



To stay sharp, use a dull point

In the editorial *Real Change is Difficult* (*Pediatr Dent.* 2002;24:95), I discussed difficulties associated with altering long-held practices in dentistry. For example, a hard change for me was abandoning my standard procedure of taking routine full-mouth radiographs for every new patient, and instead, adopting the policy of the American Dental Association and the American Academy of Pediatric Dentistry in regard to radiographs. In that editorial, I should have included on my difficult-to-change list the use of a sharp dental explorer.

As I was taught, I always practiced with a sharp dental explorer. An explorer with a dull point was considered rather useless for the detection of dental caries, and the sharper the point, the better the instrument. A sharp instrument would be able to detect “stickiness” in a pit or a fissure and that was ostensibly an indication of a carious lesion. Nevertheless, over the years, clinical research has demonstrated that stickiness, per se, is not a reliable indicator of tooth decay.

Stickiness can be related to factors other than the presence of a carious lesion. For example, stickiness could be encountered in a newly erupted molar tooth with enamel that was not fully mineralized where it would not be present in a more mature tooth. The anatomy of pits and fissures, as well as the size and shape of the tine of the explorer would also influence stickiness. A narrow tine would not stick in a large fissure, whereas it could in a narrow fissure. Similarly, a wide tine would not fit into a narrow fissure, but might bind when placed into a wide fissure. These factors led to a change in the criterion for diagnosing dental caries from mere stickiness to the requirement of additional signs such as radiographic changes or color changes indicating undermining breakdown.

The imperative to change the practice of using a sharp explorer comes from a concern about overtreatment, that is, the restoration of teeth when treatment might not have been necessary. However, more importantly, there is the concern that a sharp explorer point could damage a demineralized surface of enamel. An old, hard-to-change myth is that enamel tissue cannot heal. Much recent research has demonstrated that decalcified surfaces can remineralize if the conditions are appropriate. It is known that enamel may undergo a process of demineralization and remineralization many times each day. A decalcified area left intact can remineralize, but if it is damaged by a sharp explorer, a permanent defect in the enamel results. It is, therefore, safer to use a dull explorer rather than a sharp one on a clean, dry surface to diagnose early carious lesions.

Last year the National Institutes of Health convened a consensus development conference on *The Diagnosis and Management of Dental Caries Throughout Life*. More than 30 papers were presented and subsequently published in the *Journal of Dental Education* (2001;65:940-1180). The consensus panel considered 6 key questions:

1. What are the best methods for detecting early and advanced dental caries?
2. What are the best indicators for an increased risk of dental caries?
3. What are the best methods available for primary prevention of dental caries initiation throughout life?
4. What are the best treatments available for reversing or arresting the progression of early dental caries?
5. How should clinical decisions regarding prevention and/or treatment be affected by detection methods and risk assessment?
6. What are promising new research directions for the prevention, diagnosis, and treatment of dental caries?

These various questions indicate just how much the diagnosis and management of dental caries has changed in recent years. Rather than just searching for lesions to be treated, practitioners should emphasize diagnosis of the disease process. Is the lesion long standing or newly developed? Is the lesion active or arrested? Is there surface breakdown, or is the surface intact?

If the disease is considered an infection, then appropriate management can result in early lesions being reversed. How is caries detected asks the consensus panel, and what are the indicators of risk (refer to the paper by Tinanoff et al in this issue of the journal for an excellent review of the mechanisms of dental caries). The panel discussed treatments to reverse or arrest early carious lesions, in contrast with the practice of merely detecting and restoring.

The consensus report includes a discussion of promising new diagnostic aids including fiberoptic transillumination, laser fluorescence, and electrical conductance. There is as yet little clinical research to substantiate these various methods, but such research is ongoing. In the meantime, when appropriate, carefully examine for early lesions on clean, dry surfaces using a dull rather than a sharp dental explorer.