INPLASY PROTOCOL

To cite: Clemente et al. Characteristics of aerosol and saliva droplets from dental care: A Systematic Review and Meta-Analysis. Inplasy protocol 202070075. doi: 10.37766/inplasy2020.7.0075

Received: 16 July 2020

Published: 16 July 2020

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Support: **UFJF**

Review Stage at time of this submission: **The review has not yet started.**

Conflicts of interest:
There is no conflict of interest.

Characteristics of aerosol and saliva droplets from dental care: A Systematic Review and Meta-Analysis

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Review question / Objective: **How and how long does the spread of aerosols and droplets last during dental care?**
Condition being studied: **Dentists and dental personnel operate in the highly contaminated environment of the oral cavity. Routine dental procedures such as tooth preparation such as the use of an air water syringe produce aerosol and splatter, which poses a potential risk to the clinician and the dental personnel. Aerosols remain in the air for a longtime even after the completion of the dental procedure and have the potential risk of entering the respiratory passages. Splatter evaporates, leaving smaller particles called droplet nuclei, which can carry bacteria and viruses and transmit various diseases such as SARS and tuberculosis. Performing periodic checks on environmental contamination is recommended to improve the quality of the environment in the dental operatory.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 July 2020 and was last updated on 27 August 2020 (registration number INPLASY202070075).

INTRODUCTION

Review question / Objective: **How and how long does the spread of aerosols and droplets last during dental care?**

Rationale: **It is known that there is a large spread of aerosols and droplets during dental care, but there is still no certainty of the time that they are suspended in the air. Therefore, it is important to know when to clean surfaces and wait for the patient's next appointment.**

Condition being studied: **Dentists and dental personnel operate in the highly**

contaminated environment of the oral cavity. Routine dental procedures such as tooth preparation such as the use of an air water syringe produce aerosol and splatter, which poses a potential risk to the clinician and the dental personnel. Aerosols remain in the air for a longtime even after the completion of the dental procedure and have the potential risk of entering the respiratory passages. Splatter evaporates, leaving smaller particles called droplet nuclei, which can carry bacteria and viruses and transmit various diseases such as SARS and tuberculosis. Performing periodic checks on environmental contamination is recommended to improve the quality of the environment in the dental operatory.

METHODS

Search strategy: Databases: PubMed, Scopus, Web of Science, Scielo. Descriptors: suspension, aerosol, droplet, splatter, odontology, dentistry, dental.

Participant or population: P: aerosol, splatter, suspension, droplet

Intervention: I: dentistry, odontology, dental.

Comparator: Not applicable

Study designs to be included: Research, journal article, multicenter study, article.

Eligibility criteria: Articles concerning about aerosol and droplets produced during dental care.

Information sources: Electronic databases, contact with authors, trial registers.

Main outcome(s): Evaluate the time that droplets and aerosols remain suspended in the air, allowing to determine the necessary waiting time for the disinfection of surfaces and care for the next patient.

Additional outcome(s): Dental procedures that release more aerosols and droplets. Contamination load of dental aerosols and saliva droplets.

Data management: The studies will be screened and evaluated by 2 independent researchers. The data extraction will be performed by two independent evaluators and evaluated by a third person.

Quality assessment / Risk of bias analysis: The methodological quality of the studies will be independently assessed by the two reviewers (VS and LA). Differences will be resolved by the supervisor (LL). The risk of bias will be assessed according to: randomization of dental procedures performed, similar sample size, clearly described protocol and statistical analysis. If the study contains the item, you will receive a "yes" and, if there is no information, you will receive "no". For one to two "no", the study will be considered as "low risk of bias"; by three or four it will be considered as "average risk of bias"; for five to six yes, the study will be considered "high risk of bias". Disagreements between reviewers regarding quality assessment will be resolved by the supervisor (LL).

Strategy of data synthesis: The data will be extracted from the text obtained on journals. If the full data is not available, the authors will be contacted by e-mail. If no success is obtained, the article will be excluded from further analysis. The data will be recorded by using pre-defined Excel sheets and Word tables. Disagreement will be resolved by the group discussion.

Subgroup analysis: Subgroups considering country of the study conducted, aerosol spread, microbial load will be performed. A descriptive presentation of the data will be used for all studies. Subsequently, if possible, a meta-analysis (MA) will be performed.

Sensibility analysis: If is possible, a meta-analysis will be performed to synthesize the results.

Language: English.

Country(ies) involved: Brazil.

Other relevant information: No additional information required.

Keywords: Aerosols; Droplets; Dentistry; Dental.

Dissemination plans: Presentation of results in Congresses, Symposiums and Research Meetings in Dentistry, in general, and Microbiology, in particular. In addition, in the form of a scientific article, they may be published in an international journal with a high impact factor.

Contributions of each author:
Author 1 - Vitória Clemente - Investigation and formal analysis.
Author 2 - Vívian Souza - Investigation and Formal Analysis, writing manuscript.
Author 3 - Lara Araújo - Investigation and Formal Analysis.
Author 4 - Rodrigo Fabri - Validation and Writing – Review and Editing.
Author 5 - Laísa Laxe - Formal Analysis, Validation and Writing – Review and Editing.
Author 6- Ana Apolônio- Conceptualization, Supervise, Writing – Original Draft– Review and Editing.