Abstracts from other journals

Editor: Bernadette Drummond

Abstracts are presented as originally published or with only minor modifications

Resin-modified and conventional glass ionomer restorations in primary teeth: 8-year results. Qvist V, Manscher E, Teglers PT. *J Dent* 2004; **32**: 285–294.

OBJECTIVES: To compare the longevity and cariostatic effects of resin-modified (RMGIC) and conventional glass ionomer (GIC) restorations in primary teeth in the Danish Public Dental Health Service. METHODS: The sample consisted of 543 RMGIC and 451 GIC restorations in all cavity types in the primary teeth of 640 children, aged 3·0–17·5 years. The restorations were in contact with 480 unrestored surfaces. The restorations and the adjacent surfaces were followed until exfoliation/extraction of the teeth, repair/replacement of restorations or operative treatment of adjacent surfaces. Survival analyses supplied with multivariate analyses were performed to assess the influence of different factors on the longevity of restorations, occurrence of prevalent failures, and caries treatment of adjacent surfaces. RESULTS: After 8 years, 2% of the restorations were still in function and 37% of the RMGIC and 44% of the GIC restorations had been repaired or replaced. Fracture and loss of retention predominated as the reasons for failure of restorations in both materials. The 50% survival time for restorations was 55 months for RMGIC and 48 months for GIC [Formula: see text] Progression of caries lesions required operative treatment on 20% of the surfaces in contact with RMGIC and on 14% of surfaces adjacent to GIC restorations. The 75% survival time was 35 months for surfaces in contact with both materials [Formula: see text]. CONCLUSIONS: RMGIC and GIC showed similar cariostatic effects on restored teeth and adjacent tooth surfaces, but RMGIC should be preferred for class II restorations in the primary dentition, and class III/V restorations should be made in GIC due to enhanced longevity.

One topical fluoride (toothpastes, or mouthrinses, or gels, or varnishes) versus another for preventing dental caries in children and adolescents. Marinho VCC, Higgins JPT, Sheiham A, Logan S. *The Cochrane Library*, Issue 2, 2004. Chichester, UK: John Wiley & Sons. Ltd. CD0027.

BACKGROUND: Topical fluorides in the form of toothpaste, mouthrinse, varnish and gel are effective caries preventive measures. However, there is uncertainty about the relative value of these interventions. OBJECTIVES: To compare the effectiveness of one form of topical fluoride intervention with another when used for the prevention of dental caries in children. SEARCH STRATEGY: We searched the Cochrane Oral Health Group's Trials Register (May 2000), the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library Issue 2, 2000), MEDLINE (1966 to January 2000), plus several other databases. We handsearched journals, reference lists of articles and contacted selected authors and manufacturers. SELECTION CRITERIA: Randomized or quasi-randomized controlled trials with blind outcome assessment, comparing fluoride varnish, gel, mouthrinse, or toothpaste with each other in children up to 16 years during at least 1 year. The main outcome was caries increment measured by the change in decayed, missing and filled tooth surfaces (D(M)FS). DATA COLLECTION AND ANALYSIS: Inclusion decisions, quality assessment and data extraction were duplicated in a random sample of one third of studies, and consensus achieved by discussion or a third party. Authors were contacted for missing data. The primary measure of effect was the prevented fraction (PF) that is the difference in mean caries increments between the 'experimental' and 'control' groups expressed as a percentage of the mean increment in the control group. Random effects meta-

analyses were performed where data could be pooled. MAIN RESULTS: There were 17 studies included, and 15 contributed data for the meta-analyses. Fluoride toothpaste was not significantly different from mouthrinse (pooled DMFS PF 0%; 95% CI, –18% to 19%; $P = 0{\cdot}94$), or gel (pooled DMFS PF 0%; 95% CI, –21% to 21%; $P = 1$), or both gel and mouthrinse (pooled DMFS PF 1%; 95% CI, –13% to 14%; $P = 0{\cdot}94$); heterogeneity was substantial. Results from the single trial comparing toothpaste with varnish (in deciduous teeth) were inconclusive (dfs PF 5%; CI not obtainable). The pooled results from the comparisons of fluoride varnish with mouthrinse was a non-significant difference favouring varnish (DMFS PF 10%; 95% CI, –12% to 32%; $P = 0{\cdot}40$), but this result was not robust to sensitivity analysis performed, and heterogeneity was considerable. Results from the single trial comparing varnish with gel (14%, 95% CI, –12% to 40%; $P = 0{\cdot}30$) and the single trial comparing gel with mouthrinse (–14% DMFS PF; 95% CI, –40% to 12%; $P = 0{\cdot}30$) were inconclusive (favoured varnish and mouthrinse respectively). REVIEWERS' CONCLUSIONS: Fluoride toothpastes in comparison to mouthrinses or gels appear to have a similar degree of effectiveness for the prevention of dental caries in children. There is no clear suggestion that fluoride varnish is more effective than mouthrinses and the evidence for the comparative effectiveness of fluoride varnishes and gels, and mouthrinses and gels is inconclusive. No conclusions about adverse effects could be reached, because no data were reported on in the trials. Acceptance is likely to be greater for fluoride toothpaste.

Practice patterns of board-certified pediatric dentists: frequency and method of cleaning children's teeth. Gibson TJ, Nash DA. *Pediatr Dent* 2004; **26**: 17–22.

PURPOSE: The purpose of this study was to assess the periodicity of the recall examination and frequency and most often used technique for cleaning children's teeth. The resulting data were compared to current scientific evidence and recommendations to determine the appropriateness of practices by board-certified pediatric dentists. METHODS: A 28-item questionnaire was mailed to the 1034 members of the College of Diplomates of the American Board of Pediatric Dentistry residing in the United States. This report describes data pertaining to recall appointment periodicity, frequency and method of cleaning children's teeth, use of auxiliaries in prophylaxis, and instruction in oral hygiene. RESULTS: Six hundred twenty-nine surveys were returned, tabulated, and analyzed. Only 1% of dentists did not have an active recall program, 95% used a 6-month recall interval, and the remaining 5% had an interval ranging from 3 to 18 months. Hygienists were employed in 62% of pediatric dentistry practices. Pumice/rubber cup prophylaxis was employed routinely at recall by 67% of respondents; 24% reported the use of toothbrush and dental floss for cleaning; the other 9% reported no routine method for prophylaxis. The average fee for a pumice/rubber cup prophylaxis was dollar 42·55, and dollar 40·31 for a toothbrush prophylaxis. One hundred percent of pediatric dentists reported providing oral hygiene instruction for their patients. The instruction was directed to both parent and child in 97% of practices, child only in 2% of practices, and the parent only in 1% of practices. CONCLUSIONS: Recall intervals were not based on specific criteria related to individual patient needs. The majority of pediatric dentists employed the pumice/rubber cup prophylaxis method for cleaning children's teeth.

Smile aesthetics and malocclusion in UK teenage magazines assessed using the Index of Orthodontic Treatment Need (IOTN). Mattick CR, Gordon PH, Gillgrass TJ. *J Orthod* 2004; **31**: 17–19.

OBJECTIVE: There is a significant demand for orthodontic treatment within the UK from adolescent girls, a group known to be influenced by the media portrayal of body form and body image, which may extend to the presentation of malocclusions. This study examined the portrayal of malocclusion in a media type that targets teenage girls under 16 years of age. MATERIALS AND METHODS: A representative selection of 1 month's magazines targeting this group were investigated, and the frequency and severity of malocclusions displayed were assessed. Two calibrated examiners viewed all the smiles (on two occasions) using a modification of Index of Orthodontic Treatment Need (IOTN) and assigned an Aesthetic Component Score to each smile. RESULTS: It was found that the aesthetic score is low (less than 7) for the majority of models (92·8%)

indicating no need or a borderline need for treatment. Only 7·2% of models exhibited a definite need for treatment. CONCLUSION: It appears that the portrayal of malocclusion in teenage magazines does not reflect the general treatment need of the adolescent population.

Efficacy of occlusal plaque removal in erupting molars: a comparison of an electric toothbrush and the cross-toothbrushing technique. Nourallah AW, Splieth CH. *Caries Res* 2004; **38**: 91–94.

The aim of this prospective crossover study was to compare the efficacy of two methods of plaque removal on partially erupted occlusal surfaces, which comprise about 80% of the sites affected by caries in schoolchildren. After a baseline examination, 16 children (aged 5–7 years) and their parents were instructed in cleaning the occlusal surface of an erupting molar either with an electric toothbrush or with a manual toothbrush in the cross-brushing technique. After 2 weeks, the proportion of the occlusal surface covered by plaque was measured again using the occlusal plaque index, a new, highly reproducible method (intraclass correlation coefficient > 0·90). For the next 2 weeks, they used the other technique. In the multifactorial variance analysis, the individual child and parents were the most important factor for the amount of plaque present. Secondly, both methods resulted in about 50% less plaque on occlusal surfaces compared to baseline (29·2%) with a slightly but significantly smaller mean value for the electric toothbrush (14·7%, manual cross-brushing technique 16·7%; $P = 0{\cdot}025$).

Risk factors for dental caries in young children: a systematic review of the literature. Harris R, Nicoll AD, Adair PM, Pine CM. *Community Dent Health* 2004; **21** (Suppl. 1): 71–85.

OBJECTIVE: To conduct a systematic review of the literature on risk factors for dental caries in deciduous teeth of children aged six years and under, to give a scientific framework for the international collaborative studies on inequalities in childhood caries. METHOD: Accepted guidelines were followed. Studies were identified by electronic searching and reviewed on the basis of key words, title and abstract by two reviewers to assess whether inclusion criteria were met. Copies of all articles were obtained and assessed for quality according to the study design. RESULTS: 1029 papers were identified from the electronic search, 260 met the prima facie inclusion criteria. 183 were excluded once full copies of these papers were obtained. Of the 77 studies included, 43 were cross sectional, 19 cohort studies, 8 case control studies and 7 interventional studies. Few obtained the highest quality scores. 106 risk factors were significantly related to the prevalence or incidence of caries. CONCLUSION: There is a shortage of high quality studies using the optimum study design, i.e. a longitudinal study. The evidence suggests that children are most likely to develop caries if Streptococcus Muttans is acquired at an early age, although this may be partly compensated by other factors such as good oral hygiene and a non-cariogenic diet. Diet and oral hygiene may interact so that if there is a balance of 'good' habits by way of maintaining good plaque control and 'bad' habits by way of having a cariogenic diet, the development of caries may be controlled.

A review of fluorosis in the European Union: prevalence, risk factors and aesthetic issues. Whelton HP, Ketley CE, McSweeney F, O'Mullane DM. *Community Dent Oral Epidemiol* 2004; **32** (Suppl. 1): 9–18.

Fluoride has played a key role in caries prevention for the past 50 years but excessive ingestion of fluoride during tooth development may lead to dental fluorosis. Throughout Europe many vehicles have been, and are currently, employed for optimal fluoride delivery including drinking water, toothpaste, fluoride supplements, salt and milk. Several indices, both descriptive and aetiological, have been developed and used for measuring fluorosis. This factor, combined with the lack of use of a standardized method for measurement of fluorosis, has made comparison between studies difficult and assessment of trends in fluorosis prevalence unreliable. Overall the evidence would appear to indicate, however, that diffuse enamel opacities are more prevalent in fluoridated than in nonfluoridated communities and that their prevalence at the very mild level may be increasing. In addition to fluoridated drinking water, risk factors for fluorosis include

inadvertent ingestion of fluoride toothpaste and the inappropriate use of fluoride supplements. The risk is of aesthetic concern primarily during the period of enamel development of the permanent central incisors, although this largely appears to be a cosmetic rather than a public-health issue. It is concluded that there is a need to co-ordinate studies measuring fluorosis throughout Europe and that development of a standardized photographic method would be useful. Furthermore, the aesthetic importance of fluorosis needs to be determined in more detail in each country in the light of each country's respective risk factors and dental health policies.

Long-term outcomes of primary molar ferric sulfate pulpotomy and root canal therapy. Casas MJ, Kenny DJ, Johnston DH, Judd PL. *Pediatr Dent* 2004; **26**: 44–48.

PURPOSE: The purpose of this study was to compare long-term outcomes of ferric sulfate pulpotomy (FS) and primary tooth root canal therapy (RCT) in vital pulps of deciduous molars exposed to caries lesions. METHODS: A total of 291 molars were treated in 130 children. One hundred and eighty-two molars received FS and 109 received RCT by random selection. RESULTS: At 3-year re-assessment, 29 molars (15 FS, 14 RCT) were available for clinical and radiographic examination. Two independent pediatric dentists evaluated periapical radiographs of the treated molars. Molars were classified 1 of 4 outcomes: (1) N = normal treated molar; (2) H = nonpathologic radiographic change present; (3) P(o) = pathologic change present, follow-up in 6 months; (4) P(x) = pathologic change present extract immediately. Survival analysis was applied. A good level of agreement between raters was found for molars with outcome P(x) (K = 0·79). No difference in radiographic outcomes was demonstrated 3 years after treatment (chi2 = 1·4). Survival analysis demonstrated a 3-year survival probability of 0·62 for FS-treated molars and 0·92 for RCT molars. Survival of RCT molars was significantly greater than for FS molars (Wilcoxon: $P = 0{\cdot}01$; log-rank: $P = 0{\cdot}02$). CONCLUSIONS: RCT-treated molars demonstrated significantly greater survival than FS-treated molars 3 years after treatment.