



## **Pit and Fissure Sealants**

### **Brief Summary**

#### **Description and Use:**

Sealants are either resin-based materials or glass ionomer cements applied to the occlusal (biting) surface of the tooth, covering the pits and fissures that are susceptible to decay. Sealant restorations are also indicated for carious lesions that have not advanced into the dentin in occlusal surfaces of permanent molars, pre-molars and primary molars. Sealing incipient decay is found to be associated with a reduction in viable bacteria counts. For resin-based sealants the area must be thoroughly clean and dry prior to application of the sealant. The sealant is painted onto the surface and set by either visible light or by self-cure. Glass ionomer cements are easier to apply and are not as moisture sensitive.

#### **Effectiveness and Efficacy:**

The caries reduction rates for resin-based sealants range from 88% to 60% over 4 years. However, these high rates may be reduced if the sealants are not regularly checked. Unsealed tooth surfaces show higher decay (77%) than sealed tooth surfaces (27%). A meta-analysis on randomized trials reported a caries-prevention fraction of 71.3% up to 5 years after placement. While glass ionomer cements are able to release fluoride in the oral cavity studies have shown that resin-based sealants are more effective in preventing caries. Resin-based sealants are also believed to have a higher retention rate than glass ionomer cements however the evidence on this is conflicting. Overall both materials show equal effectiveness.

#### **Recommendations and Community Programs:**

Sealants are indicated for children and adults who are at a moderate or high risk of developing dental caries or have incipient caries in pits and fissures. The CDC's Task Force on Community Preventative Services strongly recommended school-based or school-linked pit and fissure sealant delivery programs. A meta-analysis comparing 10 school-based studies reported a median relative decrease in caries of 60% for school-based sealant programs when compared to other school-linked sealant applications.



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## **Cost Effectiveness:**

Studies have shown that sealants are cost-effective, especially in children who are at high risk of caries. The cost of sealant programs is decreased if sealants can be applied by a hygienist alone. The literature is lacking randomized controlled trials that document the cost-effectiveness of sealants.