INPLASY PROTOCOL

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Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest: **No.**

Do surface sealants improve the clinical performance of composite restorations?

Calmon, K[1]; Vieira, LC[2]; Perez, C[3].

Review question / Objective: **Do surface sealants improve the clinical performance of composite restorations? Thus, the PICOs approach is: (P) Population: Composite Restorations; (I) Intervention: Surface Sealants; (C) Comparison: Without Surface Sealants; (O) Outcome: Clinical Performance of restorations, assessed as the presence of secondary caries, postoperative sensitivity, color stability, surface roughness, marginal adaptation, marginal discoloration, and surface wear/anatomic form; (S) Study Type: Randomized Clinical Trials.**
Condition being studied: **Surface sealants are used to penetrate and fill micro irregularities on composite restorations by capillary action. Application of surface sealant on composite restorations can provide a uniform and stable surface and enhance the marginal adaptation and resistance of staining.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 02 September 2020 and was last updated on 27 October 2021 (registration number INPLASY202090010).

INTRODUCTION

Review question / Objective: **Do surface sealants improve the clinical performance of composite restorations? Thus, the PICOs approach is: (P) Population: Composite Restorations; (I) Intervention: Surface Sealants; (C) Comparison: Without Surface Sealants; (O) Outcome: Clinical Performance of restorations, assessed as the presence of secondary caries, postoperative sensitivity, color stability, surface roughness, marginal adaptation, marginal discoloration, and surface wear/**

anatomic form; (S) Study Type: Randomized Clinical Trials.

Rationale: Though surface sealants are known for enhancing the clinical performance of composites, there is no scientific consensus about it. Therefore, we aim to evaluate the effect of surface sealants on the clinical performance of composite resins.

Condition being studied: Surface sealants are used to penetrate and fill micro irregularities on composite restorations by capillary action. Application of surface sealant on composite restorations can provide a uniform and stable surface and enhance the marginal adaptation and resistance of staining.

METHODS

Search strategy: An electronic search will be independently conducted to identify potential studies. The following databases will be screened: MEDLINE/PubMed, EMBASE, Web of Science, Scopus, LILACS and BBO/Virtual Health Library, Cochrane Central Register of Controlled Trials (CENTRAL) the grey literature (Open Grey). A combination of MeSH/DECs, synonyms, and free terms with the Boolean operators OR and AND will be used as follows: ((Composite Resins[MeSH Terms]) OR (Dental Restoration, Permanent[MeSH Terms]) OR (Dental Materials[MeSH Terms]) OR (resin*[Title/Abstract]) OR (composite*[Title/Abstract]) OR (restoration*[Title/Abstract]) OR (restorative*[Title/Abstract]) OR (filling*[Title/Abstract]) OR (Composite Resins[Title/Abstract]) OR (Dental Restoration, Permanent[Title/Abstract]) OR (Dental Materials[Title/Abstract])) AND ((Dental Restoration Wear[MeSH Terms]) OR (Surface Properties[MeSH Terms]) OR (Color[MeSH Terms]) OR (Dental Marginal Adaptation[MeSH Terms]) OR (Dentin Sensitivity[MeSH Terms]) OR (Dental Caries[MeSH Terms]) OR (wear[Title/Abstract]) OR (color stability[Title/Abstract]) OR (surface roughness[Title/Abstract]) OR (marginal adaptation[Title/Abstract]) OR (microleakage[Title/Abstract]) OR (sensitivity[Title/Abstract]) OR (caries[Title/Abstract]) OR (clinical performance[Title/Abstract]) OR (survival[Title/Abstract]) OR (polishing[Title/Abstract]) OR (gloss[Title/Abstract]) OR (plaque retention[Title/Abstract]) OR (biofilm*[Title/Abstract]) OR (staining[Title/Abstract]) OR (marginal sealing[Title/Abstract]) OR (hypersensitivity[Title/Abstract]) OR (marginal gap[Title/Abstract]) OR (marginal integrity[Title/Abstract]) OR (surface texture[Title/Abstract]) OR (marginal discoloration[Title/Abstract]) OR (anatomical form[Title/Abstract]) OR (clinical evaluation[Title/Abstract]) OR (color matching[Title/Abstract]) OR (caries recurrence[Title/Abstract]) OR (wear resistance[Title/Abstract]) OR (Dental Restoration Wear[Title/Abstract]) OR (Surface Properties[Title/Abstract]) OR (Color[Title/Abstract]) OR (Dental Marginal Adaptation[Title/Abstract]) OR (Dentin Sensitivity[Title/Abstract]) OR (Dental Caries[Title/Abstract])) AND ((liquid polish*[Title/Abstract]) OR (surface sealer*[Title/Abstract]) OR (surface sealant*[Title/Abstract]) OR (surface polisher*[Title/Abstract]) OR (liquid glaze[Title/Abstract]) OR (surface penetrating sealant*[Title/Abstract]) OR (Fortify sealant[Title/Abstract]) OR (BisCover[Title/Abstract]) OR (Protect-it[Title/Abstract]) OR (Bisco Glaze[Title/Abstract])).

Participant or population: Composite resin restorations in permanent teeth in patients without parafunctional habits.

Intervention: Surface sealants.

Comparator: Without surface sealants.

Study designs to be included: Randomized Clinical trials.

Eligibility criteria: Clinical trials that evaluated and compared the clinical performance of composite restorations polished with and without surface sealants.

Information sources: We aim to search on electronic databases (MEDLINE/PubMed,

EMBASE, Web of Science, Scopus, LILACS and BBO/Virtual Health Library, Cochrane Library), grey literature, trial registers (PROSPERO, INPLASY), conference papers (International Association for Dental Research - IADR), and to perform a direct search in references of selected articles.

Main outcome(s): The outcome measured variables will be caries, and dental sensitivity.

Additional outcome(s): The secondary outcomes will be color match, marginal discoloration, wear/anatomic form, marginal adaptation, and surface texture.

Data management: We will manage records with the Mendeley Reference Management Software. The studies selection and extraction of data will be performed by two independent reviewers, KC and LC. Any disagreement will be resolved, if necessary, by a third author (CP).

Quality assessment / Risk of bias analysis: For the quality assessment we will use The Cochrane Risk of bias tool (RoB 2) for clinical studies.

Strategy of data synthesis: Data extraction will be completed using predefined and standardized Microsoft Excel sheets. We will provide summaries of intervention effects for each study by calculating standardized mean differences (for continuous outcomes) and relative risks (binary outcomes). Where studies have used the same type of intervention and comparator, with the same outcome measure, we will pool the results using a random-effects meta-analysis, irrespectively of the statistical heterogeneity. In studies where the effects of clustering have not been taken into account, we will adjust the standard deviations for the design effect.

Subgroup analysis: All restorations will be included in the final statistical analysis. If data permits, we will perform a subgroup analysis (follow-up time).

Sensibility analysis: If sufficient available data are extracted, we will conduct sensitivity analysis to check the stability of the outcome results by excluding studies with a high risk of bias.

Language: No language limits will be imposed on the search.

Country(ies) involved: Brazil.

Keywords: systematic review, composite resins, dental restoration wear, dental polishing, surface properties.

Contributions of each author:
Author 1 - Kezia Calmon - Project, search strategy, study selection, data extraction, description of results, and article writing.
Author 2 - Lanna Cristina Vieira - Project, search strategy, study selection, data extraction, description of results, and article writing.
Author 3 - Cesar Perez - Project, search strategy, description of results, data analysis, reviewing the article.