that retain their dark coronal discoloration acquired after dental injuries remain clinically asymptomatic till the eruption of the permanent successor even if they present accelerated root resorption. Asymptomatic traumatized primary incisors that retain their dark coronal discoloration may develop a sinus tract and inflammatory root resorption years after the injury. There is still a dilemma: Which treatment is better for dark-discoloured primary incisors? Early endodontic treatment, or follow-up with the risk of development of infection and root resorption that may require extraction?

Buonocore Memorial Lecture: Review of the clinical survival of direct and indirect restorations in posterior teeth of the permanent dentition. Manhart J, Chen H, Hamm G, Hickel R. *Operative Dentistry* 2004; **29** (5): 481–508.

This review provides a survey on the longevity of restorations in stress-bearing posterior cavities and assesses possible reasons for clinical failure. The dental literature, predominantly since 1990, was reviewed for longitudinal, controlled clinical studies and retrospective cross-sectional studies of posterior restorations. Only studies investigating the clinical performance of restorations in permanent teeth were included. Longevity and annual failure rates of amalgam, direct composite restorations, compomers, glass ionomers and derivative products, composite and ceramic inlays, and cast gold restorations were determined for Class I and II cavities. The mean (± SD) annual failure rates in posterior stress-bearing cavities are: 3·0 ± 1·9% for amalgam restorations; 2·2 ± 2·0% for direct composites; 3·6 ± 4·2% for direct composites with inserts; 1·1 ± 1·2% for compomer restorations; 7·2 ± 5·6% for regular glass ionomer restorations; 7·1 ± 2·8% for tunnel glass ionomers; 6·0 ± 4·6% for ART glass ionomers; 2·9 ± 2·6% for composite inlays; 1·9 ± 1·8% for ceramic restorations; 1·7 ± 1·6% for CAD/CAM ceramic restorations; and 1·4 ± 1·4% for cast gold inlays and onlays. Publications from 1990 forward showed better results. Indirect restorations exhibited a significantly lower mean annual failure rate than direct techniques ($P = 0{\cdot}0031$). The longevity of dental restorations is dependent upon many different factors, including material, patient- and dentist-related. The principal reasons for failure were secondary caries, fracture, marginal deficiencies, wear and postoperative sensitivity. We need to learn to distinguish between reasons that cause early failures and those that are responsible for restoration loss after several years of service.

A systematic review of the detecting caries. Bader JD, Shugars DA. *Journal of the American Dental Association* 2004; **135** (10): 1413–1426.

BACKGROUND: The DIAGNOdent (DD; KaVo America, Lake Zurich, IL, USA), a device for detecting

caries using laser fluorescence, has been growing in popularity during the past 3 years. Although several evaluations of its diagnostic performance have appeared in the literature, the range of reported performances is extensive. TYPES OF STUDIES REVIEWED: The authors conducted a systematic review of the literature to assess the diagnostic performance of the DD. Of 115 articles identified in the search, 25 studies were included in the review according to criteria requiring histologic validation and outcomes expressed as sensitivity and specificity values. RESULTS: For detection of dentinal caries, sensitivity values ranged widely (0·19–1·0), although most tended to be high. Specificity values exhibited a similar pattern, ranging from 0·52 to 1·0. In comparison with visual assessment methods, the DD exhibited a sensitivity value that was almost always higher and a specificity value that was almost always lower. The body of evidence is characterized largely by *in vitro* studies, so that generalization to the clinical setting is uncertain. Because caries thresholds varied substantially across the studies, synthesized estimates of performance were not possible. CONCLUSIONS AND CLINICAL IMPLICATIONS: The DD is clearly more sensitive than traditional diagnostic methods; however, the increased likelihood of false-positive diagnoses compared with that of visual methods limits its usefulness as a principal diagnostic tool.

Interventions for preventing oral candidiasis for patients with cancer receiving treatment (Cochrane Review). Worthington HV, Eden OB, Clarkson JE. In: *The Cochrane Library*, Issue 4. Chichester, UK: John Wiley & Sons, Ltd, 2004.

BACKGROUND: The treatment of cancer is increasingly becoming more effective, but is associated with short- and long-term side-effects. Oral side-effects remain a major source of illness despite the use of a variety of agents to prevent and treat them. One of these side-effects is oral candidiasis. OBJECTIVES: To assess the effectiveness of interventions (which may include placebo or no treatment) for the prevention of oral candidiasis for patients with cancer receiving chemotherapy and/or radiotherapy. SEARCH STRATEGY: Electronic databases: Cochrane Oral Health Group's Trials Register, CENTRAL, MEDLINE, MEDLINE Pre-indexed, EMBASE, CINAHL, CANCERLIT, SIGLE and LILACS were searched. Date of the most recent searches April 2004 (CENTRAL Issue 2, 2004). SELECTION CRITERIA: Trials were selected if they met the following criteria: design – random allocation of participants; participants – anyone receiving chemotherapy or radiotherapy treatment for cancer; interventions – agents prescribed to prevent oral candidiasis; primary outcome – prevention of oral candidiasis. DATA COLLECTION AND ANALYSIS: Data were recorded on the following secondary outcomes if present: relief of pain, amount of analgesia, relief of dysphagia, incidence of systemic infection, duration of stay in hospital (days), cost of oral care, patient quality of life, death, use of empirical antifungal treatment, toxicity and compliance. Information regarding methods, participants, interventions, outcome measures and results were independently extracted, in duplicate, by two reviewers (H.W. and J.C.). The Cochrane Oral Health Group statistical guidelines were followed and relative risk values calculated using random effects models. Potential sources of heterogeneity were examined in random effects metaregression analyses. MAIN RESULTS: Twenty-eight trials involving 4226 patients satisfied the inclusion criteria. Drugs absorbed and partially absorbed from the gastrointestinal (GI) tract were found to prevent oral candidiasis when compared to a placebo, or a no-treatment control group, with RR for absorbed drugs = 0·47 [95% confidence interval (CI) = 0·29–0·78]. For absorbed drugs in populations with an incidence of 20% (the mid-range of results in the control groups), this implies a NNT of 9 (95% CI = 7–13) patients who need to be treated to avoid one patient getting oral candidiasis. There was no significant benefit shown for drugs not absorbed from the GI tract. REVIEWERS' CONCLUSIONS: There is strong evidence, from randomized controlled trials that drugs absorbed or partially absorbed from the GI tract prevent oral candidiasis in patients receiving treatment for cancer. There is also evidence that these drugs are significantly better at preventing oral candidiasis than drugs not absorbed from the GI.

The prevalence and severity of fluorosis and other developmental defects of enamel in children who received free fluoride toothpaste containing either 440 or 1450 p.p.m. F from the age of 12 months. Tavener JA, Davies GM, Davies RM, Ellwood RP. *Community Dental Health* 2004; **21** (3): 217–223.

OBJECTIVE: To assess the impact of a programme regularly supplying free fluoride (F) toothpaste to

children on the prevalence and severity of fluorosis and other developmental defects of enamel. DESIGN: Randomized, controlled, parallel, three-group clinical trial. Two groups received toothpaste containing either 440 or 1450 p.p.m. F; the third group received no intervention. Children were supplied with toothpaste and advice on its use from the age of 12 months until they were 5–6 years old. The participants were a subsample of those involved in a study that considered the caries benefits of providing free fluoride toothpaste. They were eligible if they completed the main study, lived in four of the nine districts involved and attended schools with six or more eligible participants. SETTING: Children from the North-west of England consuming drinking water containing less than 0·1 p.p.m. F were examined in primary schools. PARTICIPANTS: Some 3731 children completed the main study. Of the 1833 children in the four selected districts, 927 were from schools with six or more participants. METHOD: Digital images encompassing the upper and lower anterior sextants were taken of each child when they were 8–9 years old. MAIN OUTCOME MEASURES: Developmental defects of enamel and dental fluorosis (TF index) were recorded on the upper central incisors from wet and dry images. RESULTS: A total of 703 children were included in the data analysis. In the 1450 p.p.m. F ($n = 218$), 440 p.p.m. F ($n = 226$) and control ($n = 259$) groups the prevalence of dental fluorosis (TF > 0) was 17%, 15% and 12% for the wet ($P > 0{\cdot}05$), and 26%, 24% and 25% for the dry ($P > 0{\cdot}05$) photographs, respectively. The prevalence of TF scores 2 or 3 (the highest score) was 5%, 4% and 2% for the wet ($P > 0{\cdot}05$), and 7%, 4% and 5% for the dry ($P > 0{\cdot}05$) photographs, respectively. All subjects identified with a TF score of 3 were found in the group using the 1450 p.p.m. F toothpaste (three wet and four dry), and there were statistically significant differences between the three groups for both wet ($P = 0{\cdot}03$) and dry photographs ($P < 0{\cdot}01$). However, the pairwise comparisons between the groups failed to attain statistical significance. The highest prevalence and severity of demarcated opacities was seen in the control group, and for the wet photographs, the difference between the three groups attained statistical significance ($P = 0{\cdot}04$). For both the wet and dry photographs, the prevalence of any enamel defects (including fluorosis), and large demarcated or a TF score of 3 was similar for the three groups ($P > 0{\cdot}05$). CONCLUSION: Previously, it has been reported that only the provision of 1450 p.p.m. F toothpaste provides anticaries benefits in a programme of this type. This benefit is accompanied by a slight increase in prevalence of a TF score of 3, but not the overall prevalence of developmental defects of enamel. Careful targeting and implementation of a programme of this type is required to maximize benefits and minimize the risks of fluoride exposure.

Glasgow nursery-based caries experience, before and after a community-development-based oral health programme's implementation. Blair Y, Macpherson LMD, McCall DR, McMahon AD, Stephen KW. *Community Dental Health* 2004; **21**: 291–298.

OBJECTIVE: To develop and evaluate National Health Service (NHS)-based strategies likely to improve dental health and reduce inequalities in pre-5-year-old's oral health in Greater Glasgow, Scotland, by an ecological study of community-based oral health promotion programmes in two of the area's most socio-economically deprived communities. BASIC RESEARCH DESIGN: Following an initial NHS-based Oral Health Needs Assessment (OHNA) in a severely deprived community, culturally relevant dental health promotion interventions were initiated with multidisciplinary collaborative networks. Ecological studies to monitor dental health involved the cross-sectional caries epidemiology of nursery children aged 36–59 months at baseline (1995–1996), after 2 (1997–1998) and 4 years (1999–2000), in the G22 (pilot) and G33 postcode areas. These areas had similar socio-economic status (SES), i.e. severe social deprivation. RESULTS: At the outset, mean dmft scores in the pilot area for the age groups 36–47 months and 48–59 months were, respectively, 3·9 [95% confidence interval (CI) = 2·8–5·1] and 5·9 (95% CI = 5·1–6·8), with the proportions of caries-free children being 38% and 17%, respectively. Reductions in mean dmft scores of 46% for the 36–47-month-olds and 37% for the 48–59-month-olds occurred in the pilot public health programme area over the 4-year period; the proportions of caries-free children increased to 51% and 40%, respectively. During the first 2 years of the programme, increases in the mean dmft of 36–47-month-olfds and 48–59-month-olds in the G33 (comparator) area were recorded. However, this trend was reversed significantly 2 years later following the introduction of a

similar community-development-based caries-prevention programme. CONCLUSION: While not being able to attribute causation, a programme of community development to promote the dental health of preschool children residing in two socio-economically disadvantaged areas of Glasgow was associated with significant improvements in the dental health of these preschool populations.