

## AADR March 2010 Abstracts (Summer 2009 Students)

- M. XU - CASE COMPLEXITY AND OUTCOMES EVALUATED USING ICON, DI AND ABOGS  
B. BEZAK - MEASURING CLINICAL ATTACHMENT LOSS USING CONE BEAM COMPUTED TOMOGRAPHY  
K.M. CHOO - INFLUENCES ON BOND STRENGTH OF ORTHODONTIC BRACKETS  
I. HUH - INFLUENCE OF TOOTH BRUSHING ON SURFACE ROUGHNESS OF RESTORATIVE MATERIALS  
R. KAROLL - DENTAL STATUS AMONG CHILDREN WITH AND WITHOUT SPECIAL NEEDS

scores ( $P < 0.05$ ) for each decade. Additionally, in 6 of 10 pre-treatment inter-decade comparisons and 9 of 10 post-treatment comparisons, the score of the more recent decade is significantly lower than that of the more distant decade ( $P < 0.005$ ). Total DI scores ranged from  $9.71 \pm 5.82$  to  $14.53 \pm 6.00$ . Total ABOGS scores ranged from  $8.67 \pm 5.88$  to  $17.64 \pm 8.45$ . ANOVA revealed that 5 of 10 inter-decade comparisons in DI and 7 of 10 in ABOGS had the significant lower score toward the more recent decade ( $P < 0.005$ ). Conclusion: ICON, DI and ABOGS show significant improvement between pre- and post-treatment in any given decade. Reduction in case complexity and improvement in treatment outcome are consistent from the 1960s to mid-2000s.

### 948 Measuring Clinical Attachment Loss Using Cone Beam Computed Tomography (CBCT)

Friday, March 5, 2010: 2 p.m. - 3:15 p.m.  
Location: Exhibit Hall D (Walter E. Washington Convention Center)  
B. BEZAK, A. DHILLON, and L. BAHL - PALOMO, Case Western Reserve University, Cleveland, OH

**Objectives:** To assess reliability and accuracy of Cone Beam Computed Tomography (CBCT) to identify Clinical Attachment Loss (CAL), using clinical calculation of CAL as the gold standard. **Methods:** Two examiners were calibrated (intra-examiner, inter-examiner) in recording measurements on CBCT scans using 3D software. 57 subjects with mild to severe periodontitis underwent a clinical exam, and CAL was measured clinically by a board-certified periodontist. Then, participants underwent CBCT scanning (120kVp, 15mA). The scans were measured at four interproximal sites per tooth: the blinded examiner measured the distance in millimeters from the apical end of enamel to the crest of alveolar bone (CEJ-BM) at each site. The apical end of enamel was determined by relative densities between enamel and cementum or enamel and dentin. CEJ-BM values were correlated to the clinical gold standard. 4,798 sites were measured. 510 sites were identified clinically with CAL. **Results:** Examiner was calibrated at the start of data collection: 0.972, 95%CI (0.945 - 0.999). Inter-examiner calibration was 0.923, 95%CI (0.850 - 0.996). Examiner was calibrated at the completion of data collection: 0.979, 95%CI (0.958 - 0.990), Spearman's Correlation Coefficient (rho) for CEJ-BM = 0.95, n=162. At anterior sites, rho = 0.95. Conclusion: CBCT measurement protocol is reliable. Accuracy of CBCT measurements correlates with CAL gold standard measurements. There is a tendency to underestimate CAL overall, with a lesser tendency for underestimation in molar sites than in pre-molar sites.

### 1320 Influence of Bond Strength on Self-Etching Primer (SE; Transbond Plus Self-Etching Primer), (2) orthodontic brackets bonded

after 35% phosphoric acid followed by the application of a TEGMA/Bis-GMA primer (TE; Transbond XT Etching Gel+ Transbond XT Primer). Each tooth was then allocated into three experimental settings as: intact, non-demineralized (ND), demineralized (D), demineralized+resin infiltrated with ICON (DRI). For groups D and DRI the specimens were immersed in a demineralizing solution (pH=4.95) for 8 weeks. The specimens were tested for bond strengths after 24 hours and after artificial aging (20,000 thermal cycles). Shear bond strengths (SBS) was performed using a universal testing machine. Statistical analysis was calculated using ANOVA/Tukey's B post-hoc test at  $\alpha = 0.05$ .

Results: (SBS±SD in MPa)

	Non - aged	Aged
TE-ND	152.5±45.8ab	245.7±52.5c
TE-D	202.2±57.1bc	259.2±44.0c
TE-DRI	202.9±37.0bc	187.9±38.3b
SE-ND	102.9±24.5a	139.5±67.5ab
SE-D	167.1±53.1ab	

