
Rationale and Guidelines for Pit and Fissure Sealants

Pit and Fissure Sealants

The American Society of Dentistry for Children and the American Academy of Pedodontics affirm the use of pit and fissure sealants as a safe and effective method of reducing tooth decay in the occlusal grooves, pits and fissures of posterior teeth.

Rationale

The recent survey of *The Prevalence of Dental Caries in United States Children*, conducted by the U.S. Department of Health and Human Services, reports that for the 45.3 million school children in the United States, 5-17 years of age, the average child has 4.77 decayed, missing, or filled permanent tooth surfaces. The occlusal surfaces, while representing only 12.5% of the permanent tooth surfaces at risk, experience 54% of the observed dental disease.

There is a need for special protection for the occlusal surfaces of these teeth. The deep developmental pits and fissures on the occlusal surfaces predispose them to carious lesions. Fluoridated drinking water and topical fluoride application are effective preventive services. The effect of fluoride, however, is preferential for smooth surfaces, with the occlusal surface receiving little protection.

Occlusal sealants are organic polymers which mechanically bond to acid-etched enamel. The resin forms an impervious barrier between the occlusal fissures and the oral environment, preventing the impaction of food debris and the ingress of bacteria.

Sealant retention consistently exceeds 90% in one- to three-year clinical trials. As long as the sealant is present the occlusal surface is virtually immune to caries attack.

Clinical trials extending to seven years indicate that increased sealant wear and loss occurs over time. Sealant retention, however, is still high. It has been demonstrated that occlusal surfaces remain free of carious lesions as long as the sealant is present.

Partial sealant loss sometimes occurs, but heightened resistance to occlusal caries is maintained, apparently, because resin tags continue to occlude the pits and fissures. There is no evidence at the present time to

suggest that partial or total sealant loss increases the susceptibility of the occlusal surface to carious attack.

Sealants are indicated for teeth with deep developmental pits and fissures.

While extensive clinical testing has proven sealants to be an effective preventive measure, they are challenged on a cost basis. Unfortunately there is little information to clarify the situation. The use of sealants, at the present time, relates more to preventive philosophy and to a desire to preserve tooth structure by preventing or delaying the need for restorative treatment than to clear-cut cost-effective benefits.

Guidelines

1. The placement of sealants should be limited to previously unrestored pits and fissures.
2. The placement of sealants should usually be accomplished as soon as possible following the eruption of the tooth.
3. Presence of interproximal caries should be ruled out prior to the placement of pit and fissure sealants.
4. Patients receiving sealants should ideally be on some type of preventive fluoride program to reduce the risk of smooth surface caries.

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Prepared by:

The American Society of Dentistry for Children
The American Academy of Pedodontics

Pioneers in Pedodontics

PAUL K. LOSCH
1902-1982

Children are stronger and healthier because of the vision, commitment, and dedication of Dr. Paul K. Losch. He was born 11 April 1902 in Union City, Indiana, attended grade school and high school in Indiana, and in 1928 received his DDS from Indiana University School of Dentistry. From 1928 to 1929 he was an intern at Forsyth Dental Infirmary in Boston. His experiences developed his interest in dentistry for children, and in 1926 he joined the staff of Children's Hospital in Boston.

Although Dr. Losch believed that treating the dental problems of children was an obligation of all dentists, he established a specialized dental service for children during his tenure at Children's Hospital.

In the Spring 1982, issue of the Harvard Dental Alumni Bulletin, Dr. Stephen Shusterman, acting dentist-in-chief at Children's Hospital, described Dr. Losch's achievement in establishing a specialized dental service at Children's as "devoted to the highest order of dental care, teaching and research, so that the



dental profession, as a whole, would devote proper attention to children, and so that his medical colleagues would understand the importance of a healthy dentition to the overall health status of children."

Dr. Losch was instrumental in developing one of the first programs of com-

plete care for children under general anesthesia. This service was of particular value to special population children and others whose physical limitations made chairside dentistry impractical.

He was a founder and charter member of the American Board of Pedodontics and served as an examining member of the board from 1948 to 1955. In 1969 he received the Award of Excellence from the American Society of Dentistry for Children.

Dr. Losch retired from the Children's Hospital Medical Center in 1969 after serving as dentist-in-chief for 19 years. Following retirement, he continued to serve as assistant dean of clinical affairs and associate professor of pediatric dentistry at the Harvard School of Dental Medicine.

On 19 March 1982 Dr. Losch was honored by colleagues, friends, and former students when his portrait was dedicated officially at a reception in his honor at the Children's Hospital Medical Center. Dr. Losch, a pedodontic pioneer, died 4 September 1982 after a lengthy illness.

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