

# The 8<sup>th</sup> Annual Conference of The European Association of Dental Public Health, 21-23<sup>rd</sup> August, 2003, Jyväskylä, Finland: Scientific Abstracts

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## Session A1 - Behavioural Sciences - Room Anton Friday, 22 August 2003 Chairs: Dr. Satu Lahti and Professor Paul Riordan

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### Violence: a major maxillofacial injury event

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**OBJECTIVE** This study aimed to assess the epidemiology of maxillofacial injuries in East London during the period August 2000 to May 2002. **BACKGROUND** Data from 27 maxillofacial units in the UK showed an overall increase of 20% in maxillofacial injuries between 1977 and 1987. It also suggested a change in trends of causes: road accidents had decreased by 34% and assaults had increased by 47% (Shepherd et al, 1991). **METHODS** The study used a records-based retrospective epidemiological design. The Royal London Hospital was chosen because it is the main referral centre in East London, and its maxillofacial and oral surgical service is the referral centre for the other hospitals in that area. All patients who attended the Emergency Department at that hospital between August 2000 to May 2002 were included in the study. Clinical and non-clinical data were extracted from the patients' records. The data obtained was categorised in accordance to the Data Dictionary for Minimum Data Sets on Injuries proposed by WHO. This included age, sex, reason for visit to the Emergency Department, injury intent, injury activity, place of injury, nature of injury, and type of facial fracture. Data analysis included descriptive statistics. **RESULTS** 2488 patients presented at this Emergency Department due to maxillofacial injuries, 1887 (75.8 %) males and 601 (24.2 %) females. Open wounds were the most common types of injury (63.1%), followed by fractures of the facial bones (29.3%). Violence (41.7%) was the most prevalent injury activity associated with maxillofacial injuries followed by falls (31.3%), road traffic accident (9.2%), and physical leisure activities (6.2%). The injury activity was not known in only 194 patients (7.8%). **CONCLUSIONS** Violence may play an important role in the occurrence of maxillofacial injuries

## Children's toothbrushing in relation to their parents' behaviour, knowledge and attitudes

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**OBJECTIVE** The aim of this study was to investigate if the toothbrushing habit of 11-12-year-old children was associated with the oral health related knowledge, attitudes, and behaviour of their parents. **METHODS** The study sample consisted of all 5th and 6th graders in the towns of Pori and Rauma, Finland. Oral health personnel administered questionnaires for pupils to fill out at schools. Pupils took a questionnaire to one of their parents to be filled out at home. Questionnaires consisted of 8 multiple choice questions concerning oral health related knowledge, attitudes, and behaviour. 2,387 children and 94% of their parents completed the questionnaire. Relationships between the children's brushing habit and the knowledge, attitudes, and behaviour of their parents were analysed by cross-tabulations. Statistical significances of the associations were evaluated by McNemar's tests. **RESULTS** Children whose parents knew the importance of using fluoride tooth paste twice-a-day brushed twice-a-day more often than children whose parents did not. Children of parents who were concerned about their child having tooth decay brushed twice-a-day more often than children of parents who were not concerned about tooth decay. At least twice-a-day brushing by parents was positively associated with at least twice-a-day brushing by their children. All differences were statistically significant at  $p < 0.001$  level. **CONCLUSIONS** Parents' favourable oral health related knowledge, attitudes, and behaviour seemed to be associated with good brushing habits of their children. This study was supported by The Finnish Dental Society Apollonia and Juho Vainio Foundation

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## Does perceived general health affect the level of oral impacts?

G TSAKOS, W MARCENES, A SHEIHAM

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**OBJECTIVE** The aim of the study was to explore the relationship between perceived general health and oral impacts on daily performance in an elderly population. **METHODS** The study was carried out in two municipalities in Athens, Greece, and consisted of a cross-sectional survey of adults aged 65 years or older living independently. Perceived general health was assessed through a global rating item and oral health-related quality of life through a modified version of the Oral Impacts on Daily Performance (OIDP). Analysis was carried out separately for dentate and edentulous participants and non-parametric tests were used (Kruskal-Wallis and logistic regression). **RESULTS** The sample consisted of 681 people, 448 dentate and 233 edentulous. 23.4% of dentate and 29.4% of edentulous participants perceived their general health as 'excellent' or 'very good', 37.9% of dentate and 38.2% of edentulous as 'good', while 38.7% of dentate and 39.9% of edentulous reported 'fair' or 'poor' general health. The relationship between perceived general health and OIDP scores was significant in the dentate ( $p < 0.001$ ), but not in the edentulous sample ( $p = 0.44$ ). After adjusting for the effect of age, sex, education level, and a variety of alternately used clinical measures, dentate people with 'fair' or worse perceived general health had between 1.76 (1.18, 2.61) and 1.89 (1.27, 2.80) times higher risk of experiencing oral impacts that affect their everyday life, when compared to those that perceived their general health as 'good' or better. After a similar adjustment, the respective relationship in the edentulous sample remained non-significant. **CONCLUSION** It could be

concluded that there was a significant association between oral impacts and perceived general health status among dentate, but not among edentulous participants.

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## **Attitudes and behaviour of European parents of children with caries**

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2 Scotland

3 Czech Republic

4 Wales

5 Belgium

6 Italy

7 N. Ireland

8 Denmark

9 Norway

10 Germany

11 Ireland.

**OBJECTIVE** To examine how parents' beliefs, behaviours and attitudes to toothbrushing and sugary drinks and foods in their child's diet vary between parents of young children with and without caries in 8 European countries. **METHOD** The local team recruited parents of 3-4 year old children with caries (D 1 >2) and without caries from advantaged and disadvantaged backgrounds. Parents completed a questionnaire. In analysis, disadvantage was defined as mothers with no formal education past school leaving age. **RESULT** 1,132 children and parents took part. Children from advantaged backgrounds with caries were less likely to brush twice a day. More disadvantaged children with caries began brushing after 2 years. Eating sweets or chocolate daily and drinking sugary drinks was common and higher in disadvantaged children. Independent of background, parents of children with caries were more likely to report difficulty in stopping their children having sugary foods and drinks between meals ( $p=0.04$ ). Similarly, they reported that it is often too stressful to say no when their child wants sweets ( $p<0.001$ ).

**CONCLUSION** Supporting parents to develop coping strategies with regard to controlling sugar intake and establishing regular toothbrushing may be more effective in promoting caries prevention than simply providing factual information about the causes of tooth decay. This study was funded by the National Institutes of Health, USA, NIH grant number DE13703-02.

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## **Changes in oral health behavior, knowledge and attitudes of mothers and schoolteachers in Romania from 1993 to 2003**

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3 Constanta

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5 Bucuresti

**OBJECTIVE** The present study was carried out in order to compare the level of oral health, knowledge and attitudes among mothers and school teachers, during 1993-2003.

**BACKGROUND** Previous research was the result of inter-university collaborative projects

between Romania and Scandinavia and represent the implementation of school-based oral health promotion programs. In 1993, the level of knowledge of dental health education of parents and teachers was assessed. It was considered that the teachers and the children's parents who have a definite influence on the total child population could be used as the dental educators. **METHODS** The study comprised mothers and teachers from the focal points (Iasi, Constanta, Timisoara, Bucuresti) where the National Programme for prevention of dental caries in 1998 was started. It consisted of rinsing once a week with 10 ml of 0.2% NaF solution. Data were collected on the basis of structured questionnaire from 197 school teachers and 278 mothers. Anonymity of the answers was ensured for all participants. The SPSS 10.1 for Windows statistical software was used for data management and statistical tests. **RESULTS** The study shows a significant improvement in oral health behaviour, knowledge, and attitudes of mothers and school teachers in Romania, during 1993-2003, but the level of knowledge is still low. Health education should focus on parental responsibility for oral health and the mothers should be encouraged to give practical and emotional support to their children with regard to oral hygiene habits. **CONCLUSIONS** After this study it could be said that an intensive workshop with teachers, parents, dentists, and dental assistants will help the educators to develop their interest and motivation in improving the oral health knowledge and to produce major changes in dental attitudes and behaviour modification. An educational component should be included to help students, parents, and school personnel understand the effectiveness of dental health educational programs in schools. **ACKNOWLEDGEMENTS** This study was supported by the institutional grant of Ministry of Health, Romania, Romania.

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## **Evaluation of the consumption of cariogenic and protective foods among adolescents and their interest in nutritional education**

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**OBJECTIVE** To evaluate nutritional habits, consumption of cariogenic foods, and food to protect against neoplastic processes. **BACKGROUND** Special concern was focused on interest in nutrition and health, specifically in oral health. **METHODS** A random sample was taken from a total of 20,215 adolescents with a response rate of close to 84%, with 1,472 valid surveys obtained among adolescents of whom 696 were females and 776 males. **RESULTS** Industrially produced pastries were considered as a substitute for breakfast by 18.4%, lunch by 5.3%, and for dinner by 4.1%. They were consumed between the meals once or twice a day by 32% and 3 or more times a day by 9.5%. The average daily intake was  $1.03 \pm 1.42$ . Consumption of sweets as a substitute for meals was as follows: breakfast 1.4%, lunch 3.3%, dinner 1.2%. The sweets were consumed between meals once or twice a day by 35.2% and 3 or more times a day by 23.8%. The average daily intake of sweets was  $1.87 \pm 2.84$ . The mean number of sweetened drinks on weekdays was  $1.94 \pm 2.11$  in males and  $1.63 \pm 1.94$  in females. Consumption of the cancer protective foods (fruits and vegetables) was: fruits (breakfast 19.8%, lunch 39.9%, dinner 21.3%), vegetables (lunch 23.3%, dinner 11.0%). 25.9% of females and 14.9% of males followed diets. 5.3% of males and 10.2% of females were interested in receiving education on nutrition/health and 2.3% of the sample were interested in receiving education on nutrition/oral health. 14.8% of the sample required information on diets. **CONCLUSIONS** A progressive increase in industrially produced pastries, sweets and snacks, which even substitute for normal meals was found. It is a concern that they provide few calories, minimal proteins and free sugar with a high cariogenic potential. In addition, the consumption of protective food is deficient.

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## **Oral health among the mentally handicapped**

**OBJECTIVE** To examine the association between the aetiology of the mental handicapped and their oral health. **BACKGROUND** A common characteristic of mentally deficient subjects is their difficulty in social adaptation which, in turn, is the outcome of their biological constitution, their experiences, their learning, and their environment. **METHODS** A sample of 175 patients of whom 68% were males and 32% females was included. Aetiologically 35.4% of cases were environmental, 13.2% genetic, and 51.4% unknown. 71.4% were slight and 28.6% moderate. Variables: family data, medical history, information on personal autonomy and oral pathology, and oral examination. **RESULTS** 32% were oral respirators, 16% had bruxism, 16% squeezing, and 48.6% attrition. Frequency of tooth brushing was 27.4% never, 34.3% once a day, and 38.2% twice or more. 4.7% needed help in tooth brushing, morphologically 49.1% had labial hypertrophy, 0.6% hypotrophy, 34.9% macroglossia, and 31.4% fissured tongue, with these conditions prevailing in those of genetic origin. Localised gingival recession was present in 25.7% and generalised in 0.6%; 13.7%. 179 presented localised gingival hyperplasia and 46.9% generalised; and 91.4% suffered from periodontal disease. The DMF index according to age was: 12.1 (< 26 years), 14.5 (26-35), 16.6 (36-45), and 15.1 (> 45). The highest values were among subjects with genetic and unknown aetiology. **CONCLUSIONS** High prevalence of morphological changes was observed in the handicapped. Oral soft and hard tissue pathologies were more prevalent than among the general population. Oral hygiene was poor when compared with the rest of the population. Therefore this group requires more preventive dental care than the normal population.

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## Opinions of the personnel in The Dental Public Health Service in Jyväskylä

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**OBJECTIVE** To reveal the opinions of the employees about their work, the motivating factors and the opportunities to influence the organization of the Dental Public Health Service in Jyväskylä. **BACKGROUND** Previous studies have shown that factors leading to positive job attitudes and satisfying the individuals need for self-actualization in their work motivate them to extra performance on the job. **METHODS** The questionnaire with 5-scale Likert-type statements was sent to the staff (n=90), 84,4% responded. Distribution of the answers between the different professional groups were compared. **RESULTS** Remarkable differences between the professional groups were found concerning opportunities to influence development of the dental health service and to get continuing education. Four per cent of nurses, 50% of hygienists, 37% of dentists and 20% of the other professionals found that they had good opportunities to influence the development of the service. Twenty eight per cent of nurses, 50% of hygienists, 59% of dentists and 20% of the other professionals found that they had good opportunities to get continuing education. Forty eight per cent of personnel considered that good chances to influence development of the service motivated them a lot, 83% that good chances to get continuing education had a big effect on their job motivation. Salary associated with performance motivated 79% of personnel a lot, while 65% of them found that the amount of salary alone had a high motivating effect on the job. **CONCLUSIONS** To achieve greater success the dental service should increase the opportunities of its staff to influence the development of the service, to improve opportunities to get continuing education, and connect salary more closely with performance.

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## Dental status and oral health related quality of life in disadvantaged French

## adults

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**OBJECTIVE** This study aimed to ascertain the oral health related quality of life (ORHQL) and its determinants in a group of disadvantaged adults in Auvergne. **BACKGROUND** Recent expansion of health insurance coverage in France has increased funding for dental care for disadvantaged adults. **METHODS** A random sample (n=900) of disadvantaged 35-44 year olds was drawn from the databases of the health insurance funds in the department of Puy-de-Dôme. Subjects were invited by mail to attend for a clinical examination and 144 persons (18%) attended. A questionnaire was used to explore their knowledge and beliefs concerning dental health as well as OHRQL through the Global Oral Health Assessment Index (GOHAI). Clinical examinations recorded DMFT, plaque and denture status. **RESULTS** Decayed teeth and missing teeth represented respectively 12% and 28% of the DMFT (mean 13.5). Participants reported a very low OHRQL: 63% rated their oral health as poor and 79% perceived a need for dental care. Participants were infrequent users of dental services and demonstrated poor dental knowledge: only 19% were aware of the existence of fluoridated salt, and 40% had recently declined dental care because of costs. This last factor (OR=0.30), and the number of carious teeth (OR=0.78), had an important influence on the GOHAI score. **CONCLUSION** This group was not availing of dental care. Financial measures alone seem inadequate to increase this group's utilisation of care, overcome their negative perceptions of their own dental health and improve their knowledge of positive health behaviours.

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## Role of maternal modeling on oral health behavior of children: Pilot Study

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**OBJECTIVE** The present pilot study examined the influences of maternal behavior and the mother-child relationship upon oral health behavior of their children. **BACKGROUND** Parental modeling places a major role in adopting and maintaining health behaviors in childhood. **METHODS** Oral health knowledge, attitudes and preventive practices of children in relation with maternal behaviors were investigated by means of self-administered questionnaires with modified and newly created scales on Turkish private elementary school children aged 9-10 (n=69). 63 children and 53 of their mothers completed questionnaires at school and at home, respectively. **RESULTS** Of all children and mothers, 64% and 80% reported daily tooth brushing twice or more. Dental visit only for acute reasons was reported by 41% of the children and 46% of the mothers. Frequency of child tooth brushing (CTBF) and dental visit (CDVF) correlated with "Maternal Oral Health Behavior Scale", (r s=0.648\*) (r s=0.327\*) respectively. CTBF separately had positive correlation with maternal dental visit (r s=0.330\*), "Maternal General Health Beliefs Scale" (r s=0.324\*) and "Maternal Attitude Towards Oral Health Care of Child Scale" (r s=0.329\*). "Maternal Control Over Child Tooth Brushing Behavior Scale" strongly correlated with extrinsic motivation of child on oral hygiene practices (r s=0.747\*\*). **CONCLUSIONS** Using modified and newly created scales confirm the significance of maternal modeling on oral health behavior of children.

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## Perceived skills and ways of action of dentists in meeting TMJ dysfunction

## patients in the Northern Savo Region in Finland

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**OBJECTIVE** The aim of this study was to obtain information on occurrence of patients with symptoms and complaints of TMJ dysfunction and the dentists' possibilities to meet their demand for care in the Northern Savo region (252 000 inhabitants) in Finland. **METHODS** A questionnaire was sent to all dentists (< 65 years) working in the Northern Savo region (n=171). The response rate was 63%; 17% were specialists and the rest were general practitioners. Sixty per cent were working at community health centres, 31% were full time private practitioners and 9% had more than one working place. **RESULTS** Thirty per cent of the respondents met patients with alleged or diagnosed TMJ dysfunction weekly, 45% every month, while 27% of the dentists met only a few of such patients per year. Three per cent of the respondents had a "wait and see" as a main policy, 10% of them always referred the TMD patients to other dentists, 58% took care of some. 180 of the TMD patients they met while they referred the most difficult cases, 23% of the respondents took care of nearly all of their TMD patients while 5% of them even had patients referred to them by other dentists. The routes of referral for difficult cases used by the respondents were: Department of Oral and Maxillofacial Diseases in Kuopio University Hospital (34%), another dentist at the same health centre (19%), private specialist (16%), while 28% of respondents had several ways of action. The most important reason for referring the TMD patient was that the dentists felt their knowledge to be inadequate (56%). Half of the respondents (52%) had regularly or several times taken part in postgraduate courses in TMJ dysfunction, 47% occasionally and 1% not at all. Sixty-three per cent of the respondents were willing to participate in regional postgraduate training (2-3 meetings/year) on TMJ dysfunction, if such training were available. **CONCLUSIONS** Patients with alleged /diagnosed TMJ dysfunction are commonly met by the dentists in the Northern Savo region in Finland and most of them feel themselves capable of giving adequate care in less complicated cases, while they also feel a need to refer the difficult cases to more experienced colleagues. The attitude towards further education is very positive.

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## Session B1 - Epidemiology - Room Alvar Friday, 22 August, 2003

**Chairs: Professor N. Pitts and Dr. J. Frias-Bulhosa**

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## Social capital and oral health: results for traumatic dental injuries

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**BACKGROUND** Social capital (SC) refers to features of social organization, such as trust norms and networks, that enable people to act together and more effectively to pursue common goals. A growing body of evidence suggests that communities with high levels of SC have better health and lower levels of mortality and homicides (Kawachi I, Berkman L. In Social Epidemiology: Oxford University Press 2000: 174-190). **OBJECTIVE** To investigate the association between SC, at the area level, and the prevalence of traumatic injuries to anterior teeth. **METHODS** Data were collected by clinical examination and by self-administered questionnaires for 1302 14/15 year-olds randomly selected from the catchment areas of 39 schools in the Distrito Federal,

Brazil. Data on SC were collected through self-administered questionnaires sent to the head of the 14/15 year-olds' families and by census variables. Statistical analysis used logistic multilevel modeling taking into account area variations and controlling for confounding factors at the individual level. **RESULTS** Traumatic dental injury rates were significantly lower in areas with higher SC levels. The crude odds ratio (OR) for one unit increase in the standardised SC index was 0.75 (95% CI=0.59 to 0.97, p=0.027). After controlling for age, sex, anterior tooth protrusion, lip coverage, BMI and social class at the individual level, the adjusted OR improved to 0.73 (95% CI=0.52 to 0.89, p=0.021). The association between SC and injuries was stronger for males than females. The predicted probability of a dental injury in a 14-year-old middle class boy in the area with the lowest SC level was 20%, whereas a similar boy in the highest SC area would have an 8% probability. For girls the probabilities were 15% and 6% respectively. **CONCLUSIONS** It is concluded that SC may play an important role in explaining inequalities in dental injury rates especially for young males. This study was funded by the Brazilian Government (CAPES Proc.1237/ 99-3)

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## Associations between social and health factors and TMD

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**OBJECTIVE** The aim of this epidemiological study was to develop explanatory models for temporomandibular disorders (TMD) related problems using variables from three domains: (1) socio-economic attributes, (2) general health and health-related lifestyle, and (3) dental attitudes and behaviours. **BACKGROUND** The etiology of TMD is not well known, but considered complex (Greene C. J Orofac Pain 2001;15:93- 105). Since TMD comprise a number of disorders and conditions in the orofacial region, it is evident that many etiological factors may be involved (Carlsson GE. J Orofac Pain 1999;13:232-237). **METHODS** A mail questionnaire was sent to the total population of 50-year old subjects in two Swedish counties (8,888 individuals). The overall response rate was 71%. Among the 53 questions in the questionnaire, those related to social, general health and health related factors were used as independent variables in logistic regression models. Three TMD related symptoms and reported bruxism were used as dependent variables. **RESULTS** Impaired general health was the strongest risk factor for reported TMD symptoms, which, together with female gender, and dissatisfaction with dental care was significantly associated with all three TMD symptoms. A few more factors were associated with pain from the TMJ only. In comparison, reported bruxism showed more significant associations with the independent variables. Besides the variables associated with the TMD symptoms, being single, college/university education, and daily tobacco use were also significantly correlated with bruxism. **CONCLUSIONS** Besides female gender, impaired general health, dissatisfaction with dental care and a few social and health related factors demonstrated significant associations with TMD symptoms and reported bruxism.

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## Fluorides and permanent tooth emergence. Is there an effect?

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**OBJECTIVE** This study intended to address two questions: 1) Is there an effect of exposure to fluorides on the timing of emergence of permanent teeth? and 2) Can a difference in timing of tooth emergence be explained by the impact of fluorides on the caries experience of the

predecessors? **BACKGROUND** Earlier work demonstrated that children living in areas with high fluoride concentrations in the drinking water experienced delayed emergence of permanent teeth (Virtanen JI, Bloigu RS, Larmas MA. *Community Dent Oral Epidemiol* 1994;22:286-8), while other researchers concluded that there was no effect of endemic fluorides on permanent tooth emergence (Rashed M, Hafez SA. *Egypt Dent J* 1995;41:1211-6). **METHODS** Data were obtained from a long-term follow-up study of the oral health condition in a sample of 4,468 Flemish children; they were examined annually during their primary school time (1996-2001). Survival analyses with a loglogistic distribution were performed to calculate median emergence ages and 95% confidence intervals; four fluoride exposure parameters (signs of fluorosis, reported use of systemic fluoride supplements, reported age at start of brushing and reported frequency of tooth brushing) and caries experience in primary molars were examined as covariates in the model. **RESULTS** The present study indicates that the impact of any of the four fluoride exposure parameters on permanent tooth emergence was relatively minimal. **CONCLUSION** Caries experience in primary molars has a more pronounced impact on the timing of emergence of the permanent successors than exposure to fluorides. Supported by Research Grant OT/00/35, Catholic University Leuven - Unilever, Belgium

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## Effects of fluoride tablets and fluoridated salt on caries experience

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2 Public Dental Health Services Marburg, Germany.

**OBJECTIVE** This retrospective study was intended to examine whether a connection can be drawn between previous systemic fluoridation and the prevalence of caries among the twelve- to thirteen-year-old age group. **METHODS** The study was conducted in the district of Marburg-Biedenkopf in the year 2000. All sixth-grade children were included. The children's D 3,4 MFT index was obtained in accordance with WHO criteria. Data on the systemic use of fluoride (salt and tablets) was determined by means of a parents' questionnaire. The SPSS statistics package was used to evaluate the data. Significances were tested using the U Test (Mann-Whitney) at a significance level of 5%. **RESULTS** Data from 2,140 children were evaluated. The average D 3,4 MFT index for the entire group was 0.94. Young people (N=196) who had received neither fluoridated table salt nor fluoride tablets (TbF) exhibited an average D 3,4 MFT index of 1.53. Children of the same age from families who used fluoridated table salt (but no TbF), showed an average D 3,4 MFT index of 1.33 (N=101). The difference was not significant ( $p=0.644$ ). For children who had received fluoride tablets but no fluoridated table salt (N=526), the average D 3,4 MFT index was 0.83, and for those who had used TbF and F table salt it was 0.58 (N=680). The differences to the control group were significant in each case ( $p < 0.001$ ). **CONCLUSIONS** The results of this study suggest that TbF has a positive effect on caries prevalence. However, it is not possible to determine accurately from the available data whether this was the result of a local effect.

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## The oral health status of the chronic hemodialysis patient

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**OBJECTIVE** To establish the oral health status of a sample of patients undergoing renal dialysis. This is the only way to create adequate protocols for both oral evaluation and treatment to improve the oral status of this "special care" group of patients. **METHODS** A total of 57 patients, receiving hemodialysis in Piove di Sacco and Chioggia Hemodialysis Units, Ulss 14 Area, Veneto Region, Italy, were studied. Two examiners performed the assessment at each

dialysis unit, using WHO criteria. **RESULTS** Of the original 57 patients 19 were edentulous or partly edentulous and were not included in the study. The pooled DMF index was 22.4. Plaque scores were high and all of the patients displayed gingival inflammation. Oral soft tissue lesions were also present. Patients receiving hemodialysis showed an unacceptable level of oral hygiene and poor oral health. They had often received dental treatment only on an emergency basis and many of them hadn't sought routine dental care. **CONCLUSIONS:** The need for fillings and/or extractions was high. In these medically compromised patients dental problems may have serious consequences for general health, because active dental disease may represent a source of infection and may have implications for morbidity and mortality. Dentists' cooperation with nephrologists is fundamental to ensure adequate and comprehensive oral health care. Emphasis should be placed both on prevention and on planned management, necessary for safe dental treatment designed to restore the patient's dentition and protect them from potentially severe infection of dental origin.

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## The prevalence of nursing caries in Veneto region, Italy

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**OBJECTIVE** To measure the level of nursing caries in children attending the maternal schools in the area of Ulls n 15 "Alta Padovana" and compare the current data with the previous data collected in 1994. **BACKGROUND** Nursing caries, or early childhood caries, affects the upper primary deciduous teeth and its prevalence varies between countries (Milnes 1996). It is particularly prevalent amongst children of disadvantaged families, although if the oral health is poor it can be found in children irrespective of their social class. **METHODS** A sample of 596 children attending maternal schools were visited between October 2002 to February 2003. The dental screenings were undertaken by one dentist in the schools using a plane mouth mirror, a dental probe and a portable light. Data were recorded in a clinical chart according to the WHO criteria for oral health surveys. For the diagnosis of the nursing caries at least two upper deciduous teeth had to be affected by caries. **RESULTS** Overall sample: mean age of the sample was 3.92 years, male children (309), females (287). The mean dmft index was 1 (D=0.94), 78.5% of children were caries free. A total of 48 children (8% of total), 32 males and 16 females were in the nursing caries subgroup. The mean age of this subgroup was 4.1 years; the mean dmft was 7.6. In 1994 in 4 year-old children of the same area the percentage with nursing caries was 11.9%. The mean dmft of the overall sample was 1.2 and 69,6 % of children were caries free (Ferro 1994). **CONCLUSIONS** From 1994 to 2002/3 oral health indices have improved and the percentage of children with nursing caries decreased

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## Oral health status of elderly in the Czech Republic

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**OBJECTIVE** The nation-wide survey of oral health and treatment need in individuals aged 65-74 years was conducted in 2002. **BACKGROUND** The aim of study was to obtain current data on oral health of seniors and to compare them with those of 1987. **METHODS** Individuals were seen in 38 localities. In all locations a group of 10-12 randomly selected individuals in housings for seniors (HS) and an equal group of age-matched seniors with full self-settlement (SS) were examined. Four mutually calibrated examiners performed the oral examinations using dental mirror, probe, perio probe. The data was recorded using WHO methods. The oral health

characteristics calculated were; % edentulous, mean number of functional teeth present, DMFT, periodontal status (CPI), treatment need (restorative, periodontal, surgical, prosthetic). The correlations calculated were; status 2002 vs. 1987, residents of senior's housings (HS) vs. seniors living alone or in families (SS). A total of 492 individuals were examined. **RESULTS** Dental status: 33.56% of edentulous, mean DMFT 25.48 in individuals with their own teeth, RI=83.8%, 49.7% with CPI 0-4 (10.3, 6.2, 26.9, 37.2, 19.3 resp.), treatment need: no need 59,8%, need for extractions only 19,1%, need for conservative therapy only 21,1%. Significant differences ( $p<0.05$ ): 2002 vs.1987: lower % edentulous, lower % M teeth, higher RI, higher % with no need of dental treatment; HS vs. SS groups: higher % edentulous, lower mean count of remaining teeth, lower RI, higher need of extraction and restorative therapy. **CONCLUSIONS** Satisfactory and improving oral health of seniors with full self-settlement compared with the considerable need of oral health care of those residing senior housings.

**ACKNOWLEDGEMENTS** Supported by the grant No. NJ 7555-2 of the Ministry of Health, CZ.

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## Dental health and treatment needs in institutionalized psychiatric patients in India

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**OBJECTIVE** This study was designed to assess the caries prevalence, oral hygiene status, periodontal health and the treatment needs in a group of institutionalized psychiatric patients in Davangere, India. **BACKGROUND** To date, only a few studies have been conducted to determine the dental status and the treatment needs of institutionalized psychiatric patients (Barnes et al. Specific Care Dent, 1988;8;173-177). **METHODS** The DMFT and DMFS indices, OHI-S and CPITN were used. Multiple logistic and stepwise linear regression analysis were performed using the strata software program. **RESULTS** Of the total sample of 891 subjects, 580 (65.1%) were males. A total of 115 (12.9%) patients were edentulous. No caries free subjects were found and among the dentate, the DMFT and DMFS scores for all age groups were respectively 15.6 and 88.7. The stepwise linear regression analysis showed that the mean DMFT index increased with age ( $t=6.9$ ;  $p<0.001$ ). Of the 776 dentate subjects, only 18 (2.3%) had no need of dental treatment; 758 (97.7%) required dental treatment. Mean OHI-S score was 4.2 and only 0.6% of the entire sample was found with healthy periodontal tissue; bleeding on probing or a higher score was found in 4.9% of examined sextants; calculus in 12.3%; shallow pockets and deep pockets in 17.5% and 64.7% of all sextants ( $p<0.001$ ).

**CONCLUSIONS** The dental health was poor and the need for dental treatment was high in this group of institutionalised psychiatric patients. More preventive and restorative efforts are required.

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## Tooth fractures of incisors among schoolchildren in Hawalli governorate in Kuwait

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1 National School Oral Health Program, Ministry of Health

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**OBJECTIVE** This survey aimed to measure the prevalence and the type of fractures of incisors among third and fourth grade primary school children in one governorate, Hawalli, in Kuwait. **BACKGROUND** Representative epidemiological studies on traumatic fractures are few and show great variation. **METHODS** All the third and fourth grade children (7-12 years) at school at

the time of the clinical examinations were clinically examined by one paediatric dentist (FD) in October - December, 2002. Examinations were conducted in school classrooms after the lectures. Only spot artificial light was used in the screening. The children with diagnosed tooth fractures were then examined with mouth mirror, photographed by digital camera and finally interviewed to ascertain the reason for the traumatic injury and the age when it had happened. Altogether 8,159 schoolchildren were examined. **RESULTS** Altogether 84 children were diagnosed having one or more tooth fractures (76 boys and 8 girls), giving a prevalence of 1.9% for boys and 0.2% for girls. Most of the children (47.6%) didn't know how the fracture had happened; 33.3% said it happened when playing at school; 8.3% at home; 4.8% when biking; and 3.6% while eating. More than half (57.1%) of the fractures concerned enamel, 35.7% dentine and 7.1% pulp. The age, when the injury happened was 9 years for 41.7%, 8 years for 31.0%, 10 years for 20.2%, and 7 years for 6.0%. **CONCLUSIONS** Prevalence of tooth fractures is very low among these primary school children and especially low among girls in Kuwait. This study was funded by the National School Oral Health Program, the Ministry of Health, Kuwait.

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## Relationship between periodontal and prosthodontic status and ten-year mortality

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**OBJECTIVE** The aim of the study was to assess the possible role of periodontal and prosthodontic status as a predictor of mortality. **BACKGROUND** Dental examinations were carried out as part of the Evergreen project, which focuses on functional capacity and health among the elderly residents of the city of Jyväskylä. **METHODS** Dental status was examined in 1990 for the whole population born in 1910 (n=226). Mortality data were collected over ten-years. The analyses were carried out by using Cox regression model and Kaplan-Meier method. **RESULTS** Our study showed that due to indirect effects of smoking in men, the use of lower partial (HR 2.7) or complete prosthesis (HR 2.6) appeared to predict increased mortality compared to those who had enough teeth to allow adequate occlusion. Smoking itself did not increase mortality, but it correlated with the use of prosthesis. These associations were not found in women. The periodontal status was not related to mortality. **CONCLUSION** The findings suggest that higher mortality seemed to be associated with the possession of removable prostheses among males, but not among females.

The Evergreen project has been supported financially by the Academy of Finland, the Social Insurance Institution, the Ministry of Education and the Ministry of Social Affairs and Health, the City of Jyväskylä and the Association of Finnish Lions Clubs, and the Scandinavian Red Feather project. This part of study was partly supported by the Finnish Dental Society.

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## Dental status and treatment need of elderly population in Belorussia

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**OBJECTIVE** To assess the oral health status and treatment need of the elderly population in Belorussia. **BACKGROUND** The percentage of the population of Belorussia aged 65 years and older has increased from 10.6% in 1990 to 13.5% in 2001 (Ministry of Health, Belorussia, 2001) and oral health care of these people is a growing problem. However, to date the dental status and treatment need of this group has not been measured. **METHODS** Four hundred subjects aged 65-74 years (M-112, F-288) from all six administrative regions of Belarus were surveyed.

DMFT, CPITN, and treatment need were recorded using the WHO 1986 oral health assessment forms. **RESULTS** 14.8% of those examined were edentulous. All dentate subjects were affected by dental caries, non-treated coronal caries in 50.5% of cases and root caries in 17.8%. The mean DMFT was 22.5 of which D was 1.7, M was 18.2, F was 2.6. The mean number of retained natural teeth was 13.8 per subject. 17% of dentate subjects had CPITN score "4", 62.8% - "3", 19.9% - "2", 0.3% - "1"; no healthy sextants were found. 2.9 sextants were excluded from assessment due to missing teeth. The need for one surface filling was 18.3%, two or more surfaces - 29.8%, endodontics - 11.3%, extraction - 45%. 88.7% of subjects needed prosthetic treatment of whom 45% needed one or more bridges, 17.1% - partial dentures and 26.6% - full dentures, of which 5.5% - for both jaws. **CONCLUSIONS** It is concluded that a high percent of elderly at age 65-74 years were dentate, but the average number of retained teeth was low and their status was poor with very high need for treatment.

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## **Session C1 - Health Services Research - Room Elsi**

### **Friday 22 August, 2003**

#### **Chairs: Dr. I. Chestnutt and Dr. J. Vanobbergen**

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### **Trends in manpower and utilisation of dental services in Catalonia (1991-2001)**

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**OBJECTIVE** This study was designed to describe the impact of a sharp increase in the Catalan dental workforce in a scenario of low utilization of dental services, low burden of disease and a delivery of services mainly based on a private fee-for-service system. **BACKGROUND** Previous research has shown a large increase of the Spanish dental workforce (Bravo M. Private dental visits per dentist in Spain from 1987 to 1997. An analysis from the Spanish National Health Interview Surveys. *Community Dent Oral Epidemiol.* 2002;30:321-8) and the Catalan dentist-to-population ratio did likewise. Meanwhile there has been a slight increase in the Catalan population. The increase in dental manpower has been associated with supplier induced demand (Sintonen H, Linnosmaa I. Economics of dental services. In: Culyer AJ, Newhouse JP, eds. *Handbook of Health Economics*, p. 1251-1296. Amsterdam: Elsevier, 2000. Vol. 1A.).

**METHODS** Data regarding utilization of dental services in Catalonia (visits/year) were obtained from the Catalan Health Survey (1994), National Health Survey (1995) as well as from the Family Budgets Continuous Survey (1985-95). Data regarding increase of dentists in Catalonia were collected from dental association censuses. Dental use ratio determinants were calculated using a logit econometric model (binary dependent variable). Odds ratio were also calculated to relate dental attendance and income. **RESULTS** There has been a 105% increase in the Catalan dental workforce in a ten-year period (1991-2001). This dramatic increase is associated with new dental schools (public and private), a higher number of graduates plus immigration of professionals with foreign diplomas representing 32% of manpower (2001). Catalonia's demographic data show an average 0.5% yearly increase (5% in the period 1991-2001) and fecundity ratio is among the lowest in the world (1.32 -2001) foreseeing a similar future trend. Caries epidemiological data show a continuous decline. Catalonia's DMFT (12 yrs) has decreased from 3.0 (1983) to 1.6 (1991) and to 0.9 (1997). The most recent survey (2000) shows similar data (DMFT=1.1). However, only 26.6% of Catalans had visited a dentist last year. Less than 11% of visits were carried out by public dental services. The strongest variable

associated to dental visits was income. **CONCLUSIONS** There has been a sudden increase in the dental workforce associated with a low utilization of services in a population with low disease level. Dental care delivery is mainly private-based hence there is a future high risk for supplier induced demand. New policies on manpower planning and strategies to minimize barriers to care are needed. GRANTS Financed by the Catalan Dental Association.

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## **Changes in restorative materials in private dental care in Finland between 1992 and 2000**

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**OBJECTIVE** The aim of this study was to compare indications for and use of different filling materials in adult dental care and to report changes in the proportion of persons having amalgams during the 1990s. **METHODS** Information from three questionnaire studies of random samples of private dentists who recorded all fillings they provided during a working day and answered a number of structured questions in 1992, 1997 and 2000 was combined. The response rates were 57%, 42% and 66% respectively. **RESULTS** In 1992, 28% of the fillings provided were of amalgam, 19% of glass ionomer and 53% of composite. In 2000 the corresponding figures were 5%, 11% and 79%, and 5% were gold or ceramic fillings. In 1992 69% and in 2000 65% of the adults' restorations were replacements of previous restorations. The mean numbers of fillings provided per day remained rather stable 6.9, 5.7 and 7.2 respectively, but the share of large fillings (3 or more surfaces) showed a slight increase from 25% in 1992 to 29% in 2000. The proportion of persons with amalgams had decreased from 87% to 69% in the age group of 20 to 29 year olds. Most older adults still had amalgams. **CONCLUSIONS** Composite resin has become the main restorative material in Finnish adults. Low use of other materials and crown therapy indicates wide indications for use of composite. Total clearance of amalgam seems to be rare in adults.

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## ***Resources and preventive services in child dental care***

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*University of Bergen and Public Dental Services of Bærum, Norway*

The allocation of resources, both frequency of dental examinations and type and quantity of preventive dental care, should be based on the caries risk of the individual according to the recommendations in Norway. The extent to which clinicians deliver individualized care is not known. **OBJECTIVE** The purpose of this study was to describe the type and quantity of preventive care delivered and the time spent on the dental care of children aged 3 to 18 years, and to study associations between the care delivered and characteristics of the children. **METHODS** At dental recall visits time spent, services delivered and characteristics of the children (n=900) were registered. Multivariate regression analyses were performed. **RESULTS** The time used for dental care was significantly longer for children assessed as high risk children (mean 73 minutes, SD 62) than the time spent for children assessed at low risk of dental caries (mean 28 minutes, SD 17), both the time used for prevention (13 versus 7 minutes) and treatment (45 versus 7 minutes) was significantly different. The recall intervals set for high risk children was 9.8 months and for low risk children 16.6 months. A significantly higher proportion of children assessed at high risk than at low risk was given preventive care. The factor that had the strongest association with time spent for prevention was the clinicians subjective assessment of caries risk, while the treatment time was associated with number of decayed teeth and number of approximal surfaces with dentin caries. **CONCLUSION** The dental care of

children was to some extent individualized. The treatment time spent for high risk children was 6.5 times as long as for low risk children, while the time used for prevention was twice as long.

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## Developing an OHRQoL index for children; The CHILD-OIDP

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**OBJECTIVE** To develop an OHRQoL index in Thai children and evaluate its psychometric properties. **BACKGROUND** The Oral Impacts on Daily Performances (OIDP) index has been widely used on adolescent, adult and elderly populations, but not with children, the prime target of oral health service in many countries including Thailand. **METHODS** Cross-sectional study of children aged 12 years, in the final year of primary schools (grade-six). The OIDP index was used in its original form. Development and evaluation was conducted on a non-random sample of 513 children in U-thong District, Suphan-buri province, Thailand. Re-evaluation of the index included all target group children in a municipal area of Suphan-buri province (1100 children, response rate 97.7%). Psycho-metric properties evaluated were face and content validity; concurrent validity, using perceived oral treatment need and perceived oral health problems as the proxy (Mann-Whitney and Kruskal-Wallis statistical tests); internal reliability (Items Correlations, Corrected Item-Total Correlations and Cronbach's Alpha); and external reliability (weighted kappa statistics) **RESULTS** The OIDP index was modified throughout the development process. The final version, consisting of 8 items and 16 picture aids, revealed excellent validity and reliability. Weighted kappa was 0.93. The associations with perceived oral treatment need and perceived oral health problems were strongly significant ( $p < 0.001$ ). There was no negative correlation between any item. Corrected item-total correlation coefficients were between 0.4-0.7 and Standardised Cronbach's alpha coefficient was 0.82. **CONCLUSIONS** The CHILD-OIDP index is a valid, reliable and practical measure of OHRQoL in 12 year old Thai children.

## The Perceived Oral Health and Treatment Needs of Prisoners

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**OBJECTIVE** The study was designed to assess prisoners' perceptions of their oral health, the impact of oral diseases on their quality of life and to highlight perceived barriers to oral healthcare provision in prisons. **BACKGROUND** Very little published information is available on the oral health of prisoners. Existing studies (Salive ME, Carolla JM, Brewer TF Journal of Public Health Dentistry 1989; 49: 83-6) have reported normative needs and have shown that prisoners have more oral health treatment needs than the general population. No published studies on the perceived treatment needs of prisoners were found. **METHODS** A team of trained interviewers administered a questionnaire to 398 prisoners randomly selected from 10 prisons in Kent. The questions related to perceived oral health, service use and service quality, oral hygiene related behaviours and attitudes towards oral health. Questionnaires were analysed using SPSS. **RESULTS** The majority of prisoners (65%) perceived a need for dental treatment. Perceived treatment need was reported as decayed teeth, gum problems, bad breath and loose teeth. Fifty five percent had seen a dentist while in prison; 70% of these giving toothache as the main reason. Only 34% were satisfied with the prison dental service with 25% undecided. The main reason for dissatisfaction was the long waiting time for appointments (in some prisons as much as 5 months) due, in their view, to an inadequate number of dental sessions. All prisoners had access to free toothbrushes and toothpaste though they reported that the quality was poor and 60% claimed they bought their own supplies. Eighty three percent claimed they brushed their teeth twice a day. Almost all (99%) attached some importance to keeping the teeth and

gums healthy and 81% wanted more information on the treatment plan. Less than half (46%) expressed anxiety or fear about visiting the dentist. Pain and discomfort while eating were the most frequently experienced impact reported followed by psychological problems such as embarrassment, these findings being similar to the UK Adult Dental Health Survey, 1998.

**CONCLUSIONS** It is concluded that the majority of prisoners perceived a need for dental care but only accessed dental services when in trouble. Despite the fact that they were unhappy with the long waiting time for treatment they had a positive attitude towards oral and dental health. The study was funded by the Area Manager of Kent, Surrey and Sussex Prisons.

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## Oral health and diabetes: awareness amongst primary health care workers

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2 Nuffield Institute

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**OBJECTIVES** To determine knowledge and beliefs regarding oral health and diabetes among primary health care workers (PHCWS) (GP specialists, practice nurses, dieticians, and paediatricians), employed in diabetes satellite clinics in Bradford. **BACKGROUND** Gingivitis has been proposed as the sixth complication of diabetes (Loe H. Diabetes Care. 1993;160:79- 80). Tooth loss is a major complication of uncontrolled diabetes (Oral Health in America: A Report of the Surgeon General 2000), due to breakdown of periodontal tissues. In addition, untreated periodontal infection impairs glycaemic control (Grossi SG, Genco RJ. Annals of Periodontology 1998;3: 51-61). The recent UK government publication on good practice in diabetic care (National Service Framework) made no mention of these oral health issues. There have been no UK based studies investigating knowledge and beliefs of primary health care professionals working in this field. **METHODS** This was a pilot study. The sample consisted of all 39 PHCWS involved in diabetic satellite clinics in Bradford. A questionnaire was devised and piloted. Two mailings were used to achieve an adequate response rate. **RESULTS** 75% response rate was achieved, involving 11 doctors and 16 professionals allied to medicine (PAM). While there was total agreement that retinopathy was a complication of diabetes, 10/11 (91%) doctors & 7/16 (44%) PAM agreed that gum disease was also an issue. Poor oral hygiene was unanimously cited as a risk factor for gum disease, but maintaining good glycaemic control was also important [11/11 (100%) doctors & 12/16 (75%) PAM]. 9/11 (82%) doctors & 9/16 (56%) PAM thought that initial diabetic screening should include a dental assessment. The majority of the respondents (21/27) thought that oral health training was required for people working in diabetic clinic. **CONCLUSION** The results suggest that lack of awareness of the links between oral health and diabetes exists, which could be addressed by appropriate training. A larger study is indicated to confirm these findings.

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## The missing link in Hungary: the community dentistry

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**OBJECTIVE** Observing the impact of privatisation of service activities of dentistry following the change of political system in Hungary in 1989. **BACKGROUND** A privatisation process has been launched since the middle of the 90s in Hungary concerning the dental services in social health insurance besides traditionally well-operating private dental services. As it is publicly known Hungary is in the middle of the list concerning the dentist inhabitants proportion, but at the same time the DMF-T mean value is extremely high, double the Western European average. Meanwhile any effective community prevention programs are missing. At present there

is no oral public health education in the curriculum of any universities in Hungary. **METHODS** The public and private dental service of Mosonmagyaróvár (in Western Hungary) is well-known for the fact that patients seek care in a number of geographical locations. The DMF-T mean value of children at the age of 12 was examined in 2002. The number of dentists and of population in the town was released by the local National Public Health and Medical Officer's Service. **RESULTS** The number of inhabitants per dentist is 250, but in the state-paid paediatric dentistry it is as high as 3080 children. Out of dental procedures in paediatric dentistry the proportion of preventive interventions was only 35% in comparison with 65% devoted to therapeutic services. At the same time the DMF-T mean value of 12 years is 3.8 (from this F=0.8 only). **CONCLUSION** Privatisation of service activities following the leasing of public owned facilities has resulted in little change in public oral health in Western Hungary.

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## **Dentists' differentiation ability by caries risk in dental prevention and in check-up intervals**

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2 Institute of Dentistry, Department of Oral Public Health, University of Helsinki, Finland.

**OBJECTIVE** To study dentists' practices regarding prevention and check-up intervals for patients at two extremes of dental caries in free and subsidised dental services in Helsinki, Finland. **BACKGROUND** In Finland, public dental service is free of charge up to 18 years of age and after that strongly subsidised. Check-up intervals should reflect each patient's risk level, but this was not the case in the 1980s and early 1990s. **METHODS** Data cover all public dental care in Helsinki in 1999. The present study included those receiving comprehensive dental care who were not older than 36 (n=73,697). Data on their dental state and treatments came from automatic data processing files recorded by patient and visit. The two extremes by dental state were low-risk (LR) patients with no untreated caries (DT+dt=0) and high-risk (HR) patients with DT+dt >3. Of those aged 0 to 18, 55% were in the LR and 8% in the HR group, and of the adults (aged 19 to 36), 44% and 23% respectively. Dental prevention was described by time devoted to it (T-PR) at further visits after the first examination visit. Patients' T-PR and the proposed check-up intervals, separately for LR and HR cases and for the two age-groups, were aggregated for each dentist (n=139) to describe his/her differentiation ability. Statistical evaluation was by correlation coefficient. **RESULTS** The more that each dentist used T-PR for LR cases, the more he/she used it for HR patients: r=0.49 to 0-18 and 0.53 to 19-36. The longer the proposed check-up interval for LR patients, the longer it was for HR patients: r=0.25 for children and 0.51 for adults. **CONCLUSION** The majority of dentists need to improve their differentiation ability by caries risk. Grants to SKJ.H. by the Helsinki City Health Department and the Finnish Dental Organisations are gratefully acknowledged.

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## **Support and network participation for unpromoted female dentists**

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**OBJECTIVE** This study aims to describe the participation of female unpromoted general practice (GP) dentists in organised network activity (support groups) in a region in Sweden, the sense of support with comparison to another organisations and to a nationwide sample of GP dentists, and the co-variation of network participation to support. **BACKGROUND** Earlier studies have shown that female unpromoted GP dentists find their work situation taxing, with many problems related to their psychosocial work environment (Bejerot E. Thesis. Lund

University, 1998; Hjalmer K, Söderfeldt B, Axtelius B. Swed Dent J 2003;27:35-41).

**METHODS** All unpromoted female dentists within the Public Dental Health Service (PDHS) in a region in Sweden received a questionnaire. Of these, 94% responded. Those participating in network activity 4 times a year constituted 12% of the respondents. For multivariate analysis, logistic regression analysis was used where model fit was assessed from model 2 and the number of correctly classified cases. The analysis of the quantitative data was completed with evaluation of the qualitative information from the respondents' commentaries. **RESULTS** It was not possible to explain why the female unpromoted GP dentists participated 4 times a year, but almost nine out of ten reported being strengthened by the network both as a person and in the professional role. Support from the organisation PDHS was weak. **CONCLUSIONS** The main result is the lack of association between support and network participation. However, the many affirmative comments indicated that network participation might be a good coping strategy for unpromoted female GP dentists. This study has been supported by the Swedish Dental Society.

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## Tensile Bond Strength Measurement for Dentine Adhesives of Different Generations

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**OBJECTIVE** The aim of the study was to measure the tensile bond strength of dentine adhesives of 4<sup>th</sup> -6<sup>th</sup> generations according to the technical report ISO/TR 11405:1994(E).

**METHODS** Fifteen unerupted human third molars were used to test each adhesive material. All-Bond 2, Prime&Bond NT, Excite and Prompt-L-Pop were chosen as frequently used representatives of 4<sup>th</sup> -6<sup>th</sup> generations, respectively. Evicrol Dual Bond (2<sup>nd</sup> generation) served as a control material. Dentinal surface was treated according to the manufacturer's directions. A short-term test of the tensile bond strength was used (Shimadzu ASG-G, Japan). Measured values were compared with regard to filling material used for specimen preparation. Standard statistical tools were used for computing significance of differences among adhesives generations. **RESULTS** Values measured for 4<sup>th</sup> and 5<sup>th</sup> generation were comparable. For All-Bond 2 mean bond strength=7,03 ± 2,11 MPa, for Prime&Bond NT=6.48 ± 1.85 MPa, for Excite 6.94 ± 2.06. However, for the non-rinse self-etch adhesive agent Prompt L-Pop, representing a 6<sup>th</sup> generation adhesive, the mean value of shear bond strength was significantly lower: 3.53 ± 1.04 MPa (p=0.05; student t-test). The reasons for this disagreement with the overall tendency towards higher adhesion for each new generation of adhesive need further study.

**CONCLUSION** The tensile bond strength of the tested adhesive was significantly lower than the control adhesives. Further studies with the larger sample size are required to confirm these results. Supported by the Grant Agency Min. of Health of the CR under grant No. NK 6801.

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## Efficacy of dental care in public health care system

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**OBJECTIVE** The aim of this study was the evaluation of the efficacy of free dental treatment in a state health care system. **BACKGROUND** Annually nine million dental fillings were provided free of charge in public health institutions in Belarus for the population of ten million. On average, every inhabitant of the country visits the dentist 1.2 times a year indicating that dental care is accessible. However, the quality of services has never been evaluated. **METHODS** Oral health status was assessed in 3180 recalled patients (M - 1287, F - 1893) by oral examination, X-ray, retrospective study of their dental records and follow up annual dental examination after

dental treatment over a 5 year period. The age of patients varied from 15 to 65 years (av. 34.2 yr). **RESULTS** Complications following fillings were found in 31% of all cases within one year, 49% - in two years, 78% - in three years, 85% in 4 years and 98% in 5 years. Most frequent complication was the loss of filling (36.1%), toothache (35.5%), secondary caries (20.8), tooth extraction (5.6%). Percentage of complications after endodontic treatment increased from 19.6% to 89.8% in the 5 year period of follow up. In 34.1% of cases teeth were extracted within a 5 year period after the endodontic treatment. **CONCLUSIONS** It is concluded that the quality of dental treatment was inadequate and there is need to study the reasons for inefficient oral health care and methods for its improvement.

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## **Session D1 - Health Promotion and Disease Prevention - Room Felix**

**Friday, 22 August 2003**

**Chairs: Professor E. Kuzmina and Professor H. Murtomaa**

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### **Oral Health within the "Healthy Cities-Project" of Erfurt, Germany**

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*2 Public Health Office, Erfurt, Germany.*

**OBJECTIVE** This study was designed to measure oral health in relation to different social and environmental changes in Erfurt, a former East German city during the nineties.

**BACKGROUND** Numerous studies show clearly the link between social, and environmental factors and health. That's why, in 1986, the WHO created the Healthy Cities-Project with the aim of improving urban health. Now, 54 cities are involved in this project in Germany. The city of Erfurt became part in 1991 with the common target to cope with social and health inequalities. A special aim of this city project is the improvement of oral health among children with high caries risk. **METHODS** About 10,000 2- to 10-year old children have been involved in oral preventive programmes based on tooth brushing exercises, dental education and fluoride applications.

Annual dental examinations (dmft/DMFT) are performed in kindergartens and primary schools. A new preventive strategy for children with high caries risk was developed in 1998. The selection of kindergartens and primary schools for special preventive programmes is based on the epidemiological situation (national criteria for high caries risk) and social parameters. **RESULTS** During the nineties major changes have occurred in the demographic situation (decrease of inhabitants 15%) and in the social life (increase in unemployment 18% and need for social security 3,5%) of Erfurt. Since the implementation of the caries risk strategy the percentage of caries free subjects in kindergartens increased from 22% (1998) to 28% (2001) and in primary schools from 57% to 66%. **CONCLUSION** It is concluded that the city-project focussing on environmental and social criteria together with intensive dental care will lead to better oral health and health behaviour for deprived children

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### **Towards new health promotion role of dental hygienists**

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*Jyväskylä Polytechnic, School of Health and Social Care, Finland.*

**OBJECTIVE** The purpose of this case study was to investigate the importance given to health

promotion in the curriculum of a degree programme in oral health care at the Jyväskylä Polytechnic. The presentation focuses on the way health promotion is structured within the curricula and the learning processes themselves. **BACKGROUND** Health promotion has become recognised as a legitimate role of dental hygienists in Finland. Health promotion, especially involving client counselling, is one of the most important skills which needs to be embraced by dental hygienists of the future and should be at the core of the curricula of degree programmes in oral health care. **METHODS** The research data consist of the official health care curricula of Jyväskylä Polytechnic. The data were analysed using content analysis of the curriculum texts. **RESULTS** The curriculum of the degree programme in oral health care consists of three separate health promotion modules and health promotion is also integrated into professional and optional studies and practical training. The education is based on the ideology of reflective practice and experiential learning model. Clinical practice and video based workshops during theoretical learning are used to help students to learn from experience via reflection. Experiential learning methods can help students to apply health promotion knowledge and skills in real contexts of oral health. **CONCLUSIONS** During the degree programme a new reflective health promotion role of dental hygienists, practices, networks and quality systems in the area of oral health will be developed. This is important if we are going to respond to the strategies and objectives of oral health promotion in future.

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## **Dental personnel's experiences on an oral health promotion school-campaign**

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*Health Centres of 1 Pori and 2 Seinäjoki, 3 Institute of Dentistry, University of Oulu, Finland.*

**OBJECTIVE** The aim was to evaluate the experiences of dental personnel on the implementation of a school-campaign for promoting oral health among 5 th and 6 th graders in Pori, Finland. **METHODS** The intervention aimed to provide pupils with sufficient and correct knowledge on reasons for problems related to oral health and to improve their social skills, which would enable them to maintain a healthy mouth. Eight oral health workers acted as resource persons in 27 schools to implement the campaign in school year 2001-2. A qualitative group interview was carried out among the oral health workers to evaluate the strengths and weaknesses of the approach. Areas of interest were grouped with content analysis into characteristics of schools, teachers and own action. **RESULTS** Perceived strengths were: experience, social skills and interest of the oral health worker; oral health worker acquainted with the school or the teacher; small size or rural location of the school; support from headmaster; teacher being well informed from the beginning and most importantly the interest of the teacher. Perceived weaknesses were: lack of time in schools, especially difficulty to schedule common time; poor commitment of teachers and even of oral health personnel; lack of educational materials for teachers to use; insufficient and inconsistent information delivered before the start of the intervention and lack of time for thorough implementation.

**CONCLUSIONS** A successful health promotion campaign needs detailed planning. Background, interests and resources of all collaborators should be carefully taken into account in all phases of the activities. This study was supported by The Finnish Dental Society Apollonia and Juho Vainio Foundation

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## **The effectiveness of a non-operative caries treatment programme towards children and adolescents**

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*1 Department of Cariology and Endodontics, Dental Faculty, Copenhagen*

**OBJECTIVE** This study reveals the effectiveness and the potential of a non-operative caries treatment programme (NOCTP) used since 1988 in the Public Dental Health Service for Children in Nexö municipality, Denmark. **BACKGROUND** Recently it has been shown, that children in Nexö have the lowest DMF-S in Denmark and relevant caries background variables were unable to explain the result (Ekstrand et al., 2003). **METHODS** The NOCTP focuses on mechanical plaque control in retention sites and consider the eruption period of molar teeth as a risk factor for developing occlusal caries. Goals for 18-yr-olds at the entrance to the new millennium were: X DMF-S should <2.0 and 50% of a cohort should have a DMF-S=0. The price/child/year (PCY) in Nexö should not exceed the previous level or that at the national level. The samples in Nexö consisted of children born in 1981 (cohort 1981) and 1982 (cohort 1982) who became 18-yr-olds in 1999 (n=74) and in 2000 (n=80). As comparisons one cohort of children born in 1981 were selected from each of those 4 municipalities (n=293, 56, 170 and 143), where the 18-yr-olds in 1999 had the lowest X DMF-S (2.5) in Denmark. **RESULTS** X DMF-S among 18-yr-olds in 1999 and 2000 in Nexö was 1.23 (SD=2.26) and 1.25 (SD=2.01) and 55 and 56% had a DMF-S=0. Mean number of sealed surfaces (X S-S) were 4.6 (SD=3.25) and 4.0 (3.22) respectively. A marginal reduction in PCY amounting DKK 100 in Nexö was noted in the years with NOCTP (p<0.05), and the PCY in Nexö was lower or comparable with that of the national level. X DMF-S in the comparison municipalities was 2.73 (SD=3.94), 3.09 (SD=5.11), 3.11 (SD=4.48) and 3.25 (SD=4.80) and was together or individually significantly higher than in Nexö (p-values <0.05). X S-S was between 3 and 4 in the comparison municipalities. **CONCLUSIONS** The effectiveness and the potential of NOCTP is considered high as the goals are reached and 18-yr-olds in Nexö had significantly less caries than 18-yr-olds in that municipality which had the second lowest caries experience in the country.

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## **Duraphat and Fluor-Protector in preventing caries. A meta-analysis**

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School of Dentistry, University of Granada, Spain.*

**OBJECTIVE** The purpose of this study was to estimate the caries reductions achieved by use of Duraphat and Fluor-Protector through a meta-analysis. **METHODS** Ten parallel field trials were included, all with random assignment and blind observer, and published up to December, 2001. Individual caries reductions were combined by means of a fixed- and a random-effect models. **RESULTS** The total caries reduction in children from 3-15 yrs, with at least two applications/year, and a follow-up from 12-56 months was 34.4% (CI-95%: 22.8%- 46.0%), under the random effect model (there was a significant heterogeneity). After excluding two outliers, with a follow-up shorter than 24 months, the global caries reduction under the fixed-effects model was 26.3% (CI-95%: 20.3%-32.4%). The reduction for permanent dentition was 22.7% (CI-95%: 15.9- 29.5); for deciduous dentition, 31.0% (CI-95%: 21.4-40.6); for Duraphat, 31.9% (24.5%-39.4%); and for Fluor Protector, 15.7% (5.5%-26.0%). There was not a significant effect (with metaregression) of age, or the simultaneous presence of other fluoride forms (fluoridated water, toothbrushing, etc). These estimations do not seem to be affected by the publication bias. **CONCLUSIONS** Fluoride varnishes are effective in preventing dental caries, with superiority of Duraphat compared to Fluor-Protector.

Acknowledgment: This study was partially supported by FIS projects #00/10164 and #PI021129.

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## **Oral Health Promotion Intervention in Flemish pre-school children**

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1 Catholic University Leuven

2 University Ghent

3 Child & Family

4 Flemish Institute Health Promotion

5 GABA Int., Belgium

**OBJECTIVE** The aim of this contribution is to describe in detail the situation analysis, and the set-up of an ambitious Oral Health Promotion Intervention in Flemish pre-school children (0-3 years of age). **BACKGROUND** The planned intervention is the result of a multi-disciplinary collaboration between Flemish Child Health Care offices (Child & Family), experts in dental epidemiology, paediatric dentistry, youth health care, health psychology, biostatistics, and industry. **METHODS** The intervention aims to effect behavioural modification both of parents (and their children) and health care workers. The intervention will be integrated into the existing health promotion activities of Child & Family (participation level of > 90% of parents of newborn children in Flanders), is based on relevant scientifically confirmed information, and will be supported by specifically developed educational materials. **RESULTS** One of the characteristics of the project is the emphasis on project evaluation. This intervention will be implemented (from 1 st September 2003) in 2 distinct geographical areas in Flanders (500 children in each area will be included). The Oral Health Intervention will be offered to newborns and their parents, starting at birth and continuing until the children reach the age of 3 years (maximum). At the same time interventions will be directed towards local health care workers. The follow-up will continue until the children reach the age of 5 years. Data obtained will be compared with data from control areas (measurements at baseline and during follow-up). The evaluation of the intervention will take place at different levels. Effect evaluation will consist of the measurement of the impact on oral health (oral hygiene, gingival condition, caries experience, mucosal lesions, dental trauma, erosion, malocclusion, tooth staining, developmental defects) and the impact on (reported) oral health behaviour and its determinants. Equal attention will be paid to process evaluation (assessment of difficulties and drawbacks when implementing the programme) and product evaluation (perception of the intervention by children and their parents, nurses and physicians of Child & Family, and other local health care workers). **CONCLUSION** This contribution presents the design of an Oral Health Intervention Project directed towards very young children. The intervention study is funded by GABA International.

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## Systematic review on the caries preventive effect of xylitol containing chewing gums

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**OBJECTIVE** The objective of this review was to evaluate the evidence regarding the caries preventive effect of xylitol containing chewing gums as compared with no intervention. **BACKGROUND** The role of xylitol products in the prevention of dental caries has been investigated in several clinical studies. However, the mechanism of xylitol chewing gum in caries prevention still remains unclear and the possible superiority of xylitol over other sugar substitutes has not been clearly demonstrated (Scheie AA, Fejerskov OB. Oral Diseases 1998; 4:268-278). **METHODS** A literature search was conducted using MEDLINE (via Ovid and PubMed), Cochrane Central Register of Controlled Trials, Medic, SweMed, and CINAHL. Handsearch of the journal "Proceedings of the Finnish Dental Society" was also carried out to identify relevant studies. Studies were included in the review if they fulfilled the following inclusion criteria: (i) randomized clinical trial with a follow-up period of at least 12 months, (ii) xylitol containing chewing gums compared with no active intervention, and (iii) outcome measured as change in DMFS score between baseline and the end of the follow-up. The results

were expressed as weighted mean differences with 95% confidence intervals. **RESULTS** Only two studies involving 482 persons were accepted for the final analysis. The weighted mean difference in DMFS increment between xylitol containing chewing gums and no intervention was -2.5 (95% CI -2.6,-2.4). **CONCLUSION** The review suggests a caries preventing effect for chewing gums containing xylitol as compared to no active intervention. However, the evidence on the effect is weak, mostly because of insufficient availability of good quality research in this area.

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## Experiences on oral health promotion among children in Russian Karelia

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1 Institute of Dentistry, University of Oulu, Oulu, Finland  
2 District Hospital of Pitkäranta, Russia.

**OBJECTIVE** The objective was to evaluate the strengths and weaknesses of a community based oral health promotion programme that is going on in Russian Karelia. **BACKGROUND** In the 1990's, poor living conditions and poor health of citizens was a challenge for the Russian health care system, which at that time was highly inefficient. In 1993, local authorities from the Pitkäranta region, Russian Karelia, called the University of Kuopio for cooperation to implement an oral health promotion program in collaboration with the local daycare, school, and health care personnel. **METHODS** Results of the baseline community analysis in 1993 called for an intervention with the emphasis on enhancing healthy lifestyles and reorienting the focus of the oral health care system to the spirit of the Ottawa Charter. Evaluation of the program was conducted in 2001 by using the same methods as in the 1993 community analysis. **RESULTS** Improvement in oral health related lifestyles as well as in oral health among children and other promising developments in the community were encouraging. The percentage of 12-year-olds with no DMF surfaces increased from 11% in 1993 to 24% in 2001. The corresponding mean DMFS score decreased from 6.0 to 3.9, respectively. The percentage of 12-year-olds who brushed their teeth at least twice a day was 2% in 1993 and 38% in 2001. Twelve percent of children used fluoridated toothpaste daily in 1993 and 26% in 2001. On the other hand, no substantial improvement in the focus of the oral health service system could be observed. **CONCLUSION** This program is carried out using existing local resources. Many aims of the programme have been achieved mostly because of the active and enthusiastic contribution and involvement of all participants.

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## Effect of chlorhexidine gel application in high caries risk children

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2 Department of Community Dentistry, University of Oulu, Finland.

**OBJECTIVE** To study whether chlorhexidine (chx) gel applications have additional caries preventive effect when applied in addition to basic prevention. **BACKGROUND** The potential of chx to prevent caries in high risk children remains unclear. **METHODS** Subjects were selected from a sample of 3-year-old children with  $d\ 3\ fs=0$  who were not using fluoride systemically. Their caries risk was assessed on the basis of their salivary mutans streptococcal (ms) level (high risk,  $e^{100,000}$  cfu/mL). All children underwent a basic preventive programme (oral hygiene and dietary advice). Seventy subjects classified at high risk (HRT) also received 1% chx gel applications for three consecutive days at 3-month intervals repeated six times. The two control groups included 71 and 70 children with high (HRC) and low (LRC) salivary ms levels, respectively. After 18 months, Plaque Index, daily frequency of between-meal sugar intake, log ms level, and caries increment were recorded and the differences among the three groups

assessed by the analysis of variance. **RESULTS** There were no significant differences between the groups in the mean Plaque Index value and sugar intake frequency at the end of the follow-up, which suggests that the effect of the basic programme on children's behaviour did not differ between the three groups. The follow-up salivary ms level was significantly lower in HRT group than in HRC group with the geometric mean log ms being  $1.70 \times 10^5$  and  $3.34 \times 10^5$  cfu/mL, respectively. However, there was no difference in the mean d 3 fs increment score (0.56 for HRT group and 0.55 for HRC group). **CONCLUSION** Chx applications resulted in a remarkable ms reduction among children with high ms scores at baseline, but no caries preventive effect could be seen.

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## **Session A2 - Behavioural Sciences - Room Anton**

### **Saturday, 23 August 2003**

### **Chairpersons: Professor C. M. Pine and Professor Klaus Pieper**

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#### **The trends in sweets and soft drink consumption between 1984 and 2002 among Finnish schoolchildren**

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*1 Kuwait University, Kuwait*  
*2 University of Jyväskylä, Finland*

**OBJECTIVE** This study aims to investigate the trends in use of sweets and soft drinks between 1984 and 2002. **BACKGROUND** Health Behaviour in School-Aged Children (HBSC) is WHO coordinated survey program. Finland has participated in this program from the beginning, in 1984. Only once a week consumption of sweets has been recommended (sweets on Saturdays only) for children in general, in Finland. **METHODS** The data were based on questionnaires, which were administered at school classes to the nationally representative samples of 11-, 13-, and 15-year-old Finnish school-children. Altogether 24,122 children; 3,465 (1984), 3,219 (1986), 2,993 (1990), 4,183 (1994), 4,874 (1998), and 5,388 (2002) responded. The response rates were over 90% in every survey. **RESULTS** There was a clear declining trend in the proportions of children using sweets more than once day: 10% (1984), 7- 8% (1986, 1990), and 4% (1994, 1998, 2002). Soft drink consumption (> 1/day) also declined from 8% in 1984 to 3- 5% in all the other study years. Boys were using soft drinks more often than girls, but the difference in use of sweets was very small. No consistent differences were observed between the age groups, neither in the use of sweets nor the soft drinks. In general, the percentages of the frequent users of sweets and soft drinks were very low. **CONCLUSIONS** The Finnish children seem to follow this very low consumption frequency pattern into adolescence. There was no indication of an increase in the consumption of either sweets or the soft drinks during the last two decades.

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#### **Oral health knowledge and behavior among male Health Sciences College students in Kuwait**

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*1 Department of Oral & Dental Health, College of Health Sciences, Kuwait*  
*2 Faculty of Dentistry, Kuwait University, Kuwait.*

**OBJECTIVE** This study aims to discover oral health knowledge and oral health behavior of male Health Sciences College students. **BACKGROUND** Health auxiliary personnel have an important role in oral health promotion when they graduate and start working in the health care system. **METHODS** A questionnaire was distributed to all students at the male Health Sciences College in Kuwait (N=153) during the academic year 2001/2002. The students filled the anonymous questionnaire in the classroom after the lecture. The response rate was 84% (n=128). The questions consisted of information on the general background, oral health behavior, and oral health knowledge. **RESULTS** Oral health knowledge seemed to be limited and very few background factors were associated with it. Almost all students knew the role of fluorides in caries prevention, the role of sugar in caries etiology, and that extraction is not the only treatment for a painful tooth. However, knowledge concerning the risks of periodontal diseases was poor. Also different aspects about children's oral health care were often not known. More than half of the students (60%) had visited a dentist during the previous 12 months, and more than half of them (54%) because they needed treatment. Less than one third of the students perceived oral health as good, 56% average, and 15% poor. Only one third of the students were brushing twice a day or more often, but the majority (66%) used fluoride toothpaste. **CONCLUSIONS** Efforts are required to increase the oral health knowledge and to improve the oral health behavior of these Health Sciences College students.

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## Dental treatment for young children; a comparison of dentists' attitudes

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2 Leeds Dental Institute, UK.

**OBJECTIVE** To compare the attitudes of dentists in working in two different state-funded dental care systems in Bradford, in relation to dental treatment for children aged 3-6 years.

**BACKGROUND** Child dental care in UK is provided by two separate state-funded systems, a fee per item service (GDS) and a salaried service (CDS/PDS). Although caries in UK has declined over recent decades, the level of care has fallen as evidenced by the lower care index, possibly due to changes in the fee per item remuneration system (GDS) (Curzon MEJ, Pollard MA. *BDJ* 1997;182:242-244). It is important to question whether dentists working in the two systems perceive some barriers to treatment in the same way. Bradford, having a high level of caries prevalence in young children compared with the national average for England, provided an ideal location to explore these potential variations. **METHODOLOGY** All the 175 dentists working within both state funded NHS systems in Bradford were mailed a pre designed piloted questionnaire (which was derived from a larger international collaborative study). Three mailings were performed, followed by personal telephone contact with non-responders. **RESULTS** Usable responses were obtained from 130 completed questionnaires, 112 GDS dentists and 18 CDS/PDS dentists. Analysis was performed for the responses agreeing or disagreeing with the relevant statements, unsure responses ('neither agree nor disagree') were not included. 39/75 (53%) GDS dentists and 1/17 (6%) CDS/PDS dentists thought the child couldn't cope well with dental treatment ( $p < 0.001$ ). Both groups of dentists felt equally confident in filling childrens teeth, but 87/97 (95%) GDS dentists and 5/12 (42%) CDS/PDS dentists found that filling childrens teeth was stressful ( $p < 0.0001$ ). 85/104 (82%) GDS dentists and 3/15 (20%) CDS/PDS dentists agreed that they did not have enough time to spend with child patients ( $p < 0.0001$ ). 44/105 (42%) GDS dentists and 17/18 (95%) of the CDS/PDS dentists were satisfied with the level of care they could provide within the system they were working in ( $p < 0.0001$ ).

**CONCLUSION** The dentists working in the salaried services had a more positive attitude towards young children's capacity to cope and felt less stressed about providing restorative care for them, possibly because they felt they had more time to spend with child patients, while both groups of dentists felt equally technically competent to do the necessary work. This study was supported by NHS Research and Development in Primary Care Dentistry.

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## Oral health behaviour and awareness of mothers of 7- year-old children and schoolteachers in Belarus

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2 WHO Oral Health Unit , Geneva, Switzerland.

**OBJECTIVE** The aim of the present study was to analyse the oral health behaviour situation in grade 1 schoolchildren (7 years), their mothers and teachers. **BACKGROUND** In Belarus, systematic information on the oral health behavior and awareness of the adult population is urgently needed in order to support planning of oral health promotion. **METHODS** Data were collected in 2000 using self-administered questionnaires. A national representative sample of 1666 mothers and 244 primary school teachers responded **RESULTS** The awareness of proper oral hygiene for caries prevention was 79% on the average, while lower for prevention of periodontal diseases (52.5%). Only 55% of teachers and 41% of mothers recommended using fluorides for caries prevention. Only 45% of primary school teachers and 38% of mothers stated that restriction of sugar use is needed. In total, 72% of primary school teachers and 72% of mothers answered that they received information about oral health from dentists. Nevertheless, the quality of the information does not correspond to up-to-date knowledge. 48% of teachers considered heredity factors and 27% considered general disease being the principle causes of caries. Bivariate analyses showed that toothbrushing 2 times a day and using fluoridated toothpaste were more frequent in 7- year-old children whose mothers had high level of education, better oral health awareness, visited a dentist regularly and were receiving information about dental health from dentists. **CONCLUSIONS** Oral health awareness and attitudes of primary school teachers and mothers of 7-year-old children need to be improved. Such improvement may be achieved through effective implementation of the Health Promoting Schools Programmes.

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## Socio-economic status, caries experience and parental response to toothache

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**OBJECTIVE** To examine the influence of socio-economic status and caries experience on parental response to toothache in children aged 3-4 years in South Wales. **BACKGROUND** As part of an international study on the influence of ethnic and socio-economic factors on dental caries, the response of parents from deprived and affluent backgrounds whose children had varying caries experience was examined. **METHODS** A clinical dental examination of children aged 3.5-4.5 yrs in nursery schools was conducted, followed by a self-administered parental questionnaire. **RESULTS** 194 children (93 from deprived areas and 101 from affluent areas) were examined, of whom 69 (46 deprived, 23 affluent) had a dmft >1. 21 subjects had experienced toothache in the last year. Overall, the majority of parents (176 / 90%) indicated they would take their child to the dentist if they experienced toothache, and 85 (44%) would give painkillers. Four parents, all of whom resided in deprived areas, indicated that they would obtain antibiotics. However, the proposed actions of parents in the event of their child having toothache was not significantly influenced by area of residence, caries experience or past experience of toothache. **CONCLUSION** In the majority of cases the actions proposed by parents were deemed appropriate.

The support of the Welsh Office for Research and Development (WORD) is acknowledged

gratefully. The work undertaken to develop the questionnaire was supported by National Institutes of Health (grant number DE13703-02).

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## Utilisation of care in relation to self-perceived oral health

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**OBJECTIVE** To describe differences among 50 years olds in 1992 and 2002, and to follow changes during a ten years period among those born in 1942. **BACKGROUND** A questionnaire from 1992 covering the total population born in 1942 was issued again in 2002 to the same cohort and also to those born in 1952. **MATERIAL** All registered inhabitants in Örebro and Östergötland counties born 1942 (n=8260, response rate 75.5%) and 1952 (n=8878, response rate 70.2%) received a questionnaire. Data reported here are crude data. **RESULTS.** 190 Edentulousness has decreased for 50-years olds from 1.7% in 1992 to 0.3% in 2002, and has increased by 0.6% over the decade in the 1942 cohort. Among those born 1942 87.1% are regular attenders. The figure among those born 1952 is 83.8%, the regular attenders are in both cases more satisfied with their oral condition. Those satisfied with their oral condition are more often patients in private care than in Public Dental Health Service (PDHS). The majority of respondents have never abstained from care due to cost of treatment. Those dissatisfied have more often abstained from seeking care due to cost of treatment. A large proportion of the dissatisfied has also abstained from proposed care. **CONCLUSION** The vast majority of those born in 1942 and in 1952 are regular dental care attenders. Those dissatisfied with their oral condition have more often abstained from seeking care and from proposed care. They are also more often regular attenders to the PDHS. Further analysis of the material in this study will take place. The counties of Östergötland and Örebro, Sweden, supported this study.

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## Daily consumption of sweets and soft drinks among intermediate school children in Kuwait

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**OBJECTIVE** The aim of this study was to describe the use of sweets and soft drinks among Kuwaiti children. **BACKGROUND** Dental caries experience has been increasing during the last twenty years among children in Kuwait, which is opposite to the trend in other industrialised countries. Only a few studies have been conducted in the Middle East or in the Persian Gulf area on oral health habits of children. **METHODS** A randomly selected sample of 2,041 children aged between 11 and 13 years completed a questionnaire anonymously in school classrooms during October-December 2002. Samples of children from all six Governorates of Kuwait was drawn into the study. Only Government schools were included. The questionnaire from the HBSC study (Health Behavior in School-Aged Children, a WHO Collaborative Study) was used after modification for the region and translation and back-translation from English to Arabic. **RESULTS** Daily use of sweets was very common among both sexes; girls 72%, boys 66%. There were no differences between different age groups. Among girls, more than once-a-day consumption was more prevalent (45%) compared to once-a-day consumption (28%). Daily use of soft drinks was also very common in both sexes and both age groups. Daily use was reported by 68% of girls and by 72% of boys (>1/day 39% and 46%, respectively). Consumption increased with age. **CONCLUSIONS** Use of sugar products was very common among children who should be targeted in health education given by dentists, schoolteachers, and school nurses in Kuwait.

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## A strong sense of coherence promotes regular dental attendance in adults

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2 The Nat. Public Health Inst.

3 Ministry of Social Affairs and Health, Finland.

**OBJECTIVE** To investigate the relationship between the sense of coherence (SOC) and regular dental attendance. It was hypothesised that subjects with stronger SOC have more regular dental attendance. **BACKGROUND** The relationship between the SOC and dental attendance pattern has been described previously by Freire et al. (Comm Dent Oral Epidemiol 2001;29:204-212, Comm Dent Health 2002;19:24- 31). **METHODS** A nationally representative Health 2000 survey including 8028 persons aged 30 or over was carried out by National Public Health Institute of Finland. The sample for this study consisted of 30-64 year-old dentate adults (n=4,292). The data were obtained from interviews and postal questionnaires, which included information about socioeconomic and demographic factors, dental attendance patterns, and the SOC scale. Bivariate comparisons and logistic regression models were used in the data analyses. **RESULTS** Regular attendance pattern was more common among those having stronger SOC. The gender and age adjusted association between the SOC and regular dental attendance was found to be significantly stronger among those having high or middle education compared with those having low education. **CONCLUSION** **The strong SOC seems to be associated with the regular dental attendance.** The survey was supported among others by grants from The Finnish Dental Society Apollonia and The Finnish Dental Association.

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## Toothbrushing as a part of adolescent lifestyle predicts educational level

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3 School of Public Health, University of Tampere, Finland.

**OBJECTIVE** The aim was to find out if toothbrushing frequency in adolescence predicted educational level in adulthood and to study the role of toothbrushing in adolescents' health-related lifestyle. **BACKGROUND** Socioeconomic differences in health and health behavior are well known. The hypothesis was proposed that toothbrushing frequency in adolescence predicts educational level in adulthood and is related to other health-compromising behaviors as well. **METHODS** Data from nationally representative samples of 12-16-year-olds (N=11,149) in the Adolescent Health and Lifestyle Survey in Finland in 1981-1985 were linked with register data on highest attained education at age 27-33 in 1998. Ordinal logistic regression analysis and exploratory factor analysis were applied as statistical methods. **RESULTS** Adolescents with a low toothbrushing frequency reached the lowest educational levels. School achievement or sociodemographic background only partly accounted for the association. Four dimensions of health behaviors were found. At age 12, a low toothbrushing frequency loaded highly with "street-oriented" behaviors, concentrated around smoking and alcohol use. At ages 14 and 16, it was associated with a "traditional" lifestyle of the less educated. **CONCLUSIONS** A low toothbrushing frequency indicated selection into the less educated stratum of society. The strong association between a low toothbrushing frequency and other health-compromising behaviors is likely to be reflected in socio-economic health differences in adulthood. The fact that health behaviors are not practiced independently of each other should be remembered when planning dental health interventions. Dental care personnel might have a role in identifying

## Dental anxiety among adult Finns by age and gender

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**OBJECTIVE** To estimate the prevalence of dental anxiety in adult Finns. **BACKGROUND**

Prevalence of adults' dental anxiety is reported to vary between 4 to 20% depending on population and method of assessment (Hakeberg M et al. Nor Dent J 2003;113:12-8).

**METHODS** In a nationwide representative sample including 8028 persons aged 30 years and older 88% were interviewed at home, as part of a comprehensive survey carried out in 2000. Dental anxiety was assessed by one question concerning perceived anxiety about visiting a.191 dentist with the reply alternatives being "not at all", "some-what", or "very". Of the participants 6,857 answered the question. Statistical significance of differences between genders was evaluated by Chi square tests. **RESULTS** Distribution of participants according to their reported dental anxiety by age and sex (F=female, M=male) is shown in the table.

Dental anxiety level	All age groups (n=6857)		30-44 year-olds (n=2288)		45-54 year-olds (n=1702)		55-64 year-olds (n=1148)		65-74 year-olds (n=858)		75-84 year-olds (n=628)		85+ year-olds (n=233)	
	F%	M	F%	M	F%	M	F%	M	F%	M	F%	M	F%	M
somewhat	31	23	38	28	35	24	27	22	21	12	17	10	13	13
very	13	7	17	8	13	8	12	5	7	6	7	3	5	7

Women reported being somewhat or very anxious more often than men did ( $p < 0.001$ ) in all age groups except the oldest group where there was no clear difference. **CONCLUSIONS** The age and gender specific prevalence rates of dental anxiety were similar to those reported elsewhere in industrialised countries. The Health 2000 survey is coordinated and carried out by the National Public Health Institute of Finland. The survey was supported among others by grants from The Finnish Dental Society Apollonia, The Finnish Dental Association and The Social Insurance Institution of Finland.

## Session B2 - Epidemiology - Room Alvar Saturday, 23 August 2003

**Chairpersons: Professor Annerose Borutta and Professor Z. Broukal**

## Perceived oral health and attitudes to oral conditions, changes over a ten-year period

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**OBJECTIVE** To describe differences between 50-year-olds in 1992 and 2002, and to follow changes in attitudes during a ten year period among those born in 1942. **BACKGROUND** A questionnaire completed in 1992 covering the total population born in 1942 was issued again in 2002 to the same cohort and also, in addition, to those born in 1952. **MATERIAL** All registered inhabitants in Örebro and Östergötland counties born 1942 (n=8260, response rate 75.5%) and 1952 (n=8878, response rate 70.2%) received a questionnaire. They were identified from data from the Bureau of National Statistics. Questions pertaining to perceived oral health were correlated to number of teeth, attitudes to teeth, and to childhood experience of dental care. Data reported here are crude data. **RESULTS** The changes between the 50-year-olds in 1992 and those in 2002 are small. The respondents who say that they are satisfied with their oral conditions more often state that their general health is better, they have better chewing ability, and they rate the importance of their teeth higher. The 1942 cohort, in 2002, rate the importance of teeth higher than in 1992. Frightening dental experiences in childhood were reported by 62% of those satisfied with their oral conditions and by 72% of those dissatisfied. **CONCLUSIONS** Perceived oral health has changed little for 50-year-olds in 1992 and 2002. Importance of appearance of teeth has increased in the 1942 cohort during the decade. A large proportion of respondents report frightening dental experiences in childhood. Further analyses will take place. The counties of Östergötland and Örebro, Sweden supported this study.

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## Chewing ability of the long-term hospitalised elderly

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**OBJECTIVE** To investigate the chewing ability of the long-term hospitalised elderly in Helsinki. **BACKGROUND** In Helsinki, Finland, the long-term hospitalised elderly, all extremely frail, suffer from various acute or chronic medical states; on average, spending their last 15 months in hospital. **METHODS** All long-term patients aged 60 years and older in Laakso hospital, Helsinki (n=262; 25% men). Clinical oral examinations carried out bedside by a specialist dentist (PP) using a dental mirror, tweezers, and an otological light source. Chewing ability determined by Eichner index; with removable dentures, if present. The consistency of food each patient was able to chew - normal, cut into pieces, or mashed - served as an indicator of chewing ability; information came from the nursing staff. Patients' level of need for assistance came from medical records. Statistical method: chi square test. **RESULTS** Mean age was 83.2 yrs (SD=8.0 yrs); 47% were ranked at the worst level in need for assistance. Mean number of functioning teeth was 5.6 (7.8) for women and 7.5 (9.6) for men; 45% and 33% were edentulous (p=0.10). By the Eichner index, 33% belonged to class A, 27% to B, and 40% to C, with no gender difference. Also with no gender difference, 23% could chew normal food, 12% food cut into pieces, and 65% mashed food. Those with more teeth tended more easily to chew normal food (p=0.09). By the Eichner index, normal food was chewed by 41% of those in class A, 27% in B, and 8% in C (p<0.0001). **CONCLUSION** Despite suffering several medical conditions and being in great need of assistance, the chewing ability of the longterm hospitalised elderly greatly depends on number of supporting zones in their occlusion. Grants by the Helsinki City Health Department and The Finnish Dental Association Apollonia to PP are warmly acknowledged.

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## The prevalence of dental caries in Europe

R FERRO\*

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**OBJECTIVE** to evaluate the prevalence of dental caries in Europe (12-year-old children). **BACKGROUND** Epidemiological studies over the last 30 years have shown a phenomenal decline in the prevalence of dental caries in children from the Western world. The goals of the WHO for 2000 have already been reached in many industrialised countries. In some European areas the decline appears to have stopped, whereas in others it continues. Despite the low prevalence, the disease remains strongly polarised with the majority of lesions occurring in a small number of children. Statistics show that 50% of caries are present in only 10-15% of children (high risk group). For this reason a new epidemiological index has been introduced SIC (Significant Index Caries). 'The European minimum' in 1996 was the city of The Hague (DMFT=0.7 in 12-year-olds); the children had different oral health indexes with regard to the social class (high social class: DMFT=0.3 and 86% caries free; lower social class: DMFT=1.1 and 50% caries free). **METHODS** The European literature and data from WHO ([www.whocollab.od.mah.se/countriesalphab.html](http://www.whocollab.od.mah.se/countriesalphab.html)) have been revised. European countries have been divided with regard to DMFT index. In 3 countries (The Netherlands, Switzerland, and Great Britain) DMFT index is lower than 1, but only English data are on a national basis. Decline has involved almost all the European countries, except for some Eastern ones (Romania, Rep. Ceca, Bulgaria, Bosnia). The most recent English data show that caries is still declining and in some areas in the South of the country the DMFT index is lower than 0.5 (0.43). **CONCLUSIONS** In most of the European countries caries is decreasing, but in some of the Eastern ones there is an inverse trend. The current data locate 'the European minimum' in the area of Warwickshire and Solihull (DMFT=0.43). In Europe 5 different systems for provision oral health care have been recognised, but the caries reduction took place distinct from the system of oral health care provision.

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## Perceived oral health: changes over five years

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**OBJECTIVE** The purpose of this study was to investigate if the social gradient of perceived oral health has changed over a five year period, 1992-1997, using a cohort population from two Swedish counties. **BACKGROUND** During the 1990s Sweden was cutting down its welfare system, due to economic crisis. In the dental care system for adults, cuts implied a steep increase in patient charges. **METHODS** In 1992, a mail questionnaire was sent to all 50-year-old persons in two counties in Sweden and this was repeated in 1997. The number of responses from this cohort was 5,363 in both 1992 and 1997. An index of perceived oral health was constructed out of three questionnaire variables: satisfaction with teeth, chewing ability, and the number of remaining teeth, and set as a dependent variable in a regression model. **RESULTS** There were obvious social gradients in the perceived oral health index both in 1992 and in 1997 for marital status, foreign birth, education, and occupation. However, almost half of the cohort (47.4%) showed no change at all. Those with increased and those with decreased health were rather evenly distributed on both sides, with 22.0% with better health in 1997 and 30.6% with worse health. **CONCLUSIONS** Changes have been moderate in the perceived oral health in this cohort, despite the changes in the remuneration of dental care during the study time. This also means that the social differences remain, despite the official goals of increased equity.

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## Dental health among adults in Mongolia, compared with that in Finland

*B TSEVEENJAV\*, MM VEHKALAHTI, H MURTOMAA*

**OBJECTIVE** The present study described the dental health of Mongolian adults aged 30 to 64 years and compared it with that of their Finnish counterparts. **BACKGROUND** Mongolia and Finland have a great contrast in their socio-economic and health-care structures, cultural backgrounds, and dentist-population ratios. **METHODS** Data for the Mongolian population came from the National Oral Health Survey in 1996; 267 subjects were of the target age. Data for the Finnish population came from the preliminary report of the nation-wide study in 2000, including almost 5000 subjects aged 30 to 64 years. Dental health was described by mean number of teeth (NoT) and by occurrence of edentulousness and untreated caries (subjects with DT>0). The data were reported in three age groups: 30 to 44, 45 to 54, and 55 to 64 years. The chi-squared test was applied. **RESULTS** Mongolian adults aged 30 to 44 had, on average, 24.4 (SD=4.7) teeth, 45- to 54-year-olds 20.6 (7.0), and 55- to 64-year-olds 18.5 (8.6) teeth. Of all, 1% was edentulous and edentulousness differed among women by age group ( $p=0.008$ ). Of all those dentate, 79% had DT>0 with no difference by gender ( $p=0.36$ ). In comparison with Finland, NoT in Mongolia was smaller for 30- to 44-year-olds, similar for 45- to 54-year-olds, but among 55- to 64-year-old Mongolians, NoT for men was much greater than among Finns, but that for women was similar. Edentulousness in Mongolia was minor compared to that in Finland. Occurrence of untreated caries was 3 to 4 times more prevalent in Mongolia than in Finland. **CONCLUSION** Adults' dental health in the two countries appeared to have different patterns: untreated caries being the most serious problem in Mongolia. Grants by CIMO, Univ. of Helsinki, and Finnish Dental Society Apollonia to BT are warmly acknowledged

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## Dental health status in a prison

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**OBJECTIVE** The principal aim of this study was to measure the prevalence of dental caries and to correlate it with the following parameters: age, years of incarceration, accusation (drug-related offences, crimes against life, property, crime causing common danger, economic crimes, etc.) and nationality of the prisoners. **BACKGROUND** It is known that there is a high prevalence of dental problems amongst prisoners. **METHOD** Files data were collected for 282 prisoners of different ages, and clinical examination was carried out following WHO criteria. Statistical analysis: SPSS program, t-test and Pearson's correlation coefficient test. **RESULTS** Age varied from 19 to 68 years with the mean of 36.3 (SD=10.5) years. A total of 189 (67%) were Greek and 93 (33%) were foreign nationals. The mean DMFT was 14.9 (SD=8.0; range: 0-32). The correlation between age and DMFT was  $r=.32$  ( $p=0.01$ ). DMFT among Greeks was 17.1 (SD=7.5) and among the foreigners 10.4 (6.9). DMFT in drug-related offences was 14.7; in the crimes against property 16.4, and in the crimes against life 12.9. **CONCLUSIONS** The DMFT index is very high in the prisoner population. The Greek prisoners had higher DMFT compared to the foreign nationals. DMFT index is high in all groups of the offenders. More attention should be focused on these special groups.

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## Case-control study of the tobacco-chronic periodontal disease relationship

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**OBJECTIVE** To evaluate the possible association between tobacco usage and chronic periodontal disease. **BACKGROUND** A common finding in studies of tobacco usage is associated with systemic pathologies. Recently periodontal damage from tobacco use has also

been reported. **METHODS** A random sample was taken comprising 105 patients suffering chronic periodontitis and 114 healthy controls. Inclusion criteria: a minimum of 20 natural teeth excluding third molars and teeth with orthodontics. In chronic periodontitis, a depth in probing of 5 mm or more in 2 or more teeth and in 2 or more quadrants and loss of attachment. Patients excluded: diabetics, drug addicts, patients with systemic pathologies, or consumers of anti-inflammatory or other drugs that could affect the periodontal tissue. **RESULTS** Among the cases, there were 68 women and 37 men with an age range of 28-66 years. In the controls there were 70 women and 44 men with age range 26-62 years. In the test group there were 63.8% smokers and in the controls 40%. Bleeding points in cases of smokers were 4 points in 32.8%, 5 points in 7.5%, and in non-smokers 4 points in 21.1 %, and 5 points in 2.6%. The depth of the pockets in smokers was: 2.1-3.0 mm 9%; 3.1-4.0 mm 40.3%; 4.1-5.0 mm 43.3%; > 5 mm 7.5%. In non-smokers 2.1-3.0 mm 15.8 %, 3.1-4.0 mm 52.6 %, 4.1-5.0 mm 31.6 %. The losses of attachment, dental plaque, and calculus were notably higher in smokers than in non-smokers. The association between tobacco use and chronic periodontitis: O.R. 2.61; R.R. 1.65; A.R. 0.23 E.F. 39.6 %. **CONCLUSIONS** The OR and the RR showed that tobacco usage was a positive risk factor and that there was also an association between consumption and the quantity of tobacco consumed, depth of pockets, number of bleeding points, and loss of attachment.

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## Oral health among the diabetic patients

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**OBJECTIVE** To evaluate the possible association between diabetic discompensation and oral pathology. **BACKGROUND.** The evolution of society is associated with increased life expectancy and pathologies such as diabetes. The signs and oral symptoms of these conditions are related to their general state of health. **METHODS** ADA criteria were used for inclusion in the group of diabetics and a random sample was taken comprising 470 on whom a medical history and examination were performed. The distribution by sex was 53.2% males and 46.8% females, age range 12-80 years, and average age  $41.64 \pm 17.31$ . **RESULTS** 10.6% did not brush their teeth. Average daily toothbrushing was  $1.56 \pm 0.88$ . Periodicity of visits to the dentist 6 months by 36.1%, 6-12 months by 10.7%, 1-2 years by 21.2%, 2-5 years by 10.6%, and > 5 years by 21.3%. TMJ dysfunction: 12.8% "noises", 4.3%, pain on palpation, 4.1% limited mobility. Soft tissue pathology: 14.9% fissured tongue, 12.8% scrotal tongue, 10.6% angular cheilitis, 8.5% candidiasis and 57.4 % dry mouth, 17.1 % ageusia. Hard tissue pathology: 12.3% opacity or hypoplasia of enamel. DMF index  $11.6 \pm 7.86$ . Index of dental plaque  $0.83 \pm 0.79$ . Index of dental calculus  $0.59 \pm 0.74$ . Average CPITN index  $1,81 \pm 1.76$ . The degree of dental attendance, oral hygiene and dental calculus scores were quite poor as in the general population. **CONCLUSIONS** The patients present higher rates of oral pathologies associated with discompensation and time of evolution of the illness. Therefore, as this is a more vulnerable group as far as health is concerned it would be desirable to have specific health education programmes to promote self-care and the use of the health services.

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## Oral health status in pregnant women attending a Portuguese public health centre

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**OBJECTIVE** The aim of this study was to evaluate the oral health status and respective oral health attitudes among a group of pregnant women attending pre-natal medical consultations in

a primary public health center in Castelo de Paiva, Portugal. **METHODS** A group of 68 women (as the estimated total number of 102 in the of the district) were observed (mean age 24,6 years and a range from 16 to 35) according to the WHO-oral health survey criteria; also a simple questionnaire about behaviours related to oral health and habits were completed. All data were analyzed using the SPSS 11.0 programme. **RESULTS** The mean of DMFT value was  $12.8 \pm 4.4$  and the prevalence of caries free 26.5%. According to the CPITN index the percentage of women with healthy sextants was 22.1%, 38.2% had bleeding after probing and 32.4% of sextants were recorded having calculus. The reported oral health habits were: 17.6% brushed less than once a day, 73.5% once a day and 8.9% two or more time a day; 67.6% used mouthrinses on daily basis and 20.6% report regular use of dental floss. Habits of tobacco, drugs or medicines usage, oral sepsis and oral pain were assessed and also regular dental or medical consultation. **CONCLUSIONS** This group of pregnant women presented with a high prevalence of oral infections during pregnancy, with natural impacts in health related quality of life and may also represent a high risk to the health of the babies. These results confirm the necessity to increase the development of educational programs promoting oral health in this particular group in Portugal.

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## **Collaboration to identify suitable measures of periodontal diseases in populations**

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**OBJECTIVE** This collaborative work was initiated in order to consider existing science and to recommend measures of periodontal infection (PI) that can be applied routinely and inexpensively to monitor periodontal disease levels in populations over time. **BACKGROUND** As reports of associations between adverse health events and periodontal diseases have increased in the literature, interest in public health approaches to prevent or control periodontal infection also has increased. Any such approaches will require ongoing surveillance at the state or local level but, in the past, such efforts have suffered from inconsistent and complex case definitions or data collection methods that make routine use difficult. **METHODS** DOH/CDC and AAP agreed that no well-accepted surveillance measures for PI exist, and jointly identified scientists and practitioners from the epidemiology and periodontal communities for a work group. Within two years (and with CDC funding), that group is expected to: Select additional persons to serve on or advise the group; review existing literature and approaches used internationally; conduct analyses on existing databases to determine sensitivity and specificity of candidate measures; and recommend both self-report and clinically derived measures that could be acceptable. **RESULTS** When both parties perceive a common need and bring complementary expertise to their collaboration, the effort is far more likely to succeed. **CONCLUSION** Although this important effort has just begun, the time spent clearly defining the problem already seems a wise investment.

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**Session C2 - Health Services Research - Room Elsi  
Saturday, 23 August, 2003  
Chairs: Professor B Söderfeldt and Dr. N. Wang**

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**Preliminary clinical evaluation of the OHSI in a migrant population**

**OBJECTIVE** The goals of this study were: 1) to evaluate the Oral Health Status Index (OHSI; Marcus M, Koch AL, Gershen JA, J Am Dent Assoc 1983;107:729-733) in relation to changes within the progression of treatment; and 2) to better understand how oral health behaviours impact on the OHSI score. **BACKGROUND** Previous studies have shown the relationship among the OHSI, the index components, demographic, and behavioural variables. This study explores the potential use of the OHSI to estimate costs of dental services during the progression of treatment. **METHODS** The sample were patients of a dental clinic for migrants in Yokohama, Japan. All criteria used were based on those developed by NIDCR. With their consent, patient charts were used to collect insurance status, fee, number of visits for treatment, continuation of care following the initial care, contents of treatment, and diagnosis. Contents of each treatment were classified whether the treatment varied the initial OHSI score or not. Pearson's correlation coefficients were calculated, and only variables with coefficients greater than 0.5 were included in the regression analyses. **RESULTS** Sixty-five subjects (18-83 years), selected sequentially as new patients to the clinic, were examined. Subjects included migrants who came from Philippines (n=14), Korea (10), Thailand (3), Colombia (9), Peru (7), and Argentina (1). Statistical significance was found for the change of OHSI score and number of visits for treatment ( $r=0.51$ ,  $p<0.001$ ,  $Adj.R^2=0.247$ ) in the regression. **CONCLUSION** The findings of this study demonstrate that the OHSI score changes relative to the progression and type of treatment. The OHSI might better represent oral health status when used in populations requiring 'original' dental care rather than populations requiring a high level of 'replacement' dental care .

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## **Ten year period in Estonian dentistry (1991-2000)**

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**OBJECTIVE** This study has been designed to demonstrate the changes in the structure of dentistry which have been started in Estonia after regaining independence. **BACKGROUND** The number of private dental clinics, especially in towns, has increased. Dental treatment and prosthetic treatment for retired persons (63 years and older) began to be financed by the Estonian Sick Fund. Starting from 2003 only treatment of children up to 18 years old is financed from the Sick Fund. **METHODS** New dental clinics, supplied with high quality equipment, instruments, and dental materials, were opened. The number of dentists increased in this period from 4.8 per 10,000 inhabitants to 7.0/10,000. Number of dental students has stabilised during this period - 30 students starting on the first course of dentistry annually. Specialisation: clinical dentistry, orthodontics, and oral- and maxillo-facial surgery are officially certified. Number of visits to the dentist has decreased from 1.7 visits per inhabitant in 1991 to 1.3, in 2000. Dental prosthetic treatment has improved remarkably - metaloceramic crown and bridge work and implants are regularly provided. Number of prepared prosthesis per 10,000 citizens increases every year. **RESULTS** Analyses of the oral health situation in Estonian 5-6 year-old children revealed high prevalence of caries in deciduous teeth. In kindergarten children class II orthodontic anomalies, cross and deep bite were registered frequently. Prevalence of caries in 12- and 15 year-old children was accepted as moderate and low and varying in different regions of Estonia. Comparing activity of dental caries in 2001 to the data of 1971/72 in Tallinn, we could see significant decline in caries prevalence in schoolchildren. Fluorosis of teeth was diagnosed in 29%, but differs greatly in various districts, depending on the fluoride level in local drinking water (from 0.03 mg F/L to 7 mg F/L). The programme for prevention of dental diseases had been planned for ten years beginning in 1996. In the framework of this programme methodological books, pamphlets, videos, transparencies, stickers, and TV programmes have

been prepared, many lectures and conferences have been held. Special school programs on dental health for different age groups have been carried out. **CONCLUSION:** Estonian dentistry will continue to reform and adapt to EU structures and to provide dental treatment and prevention for all categories of inhabitants.

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## A new design for making conservative bridge

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**OBJECTIVE** This clinical research was carried out to find a method for replacement of lost teeth with minimum preparation of abutment teeth. **BACKGROUND** There are many studies which demonstrate the desire of dentists and patients to minimize tooth preparation during replacement of lost teeth (Watson RM, Gilmore AG. Eur J Prosthodont Restor Dent 1994;2:171) and some methods have been described in the text books on prosthodontics. **METHODS** In this study 24 patients with lost lower first molar, matched for conditions, were selected. A class II mesio-occlusal box on the second molar and a class II disto-occlusal box on the second premolar were prepared. The dimensions were 2.5-3mm in width and depth and the occlusal part of the box was limited to the remainder of the marginal ridge. A PFM pontic with 2 blades was made. The blades were adapted to the box floor and their thickness was around 1.25 mm with a thin layer of opaque porcelain on the occlusal surfaces to prevent metal darkness. Abutment teeth were etched, a self-cure composite placed in the boxes and the bridge was seated firmly on the abutments, and a light-cure composite was used to completely fill the boxes. The cases were examined every 6 months for up to 4 years. **RESULTS** After 4 years, 3 cases were debonded and the other cases were problem free, indicating an 87.5% success rate. **CONCLUSION** This method can be a reliable treatment and in some cases, it can be the best choice of treatment, particularly in the abutments with class I & II fillings.

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## Need and demand for dental care in dentate adult Finns

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**OBJECTIVE** The present study describes immediate changes in self-reported need and demand for dental care among dentate adult Finns before and after the first phase of the subvention reform. **BACKGROUND** Until 2001 only Finns born after 1955 were entitled to publicly subsidised dental care in Finland. The first phase of the subvention reform made subsidised care available to those born in 1946-1955 from 1 st April 2001. **METHODS** Two independent nationally representative questionnaire surveys were conducted: the first under the pre-reform situation in 2001 (n=4029, response rate 71%) and the second in the autumn of 2002 (n=2000, response rate 69%). **RESULTS** An increase in demand for care and decrease in self-reported need were detected among those born in 1946- 1955. In 2001, 62% of this age group reported dental visits during the previous 12 months, 57% reported need for care, and 45% pain or discomfort due to teeth or dental prostheses. In 2002, the corresponding figures were 67%, 48%, and 36%. **CONCLUSIONS** Preliminary analysis suggests, in line with prior expectations, that the demand for dental care in this specific age group has increased and the need for care consequently reduced during the implementation of the first phase of subvention reform.

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# Variations in oral hygiene procedures in long-term-care institutions for elderly in Gent, Belgium

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**OBJECTIVE** This study was designed to explore variations in oral hygiene procedures and facilities in long-term-care institutions for elderly. Reported level of caregivers' knowledge related to oral health, reported work climate, management, size of the institution, mean age, and degree of dependency of residents were evaluated. **METHODS** 16 nursing homes were selected by a technique of stratified random sampling in the region of Gent (University town). Nine different strata were used based on size and management. Factors thought to be associated with the variation in oral hygiene procedures and facilities were collected from 225 caregivers (75%) through a structured 45-item questionnaire. The questionnaire was validated and tested on reliability during a test-retest prior to the start of the study. The relation between rates of oral hygiene procedures and facilities and explanatory variables was investigated using correlation analysis and subsequently by multiple linear regression analysis. **RESULTS** The best fitted regression model explained 34% of oral hygiene procedures variation. The most predictive variable was the knowledge of caregivers which explained 16% of the variation, while managerial behaviour explained 11% and mean age of the residents 3%. There was a trend towards a negative relationship with mean age and size of the institution. **CONCLUSION** Most of the variance in oral health procedures and facilities in long-term-care institutions for elderly remains unexplained. Knowledge and managerial behaviour were the most powerful explanatory variables.

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## Strengths and targets for development in public oral health care centres

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**OBJECTIVE** The present study describes strengths and targets for development in public oral health care centres in Finland. **BACKGROUND** As of the beginning of December 2002, all Finns are entitled to subsidized dental care. This extension to cover all age groups requires careful strategic planning in public oral health care centres. The Balanced Scorecard (BSC) is a strategic management tool that can be used to convert the vision guiding an organization's activities and strategy into a set of strategic success factors. Within the BSC framework, these strategic success factors are established and monitored according to the following four aspects: effectiveness; resources and finance; process and structure; renewal and competence of staff. **METHODS** Public oral health care centres (n=27) attending a joint BSC project (SUHAT) assessed their strengths and targets for development using a free-format questionnaire. The strengths (n=82) and targets for development (n=82) found in this assessment process were assigned to four BSC aspects (cards). **RESULTS** Over half (54%) of the strengths presented by the public oral health care centres were on the "renewal and competence" card. However, every third (34%) target for development was on this card as well. Every fifth strength or target for development was on the "effectiveness" card (21%) or on the "process and structure" card (22%). Only 10% of the strengths and targets for development found in the assessment process were on the "resources and finance" card. **CONCLUSION** Public oral health care centres focused their attention on the renewal and competence of staff. Resources and finance received the least attention.

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## Public sector dentists' policy in treating low-risk patients in Finland

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**OBJECTIVE** To study Finnish public sector dentists' policy regarding dental prevention for low-risk patients. **BACKGROUND** In Finland, few or no untreated dental caries (DT) is present in the majority of patients, in children in particular. It is, therefore, of great importance to discover, what dental resources are devoted to these patients. **METHODS** In three large public dental care units in southern Finland, at one of their monthly meetings held during working hours, a questionnaire was introduced to each unit's dentists (n=236). They were asked to fill it in and return it immediately, anonymously, with only their year of graduation as background information. The questionnaire described three low-risk patients, aged 7, 30, and 65: the 7-year-old had no past or present caries and all permanent first molars erupted; the two adults, generally healthy and taking no medication, no pocketing and no new DT in the previous 5 years. The dentists were to consider, separately for each case, the optimal interval to the next check-up (CU), the need for and interval until application of fluoride (AF), and instruction needed in home-care (IHC). Statistical evaluation: Chi-squared test. **RESULTS** For each case, the majority of dentists suggested CU on two-year basis. A shorter CU was suggested by 33% for the 7-year-old, by 9% for the 30-, and by 28% for the 65-year-old. Dentists 10 to 20 years beyond graduation suggested the longest CU intervals for the 7-year-old (p=0.03), and those graduated for more than 20 years, for the 30-year-old (p=0.06). AF was considered as not needed by 31% of dentists for the 7-year-old, by 44% for the 30-year-old, and by 40% for the 65-year-old, and IHC by 34%, 62%, and 43%, respectively. **CONCLUSION** The majority of dentists in public service, as regards care for low-risk patients, seemed to follow a resource-saving policy.

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## Evaluation of the knowledge of infant oral health among pregnant women and Health Services relationship

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**OBJECTIVE** A study was carried to determine the knowledge among pregnant women of oral health in newborn babies. **BACKGROUND** Pregnant women's knowledge of their own oral health and of the newborn baby as these two areas show great shortfalls regarding other aspects of general health. **METHODS** A random sample of 540 women was taken from a total of 8818 pregnant women. A survey was carried out on the knowledge they had on dental eruption, the importance of primary and permanent dentition, oral health habits of the newborn baby, chronology of dentition, oral pathology of the newborn baby, etc. **RESULTS** The average age was 32.2 ±4.2 years. Dental knowledge concerning the newborn baby: 46.5% believe that the teeth are formed after birth, 45.9% believe that the diet during pregnancy affects the teeth of the newborn baby, 75.4% did not know what a correct eruption was. Only 7.9% knew about feeding bottle tooth decay and around 32% did not consider thumb sucking to be prejudicial, however, 47.8% believed that pacifiers were prejudicial, 53.7% considered that teeth brushing should begin once all the teeth have erupted, 72.7% that primary teeth are as important as permanent teeth, and around 29% did not know when the first visit to the dentist should take place. Nobody had explained the formation of their baby's teeth. **CONCLUSIONS** Little information is given to pregnant women with regard to the oral health of newborn babies and the presence of erroneous ideas that could lead to them taking wrong decisions with poor use being made of the health services. For this reason, maternal education programmes must be promoted to improve education and information in oral health.

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## Opinions of the clients in The Dental Public Health Service in Jyväskylä

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**OBJECTIVE** To test a new model to provide municipal dental services in Jyväskylä from the adults' perspective. **BACKGROUND** At the beginning of the year 2002 a new model was introduced to provide oral health services for the entire population according to a law amendment. **METHODS** During two months adult clients filled out a structured questionnaire that measured the importance they attached to their expectations in different aspects of dental care. After the appointment, they continued to fill out the rest of the questionnaire answering the questions measuring the fulfilment of the expectations in the treatment situation. The difference between the subjective importance and the realization of the expectations was compared. The response rate was 72,6% (n=1300). **RESULTS** Eighty six per cent of the clients found it important to be able to book a subsequent appointment to take place within a short waiting period. This expectation was fulfilled for 61% of them. Ninety six per cent of the clients found it important to receive information about preventing oral diseases. This expectation materialised for 60% of them. Ninety two per cent regarded it important to get information about treatment alternatives and they also wanted to be involved in the decision-making. This expectation was realised by 60% of them. **CONCLUSIONS** To respond to the expectations of the clients the personnel of the dental health service has to give more information about preventing oral diseases and about alternative treatment possibilities. Patients should more frequently be involved in the decision-making regarding their own dental care. Patients should be able to book a subsequent appointment to take place within a shorter waiting period than before.

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## Dental care resources and their allocation in Jyväskylä region in 2002

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2 Private dentist, Jyväskylä, Finland.

**OBJECTIVE** The objective of this study was to survey the supply and accessibility of dental services. **BACKGROUND** This study is part of a development project, which aims at utilising more effectively the dental care resources in Jyväskylä region. There are 153,549 inhabitants in the region and the yearly workforce is 54 dentists in health centres and 52.5 in the private sector. **METHODS** The data were collected from private dentists using a questionnaire. The response percentage was 78. The data from health centres were based on the health centre statistics including all dentists. **RESULTS** Private dentists used 56.920 hours for patients work; 5300 unused hours had been available. Dentists in health centres worked for 64,800 hours with patients. Thus, 47 minutes dental work per capita was available; 22 minutes in private practices and 25 minutes in the health centres. The unused time in private practices equalled the time needed for 6,686 more inhabitants with the present rate of treatment. Emergencies were treated on the same day both in private clinics and health centres. An average queuing time for the others was eight days in the private sector and 60 days (ranging from 14 to 120 days) in health centres. **CONCLUSION** The present capacity is enough to satisfy the need. The private sector had unused capacity, unlike health centres. The difference is probably due to the patients having to pay for a higher share of their treatment in the private sector. In the future, it is worth considering equalising the amount of subventions for both sectors. This would increase the effectiveness and the patients' freedom of choice.

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## Impact of free basic dental treatment in Navarra (Spain) on the frequency of dental attendance

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**OBJECTIVE** To investigate the impact of the Children's Dental Treatment Program (Programa de Asistencia Dental Infantil, PADI) on the frequency of dental attendance amongst school children in Navarra. **BACKGROUND** The PADI scheme was gradually implemented between 1991 and 1999 to provide free basic dental treatment to schoolchildren aged between 6-15 years through a mixed system of public centres (employees) accounting for less than 5%, and freely-chosen approved private centres (capitation), 95% of the total number of PADI centres. **METHODS** Data analysis of epidemiological surveys on dental health and habits, based on representative samples of Navarra schoolchildren (1987, 1997, 2002), and analysis of process implementation of PADI. School children who claimed to attend at least once a year were termed "regular users". The data on the PADI program were obtained from the Dental Care Unit of the Primary Health Care Division, of the Navarra Government Health Department. The data were processed with Microsoft Access and the SPSS for Windows, version 10. **RESULTS** In 1987, before PADI was introduced, only 55.1% of school children aged 14 years visited the dentist regularly. Ten years' later, regular users had risen to 67.2% (14 year olds), although these were not still covered by PADI, and to 80.6% of 6-12 year olds of which, 58% went to a PADI dentist, and 22.6% to a private one. In 2002, regular users increased to 89.2%, with 74.1% attending a PADI and 15.1% a private dentist ( $p < 0.05$ ). The number of approved private centres increased from 25 in 1991 to 157 in 2002, showing a strongly positive association with the increment of PADI utilization ( $R = 0.941$ ;  $p = 0.000$ ). The lowest regular attendance is amongst the schoolchildren with a low socio-economic level ( $p < 0.05$ ). **CONCLUSIONS** The implementation of PADI has led to a significant increase in the frequency of dental attendance amongst Navarra schoolchildren. Grant: Department of Health. Government of Navarra.

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## Session D2 - Health Promotion and Disease Prevention - Room Felix

Saturday, 23 August 2003

Chairpersons: Dr. D. Declerck and Dr. K. Eaton

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## Correlation between plaque and gingival indices in a supervised toothbrushing programme for children with Down syndrome in Kuwait

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**OBJECTIVE** To determine the effectiveness of a school based supervised toothbrushing program in a group of subjects with Down's syndrome in Kuwait. **BACKGROUND** In children with Down's syndrome, lack of motivation, low concentration, and problems with manual dexterity make it extremely difficult to achieve and maintain a high standard of oral hygiene and gingival health. They are further disadvantaged by poor preventive dental health practices and should therefore be especially targeted for increased preventive dental care. **METHODS**

Altogether 112 Down's syndrome subjects (45 males, 67 females) age range 11-22 years (mean age=14.8 years), with moderate mental retardation attending two special needs schools, participated in this intervention programme. Plaque was scored according to the Silness & Loe plaque index (PII) and gingivitis according to the Loe & Silness gingival index (GI). Supervised toothbrushing and dental health education sessions were conducted twice a week. The programme was evaluated at the end of 3 months. Paired-Samples t-test was used to test the differences in the mean plaque and gingival scores at the baseline and in the final examinations. Bivariate correlations were used to measure the relationships between mean plaque and gingival scores in the baseline and in the final assessments. Pearson's Correlation Coefficient (r) was used to measure linear association between the mean plaque and gingival scores. **RESULTS** There was a significant reduction in the plaque and gingivitis scores. The mean plaque score decreased from 1.93 to 0.95 ( $p<0.001$ ), and the mean gingival score from 2.00 to 0.83 ( $p<0.001$ ). There was high positive correlation between the individual plaque and gingivitis scores at the baseline examinations ( $r=0.83$ ) and between the plaque and gingivitis scores at the final examinations ( $r=0.91$ ). **CONCLUSIONS** This supervised toothbrushing programme was effective in reducing the plaque and gingivitis scores, but the key to long-term success of the programme is in sustaining the subjects' motivation to make oral hygiene a part of daily life. This study was supported by the Ministry of Health, Kuwait.

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## **Influence of mineral-vitamin containing tablets (Calsinova) on salivary mineral composition in children**

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**OBJECTIVE** The aim of this study was to evaluate the salivary composition of children consuming "Calcinova" tablets (KRKA®, Slovenia) containing calcium (100 mg), phosphorus (77 mg), vitamins: A (1000 IE), D 3 (100 IE), B6 (0,4 mg), C (15 mg). **BACKGROUND** Complexes of minerals and vitamins 196 are known to be essential for children's oral health. These tablets are recommended for bone and tooth mineralisation in children. **METHODS** Eighty children aged 7-16 years took part in this study. Altogether 40 samples of non-stimulated mixed saliva were gathered at baseline and after 3 months of consumption of 3 "Calsinova" tablets a day. The content of total calcium, inorganic phosphates, and magnesium was determined with an autoanalyser (Hemolyzer 2000), the alkaline phosphatase activity with an autoanalyser (AP-Carmay). **RESULTS** The results showed that the total calcium content increased significantly ( $p<0.01$ ) from  $0.53\pm 0.04$  mMol/l up to  $0.83\pm 0.07$  mMol/l, phosphorus from  $2.19\pm 0.40$  up to  $3.61\pm 0.30$  mMol/l ( $p<0.01$ ), and magnesium from  $0.15\pm 0.01$  up to  $0.31\pm$  mMol/l ( $p<0.001$ ). Phosphatase activity also increased significantly from  $14.93\pm 0.91$  U/l to  $31.78\pm$  U/l ( $p<0.001$ ). **CONCLUSION** It was concluded that mineral-vitamin tablets "Calsinova" did have an influence on the remineralising properties of saliva.

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## **Monitoring of oral health status during long-term isolation of volunteers in SFINCSS-99 experiment**

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**OBJECTIVE** The aim of this investigation was to evaluate oral health status of people who had taken part in the international experiment SFINCSS-99 which had simulated the conditions of space flight. **BACKGROUND** Isolation is known to be a factor which can influence cosmonauts' oral health and psychophysiological status. **METHODS** Two crews, each including 4 subjects,

were followed during 240 (test group) and 110 (control group) isolation days. Before the experiment, professional oral hygiene was performed for the participants in the test group: they were involved in oral health education and motivation to encourage them to carry out oral hygiene practices regularly. The participants of the control group were examined only. All 8 subjects were supplied with Oral-B tooth-brushes, toothpastes, mouth rinses, and dental floss. The examinations included the evaluation of DMFT, and PMA (Parma, 1960) and patient's hygiene performance (PHP; Podshadley & Haley, 1968) indices. **RESULTS** DMFT values did not change in either of the groups. The initial mean values of PHP were 1.75 (test group) and 1.30 (control group), PMA - 14.7 % and 2.8 % respectively. The final examination revealed that PHP and PMA values decreased in the test group, but increased in the control group (to 2.6, and 13.3% respectively). **CONCLUSION** It was concluded that it is possible to eliminate the negative effect of long-term isolation by adequate oral hygiene and following oral health education.

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## A clinical trial of a new toothbrush with crossed filament tufts

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**OBJECTIVE** This study was designed to test the clinical efficacy and to evaluate the safety of a new tooth brush. **BACKGROUND** A new tooth brush has been developed, combining longer crossed filament tufts with shorter straight (conventional style) filament tufts. The aim of the toothbrush head design was to enhance cleaning performance - especially at the mesial/distal and interdental spaces. **METHODS** 112 healthy adult subjects were located to participate in the study and given a test (Elmex interX medium) or control (flat bristle profile type) tooth brush, with or without oral hygiene instruction. Examinations were performed at baseline, 15 days and 30 days and included Gingival, Staining, Bleeding and Plaque Indices (the latter were recorded before and after brushing at each examination). Statistical tests employed were t test for plaque index, Mann Whitney for Bleeding, Staining and Gingival Indices, and multiple variable ANOVA for plaque index increments. **RESULTS** No significant differences by type of tooth brush were revealed for the Gingival and Staining Indices. No independent effect of oral hygiene instruction was detected. For the Bleeding Index, a significant difference ( $p=0.04$ ) was revealed at 30 days. For Plaque Index levels before brushing, a significant difference was found at 15 days ( $p=0.03$ ) and at 30 days ( $p=0.002$ ), and for Plaque Index levels after brushing a significant difference was found at 15 days ( $p=0.04$ ) and at 30 days ( $p=0.01$ ). For incremental Plaque Index levels highly significant differences were demonstrated at 15 days ( $p=0.004$ ) and at 30 days ( $p=0.001$ ). All the differences were in favor of the test toothbrush. **CONCLUSIONS** These results clearly indicated a promising plaque removal potential for this newly developed tooth brush design with crossed filament tufts. This study was funded by GABA International, Switzerland.

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## The quality of clinical guidelines in dentistry

A JOKSTAD\*

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**OBJECTIVE** To critically appraise the quality of clinical guidelines in dentistry. **BACKGROUND** Clinical practice guide-lines are developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. There is a concern that many existing guidelines are biased and may be inadequate or not feasible for practice. A new critical appraisal tool has been developed to address the issue (AGREE, Appraisal of Guidelines for Research & Evaluation, [www.agreecollaboration.org](http://www.agreecollaboration.org)). **METHODS** Twenty clinical guidelines were randomly selected from the FDI World Dental Federation database of guidelines

(www.fdiworldental.org/ guidelines). The guidelines were appraised according to the AGREE Instrument by a single appraiser. **RESULTS** The scores for the six domains: Scope and purpose, stakeholder involvement, rigour of development, clarity and presentation, Applicability and Editorial independence were low. The overall assessment of the quality of the guidelines was that one could be strongly recommended for use, three could be recommended and as many as 16 should not be recommended due to questionable internal and external validity. **CONCLUSIONS** Many existing clinical guidelines in dentistry are inadequate according to current consensus on the quality of clinical practice guide-lines.

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## Dentists and New Graduates: EEA and Accession Countries in 1998

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**OBJECTIVE** The objective of this study was to compare and contrast the populations, numbers of "active dentists" and new dental graduates in the 10 accession countries and existing 18 member states of the EEA to inform policy makers and to highlight the need for pan-European oral health workforce planning. **BACKGROUND** Ten accession countries are due to join the EEA (EU plus Liechtenstein, Luxembourg and Norway) in 2004. **METHODS** The data for the three variables were obtained by questionnaire during the last Council of European Chief Dental Officers survey, which took place in 2000. **RESULTS** indicated that in 1998, the total population of the 18 EEA member states of 381.4 million was served by 245,169 active dentists and some 6300 new dentists graduated from the 138 dental schools in the EEA. In the same year the population of the 10 accession countries (77.0 million), was served by 43,030 active dentists and in these countries 1247 new dentists graduated from 27 dental schools. The population (82.1 million) and numbers of active dentists (62024), new dentists graduating (1912) and dental schools (32) were greater in Germany than the combined figures for the 10 accession countries. Of the accession countries, one country - Poland - possessed over 50% of the total population (38.7 million), over 50% of the reported active dentists (22,400), over 67% of the new graduates (865) and 10 of the 27 dental schools. **CONCLUSION** It was concluded that in 2004 about 16% of all dentists in the expanded EEA will have graduated from dental schools in the 10 accession countries, that of these half will be Polish graduates and that, unless there are policy changes, the other 9 accession countries will graduate annually less than 5% of all new EEA dentists.

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## Undergraduate Field Dental Public Health Course

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**OBJECTIVE** The field dental public health course is aimed to prepare the final year dental students for compulsory public health service under the health care reform structure. **BACKGROUND** All new medical and dental graduates have a compulsory service at the community hospitals for three years. Recently, health care in Thailand has been reformed based on the universal coverage policy and affordable cost of the co-payment concept. **METHODS** A pair of final dental students are arranged to spend 8 weeks at the assigned community hospital under the close supervision of the local dentists. Based on the epidemiological findings and existing resources of the community hospital, they plan, implement and evaluate oral health promotion activities for the responsible community. The specific target groups could be the unit of a family, a school, or a community. Practically, they render oral health care in the hospital for 2 days and the remaining 3 working days for extramural activities promoting self care activities with the community leaders and provide field dental services i.e. ART, etc. **RESULTS** Only 4%

of graduates from the Thammasat University Dental School had resigned from their assignment job compared with 10-20% from other dental schools in Bangkok. **CONCLUSIONS** The field dental public health course is a good transition experience from dental school to community in order to familiarise the new dental graduates with organizing oral health care under the reform health care policy in real life conditions of the rural community.

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## **The knowledge of pregnant women on caries prevention in the United Arab Emirates**

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*2 Tampere School of Public Health, University of Tampere, Finland*

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**OBJECTIVE** The objective was to describe the oral health habits of the pregnant women and their current knowledge on caries prevention and especially on the mother-child transmission of mutans streptococci. **METHODS** The study was carried out at Sharjah, in the United Arab Emirates. The findings were based on questionnaire (English, Arabic, and Hindi) data, carried out during the period of March to April 2002. All the pregnant women, who visited the MCH-center for the check-up of the 6<sup>th</sup> to 7<sup>th</sup> month of their pregnancy during this period were selected. The sample consisted of 110 pregnant women, half of them were locals and other Arabs (n=59) and the other half non-Arabs (=51). Most of them were 20-30 years old (75%). The response rate was 100%. **RESULTS** Half of the study population (54%) had visited the dentist less than 2 years ago. Most of them (85%) had not received any oral hygiene instruction during pregnancy. Majority (84%) were brushing their teeth regularly with fluoridated toothpaste (71%). The dietary habits included 3 meals (68%) and 1-2 snacks (63%) per day. Most of the mothers (72%) knew, that they could protect their baby from the dental caries, while 58% knew how to prevent dental caries. Every third mother (33%) knew that the caries bacteria might be transmitted to the baby from the mother. **CONCLUSION** Oral health habits of the mothers follow the international recommendations quite well. However, there is a shortage of knowledge on caries prevention and especially on the mother-child transmission mutans streptococci. Health care professionals in UAE should focus their efforts on caries prevention, especially on the Oral Health Education to pregnant mothers.