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Abstracts

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Caries Prevalence and Tooth Surface Distribution in a Group of Chilean Preschool Children

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The aim of this study was to contribute to the descriptive information on oral health status of preschool children from the Metropolitan Region of Chile. Study design consists in a cross sectional oral health survey. The study was carried out in 382 randomly selected 2 to 6 years old preschool children with the corresponding parental informed consent available. One calibrated dentist using artificial light and a plane dental mirror performed dental examination. World Health Organization (WHO) diagnostic criteria were used to assess tooth surfaces. Prevalence of caries at individuals, tooth and surface level were calculated. Also dmft, dmfs and Sic were calculated. Prevalence at individual level was 48.95% (95% CI 43.89–53.99). The most commonly affected teeth were primary molars (77% of the overall sample), especially in the mandible. The most commonly affected surfaces were the occlusal surfaces of primary lower molars. The dmft calculated was 2.47 (95% CI 2.13–2.81), and the dmfs was 3.98 (95% CI 3.34–4,61). The significant caries index was 6.61 (95% CI 6.14–7.07). In conclusion, caries experience in deciduous dentition showed a symmetrical distribution at the surface and tooth level.

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Paper and Electronic Case Report Forms for Epidemiological Studies in Dentistry

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The Belgian National Institute of Health Insurance is implementing an oral health data registration system. In the framework of such a system, a Case Report Form was developed both in paper and in electronic format. The aim of this study was to validate data capture for both formats of the Case Report Form. Six series of full mouth recordings simulating the clinical examination of 6 patients were set up in a Powerpoint presentation. The validation was undertaken by a sample of 52 private practitioners (22-76-year-old) from 39 municipalities. Firstly, the dentists were randomly assigned to start data capture either with the Paper Case Report Form (PCRF) or the Electronic Case Report Form (ECRF). Secondly, the data capture was crossed-over. Thirdly, benchmarks of PCRF were transferred to ECRF. The forms were verified for correctness, completeness and time in minutes spent to capture and process the data. The dentists answered an electronic questionnaire about the PCRF and ECRF. The overall percentages of error were 25.3% (PCRF), 26.6% (ECRF) and 18.9% (benchmark of PCRF transferred). Very good completeness (5% of incorrect completeness) was identified in 93% of the forms. The Signed Rank Test showed a significant difference in the time spent to capture and process the data between ECRF and PCRF (3.2 min versus 4.6 min, $p < 0.001$). Two thirds of the dentists preferred the PCRF to the ECRF with no significant difference in relation to age ($p = 0.21$). In conclusion, the Case Report Form was validated for all types of data capture that were tested. As information technology has turned into an evermore necessary working tool in general practice, there should be an important potential for uptake of further improvements in electronic data capture in the future.

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Relationship between Toenails Fluoride Concentrations and Caries Prevalence Using the ICDAS-II Criteria

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This study examined the relationship between fluoride concentrations in toenails and prevalence of caries using the International Caries Detection and Assessment System (ICDAS-II) criteria. Fifty-four children (4–13 years of age) living in Rio de Janeiro, Brazil, had their teeth surfaces examined by 2 calibrated examiners (Kappa inter-examiner = 0.72–0.80) using ICDAS-II criteria. Following examination, toenails were clipped and analyzed for fluoride with the electrode (Orion 9409), after hexamethyldisiloxane diffusion. Toenails fluoride concentrations in children presenting ICDAS-II ≤10 or >10 were compared by unpaired t test with Welch correction. Dichotomized data were analyzed by Fisher's exact test. The significance level was set at 5%. Mean ICDAS-II (±SD, 95% CI) was 28.3 (±40.2, 17.3–39.3). Mean ± SD toenails fluoride concentrations in children (n = 23) presenting ICDAS-II ≤10 (1.85 ± 1.32 μg/g) were higher than values found those (n = 31) having ICDAS-II >10 (1.58 ± 0.78 μg/g), but the difference was not significant. The corresponding 95% CI were 1.28–2.42 and 1.29–1.87 μg/g, respectively. Among children having ICDAS-II ≤10, 5 had toenails fluoride concentrations higher than 2.0 μg/g, while 18 had concentrations equal to 2.0 μg/g or lower. For those presenting ICDAS-II >10, the corresponding figures were 7 and 24, respectively. The sensitivity and specificity of toenails fluoride concentrations in identifying children with ICDAS-II ≤10 was 0.22 and 0.77, respectively. The positive and negative predictive values were 0.42 and 0.57, respectively. In conclusion, children with low caries prevalence tend to have higher toenails fluoride concentrations, but the validity of this biomarker as a diagnostic tool for caries prevalence is low, probably due to the fact that the mechanism of action of fluoride on caries control is essentially topical.

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