

VO-29 Are dental patients better off going private? McGrath C. Faculty of Dentistry, University of Hong Kong, Hong Kong SAR, China

Objective: The aim of this study was to determine associations between method of payment for dental services and perceived oral health. **Methods:** A national survey involving a random probability sample of 2,718 adults. Participants were interviewed in their homes about their method of payment for dental services (private or public), service use (time and reason for last dental visit), self-reported oral health status (number of teeth possessed and denture status) and the impact of their oral health on their quality of life (employing the 16-item OHQoL-UK[©] measure). **Results:** The response rate was 68% (1838/2718). Thirty one percent (575/1838) claimed they paid privately for dental services the last occasion they visited their dentist. Method of payment for dental services (private or public) was associated with self-reported number of teeth possessed ($P<0.01$), denture status ($P<0.01$), WHO goal of retaining 20 teeth without recourse to a prosthesis ($P<0.05$), impact of oral health on life quality ($P<0.01$), and number of positive oral health influences experienced ($P<0.01$). However, associations between method of payment for dental services and perceived oral health did not remain apparent having accounted for socio-demographic factors (age, gender and social class background) and reported dental attendance patterns. Socio-demographic factors and dental attendance patterns emerged as key factors associated with perceived oral health in the logistic regression analysis. **Conclusion:** Differences in oral health exists between private and public dental services. However, this is more likely to be attributed to socio-demographic factors and regular use of services rather than method of payment.

VO-30 Need for Outreach Dental Service in Chinese kindergarten children. CHAN CY*, TAI KY, CHU CH. (Faculty of Dentistry, The University of Hong Kong, Hong Kong, China)

Aim: The aim of the study was to assess the need for outreach dental service in a Chinese kindergarten child population. **Materials and methods:** A representative kindergarten was selected in Conghua, Southern China with the assistance of a WHO Collaborative Center for Primary Health Care located there. The children of the kindergarten were invited for a clinical examination. Their dental caries status was diagnosed using the WHO criteria and their treatment needs were identified. The suggested treatment for soft caries in primary anterior teeth was to arrest the caries activity using topical application of silver diamine fluoride (SDF); whereas those in primary posterior teeth were planned to be restored with glass ionomer using the atraumatic restorative technique (ART). If SDF or ART treatment was not indicated due to extensive decay or where there was pulp exposure; pulp therapy or extraction was suggested. **Results:** A total of 205 five to six years old children were invited and 167 children attended the clinical examination. The response rate was 81%. 20% of the examined children had no caries experience. The mean dmft score of the children was 5.1 (s.d. = 4.8). Most of the decayed teeth were left untreated (dt=4.7). The mean dmft score of the anterior teeth was 2.4 and that of the posterior teeth was 2.8. The boys had a significantly higher mean dmft score in their anterior teeth than that of the girls (2.8 vs. 1.8; $p=0.009$). According to the treatment criteria adopted in this study, 52% of the carious lesions of the children could be arrested with SDF, 13% required ART and 35% needed pulp therapy or extraction. **Conclusion:** There was a substantial need for outreach dental service among the Chinese kindergarten children as the majority of them had dental caries and most of the decay was left untreated. Two-thirds of these carious lesions could be treated with either SDF or ART which can be effectively provided in the kindergarten by an outreach dental service

VO-31 Single-bottle adhesives behave as permeable membranes after polymerization — *in vivo* evidence. C.N.S. LAI*, J.F.R. TAY, Z.R. FRANKENBERGER, S.L. KREJCI, S. BOUILLAGUET, D.H. PASHLEY. (1)University of Hong Kong, (2)University of Erlangen-Nuremberg, (3)University of Geneva, (4)Medical College of Georgia)

Objectives: This study tested the hypothesis that single-bottle total-etch adhesives are effective in reducing dentin permeability under *in vivo* conditions. **Methods:** Crown preparations on vital human teeth were performed under local analgesia as part of the treatment plan for prosthetic rehabilitation. Four single-bottle adhesives (Single Bond, 3M ESPE; Excite DSC, Vivident; Prime&Bond NT Dual-Cure, Dentsply; and One-Step, Bisco) were applied to seal the cut dentin. Polyvinyl siloxane impressions were taken, using an ultra-low viscosity impression material, before and after sealing the deep vital dentin with adhesives. Additional impressions were taken following the removal of the provisional prostheses after a 7-10 day period. Epoxy resin replicas of the crown preparations were examined with SEM to evaluate the extent of dentinal fluid transudation during the pre-bonded, immediately-bonded and post-bonded periods. **Results:** Dentinal fluid transudation from localized areas that were close to the dental pulp was universally observed from all replicas. Transudation from the control smear layer-covered dentin of each crown preparation was comparatively mild when compared to the extent that was observed after total-etching and adhesive application. Continuous transudation of dentinal fluid occurred even after the removal of the provisional prostheses. **Conclusion:** Single-bottle adhesives, because of their lack of a comparatively more hydrophobic bonding resin layer, behave as permeable membranes after polymerization. They permit the continuous transudation of dentinal fluid and do not provide a hermetic seal in vital deep dentin

VO-32 Microhardness of dual-cure resin cements under several conditions. R. SHIMURA*, M. YAMAUTI, T. NIKAIIDO, J. TAGAMI. Cariology and Operative Dentistry, Department of Restorative Sciences, Graduate School, Tokyo Medical and Dental University

The purpose of this study was to evaluate the microhardness of dual-cure resin cements after one-day storage in two different conditions. Commercially available dual-cure resin cement: Panavia F2.0 (Kuraray Medical, Japan) and Nexus 2 (Kerr Corporation, USA) were used in this study. The cement was mixed and applied into the mold (d=4mm, h=0.4mm). For the LC0 group, the specimens were light-cured for 20 seconds using the curing unit Candexus (J Morita, Japan). For the LC2 group, the light was irradiated through a composite resin (Estenia, Kuraray Medical, Japan) disc of 2mm thickness for 20 seconds. For the group CC, the specimens were maintained in darkness for 15 minutes. Prepared specimens were then removed from the mold and stored both in the dry chamber (Dry) or distilled water (DW) at 37° for 24 hours. Following this, each specimen was cut into halves, embedded in epoxy resin, and polished up to 0.25µm diamond paste. Microhardness of the matrix resin part of each specimen was measured using a nanoindentation tester (ENT-1100, Elionix, Japan) with 5gf load. The means and standard deviations for each group are presented in the below (Table). The three-way ANOVA factorial analysis revealed the factors material, curing mode, and storage condition had significant interaction on the microhardness ($p<0.05$). It was concluded that the material, the storage condition, and the curing mode affected the microhardness.

Table. Microhardness of resin cements (Mean±S.D.: kgf/mm², n=6)

	Panavia F 2.0		Nexus 2			
	LC0	LC2	LC0	CC		
DW	68.96±7.46	53.07±5.37	57.35±7.73	43.90±1.80	35.16±2.96	35.41±1.30
Dry	40.95±11.23	40.00±6.55	31.68±6.19	41.27±1.55	41.58±3.25	24.73±3.48

VO-33 Survival of ART restorations placed by student dental nurses in Cambodia. SAN NHEP*, CS DURWARD, M KLAIPO, Regional Nurses Training Center, Cambodia, and, Auckland University of Technology, New Zealand

The objective of the study was to determine the success of a sample of Fuji IX ART restorations placed in permanent teeth by dental nurse students between 1998 and 2001. **Methods:** A convenience sample of 268 ART restorations in 115 children between the ages of 8 and 16 years (mean=13 years) from 6 schools were assessed by one examiner. "Success" was determined according to standard criteria for evaluation of ART restorations developed by Frencken and others (in association with WHO). The CPI probe was employed for this purpose. Restorations which had been lost, had marginal defects 0.5mm diameter or more, or had wear 0.5mm or deeper were classified as unsuccessful. Data was entered onto computer and analyzed using the Epi Info statistical package. **Results:** 93% of the restorations were Class I or V, and 7% were Class II or III. 67% of restorations were in lower first molars (mostly on occlusal surfaces) and 21% in other molars. The mean duration of time since restoration placement was 32 months. The overall success rate of the restorations was 88%. Success of restorations by time of placement was: 12-24 months 84% (n=71); 25-36 months 95% (n=71); 37-48 months 87% (n=90). The main reason for failure was a marginal defect - most often associated with caries. Other reasons for failure included excessive wear and loss of the restoration. **Discussion:** These results are much better than an earlier Cambodian study in 1996 which found only 59% success after 3 years using Fuji II glass ionomer cement, and are comparable with other international studies. The varying skills of different groups of students could help to explain the differences in success rates for each cohort. This study demonstrates that dental nurse students can successfully place ART restorations, however, care is needed to ensure complete caries removal.

VP-1 A study of lignocaine hydrochloride concentrations in blood after local anaesthetic injections used in Dentistry. Khin Maung Htwe*, Htay Htay Yi, Thaw Zin, Ko Ko Maung (Institute of Dental Medicine, Yangon, Myanmar)

Lignocaine hydrochloride 2% is most widely used in dentistry since 1948. One cartridge (1.8ml) of lignocaine with adrenaline sometimes fails to achieve profound analgesia even in single tooth extraction. The multiple extractions at one setting become popular in current dental practice in which the more volume of lignocaine needs to be used thereby producing toxic reactions. The clinical manifestations of lignocaine toxic reaction are accompanied by a serum concentration of 6 µg / ml or greater. The objective of this study is to determine the plasma concentrations of lignocaine hydrochloride after maxillary and mandibular injections. The plasma concentrations were measured with spectrophotometric assay by using modification of methyl orange method of Brodie after simultaneous injections of 4 cartridges of 2% lignocaine hydrochloride (144 mg) with 1:80,000 (0.09 mg) adrenaline. Thirty cases of healthy patients (ASA-I) were divided into three groups of maxillary infiltration only, mandibular block only, and combination of infiltration and block anaesthesia. The plasma concentration-time profile, plasma half-life, absorption rate, elimination rate and area under the concentration-time curve were also compared between the 3 groups. The maximum plasma concentration of combination anaesthesia was 4.802 µg / ml, the highest concentration in compared with other groups. The maximum plasma concentration of maxillary infiltration only was 1.531 µg / ml and 3.157 µg / ml for mandibular block anaesthesia. The absorption rate of maxillary infiltration was twice of the other groups. According to the findings, the plasma concentrations of lignocaine in all 3 groups were not more than 6 µg / ml and no signs of toxic reaction were noticed in this study. Therefore, four cartridges of 2% lignocaine hydrochloride with adrenaline (1:80,000) are safe and preferable for extraction of teeth and dentoalveolar surgery in dentistry provided that it should not be intravascular injection.