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Poster Session P09 – Prevention 2

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INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY

Poster Session P09/Prevention 2

P09–123

Results of a 1-year Dental Programme for pre-school and school children in Moscow Russia

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Introduction: To estimate the results of introducing the Dental Programme for pre-school and school children.
Patients and methods: The Dental Programme included clinical examination of 641 children at the age from 3 to 12 years, lessons in hygiene and oral health 3 times a year and controllable hygiene. All participants in the programme were divided into group 1- pre-school children (n = 326, age 3–6 years) and group 2– school children (n = 315, age 7–12 years). In this study, the dynamics of oral hygiene were analysed using the Fedorov-Volodkina Index (group 1) and the Simplified Oral Hygiene Index - OHI-S (group 2).
Results: Before the programme began, it was noted that the children in group 1 had a hygiene index of 2.09 ± 0.17. The children in group 2 had 2.67 ± 0.26. By analyzing the Plaque indices, a significant decrease in both groups was revealed. Group 1 showed an average decrease of 32% ($P < 0.01$) and group 2 a decrease of 46% ($P < 0.001$).
Conclusion: Among pre-school and school children, the level of oral hygiene was found to be low. As the Dental Programme progressed, positive dynamics of the oral hygiene appeared and due to the Programme a significant improvement was achieved in both groups, the strongest change being revealed in group 2.

P09–124

Oral health practice in Taiwanese primary schools

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Introduction: Taiwan has been encouraged to promote children's oral health throughout the past 10 years and, in result, children's oral condition has been greatly improved. However, Taiwan still has not met the goals set by the World Health Organization (WHO). Students' oral hygiene habits and oral hygiene activities are promoted by school. This study aimed at detecting the knowledge of primary school teachers and school nurses in relationship to their own oral health practices.
Materials and methods: There were 267 schools and 2526 questionnaires in total, with an 86.68% return rate. The collected data from the questionnaires were processed and analysed with the statistical software JMP. A stratified multi-stage cluster sampling analyses based on the administration area and urban/rural area was carried out using the teachers as the Probabilities Proportional to Size (PPS).
Results: The mean findings were: 1) 65% of faculty and nurses brushed their teeth 3 times a day. 2) 52.1% of them brushed their teeth by Bass Method. 3) 53.7% of the teachers and school nurses visited a dentist routinely. The school nurses' practices of oral health seem to be better in comparison to the teachers.
Conclusion: School nurses should use their advantage of profession to promote oral hygiene activities, and assist teachers to promote and cooperate with school oral hygiene programs.

P09–125

Quantitative analysis of periodontopathogens in subgingival plaque in adolescents by real-time PCR

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Introduction: Gingivitis is the most common chronic infection in adolescents, the prevalence is about 70–90% in China, some gingivitis gradually progresses to periodontitis. It is generally accepted that P. gingivalis, A. actinomycetemcomitans, P. intermedia and F. nucleatum are putative periodonto-pathogenic bacteria. The present study quantifies the 4 putative periodonto-pathogens in subgingival plaque by real-time quantitative polymerase chain reaction, to observe the prevalence of periodontopathogens in adolescents.
Patients and methods: Forty-seven 12- to 18-year-old adolescents participated in this study, 16 with gingivitis, 15 with periodontitis and 16 with healthy gums. In each study subject, subgingival plaque samples was collected using six sterile 45# paper points. A real-time polymerase chain reaction assay was employed to determine the subgingival counts of P. gingivalis, A. actinomycetemcomitans, P. intermedia and F. nucleatum. Statistical analysis was performed using ANOVA.
Results: The mean logarithm of counts in healthy, gingivitis and periodontitis subjects was 3.55 ± 0.67, 4.95 ± 1.39 and 5.81 ± 1.20 for P. gingivalis, 3.05 ± 0.81, 4.30 ± 1.33 and 5.31 ± 1.14 for P. intermedia, 0.75 ± 1.08, 2.02 ± 1.33 and 2.21 ± 1.13 for A. actinomycetemcomitans, 3.69 ± 0.85, 4.30 ± 1.19 and 5.08 ± 0.95 for F. nucleatum, respectively. Significant differences were found between healthy and gingivitis subjects for P. gingivalis ($P < 0.01$), P. intermedia ($P < 0.05$) and A. actinomycetemcomitans ($P < 0.01$). For F. nucleatum, there was no significant difference between healthy and gingivitis subjects ($P > 0.05$), but a significant difference between healthy adolescents and periodontitis subjects occurred ($P < 0.01$). Significant differences were also found between adolescents with gingivitis and periodontitis subjects for P. gingivalis ($P < 0.05$), P. intermedia ($P < 0.01$), and F. nucleatum ($P < 0.05$), but not for A. actinomycetemcomitans ($P > 0.05$).
Conclusions: Our survey indicated that P. gingivalis, P. intermedia, A. actinomycetemcomitans and F. nucleatum might be associated with periodontal diseases in adolescents.

P09–126

A pilot study: A communication sheet to improve children's preventive care

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Introduction: During a regional prevention audit project based on national guidelines, it became apparent that the majority of children seen for emergency treatment or G.A. assessment received no preventive advice. Furthermore, there was minimal communication with the primary care practitioner (PCP) regarding this. A communication sheet for PCPs was formulated to resolve this issue. Prior to implementing this communication sheet a pilot study was undertaken. This aimed to establish if: the new communication sheet was welcomed by the PCP; if it gave sufficient information on the patient's proposed tertiary care and subsequent primary care needs; and crucially, if it aided preventive planning for the child's improved future oral health.
Materials and methods: Over the pilot study period the details of the PCPs referring children for either GA assessment or the emergency clinic were collated. An introductory letter, sample communication sheet and questionnaire were sent to the PCPs. This communication sheet outlined a preventive package. This included the optimal time interval for radiographs, fluoride application, dietary counselling, oral hygiene instruction and application of fissure sealant.
Results: All respondents found the communication sheet useful. The majority agreed sufficient information was present regarding both clinical information (90%) and treatment provided (80%). The preventive package strategy was thought to be helpful by most respondents (89%).
Conclusions: The sheet was welcomed with minor alterations required prior to implementation within the paediatric department. The need for an oral health educator to educate this high caries risk group is highlighted.

P09–127

Oral health educational program for HIV(+) mothers

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Introduction: Aim of this study was to describe the outcome of a training program for HIV(+) mothers to detect opportunistic infections by themselves and to prevent dental caries in mother and child.
Materials and methods: By Venezuelan law all pregnant women should be tested for HIV 3 times during pregnancy. From 2003 to 2007 HIV(+) pregnant women were recruited at the Hospital Universitario de Caracas. At the first visit each mother was interviewed and examined by a dentist. Then, mothers received an interactive educational program on the clinical manifestations of HIV-related opportunistic infections and dental caries. The training focuses on early identification of lesions, seeking appropriate care once lesions are detected and in-home preventive practices. The program is provided at the first visit and refreshers at each pre- and post-partum visit, every 3 months.
Results: 123 mothers participated on a regular basis in the program (missed <4 visits). In addition, 43 had emergency visits due to pain, 34 mothers missed >4 visits. After training mothers were capable of detecting early signs of disease (HIV infection and dental caries).
Conclusion: The capacity to detect and monitor the intraoral manifestations of HIV provides a feeling of empowerment, and lesions are detected and treated early. In addition, preliminary data show a secular trend towards less prevalence of dental caries in their children. A follow-up of missing mothers indicate that the most common barrier is transportation to the hospital.

P09–128

Air quality in a busy university pediatric dental clinic

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Introduction: The aim of this study was to assess the probability of the spread of infection among patients from airborne bacteria as a result of the flow of people in a university dental clinic.
Materials and methods: Brain Heart Infusion agar medium was strategically placed in eleven locations in a dental clinic while counting the number of people who went in and out of the clinic at the same time. The medium was left uncovered at certain areas, such as doorways, walls, tabletops, and was changed five times during the duration of the day during three consecutive Tuesdays and Sundays. The number of the bacterial colonies in the BHI agar medium was counted after incubation at 37°C for 48 h.
Results: The number of the bacterial colonies on brain heart agar nutrient medium had significant associations with and the number of people who went in and out of the clinic, specifically in the special patient's room ($P = 0.001$) and doorways ($P = 0.05$). No significant associations were seen in tabletops or walls. However, significant associations were seen between locations of each plate according to area of the dental clinic such as plates placed on tabletops (ranging from $P = 0.05$ to $P = 0.001$) in the central part of the clinic and between plates in the special room and doorway ($P = 0.05$).
Conclusion: Central areas of the clinic are seen as areas with higher traffic and may pose a threat to the spread of airborne infection. Dental clinic layout may therefore be of great concern in deciding for proper placements for dental chairs.

P09–129

Oral health related knowledge/attitude of school faculties in Taiwanese primary schools

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Introduction: School is an important place to promote oral hygiene activities. The knowledge and attitude of school teachers and nurses will have a direct influence on students. This research focused on the comparison of oral health related knowledge and attitude of school teachers and nurses in primary schools in Taiwan.
Materials and methods: There were 267 schools and 2526 questionnaires answered by the school teachers and nurses extracted from the primary schools in Taiwan. The research applied stratified multi-stage cluster sampling method based on the administration area and urban/rural area, using the teachers as the Probabilities proportional to size (PPS) and proceeding with questionnaires. The collected data were processed and analysed by statistical software JMP. We surveyed several schools and awarded a maximum score of 100 based on 15 questions dealing with change of the oral anatomy, prevention of pathologic changes and fluoride use. The mean scores were calculated as number of correct answers/15 questions.
Results: The mean score of oral health related knowledge and attitude of primary school teachers and nurses were 74.5 ± 12.6, 75.7 ± 5.7 and 85.5 ± 11.4, 80.3 ± 5.9, respectively. The existence of an oral health promoting program and the availability of a fluoride mouth rinse programs were the factors with statistically significant influence.
Conclusion: The school nurses' knowledge and attitude towards oral health are better than that of the teachers.

P09–130

Dental education project for pre-school children: towards healthier first permanent molars

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Introduction: The first permanent molar is the most caries susceptible tooth in the permanent dentition. The aim of our study was to decrease caries prevalence on this tooth by means of a preventive program addressing both children and adults involved in their education.
Materials and methods: The program started in March 2006, is ongoing and focuses on 4–7-year-old pre-school children, their parents, teachers and caregivers. Children are examined in kindergartens. Following examination, instructions about adequate daily tooth brushing are given using oversized models, puppets, cartoons according to the Tell-Show-Do technique. Oral hygiene kits and theme games are given away as presents. Parents' knowledge about the first permanent molar is 1) assessed by self-administered questionnaires and 2) improved by theme workshops. Parents and teachers are informed about the importance of the first permanent molar, proper oral hygiene and early regular dental check-ups by use of slides and video presentations.
Results: 937 children from 12 kindergartens in Bucharest were examined. 918 of them were taught how to preserve their healthy smiles. In 2006, 95.98% of the first permanent molars of children aged 6–7 years (n = 329 children) were caries-free. In 2008, the corresponding figure was 97.03% (n = 378 children). Most of the children examined in 2008 took part in the program during 2 years.
Conclusion: Prevention programs addressing both young children and their parents/caregivers could help decrease caries prevalence on permanent teeth.

P09–131

Prevention of dental decay from theory to every day practice

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Introduction: Despite progress of preventive methods, dental decay represents a problem for children's oral health in the City of Cluj-Napoca, Romania. Our study presents the preventive strategy applied in a private dental practice, in order to moderate tooth decay prevalence.
Patients and methods: Three groups of children, selected according to school age (1st primary) were followed up for two years. Group 1 had a general dental check-up once a year. In Group 2 fissure sealants on occlusal surfaces of first permanent molars were placed. Group 3 was provided with a protocol including dental sealants on occlusal surfaces of first permanent molars and topical fluoride application. Dental status was assessed every year using the DMFT index. We calculate dft index to appreciate the attitude for treatment. Statistical analyses were performed with Statview application for Windows to compute descriptive statistics. Student's t-test was used to compare means.
Results: At the initiation of the study, there were no statistical differences between DMFT indexes for the three groups (G1 = 1.61, G2 = 1.63, G3 = 1.73). After two years DMFT indexes increased for the three groups (G1 = 3.43, G2 = 2.39, G3 = 2.10) with statistical differences between G1and G2 or G3 ($P < 0.0001$) and no differences between G2 and G3 ($P = 0.173$).
Conclusion: Prophylactic programs using dental sealants or dental sealants with fluoride represents the optimal approach to improve children's oral health.

P09–132

Long-term effects on oral health of preventive activities in pre-school children

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Introduction: In 1990 four groups of 2–5-year-old pre-school children with high caries activity (mean ds 12) took part in different intensive preventive programmes for 2 years. 112 children took part in the study at start and 84 completed it. After 2 years no differences in caries increment were found between the four groups. The children developed as a mean one new ds per year. The aim of this study was to analyze if there was a persistent effect on oral health of the preventive activities instituted 11 years earlier.
Materials and methods: Bitewing radiographs from all the participating children at the age of 15 years were requested from the public dental clinics and examined. If bitewing radiographs were missing or of poor quality bitewings from the age of 14 or 16 years were used. Radiographs from 88 patients were possible to examine. Out of these 88 patients 63 had completed the preventive programmes (test) and 25 did not (control). The proximal surfaces from the distal surface of the first pre-molar to the mesial surface of the second molar were diagnosed. Manifest and initial cavities and filled proximal surfaces were registered.
Results: At the age of 15, 17.5% of the children who completed the preventive programmes (test) were caries-free compared to only 4% of those who did not complete the programmes (control).
Conclusion: Preventive programmes involving young high caries active children have a long-term effect on oral health behaviour.

P09–133

Bifidobacterium lactis Bb12 may reduce the risk of respiratory infections in children

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Introduction: Probiotic bacteria are connected with improved immune response. We studied the effect of early administration of Bifidobacterium lactis Bb12 (Bb12) on 1) oral colonisation of Bb12 and 2) the risk of infectious diseases.
Patients and methods: The RCT study was found ethically acceptable by the local ethical committee and parents gave written, informed consent. The probiotic-tablet containing 100 mg xylitol in addition to Bb12 was administered to the infants (from 1–2 mo to 8 mo) with a novel slow-release pacifier. The control tablet contained only xylitol. The daily dose of Bb12 was lg 10 CFU. At the age of 8 mo oral swabs were collected for Bb12 determination (PCR) and the families registered in special diaries breastfeeding habits, pacifier use, dietary habits, medication and all infections.
Results: The baseline characteristics of the two groups were similar. Approximately 60% of the children were breast-fed for 8 mo. Bb12 was not detected in the oral samples. The daily duration of pacifier sucking and occurrence of otitis media were not associated with each other. No significant differences between the groups were observed in gastrointestinal symptoms, otitis media or use of antibiotics. However, 22 out of 34 (65%) infants receiving Bb12 and 33 out of the 35 (94%) receiving the xylitol control experienced respiratory infections (RR 0.69; 95% CI 0.53, 0.89).

Conclusion: Probiotics may decrease the risk of respiratory infections in breast-fed children. The study was supported by Emil Aaltonen and Sohlberg Foundations, Finnish Dental Society Apollonia and Finnish Dental Association.

P09–134

The dental hygiene/dietary behavior of young children with S-ECC in southern Taiwan

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Introduction: The oral health goal of WHO is that 90% of 5-year old should be caries free in 2010. In 1997, the Department of Health in Taiwan reported that the prevalence rate of dental caries was 60% in 2–3-year-old children. The aim of this study was to analyze the association between S-ECC (Severe-Early Childhood Caries), dental hygiene and dietary behavior of children/caregivers/parents in order to identify possible risk factors.
Material and methods: Children with S-ECC (n = 108) aged 2 to 5 years who visited the division of Pediatric Dentistry of Kaohsiung Medical University Hospital (KMUH) were recruited for this survey. The oral hygiene and dietary habits were recorded with a standardized questionnaire which was completed by the parents/caregivers of the S-ECC children. The data were analysed using the software Microsoft Access and the statistical software JMP (version 7.0, SAS Institute, Cary, NC, USA). For statistical comparisons Chi-square test and ANOVA were used.
Results: 1. The caregiver's education level was associated with the score of dental health knowledge. 2. There was a total score 100 for 10 questions in case of completely correct answer, the average score of caregivers' dental health knowledge was 46.05. 3. The caregiver's dental hygiene behavior included clean mouth after meal, were associated with the children's tooth brushing habit.
Conclusion: The parents/caregiver's knowledge and habits influence the children's oral health. Therefore, tooth friendly advices are mandatory in the parents and caregivers.

P09–135

Early childhood caries (ECC) and the occurrence of candida albicans

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Introduction: ECC is still a public health problem and it needs more research to prevent it. The aim was to analyse the caries associated microflora in infected dentine of 1–5-year-old children with ECC (n = 15).
Patients and methods: Samples of infected dentine were collected from 25 incisors and molars for microbiological examination. The samples were inoculated onto MSB agar (mutans streptococci, MS), onto rogosa agar (lactobacilli, LB) and sabouraud agar (yeasts) and incubated at 37 °C for 48 h. Counts of total germs (CFU) were enumerated, and after colonies were isolated and identified (n = 166 MS, n = 152 LB, n = 128 yeasts) the percentage of MS, LB and yeasts in the CFU was enumerated. The identification was performed macroscopically as well as by physiological and biochemical characteristics. Yeasts were identified by their pseudomycelium and chlamydospores on rice agar.
Results: Mutans streptococci and lactobacilli could be estimated between 86% and 100% in all dentin samples. However, the frequency of C. albicans was higher in upper incisors (between 67% and 71%) than in first (14%) and second molars (29%). In the samples of teeth of the lower jaw C. albicans could not be harvested.
Conclusion: The occurrence of C. albicans in young children with ECC could have an impact on general health and may have a negative influence on development of the defence system in young children. Therefore the prevention of ECC is very important to keep children from serious oral and general diseases.

P09–136

Knowledge of parents of 3-year-old children about early dental health care promotion

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Introduction: Aim of this study was to determine to what extent and from whom parents receive information about early dental health care promotion, and if this has an effect on the prevalence of caries in their children.
Materials and methods: 442 randomly selected parents of 3 to 4-year-old children were asked to fill in a questionnaire. Afterwards the children were examined according to WHO criteria. The statistical analysis was performed with SPSS 15.0. Differences between groups were analysed using t-test ($P < 0.05$).
Results: 52.2% had received dental health care advice during the general pediatric examination. 79.3% of the children in the sample had seen a dentist at the average age of 2.1. The median dmft value was 0.85 (0.80 for children from German families and 1.21 for children of immigrants). 61.3 % of respondents stated that they had not received any information regarding potential dental or peridontal problems during pregnancy. 40.3% reported gingival bleeding. Only 31.4% had received individual preventive treatments, predominantly professional tooth cleaning. A statistically significant correlation (Mann–Whitney-Test) of the caries prevalence with the following factors was documented: nutritional advice given during gravidity, comprehensive individual preventive treatment, first dental examination at an early age, controlled dental care carried out by parents from the time the first tooth erupts.
Conclusion: Therefore, it is decisive that dentists, pediatricians, gynecologists and midwives work together to 'implant' the idea of an early dental health care of their children in the minds of pregnant women.

P09–137

The nutritional status of young children with S-ECC in southern Taiwan

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Introduction: Malnutrition is prevalent in children with Severe Early Childhood Caries (S-ECC). The purpose of this study was to survey the nutrition status of children with S-ECC.
Materials and methods: A cross-sectional design was applied. Children with S-ECC (n = 108) aged from 2 to 5 years who visited the division of Pediatric Dentistry of Kaohsiung Medical University Hospital (KMUH) were recruited for this survey. The value of BMI (Body Mass Index) and biochemical measures including hemoglobin, hematocrit, red blood cell (RBC), mean corpuscular volume (MCV), serum iron, serum albumin and serum calcium were collected. Our data of BMI and biochemistry were compared with the average data of general children in Taiwan published by the Department of Health, Executive Yuan, Taiwan and KMUH respectively. The results were analyzed by jmp 7.0.
Results: Prevalence rates of children with underweight using BMI as index were 34.58%. Prevalence rates of biochemical measures under normal limits were 25% in hemoglobin, 56.48% in hematocrit, 37% in MCV, 32% in serum iron, 1.96% in serum albumin, 1% in serum calcium.
Conclusion: The children aged 2–5 years with S-ECC may encounter some degree of malnutrition problems such as impairment of growth or anemia. Preventive strategy for these malnutrition problems in children with S-ECC may need to be emphasized and implanted in routine dental practice.

P09–138

Occurrence of Cariogenic microflora in infants and their mothers

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Introduction: The purpose of this study was to assess the level of salivary mutans streptococci and lactobacilli in 12-month-old children and their mothers.
Patients and methods: 79 infants aged 12.1 months and their mothers were involved. The dental caries status ($d_{1–4}$ mft) of the infants was examined, and the salivary mutans streptococci and lactobacilli of the infants as well as their mothers were determined by CRT bacteria (Ivoclar Vivadent/Liechtenstein).
Results: 76% of the mothers and 13% of the infants harboured high salivary MS counts. 4% of the mothers and 72% of the infants harboured the lowest salivary MS count. The levels of MS in saliva of mothers and infants with high MS scores had the medium strength of straight correlation (r = 0.43). 86.1% of the infants were caries free. The caries decay of the infants was registered at a mean $d_{1–4}$mft of 0.53 and $d_{1–4}$ mfs of 1.34. Higher scores of salivary MS correlated significantly with higher caries decay in infants (r = 0.7). The mean scores of salivary lactobacilli of the mothers amounted to 2.9 and in the infants to 1.5. There was a weak correlation between levels of Lb in saliva of infants and $d_{1–4}$ mfs (r = 0.13).
Conclusion: The data suggest that MS scores >0 for the infants are risk factors for caries. High counts in mothers are associated with an early colonization of their infants.

P09–138a

The erosive potential of lollipops

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Introduction: Consumption of acidic candies can contribute to the development of dental erosion. At this time no information is available on the erosive potential of lollipops and the protective role of saliva. To determine the erosive potential of several commercially available lollipops and the protective effect of saliva.
Materials and methods: The erosive potential of lollipops was determined in vitro by measuring the pH and neutralisable acidity. Subsequently, 10 healthy volunteers tested different types of lollipops. Whole saliva was collected 5 min before, 15 min during and 10 min after consumption. Salivary flow rate and pH were determined.
Results: Fruit flavored and cola flavored lollipops have a very low pH (2.3–2.4). Yogurt-containing and salmiak flavored lollipops have much higher pH values (3.8–4.7). The neutralisable acidity showed a large variation from <200 μl to >1700 μl 0.1M NaOH. In vivo, lollops induced 2.5 to 4.7-fold increase in salivary flow rate with a concomitant drop in salivary pH. For fruit flavored and cola flavored lollipops the salivary pH dropped below pH 5.5. For strawberry yogurt and salmiak lollipops, the salivary pH remained above this critical value. The volunteers did not report significant differences in preferences for the lollipops.
Conclusions: Lollipops differ considerable in erosive potential, with fruit flavored and cola flavored lollipops having the highest risk for developing dental erosion. This information is of use for clinicians counseling juvenile patients with dental erosion.

