



Kids who eat and drink more often during the day are setting themselves up for tooth decay.

A CAVITY-FREE MENU

A simple dietary survey can help you lower your patients' risk for decay by **Gail Bambrick**

A NEW TOOL—AN EASY-TO-USE DIETARY SURVEY—IS ABOUT TO BE added to your caries-prevention kit. A nutritionist at Tufts School of Dental Medicine and her colleagues have determined that dentists can use a simple survey to collect information about children's eating habits, pinpoint dietary factors that increase their risk for cavities and then offer guidance to help lower their risk for decay.

"Solid nutrition data on patients has always been difficult and time-consuming to obtain and required specialized nutrition expertise," says Carole Palmer, G69, a professor of public health and community service. "I wanted to see if I could create a simple method that that would provide important information on diet habits associated with caries risk in children and that could be administered easily in a dental practice."

She's done just that. In an article in the November 2010 issue of the *Journal of Dental Research*, Palmer and colleagues from Boston University, the Forsyth Institute and Harvard University studied how the eating and drinking habits of children ages 2 to 6 affected the rate at which they got cavities. The 110 study participants came from a range of ethnic and economic backgrounds. Seventy-two of the children had severe early childhood caries, while the other 38 had no decay.

"In order to conduct the study, I needed to create a system for obtaining the data that could be used by dental practitioners," Palmer says. "My main interest was to see if such a system would work, and now I am beginning to think about how to make it available in a form

that could be used in dental practices." She writes about patient guidance strategies to accompany the dietary survey tool in an upcoming article for the British journal *Preventive Dentistry*.

The dietary assessment is an open-ended template with defined time periods so parents can fill in what their children eat and drink over the course of a normal day. For the study, the survey was administered by dental clinicians who interviewed the children's parents or caregivers. The technique can be learned easily by anyone working in a dental practice, Palmer says.

The most significant finding in the pediatric caries study is that what you eat, or how much, is not as important as when it is eaten and over what duration of time.

For example, children with severe early childhood caries consumed more food and beverages more frequently than those who were cavity-free. Twenty percent of the children with no tooth decay ate or drank something eight times or less each day, while more than 80 percent of the kids with severe decay did so.

Perhaps more telling, 70 percent of the children with decay drank fruit juice between meals, compared to 45 percent of caries-free kids. Milk as well as fruit juices cause three kinds of sticky bacteria to build up in the mouth, creating an environment for decay: *Streptococcus mutans*, the number-one cause of tooth decay in the world, *Streptococcus sobrinus* and *Bifidobacterium lactis*. Between 30 and 40 percent more children with severe decay had these bacteria than those who were cavity-free.

The takeaway is this: "The longer cariogenic substances are in contact with the teeth, the higher the risk of developing caries," Palmer says.

"This is likely why children with more caries also reported [having] bedtime snacks, whereas caries-free children did not," she notes. "Because we do not produce as much saliva when we are sleeping, these [cavity-causing] substances will remain on tooth surfaces for the entire night." In the study, 84 percent of the cavity-free children did not consume snacks or beverages before bedtime, compared to 56 percent of the kids with decay.

This kind of dietary information is especially important for children who might not have regular access to a dentist or who are already suffering from severe early childhood caries, Palmer says.

Also known as baby-bottle decay, early childhood caries is a significant global public health problem, identified in numerous studies of kids in the U.S., Canada, the U.K., Australia, France, Brazil, Israel, Taiwan and Uganda. The disease affects 28 percent of infants and very young children in the U.S. and is the primary reason these children need hospital treatment requiring general anesthesia, Palmer says.

More than 50 percent of U.S. children with severe early childhood caries experience new lesions after their initial cavities are treated. "This is why identifying [food and beverage] consumption patterns and correcting them is so important," Palmer says. "Providing only general [nutrition] information to caregivers is usually meaningless because it doesn't personalize the information to their specific situation," she notes. "The diet survey allows us to pinpoint the specific eating habits that most contribute to caries risk and provide meaningful guidance on options to address these issues."