Preventing tooth decay in the youngest American Indians

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The dark stained decay is irreversible loss of tooth tissue that must be repaired with dental treatment. The white patch on the tooth is an earlier stage of decay which can be stopped without drilling and filling. Credit: Andréa Ferreira Zandoná, DDS, PhD, Indiana University School of Dentistry

A study conducted in four American Indian communities in the Pacific Northwest presents an effective strategy to convince mothers to switch young children from drinking sweetened soda to water and shows that eliminating these sugary drinks from the diets of the youngest members of the tribe significantly decreased tooth decay.

The results of the dental arm of "The Toddler Overweight and Tooth Decay Prevention Study" (TOTS), which targeted American Indians from birth to 30 months of age, appear in the current issue (Volume 20, Number 4) of the peer reviewed journal *Ethnicity & Disease*.

The arrival of Europeans brought diseases such as measles, influenza and smallpox to the Americas. Less well known is that Europeans also brought premature tooth decay to American Indians by introducing sugar and sugared foods. Before the adoption of European food patterns, tooth decay was mostly a disease of old age in the New World. With the addition of sugar to the American Indian diet, tooth decay became a disease that begins early in life. Today American Indians of all ages, many without adequate or timely access to dental care, are severely affected by tooth decay.

To implement TOTS the researchers worked closely with tribal councils. In three of the four communities, good tasting water was made readily available in water fountains and inexpensive, refillable gallon jugs. Sugared soda was removed from tribal stores, and substitution of water for soda was actively encouraged through community outreach programs. Families received food counseling and breastfeeding support through tribal community health workers.

"After the successful switch to water, we compared the rate of tooth decay in children born in these three communities over the next 30 months with those born in a fourth community, where the young children had not benefited from the community interventions. We found a decrease of between 30 and 63 percent in early stage, potentially reversible tooth decay. For more advanced tooth decay the impact was smaller but nevertheless substantial. Children in intervention communities had 34 to 44 percent fewer cavities than those in the comparison community," said Gerardo Maupomé, B.D.S., M.Sc., Ph.D., professor of preventive and community dentistry at the Indiana University School of Dentistry and a Regenstrief Institute affiliated scientist. He is the first author of the study.

Because the researchers were looking at rate of decay within each community, whether or not the water was fluoridated did not impact the

results of the study.

"These Pacific Northwest tribes consider water a sacred drink so tribal elders liked the idea of regaining American Indian values – it was a culturally attractive choice. Baby bottles and sippy-cups filled with sweetened drinks were not uncommon on the reservations prior to the study. If water isn't appealing and you don't have a lot of money, and you don't have access to fresh fruits and vegetables but soda is easy to find and cheap, you are likely to give your child soda and other junk food," said Dr. Maupomé, who is a health services researcher.

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