



# Implications of evidence-based practice on preventive procedures in pediatric dentistry

S.M. Hashim Nainar, BDS, MDS

Dentistry is in the process of adopting evidence-based practice. The impetus for this movement has been provided mainly by two factors. The first is the accumulation of scientific knowledge since the second world war. The second is the recent push for cost-containment, driven by spiralling health care costs that add pressure to obtain "more bang for the buck." These two factors have resulted in a paradigm shift in the way we practice dentistry, from a dogmatic approach to a science-based approach. However, the implications of this move on preventive procedures and some possible unintended effects are disconcerting to both patients (individual oral health) and practitioners (appropriateness of care). This is of utmost concern, as preventive procedures are gaining predominance among dental procedures performed. The American Dental Association's 1990 Survey of Dental Services Rendered noted that compared to 1979, general practitioners were performing more diagnostic and preventive procedures and fewer restorative procedures.<sup>1</sup> Professional topical fluoride application will be used as an example to highlight this finding.

In 1989, the US Preventive Services Task Force recommended that professionally applied topical fluoride be used once a year, depending on caries activity or risk.<sup>2</sup> They also noted little indication for topical fluoride application in children living in fluoridated areas who use fluoride dentifrices and have never experienced dental caries.<sup>2</sup> In 1995, the Canadian Task Force on the Periodic Health Examination noted that there is poor evidence to support annual or biannual professional topical fluoride application for the general population.<sup>3</sup> However, the Task Force did point out that there was good evidence to support this procedure for those with very active caries or at a high risk for caries.<sup>3</sup> These recommendations for selective usage of preventive procedures are appropriate, but in the absence of a well-defined target population, are difficult to implement.

In this era of cost-containment and declining caries, it is only a matter of time before administrators of dental plans use the Task Force recommendations to remove professional topical fluoride application from basic dental coverage. The implications of this action

on preventive dental practice would be significant, as a recent report from the Canadian Dental Association observed that the frequency of preventive procedures surpassed restorative procedures in 1986.<sup>4</sup> The increase in preventive procedures in Canada remained steady during the period between 1977 and 1994,<sup>4</sup> and is reflected in the expanding share of preventive dollars to total cost. This trend to increase preventive services coinciding with reportedly declining caries levels merits attention.

The increasing proportion of preventive procedures suggests that practitioners are likely persisting with the dogmatic approach of biannual professional topical fluoride applications despite the caries decline. This is contrary to the clinical guidelines to deliver appropriate care. However, the behavior of practitioners is usually dictated by individual patient needs. Therefore the data on declining caries levels needs to be reviewed. Despite the "feel good" message from the National Institute of Dental Research (NIDR), their own data indicate that four out of five children will experience caries in their permanent dentition by 17 years of age.<sup>5</sup> Further, a recent international report has suggested that the caries decline has halted and caries prevalence is about to level out or even increase.<sup>6</sup> Edelstein observed that current caries prevalence reflects delay more than prevention and made this very pertinent comment: "The reduction in caries among children and teenagers will be a hollow accomplishment if the same group, as young adults, has cumulative caries as high as its predecessors."<sup>7</sup> The above information indicates that dental caries in children remains a viable rather than a near-extinct disease, as is commonly perceived.

Clinical guidelines on the use of professional topical fluoride application have emphasized selective use in high-risk/caries-risk children.<sup>2,3,8</sup> However, no lucid definition has been provided to identify caries risk or high risk. The Canadian Task Force on the Periodic Health Examination noted that methods to identify people at a high risk of dental caries was a priority area for research.<sup>3</sup> Recently the American Dental Association (ADA) provided caries-risk classification guidelines based on numerous factors.<sup>9</sup> Only one factor from this classification scheme will be used here to elucidate

a practitioner's dilemma in implementing the preventive guidelines. Past caries experience has been reported to be a predictor of future caries experience.<sup>10,11</sup> The ADA classification scheme for children and adolescents defines low risk as having no carious lesions in the past year, moderate risk as having one carious lesion in the past year, and high risk as having two or more carious lesions in the past year.<sup>9</sup> The prevention modalities recommended for moderate- and high-risk groups included professional topical fluoride application.<sup>9</sup> Based on the data from the NIDR,<sup>5</sup> almost all children would be classified as moderate or high risk at some point in time, thereby requiring professional topical fluoride application. The above discussion highlights the deleterious effect if professional topical fluoride application is removed from basic dental coverage. It is critical that dentists retain the prerogative to decide on individual preventive regimens for their patients, rather than have them be dictated by bureaucratic rules.

The American Academy of Pediatric Dentistry (AAPD) has been a proactive organization and was the leader in formulating practice guidelines in dentistry.<sup>12</sup> It is imperative that the AAPD leadership maintain this role and help formulate a prognostic index to determine preventive strategies, as no multivariate caries-risk prediction model has found universal acceptance. Individual caries risk factors can possibly be clustered into categories formed from Boolean unions and a clinically applicable measure developed to target children for preventive procedures. This index needs to be sensible, reliable, valid, and responsive, and to be able to withstand external review with well-developed clinimetric criteria. Further, it is incumbent upon prac-

tioners to follow established guidelines and render appropriate care. As pediatric dentists, we must remain committed to evidence-based practice and ensure access to and delivery of a high standard of dental care for children.

Dr. Nainar is at the University of Toronto, Faculty of Dentistry.

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