CHALLENGES IN THE ANALYSIS OF A RANDOMISED TRIAL OF A SCHOOL-BASED TOOTHBRUSHING PROGRAM FOR THE PREVENTION OF DENTAL CARIES

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Due to their correlated nature, oral health incidence data are challenging to analyse properly. In young children, the evolution from primary to permanent dentition further confounds the definition of true progression or regression of decay.
To describe a school-based toothbrushing intervention trial, associated measurement and analytical choices, and trial results.
The TIPS study was based in 14 schools in Brisbane, Australia. At baseline, 87% of year 1 students (aged 5-6 years) were examined by one team. Schools were randomised to supervised daily toothbrushing or usual oral health care. D1 site-level classifications included measurement of *decalcification* (a precursor to frank cavitation), typically not considered. To minimize selection bias due to attrition (35%) and missing data in years 2 and 3, and to account for the correlated nature of the data, analyses applied an estimating equations approach to logistic regression modelling.
Relative to the comparison group of usual oral health care, the odds of decay in children in the toothbrushing intervention group were 0.9 (95% CI 0.8,1.1).
Incorporation of decalcification scores challenges previous caries increment definitions (*eg* the widely used WHO descriptors). A refined site level of analysis made optimal use of available data. This trial did not demonstrate a substantial public health impact, on decay, of daily supervised toothbrushing at school.