

INPLASY PROTOCOL

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Do surface sealants improve the clinical performance of composite restorations?

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Review question / Objective: Do surface sealants improve the clinical performance of composite restorations? Thus, the PICO approach is: (P) Population: Composite Restorations; (I) Intervention: Surface Sealants; (C) Comparison: Without Surface Sealants; (O) Outcome: Clinical Performance: Color stability, surface roughness, marginal adaptation, surface wear, postoperative sensitivity, secondary caries; (S) Study Type: 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 02 September 2020 (registration number INPLASY202090010).

INTRODUCTION

Review question / Objective: Do surface sealants improve the clinical performance of composite restorations? Thus, the PICO approach is: (P) Population: Composite Restorations; (I) Intervention: Surface Sealants; (C) Comparison: Without Surface Sealants; (O) Outcome: Clinical

Performance: Color stability, surface roughness, marginal adaptation, surface wear, postoperative sensitivity, secondary caries; (S) Study Type: Clinical Trials.

Rationale: Though surface sealants are known for enhancing composites' clinical performance, there is no scientific consensus about it. Therefore, we aim to

search on the literature all the clinical studies that evaluated composite restorations' clinical performance with surface sealants.

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 Library and the grey literature. An expert librarian will guide the search strategy. 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.

Intervention: Surface sealants.

Comparator: Without surface sealants.

Study designs to be included: 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, conference papers, and to perform a direct search in references of selected articles.

Main outcome(s): The outcome measured variables will be the color match, marginal

discoloration, wear/anatomic form, caries, marginal adaptation, and surface texture. These variables are measured by the US Public Health Service (USPHS) criteria, profilometer, colorimeter, and/or glossmeter.

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) for clinical studies.

Strategy of data synthesis: Data extraction will be completed using predefined and standardized Microsoft Excel sheets. We will summarize the intervention effects for each study by calculating standardized mean differences (for continuous 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, with standardized mean differences for continuous outcomes and calculate 95% confidence intervals and two-sided P values for each outcome. In studies where clustering effects have not been taken into account, we will adjust the standard deviations for the design effect. Heterogeneity will be assessed using both the χ^2 test and the I^2 statistic. We will consider an I^2 value greater than 50% indicative of substantial heterogeneity.

Subgroup analysis: All data will be included in the final statistical analysis. If data permits, we will perform a subgroup analysis.

Sensibility analysis: If enough available data are extracted, we will conduct sensitivity analysis to check the stability for the outcome results by excluding low methodological quality studies.

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.