

## Letters to the Editor

### *To the Editor:*

My comments are directed to the article on the prevalence of dental fluorosis by Woolfolk et al. in the spring 1989 issue of the *JPHD*. I was surprised to read that the investigators scored enamel opacities as fluorosis using the tooth surface index of fluorosis (TSIF) only when they were observed on bilateral tooth surfaces. The authors state that they added this criterion to the TSIF as described (1). Although fluorosis tends to occur bilaterally on homologous tooth surfaces because they generally form at about the same time, this does not always occur, especially when the amount and intensity of fluorosis are low.

The use of indexes that identify and quantitate the intensity of dental fluorosis are predicated on investigators' being able to differentiate between fluoride and nonfluoride opacities. The authors claim that they used Russell's criteria for differentiating between fluoride-induced opacities and others not associated with the ingestion of fluoride (2). By not including opacities in the analysis unless the homologous tooth surface was also affected, were the authors indicating that an "unconfirmed" opacity that met the criteria for fluorosis was not actually fluorosis, or that the examiner did not really observe what he or she had seen? In either case, the precepts of using differential diagnosis are violated. I very much would like to know how the elimination of fluorosis scores that did not occur bilaterally affected the reported data on the prevalence of dental fluorosis.

A second issue involves the authors' statement that dietary supplements were the only vehicle of fluoride that was significantly related to the observed fluorosis. Although I do not question the fact that improper prescription or misprescription of dosages of dietary fluoride supplements may contribute to the incidence of dental fluorosis, the authors cannot rule out use of fluoride dentifrices and infant formula as contributors unless their questionnaire elicited information on when these products were used. If more than 90 percent of the children in the survey used a fluoride toothpaste, a mere yes or no answer on usage cannot discriminate as an etiologic cause. Most important is when use of fluoride toothpastes began. Similar considerations apply to the length of time that infant formula was used. Osuji et al. found that children in a fluoridated community had an 11 times greater risk of having fluorosis if they began to brush their teeth before 25 months of age than if they began to brush their teeth later, and a 3.5 times greater risk if they were given infant formula for 13 or more months than if they were not (3). Unless Woolfolk et al.

collected such data, it is misleading and may be incorrect to implicate only fluoride supplements as being related to the occurrence of fluorosis. Because the questionnaire used for gathering historical information in this study is so critical to the reported data, it should have been included in the report, or at the very least, more details should have been provided. Moreover, it hardly seems appropriate to have pretested a questionnaire that was sent to parents of subjects from several rural communities among 15 colleagues at the University of Michigan.

Finally, it may be unfair to identify physicians rather than dentists as the practitioners who prescribed fluoride supplements for children who had fluorosis. If 64 percent of the children in their study had not visited a dentist before age five as national data indicate, they did not have the opportunity for dentists to prescribe fluoride supplements during the critical ages when fluorosis may be produced. I am not trying to exonerate physicians, but we do not know whether dentists might prescribe fluoride supplements just as inappropriately, if they only had the chance.

—Herschel S. Horowitz, DDS, MPH  
6307 Herkos Court  
Bethesda, MD 20817

### References

1. Horowitz HS, Driscoll WS, Meyers RJ, Heifetz SB, Kingman A. A new method for assessing the prevalence of dental fluorosis—the tooth surface index of fluorosis. *JADA* 1984;109(Jul):37-41.
2. Russell AL. The differential diagnosis of fluorides and nonfluoride enamel opacities. *J Public Health Dent* 1961;21:143-6.
3. Osuji OO, Leake JL, Chipman ML, Nikiforuk G, Locker D, Levine N. Risk factors for dental fluorosis in a fluoridated community. *J Dent Res* 1988;67(Dec):188-92.

### *To the Editor, in response to the comments of Dr. Horowitz:*

During examinations, all tooth surfaces that showed evidence of fluorosis were scored using the TSIF index. As we stated in the methods section, the bilateral criterion was added for data analysis. The addition of this criterion for data analysis was not a modification of the TSIF index nor a violation of Russell's criteria for differentiating between fluoride-induced opacities and others not associated with the ingestion of fluoride. The intent of the authors was to avoid possible overreporting of the low levels of fluorosis that had been observed. The number of surfaces analyzed within the confines of the new criterion eliminated only a small percentage of surfaces originally scored as having fluorosis, which amounted to less than 4 percent. When the bilateral criterion was

removed, the pattern of fluorosis found exhibited similar trends. The great majority of surfaces had no evidence of fluorosis, less than 10 percent of all surfaces had a score of one, and less than one percent had scores of two or greater. The elimination of fluorosis scores that did not occur bilaterally only slightly affected the reported data, but the trend was similar.

The second concern possibly is a result of misinterpretation. We have not categorically rejected the possibility that other things may contribute to the prevalence of fluorosis; we merely state that contributions from sources other than dietary fluoride supplements were not found to be statistically associated in *this* study. Other investigators have reported an association, but it did not turn up in this investigation.

Our questionnaire focused on the frequency of brushing before age 8 and the type of dentifrice used before age 8, not a mere "yes" or "no" answer on usage, as suggested by the letter to the editor. We opted to define the use of fluoride toothpaste in a more expanded time frame (before age 8) under the impression that the finer the time interval, the harder the recall and the greater the risk of inaccurate responses. Further, it seems hardly justifiable to indict the findings being reported for a nonfluoridated area on the basis of findings of the Osuji et al. study conducted in a fluoridated area.

The questionnaire used to gather the children's history of fluoride exposure is available upon request. The prominent epidemiologist who calibrated the examiners and reviewed the questionnaire as it was being drafted

cautioned us that fluoride histories were difficult to collect and were rarely enlightening to the extent desirable, but did not discourage us from trying to obtain as much information as possible. We concede that pretesting the questionnaire among 15 colleagues may be perceived as inappropriate. However, not all of these "colleagues" were dentists, as may have been inferred. Colleagues to us include more than just dental professionals. They were selected either because they had children in the same grade as the study participants, or were experienced in research survey methods or could assess recall bias and the validity and clarity of the questionnaire.

Finally, the article should not be interpreted as exonerating dentists. The review of the literature leaves no doubt that physicians and dentists demonstrate a lack of knowledge regarding the use of oral fluoride supplementation in caries prevention and a lack of knowledge of the recommended dosage. We agree that we all should be educating about the proper prescription of dietary fluoride supplements. Whether dentists might prescribe fluoride supplements just as inappropriately, if they had the chance, is an area for future research.

We are happy to have had the opportunity to respond to some of the concerns of our readership.

—Marilyn W. Woolfolk, DDS, MPH  
Assistant Professor

Department of Prevention and Health Care  
School of Dentistry  
University of Michigan  
Ann Arbor, MI 48109-1078

### NATIONAL MATERNAL AND CHILD ORAL HEALTH WORKSHOP

A national workshop, "Maternal and Child Oral Health," will be held September 10-12, 1989, in Washington, DC.

The workshop will solicit expert scientific and policy opinion from invited participants concerning mechanisms to optimize oral health for the maternal and child population. The purpose of the national workshop is to provide a set of recommendations and health policy proposals to the US Public Health Service that, when implemented, will improve the oral health of mothers and children. A report of the final recommendations will be disseminated for use by agencies, organizations, health care providers, and the public.

Contact Jane Steffensen, RDH, MPH, Department of Community Dentistry, University of Texas Health Science Center at San Antonio, TX 78284-7917. Telephone: (512) 567-3210.