Silver Diamine Fluoride and Fluoride Varnish for the Prevention and Arresting of Dental Caries in Pediatric Populations: Clinical Effectiveness and Guidelines
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Research Questions

1. What is the clinical effectiveness of silver diamine fluoride used in combination with fluoride varnish for the prevention and arrestment of dental caries in pediatric populations?

2. What are the evidence-based guidelines regarding the use of silver diamine fluoride for the prevention and arrestment of dental caries in pediatric populations?

Key Findings

One non-randomized study was identified regarding the clinical effectiveness of silver diamine fluoride used in combination with fluoride varnish for the prevention and arrestment of dental caries in pediatric populations. In addition, three evidence-based guidelines were identified regarding the use of silver diamine fluoride for the prevention and arrestment of dental caries in pediatric populations.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were silver diamine fluoride and the paediatric population. Search filters were applied to limit retrieval to guidelines for Q2 only. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and April 23, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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<thead>
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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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<td><strong>Comparator</strong></td>
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### Results

One non-randomized study\(^1\) was identified regarding the clinical effectiveness of silver diamine fluoride used in combination with fluoride varnish for the prevention and arrestment of dental caries in pediatric populations. In addition, three evidence-based guidelines\(^2-^4\) were identified regarding the use of silver diamine fluoride for the prevention and arrestment of dental caries in pediatric populations. No relevant health technology assessments, systematic reviews, or randomized controlled trials were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

### Overall Summary of Findings

One non-randomized study\(^1\) was identified regarding the clinical effectiveness of silver diamine fluoride (SDF) used in combination with fluoride varnish for the prevention and arrestment of dental caries in pediatric populations. The authors found that majority of carious lesions in low-risk pediatric patients showed radiographic evidence of non-progression 12 months following SDF and fluoride varnish application.\(^1\)

Three evidence-based guidelines\(^2-^4\) were identified regarding the use of silver diamine fluoride for the prevention and arrestment of dental caries in pediatric populations. One guideline from the American Academy of Pediatric Dentistry recommends the use of 38 percent SDF on cavitated lesions in high-risk pediatric patients.\(^2\) Another guideline from the American Academy of Pediatric Dentistry elaborates that the aforementioned recommendation is conditional and based on low-quality evidence.\(^3\) Finally, the American Dental Association recommends biannual application of 38 percent SDF to arrest advanced cavitated carious lesions in primary teeth.\(^4\)

### References Summarized

**Health Technology Assessments**

No literature identified.

**Systematic Reviews and Meta-Analyses**

No literature identified.

**Randomized Controlled Trials**

No literature identified.
Non-Randomized Studies

*Pre-Post Intervention Study*

   PubMed: PM32271666

Guidelines and Recommendations

   See: Table 3. Example of a Caries Management Pathways for 0-5 Years Old, page 222; Table 4. Example of a Caries Management Pathways for ≥6 Years Old, page 223

   PubMed: PM32074885

   PubMed: PM30261951
Appendix — Further Information

Previous CADTH Reports


Systematic Reviews and Meta-Analyses

Alternative Intervention — Silver Diamine Fluoride Only


Randomized Controlled Trials

Study Protocol


Alternative Intervention — Silver Diamine Fluoride Only


**Alternative Comparator**


**Review Articles**


**Additional References**


See: Clinical procedure of SDF application