

Title: The Effect of Protective Factors on Shifting Caries Risk Classification

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Abstract:

Objectives: To evaluate the effect of protective factors while assessing patients' caries risk using Caries Management by Risk Assessment (CAMBRA).

Methods: Data from all initial CAMBRA evaluation visits performed between October 1, 2010 and July 31, 2012 were extracted from the electronic health record system (axiUm) at School of Dental Medicine, Tufts University (TUSDM). We extracted 9372 patients' CAMBRA records; 389 patients were excluded because of missing data or repeated patient record, yielding 8983 subjects. Patients' risk levels ("low", "moderate", "high," and "extreme") were evaluated using the full CAMBRA assessment tool and then re-evaluated, excluding the effect of the preventive factors. Patient risk level was also evaluated by TUSDM faculty. The agreement between the multiple evaluation methods was compared using a weighted-Kappa analysis. Analysis was performed using SAS, Version 9.3.

Results: When protective factors were considered, 8.8% of the patients were classified as "low", 16.3% "moderate", 62.5% "high" and 12.3% "extreme". When protective factors were omitted, 4.4% were "low", 9.1% were "moderate", 70.6% were "high" and 16.1% were "extreme". The weighted-Kappa was 0.71. The prevalence of protected effects ranged from 0.5% to 95.7%. When faculty evaluated patient risk level, 11.5% of the patients were "low", 20.7% were "moderate", 54.2% were "high" and 13.6% were "extreme", resulting in a weighted-Kappa between faculty and the full CAMBRA of 0.80.

Conclusion: The strong agreement between the faculty evaluation and the full CAMBRA assessment tool may indicate the influence of protective factors in the faculty decision. Yet the frequency distribution of protective factors may mean not all factors are equally important in the subjective decision. Eliminating the uncommon factors may save the clinician's time, while not sacrificing any predictive ability. Further work into their influence in the CAMBRA assessment tool is needed.