

Assessing risk helps dentists tailor preventive treatments for young children

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Taking patients' risk of developing dental caries ("cavities") into account can help dentists effectively tailor individual prevention and treatment efforts, according to a recent study led by researchers from the UC San Francisco School of Dentistry.

The study, published online and in the July 2016 print issue of *JDR Clinical & Translational Research*, a new offshoot of the *Journal of Dental Research*, focused on how providers implemented a UCSF-developed protocol known as CAMBRA (Caries Management by Risk Assessment), which combines risk assessment with personalized preventive care and regular monitoring, and how risk assessments affected their patients' courses of treatment and oral health.

A baseline sample of 3,810 pediatric dentistry patients at UCSF was assessed using a 17-item form that records multiple environmental and behavioral factors known to contribute to caries, such as the patient's access to fluoridated water, frequency of snacking, and socioeconomic status. Then the predictive value of these risk assessments was evaluated in a follow-up group of 1,315 patients from 6 months to 6 years old from a largely low-income, urban population.

The research group found that dental care providers' risk assignments were correlated with the risk of future decay, said study author Benjamin Chaffee, DDS, MPH, PhD, assistant professor and director of the Global Oral Health program at the UCSF School of Dentistry. At the follow-up visits, only about 20 percent of the low-risk patients presented

with tooth decay, but nearly 70 percent of those in the high-risk group had decay.

"Risk assessment is predictive—it tells you what kinds of outcomes are going to occur in a patient population," Chaffee said. "Together with other studies, our work has shown that providers are willing and able to use CAMBRA accurately, that it doesn't take a lot of time to do it, and that it is effective."

Caries [risk assessments](#) like CAMBRA help providers [account](#) for factors known to influence oral health and to then tailor their approaches to care according to the designated risk level. For example, a patient labeled as being at a high risk for dental caries may require more frequent X-rays and dental check-ups than a patient with a the low-risk designation.

"Dental caries, like so many chronic diseases, follow a social gradient," Chaffee explained. "We want providers to recognize that our patients who come to us from a lower socioeconomic position are more likely to face a heavier burden of disease. It's important to consider that what is going on beyond the dental chair is contributing to the health status of our [patients](#)."

CAMBRA has the potential to fundamentally change dentistry, but it won't happen overnight, Chaffee said. "The traditional approach to [dental caries](#) for the last 100 years has been when a dentist sees a cavity to fill it and restore the tooth's function, and that's a critical aspect of what [dentists](#) should be doing," Chaffee explained. "But in and of itself, this approach doesn't do anything to prevent the disease from occurring again. It treats the symptom—the consequences of disease— but it doesn't get after the causes of the disease."

Coauthors of the study include UCSF's John Featherstone, PhD, dean of

the School of Dentistry and professor of restorative and preventive dentistry; Stuart Gansky, DrPH, the Lee Hysan Chair of Oral Epidemiology; Jing Cheng, MD, PhD, associate professor of preventive and restorative dental sciences; and Ling Zhan, DDS, PhD, associate professor of orofacial sciences. The research was supported by a grant from the National Institutes of Health National Center for Advancing Translational Sciences.

"More than half of the schools and colleges of [dentistry](#) in the US have adopted CAMBRA in one form or another as part of their standard curriculum," said Featherstone, who led the research teams that devised the protocol. "There are also increasing numbers of face-to-face and online courses that teach the CAMBRA methods. I am encouraged by the accelerated adoption of CAMBRA in the field."

Provided by University of California, San Francisco

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