

Introduction

Cariology in the New World Order: Moving From Restoration Toward Prevention

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Since the early 1960s, when the health care model began emphasizing prevention, the dental profession has struggled with the balance between expending resources on preventive health measures and on surgical treatment for oral diseases.

We are all familiar with the success of water fluoridation in reducing the prevalence of dental caries in the 1960s and 1970s. The introduction of fluoride dentifrice and other fluoride products led to another major reduction in dental caries in the late 1970s and 1980s. The "gold standard" for prevention became dentists convincing their patients to engage in a routine regimen of brushing with a fluoride dentifrice and engaging in regular flossing. Still today, dentists and their staff spend countless hours educating patients on the importance of this daily exercise; and yet, dental caries continues to be a major problem in children and adults.

This preventive model, as well as a focus on community water fluoridation nationwide, reduced the prevalence of dental caries in the United States. However, as the demography of California and the rest of the nation shifts at a rapid rate, we find ourselves in a contradictory circumstance with dental caries dramatically increasing in some segments of the population. Dental caries is now the single most common chronic disease in children. There are five times more children in the United States with untreated dental disease than with childhood asthma, and the manifestation results in more than 50 million missed school hours every year.

With so much disease, it is easy to get caught up in an endless treatment cycle to "fix" the problem using traditional surgical restorative approaches. However, we need also to keep focused on the wonderful partial success of prevention that took us to new levels of health in the 1970s and '80s. Fluoride therapy has taken us to a point, but alone it is not enough; and we must continue exploring additional new procedures for reducing dental caries that will advance prevention to the next level. Dental caries is a bacterial infection that is transmissible. We have to deal with the bacteria as well as to enhance remineralization and repair of early lesions.

In this two-part series, we hope to provide an update not only on the biological research and background of cariology, but also on the application of innovative methods to manage dental caries based upon risk assessment, intervention, and prevention of this transmissible infection. This two-part series is the outgrowth of a conference hosted by the California Dental Association Foundation in April 2002, where experts came together to review and update the science and practice of caries prevention.

In Part I of this series, we asked some of the leading researchers in dental caries to help us set the stage with information on the biological mechanisms of caries, the current problems, especially in California, and to begin to suggest ways to deal with the situation in the home, in dental practices, and in community settings. Their work will share revealing information regarding the scope of dental caries as a health concern as well as the clinical identification and transmission of dental caries.

■ James C. Crall, DDS, ScD, shares his expertise in the prevalence of caries. His paper will serve as a baseline for understanding the magnitude of the problem of dental caries, particularly among California's children.

■ John D.B. Featherstone, MSc, PhD, will illustrate the "caries balance" as the basis for understanding and dealing with caries. The article will present a brief overview of the dental caries process -- in particular, the management of dental caries -- with the role of early detection methods in the clinical management of caries.

■ Robert J. Berkowitz, DDS, will continue the epidemiological discussion with a paper on dental caries as an infectious and transmissible disease. His review will illustrate new findings demonstrating that predentate infants acquire mutans streptococci from their caregivers and that horizontal as well as vertical transmission occurs.

■ Pamela K. DenBesten, DDS, MS, shares information pertaining to the etiology and manifestations of early childhood caries, a major issue in California.

■ Steven M. Adair, DDS, MS, will illustrate how advanced specialty education programs in pediatric dentistry are often overwhelmed with patients who need restorative and surgical care, often on an emergency basis. His paper contains several recommendations for strengthening the training of pediatric dental residents in caries risk assessment and prevention, including the suggestion that pediatric dental training programs become "dental homes" for their patients.

■ Paul Glassman, DDS, MA, MBA, will share his extensive experience in providing services to people with special needs. He reviews strategies for overcoming informational, physical, and behavioral barriers to oral health care for people with special needs and presents a summary of the results of a conference, held early in 2002, on "Practical Preventive Protocols for Prevention of Dental Disease in People with Special Needs in Community Settings."

Next month, we will share hands-on clinical applications, based on these and additional reviews, as new interventions to advance caries prevention. We will also provide a risk assessment form for you to use in your practice that incorporates this research and represents the consensus of those at the April 2002 conference in Sacramento. Ultimately, we hope to provide you with tools to elevate the preventive gold standard in your own practice.

Also included in this issue is a free DVD, sponsored by the CDA Foundation, which provides you with six patient education videos (three English, three Spanish) using the concepts derived

from the research presented in Part I and Part II of this series. We believe you will find this valuable educational series, titled "Easy Steps to Oral Health," an important communication linkage between the research discussed in these papers and your daily practice and interaction with patients.



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