

Fissure Sealants

Purpose

Clinical Practice Guidelines (CPG's) are systematic developed statements intended to support clinicians in providing high quality, best practice evidence-based care. They are there to provide guidance, and are not a standard of care, requirement, or regulation. However, the application of clinical guidelines in publicly-provided oral health services allows for consistency to occur across large patient cohorts with a variety of oral health providers. DHSV recognizes and supports appropriate professional provision of fissure sealants in the prevention of dental caries for at-risk individuals.

This Clinical Guideline aims to:

- Describe the criteria and placement of these treatments, with emphasis around the assessment of at-risk individuals and teeth.

Guideline

Background

Despite the fact that the overall caries rate is declining, first and second permanent molars continue to be the most caries-susceptible permanent teeth. There is some evidence on the superiority of pit and fissure sealants over fluoride varnish application in the prevention of occlusal caries¹. Sealing the occlusal surfaces of permanent molars in children and adolescents reduces caries up to 48 months when compared to no sealant and are effective in **high risk** children². There seems to be a benefit in placing sealants within **4** years after eruption. However there is no body of knowledge advocating the use of sealants beyond adolescence (level of evidence I, grade of recommendation A)³. The literature also supports the placement of sealants on primary molars although the supporting evidence is more limited (level of evidence I, grade of recommendation A)³

Resin Fissure Sealants

Proven under the scrutiny of multiple meta-analyses, the use of resin (composite) fissure sealants shows significant capacity to reduce caries experience. Estimates of the percentage of caries prevented range from 78⁴-87%⁵ over a 12 month period. Retention of these sealants, and subsequently clinical outcomes, show no relation to mechanical surface preparation technique (toothbrushing, bur preparation, professional prophylaxis or use of an air-water syringe),^{6,7,8} though

some improvement in retention may be afforded by use of bonding agents when ideal isolation cannot be achieved.⁹ Use of resin-based materials containing fluoride have been suggested as a method to further reduce the caries-preventive benefits of fissure sealants, though to date no studies using these products have shown an influence on clinical outcomes.¹⁰

Glass Ionomer Sealants

Considerable debate has been presented regarding the use of glass ionomer (GIC) materials as an alternative to resin-based fissure sealants. On the basis of poor retention – with 18% of sealants reported to be completely retained over 3 years¹¹ – the American Dental Association Council on Scientific Affairs¹² has advised: *“glass-ionomer cement may be used as an interim preventive agent where there are indications for placement of a resin-based sealant but [where] concerns about moisture control may compromise such placement”*

Safety

While Bisphenol A (BPA) may not be a direct ingredient in composite resin materials, it can be a by-product of the degradation by salivary enzymes of other monomers used in these materials. The placement of resin-based composite restorations has been associated with detectable increases in saliva and urine of BPA within 1 hour after placement¹³. To reduce the potential risk (if any) it has been suggested that dental providers use a mild abrasive, such as pumice, either on a cotton applicator or in a prophylaxis cup; or wash the restoration/sealant surface for 30 seconds with an air-water syringe while suctioning fluids and debris from the mouth³.

Patient selection

- Children with caries in their primary teeth should have all permanent molars sealed as soon as possible after their eruption.

Fissure sealing of all occlusal surfaces of permanent teeth should be considered for those who are medically compromised, physically disabled or having learning difficulties, or at high risk for caries for any other reason. .

- Children with caries-free primary dentitions do not need to have first permanent molars routinely sealed: rather these teeth should be reviewed on recall.

Tooth selection

- Fissure sealants have the greatest benefit on the occlusal surfaces of permanent molar teeth. Other surfaces should not be neglected, in particular the cingulum pits of upper incisors. The sealing of primary molars is not normally advised.
- Sealants should normally be applied as soon as the selected tooth has erupted sufficiently to permit moisture control.
- Any child with occlusal caries in one first permanent molar should have the fissures of the sound first permanent molars sealed
- Occlusal caries affecting one or more first permanent molars indicates a need to seal the second permanent molars as soon as they have erupted sufficiently.

Long-term follow-up

- Sealed teeth should be monitored clinically at appropriate recall intervals supported by radiographs if indicated.
- Defective sealants should be investigated and fresh sealant applied as part of routine maintenance

Key Conclusions & Recommendations

Fissure sealant application for high risk children already captured under the public dental system should be standardised. Given it has a claimable value and is an effective preventive measure, mandatory targets for fissure sealant application should be encouraged, improving access to this preventive strategy for high risk children.

Definitions

Nil

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Clinical Leadership in Practice Committee

Policy owner

Chief Oral Health advisor

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Reference

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Clinical Guidelines

Answer the following questions about what you have just read.
1 Scientific CPD point is available on completion.

QUESTIONNAIRE

YourName:

Email Address:

Title of Clinical Guideline:

Question 1

List 3 key issues this Clinical Guideline reinforced for you?

Question 2

Were there areas of the Clinical Guideline you were previously unaware of? If yes, please list them.

Question 3

How will you share this information with your peers?

Click the button below to submit your answers for verification.