

Preventing Dental Caries: School-Based Dental Sealant Delivery Programs

Task Force Finding

The [Community Preventive Services Task Force recommends](#) school-based sealant delivery programs based on strong evidence of effectiveness in preventing dental caries (tooth decay) among children. This recommendation is based on evidence that shows these programs increase the number of children who receive sealants at school, and that dental sealants result in a large reduction in tooth decay among school-aged children (5 to 16 years of age).

Read the full [Task Force Finding and Rationale Statement](#) for details including implementation issues, possible added benefits, potential harms, and evidence gaps.

Intervention Definition

Dental (pit and fissure) sealants are clear or opaque plastic resinous materials applied to the chewing surfaces of the back teeth to prevent dental caries (tooth decay). School-based dental sealant delivery programs provide dental sealants to students either onsite at schools (using portable dental equipment) or offsite in dental clinics. These programs often target schools in low socioeconomic status (SES) neighborhoods, often identified based on the percentage of children eligible for the federal free or reduced-price meal programs. Some programs may target individuals within a school, based on their risk for tooth decay.

About the Systematic Review

The Task Force finding is based on a systematic review of two types of evidence: evidence of effectiveness of programs that deliver sealants within school settings (4 studies; search period through October 2012), and evidence from one high quality systematic review of the efficacy of sealants among school-aged children (Ahovuo-Saloranta et al. 2013, search period 1946-2012; 34 included studies). The systematic review was conducted on behalf of the Task Force by a team of specialists in systematic review methods, and in research, practice, and policy related to oral health. This finding updates and replaces the 2000 Task Force finding on [School-Based or -Linked Sealant Delivery Programs](#).

Results

Programs that delivered sealants within school settings increased the proportion of students who received sealants and decreased occurrence of tooth decay.

- Implementing a sealant delivery program led to an absolute increase of approximately 26 [percentage points](#) in the number of students who received sealants (2 studies).
 - Greater increases were seen among students from low-income families who are typically at higher risk for tooth decay.
- Students who received dental sealants had a median of 50% fewer caries up to four years later as compared with students who did not receive sealants (interquartile interval [IQI]: 38% to 61%; 2 studies).

In the systematic review of sealant efficacy, dental sealants were shown to reduce dental caries by a median of 81% at 2 year follow up (IQI: 74% to 88%; 12 studies).

Study Characteristics

- In most of the included studies, analyses focused only on children who consented to the sealant program, rather than those who were eligible to participate. It is possible that excluding those who did not consent excluded data from highest-risk children.
- The majority of the evidence comes from studies of children aged 5-10 years.
- Included evidence comes from studies conducted in the U.S. and Europe.
- All studies assessed sealants applied within the school setting, as opposed to off-site in dental clinics.
- Most of the data for effectiveness of school-based sealant delivery programs are from areas of middle to low SES.

Applicability

- Findings should be applicable to school-based sealant delivery programs in communities throughout the U.S.
- Included studies evaluated programs that used a variety of licensed dental professionals (e.g., dentists, dental hygienists, dental therapists) to place dental sealants. There is no evidence to suggest there is variation in longevity of sealants applied by different dental health professionals.



Economic Evidence

An economic review is pending.


Considerations for Implementation

- Sealant application demands meticulous technique, and licensed dental health professionals should consult the manufacturer's instructions for use of specific sealant products.
- These programs can increase the identification of caries in children who do not regularly visit a dentist and improve access to dental health services by referring children who need dental treatment. They may also offer opportunities for additional preventive strategies.
- To optimize the acceptance of the programs, it may be necessary to educate parents, children, and teachers about the benefits of dental sealants.
- When individual children within a school are targeted for intervention, there may be an associated stigma (when compared with programs that target entire schools).
- Ideally, sealants should be applied as soon as possible after tooth eruption.
- Maintenance is encouraged, but a lack of resources or opportunities to maintain sealants should not prevent their use with high risk children. The evidence for the efficacy of sealants is predominantly based on trials with one-time sealant placement and no follow-up, indicating a benefit even when sealants cannot be maintained.
- Programs may reduce disparities in the number of children who receive sealants by caries risk or SES, and can be an important way to reach children from low-income families who are at higher risk for caries and less likely to access clinical care.

Supporting Materials

- [Analytic Framework](#)  [PDF - 217 kB]
- [Summary Evidence Table](#)  [PDF - 266 kB]
- [Included Studies](#)
- [Search Strategy](#)

Publication Status

Full peer-reviewed articles of this systematic review will be posted on the Community Guide website when published. [Subscribe](#)  to be notified when we post these publications or other materials. See our [library](#) for previous Community Guide publications on this and other topics.

References

Ahovuo-Saloranta A, Forss H, Walsh T, Hiiri A, Nordblad A, Mäkelä M, Worthington HV. (2013) *Sealants for preventing dental decay in the permanent teeth*. 'Cochrane Database of Systematic Reviews 2013', Issue 3. Art. No.: CD001830. DOI: 10.1002/14651858.CD001830.pub4.

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Sample Citation

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