

#### 4. What Are the Best Treatments Available for Reversing or Arresting the Progression of Early Dental Caries?

The caries process is endemic and potentially both preventable and curable. The latter can be achieved by identifying and arresting or reversing the disease at an early stage. Although more research is needed, clinical strategies to do this already exist. These strategies include application of fluorides, chlorhexedine, sealants, antimicrobials, salivary enhancers, and patient education. Fluorides and chlorhexedine can be delivered as varnishes, rinses, or gels. Many of these same strategies are also appropriate for primary prevention.

A number of the above treatment methods have been tested in clinical populations. However, the quantity and quality of the data vary by treatment:

**1. Fluoride.** The research data on fluorides in water and dentifrices support their efficacy. The data also support the use of fluoride varnishes. For rinses and gel applications, the evidence is promising but not definitive.

**2. Chlorhexedine.** For varnishes and gels, the data are promising. Research data showing effectiveness of chlorhexedine rinses are lacking.

**3. Sealants.** The use of pit and fissure sealants is supported by the data.

**4. Combinations.** Combinations of chlorhexedine, fluoride, and/or sealants are suggestive of efficacy.

**5. Antimicrobials.** Although mutans streptococci is recognized as part of the pathology of caries and therefore an antimicrobial approach would seem reasonable, current data are inadequate to support antimicrobial treatments other than chlorhexedine and fluorides, both of which have antibacterial properties.

**6. Salivary Enhancers.** Although there are indications that pathologically low salivary flow, as a consequence of Sjögren's syndrome or as an effect of head/neck radiation treatment or xerostomic medications, is associated with caries, there is no evidence that low normal salivary flow produces a similar outcome.

**7. Behavioral Modification.** Most interventions require patient adherence, and current data provide some support for the efficacy of office-based behavioral interventions.

While there has been considerable progress in dealing with dental caries, it is still epidemic, particularly among vulnerable groups. The detection and treatment of early carious lesions by nonsurgical measures has considerable potential to further the reduction of this burden. Although more research on early dental caries is needed, data on primary prevention are sufficient to make some recommendations for dental practice. Practice would be further enhanced, however, by further research that addressed caries in the adult population, secondary caries, and root caries.

In the development of caries treatment, dentistry has moved historically from extraction to surgical restoration. Identification of early caries lesions and treatment with nonsurgical methods, including remineralization, represent the next era in dental care.

This process of stopping and reversing caries is dependent on early and accurate diagnosis, which remains a developing field. If maximum benefits are to be obtained, improved diagnosis is essential.