

# Non-Restorative Treatments for Root Caries in Adults

## Critically Appraised Topic Summary

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### Clinical Problem

- About 43% of people aged 60-79 years in Canada have **root caries lesions**.<sup>1</sup>
- The Canadian Health Measures Survey found that 11% of older adults had **untreated root caries**.<sup>2</sup> With an aging population, the **increase** of root exposure and subsequent root caries is an **escalating dental concern**.<sup>3</sup>
- Invasive **restorative treatment of root caries lesions** are shown to **undermine the longevity of teeth**, to be **costly** and **not as effective** as **restorative treatment of coronal caries**.<sup>4</sup>

### Clinical Question

**In adults with root caries, to what extent do non-surgical treatment of root caries lesions (F varnish, 5000 ppm F toothpaste, SDF) affect root caries arrest over a period of at least 12 months?**

### Evidence Search

**Search strategy:**  
 ("Dental Caries/therapy"[Mesh] OR "Root Caries/therapy"[Mesh]) AND ("nonrestorative" OR "noninvasive" OR "conservative" OR "nonsurgical")

**Filters:** In the last 5 years, Systematic review, Clinical Guideline, RCT

**PubMed Results:** 17 articles

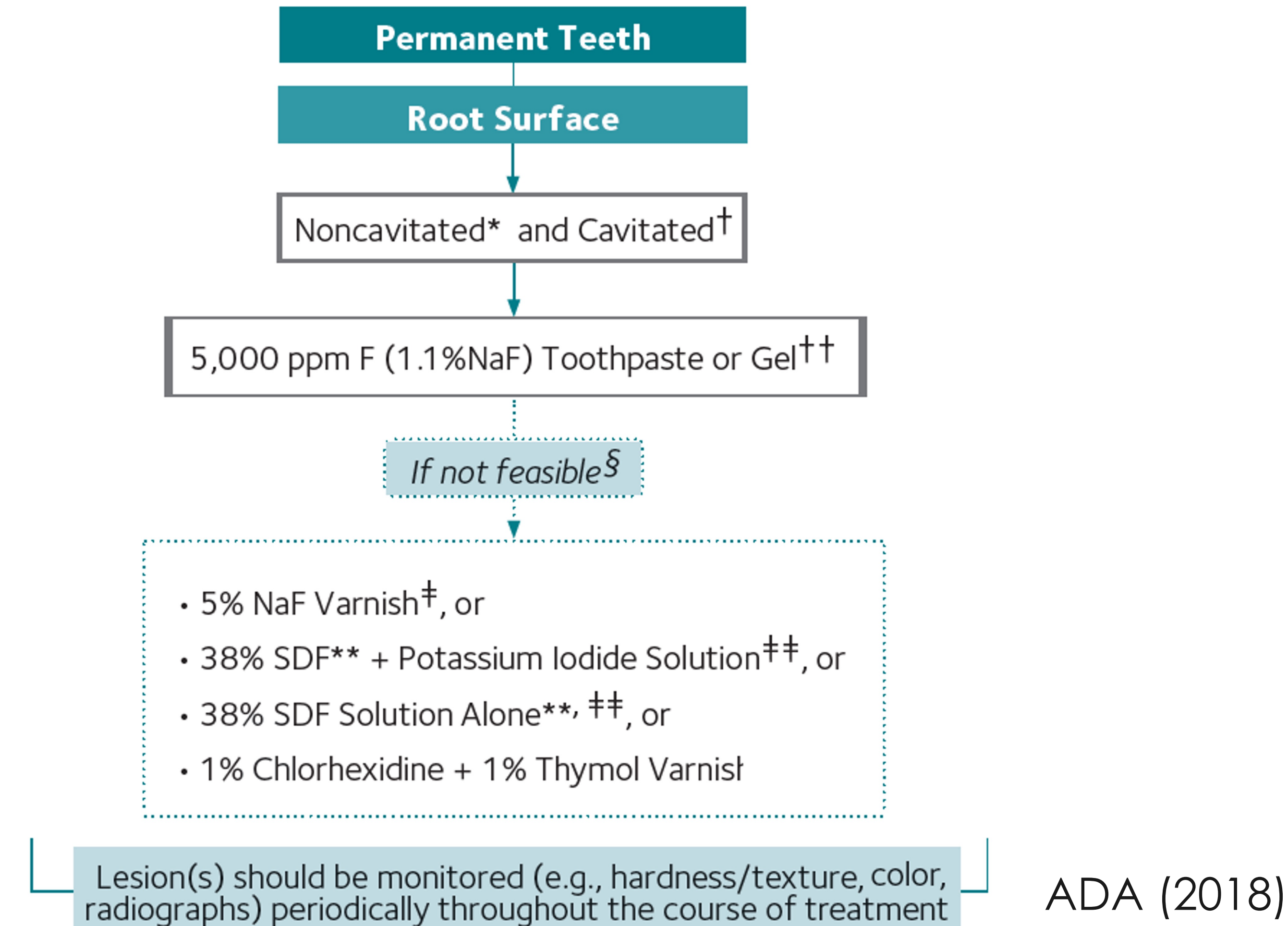
- 1) Slayton Let al., 2018. ADA Clinical Guideline
- 2) Urquhart, O. et al., 2019. ADA Systematic Review

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### Clinical Bottom Line

The clinical guideline by Slayton et al. (2018) favours 5000 ppm F (1.1% NaF) toothpaste or gel as first line treatment for cavitated or non-cavitated root caries lesions as an effective and feasible to use intervention.

Clinical Pathway for the Nonrestorative Treatment of Carious Lesions on Permanent Teeth



### Results

- **7 RCTs**, n=834 participants, **age:.....**; **Follow-up:** 3-12 months
  - **Network Meta-Analysis; Outcome:** caries lesions arrest
  - RD **(1.1% NaF toothpaste/gel)** = 73% (95% CI: 22% more; 163% more)
  - RD **(5% Na varnish)** = 88% (95% CI: 33% less; 1407% more)
  - RD **(38% SDF + KI solution)** = 61% (95% CI: 15% less; 334% more)
  - All results were **clinically meaningful**. Only treatment with **5000 ppm NaF toothpaste or gel** was **clinically decisive** and **statistically significant** with a **low** level of certainty. The other two treatment methods were **clinically not decisive** with a **very low** level of certainty.
  - Assumed prevalence of caries lesion arrest in control: 45%  
 Clinically meaningful difference threshold: 20%
- \*RD = Risk Difference

### Strengths

- Guideline recommendations based on a systematic review and network meta-analysis
- No restrictions on language or date
- Two independent reviewers
- Cochrane risk of bias tool, PRISMA diagram & GRADE for evidence quality assessment
- Primary and secondary outcomes clearly stated
- Recommended intervention and alternatives clear and actionable
- Influence of conflict of interest minimized

### Limitations

- All the studies had at least one domain with high risk of bias, including attrition and selection bias.
- Low certainty of the evidence with conditional recommendation. Publication bias not statistically assessed due to lack of studies.

### Applicability

- The study population included adults aged 44-83 year-olds.
- Applicability limited by the locations (Spain, UK, Denmark, China, Netherlands) without information on SES, fluoride exposure, diet & dental care access.
- 5,000 ppm fluoridated toothpaste when used in adults is safe, readily accessible and affordable in Canada.
- Alternative treatment comparisons equally feasible in Canada are: 38% SDF solution; 5% NaF varnish; and 1% chlorhexidine + 1% thymol varnish.