

# INPLASY PROTOCOL

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**Corresponding author:**  
Yasmine Alawaji

alawajiy@student.ubc.ca

**Author Affiliation:**  
The University of British  
Columbia.

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None declared.

## Accuracy of Estimating Periodontitis and Its Risk Association Using Partial-Mouth Recordings for Surveillance Studies. A Systematic Review and Meta-Analysis

Alawaji, Y<sup>1</sup>; Alshammari, A<sup>2</sup>; Carvalho, R<sup>3</sup>; Mostafa, N<sup>4</sup>; Aleksejuniene, J<sup>5</sup>.

**Review question / Objective:** To answer the research question “Should we rely on partial recording protocols for assessment of periodontitis in surveillance surveys?”. Two specific objectives: 1) conduct an up-to-date systematic review and meta-analysis regarding the accuracy of partial recording protocols to estimate periodontitis prevalence, extent, severity, and risk associations, 2) identify the factors that may impact the use of partial recording protocols.

**Condition being studied:** Accuracy of partial mouth recording protocols compared to full mouth recording protocol in assessment of periodontal disease prevalence, risk associations, estimates of severity and extent.

**Information sources:** Medline (Ovid) and Embase (Ovid), grey literature such as Dissertation and Theses Global, OpenGrey, Grey Matter, Grey literature at the Networked Digital Library, Google, and Google scholar. Hand search was done for related citations of retrieved articles and articles’ reference lists.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 June 2021 and was last updated on 19 February 2022 (registration number INPLASY202160032).

### INTRODUCTION

**Review question / Objective:** To answer the research question “Should we rely on partial recording protocols for assessment of periodontitis in surveillance surveys?”. Two specific objectives: 1) conduct an up-to-date systematic review and meta-

analysis regarding the accuracy of partial recording protocols to estimate periodontitis prevalence, extent, severity, and risk associations, 2) identify the factors that may impact the use of partial recording protocols.

**Rationale:** A previous 2013 systematic review assessed the validity of PRPs for studying periodontitis extent and prevalence using a single disease threshold, and the precision of using PRPs to assess the risk associated with periodontitis were not evaluated. In addition, the factors that may impact the accuracy or precision of PRPs were not addressed in the previous systematic review; therefore, the evidence needs to be updated.

**Condition being studied:** Accuracy of partial mouth recording protocols compared to full mouth recording protocol in assessment of periodontal disease prevalence, risk associations, estimates of severity and extent.

## METHODS

**Search strategy:** Limits or filters were not used when conducting the search. The following search concepts were considered in the search: periodontitis, prevalence, extent, severity, and partial mouth recording.

**Participant or population:** Subjects from any age group with permanent dentition.

**Intervention:** Partial-mouth recording protocol (PRP).

**Comparator:** Full-mouth recording protocol (FRP).

**Study designs to be included:** Cross-sectional or baseline assessment of longitudinal studies.

**Eligibility criteria:** Inclusion: 1. Studies with full text available in English language. 2. Cross-sectional study design or baseline data of longitudinal study design. 3. Population: Subjects from any age group with permanent dentition. 4. FRP as reference (gold standard) compared to the PRP recordings for the same study subjects. 5. FRP had original data and assessed at 6 sites per tooth or at 4 interproximal sites of all teeth except third molar. 6. Assessment and reporting of any

of the following outcomes: i. Prevalence of moderate and/or severe periodontitis calculated at the subject level or total subjects with disease and without disease. ii. Risk associations to periodontitis. iii. Mean and standard deviation for severity estimate. iv. Mean and standard deviation for extent estimate. 7. Use of Clinical Attachment Loss (CAL) to define the periodontal disease. Exclusion criteria: 1. Studies in foreign languages. 2. Simulation studies, hypothetical data or variables. 3. Subjects with primary dentition. 4. Measurements of periodontal disease are limited to periodontal pocket depth (PPD), Bleeding on Probing (BOP) or other periodontal parameters without assessment of CAL. 5. The reference FRP measured at less than 4 interproximal sites per tooth, or at subset of teeth rather than assessment of full mouth.

**Information sources:** Medline (Ovid) and Embase (Ovid), grey literature such as Dissertation and Theses Global, OpenGrey, Grey Matter, Grey literature at the Networked Digital Library, Google, and Google scholar. Hand search was done for related citations of retrieved articles and articles' reference lists.

**Main outcome(s):** 1) Periodontitis prevalence using the 2 most commonly used thresholds in previous reports: 1) moderate-severe periodontitis ( $\geq 1$  site with  $CAL \geq 4mm$ ), and 2) severe periodontitis ( $\geq 1$  site with  $CAL \geq 6mm$ ). Accuracy and absolute bias were calculated for each threshold. 2) Periodontitis-related risk associations indicated by absolute bias and/or relative bias. 3) Extent of periodontitis indicated by absolute bias. 4) Severity of periodontitis indicated by absolute bias.

**Additional outcome(s):** Periodontitis prevalence were defined using the case definitions from the Centers for Disease Control and Prevention and the American Academy of Periodontology (CDC/AAP).

**Quality assessment / Risk of bias analysis:** The QUADAS-2 tool was customized and used for assessment of risk of bias in four

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domains and the applicability concerns in three domains. The customization of the tool and the risk of bias assessment were done by two reviewers and any disagreement was resolved by discussion until a consensus was reached. For the overall judgment, a high risk of bias or high applicability concerns were determined if the study was rated as such in at least one of the domains.

**Strategy of data synthesis:** Qualitative and quantitative syntheses were done. The Open-Meta-Analyst software was used to conduct meta-analysis using a random effect model (DerSimonian and Laird inverse variance).

**Subgroup analysis:** A comparison based on the age, and certain subject characteristics will be done if applicable.

**Sensitivity analysis:** Periodontal disease defined at different threshold will be compared; Minimum number of sites used for defining the prevalence of periodontitis definition will also be compared.

**Language:** English.

**Country(ies) involved:** Canada and Saudi Arabia.

**Keywords:** Partial mouth recording; prevalence; risk associations; extent; severity.

**Contributions of each author:**

Author 1 - Yasmine Alawaji.

Email: [alawajiya@student.ubc.ca](mailto:alawajiya@student.ubc.ca)

Author 2 - Abdulsalam Alshammari.

Email: [shammariab@ksau-hs.edu.sa](mailto:shammariab@ksau-hs.edu.sa)

Author 3 - Jolanta Aleksejuniene.

Email: [jolanta@dentistry.ubc.ca](mailto:jolanta@dentistry.ubc.ca)