

Research and Practice

At the 59th general session of the International Association for Dental Research Meeting in Chicago, over 1,350 presentations were made between March 19-22, 1981. Many outstanding symposia on a variety of topics were held including: biology and control of oral viruses, pain research, current findings from physiology, psychology and behavior; origins and correction of dentofacial deformities and philosophical discussions of research in the 80's. While some of the papers may appear to be esoteric, dental researchers have made a very significant impact on the practice of dentistry, and we are reaping the benefits of these intensive research efforts.

Water fluoridation has unquestionably made a significant impact on the total dental health of our population. A national survey has shown that dental caries prevalence is on the decline. Even in non-fluoridated communities, because of the widespread availability of fluoride dentifrices, the severity and morbidity of dental caries has been reduced. Intensive efforts aimed at promoting fluoride usage are continuing. For example, the effectiveness of fluoride rinses was discussed at great length and there is now good evidence to indicate that weekly rinses may be almost as effective as daily rinses. Since the cost of implementing such programs is much reduced, the cost-benefit ratio is greatly improved. Some of our Academy members are foremost in this field of research. For example, Drs. Leske, Ripa, and coworkers presented several papers on the result of four years of supervised rinsing with a 0.2% NaF solution.

Another interesting finding related to fluoride included the controlled-release fluoride device developed by the National Institute of Dental Research in which a predetermined amount of fluoride may be released on a daily basis. The device can be attached to the buccal surfaces of molars using an acid etch technique.

Data was released on the new formulation of *Crest*[®], which contains 0.243% sodium fluoride in a silica abrasive. This was shown to be superior to the old formula containing 0.4% stannous fluoride in a calcium pyrophosphate abrasive. At the end of a 36-month study which used a sample of over 3,000 children ages 6-13, Dr. Zacherl of Ohio State

University showed that the sodium fluoride formulation has significantly lowered DMFT and DMFS increments by 24.2% and 22.6% respectively. Compared to a placebo dentifrice, the sodium fluoride groups showed remarkably lower caries increments of as much as 40.5% for DMFT and 40.7% for DMFS respectively. In a parallel study using 1,800 children ages 6-14, the new formulation was shown to be effective also.

Much interest was focused on the determination of cariogenicity of foods. Many animal model tests using programmed feeding machines and standardized test diets are now in full progress, as is the collaborative clinical trial sponsored by the ADA. The cariogenic potential index as proposed by Dr. W. H. Bowen at the National Institute of Dental Research will be replicated and scrutinized by fellow scientists.

Data on the effectiveness of pit and fissure sealants continues to accumulate and, in fact, there is much convincing evidence that sealants are well retained on teeth. Drs. Houpt, Shey and coworkers suggested the principle of "sealing for prevention" rather than cavity "extension for prevention" to conserve valuable tooth structure. Using 332 restorations in permanent molar teeth in 114 children, caries were removed with no attempt to create any addition retention, to remove or undermine enamel, and the cavity was restored with radiopaque adaptive which was then covered with a fissure sealant.

Acid etch restorations, custom-made laminate veneers, and the use of improved composite restorations have radically changed restorative dentistry. Future progress and changes in our pedodontic practice will come only through quality research, whether it is behavior management of the child, the use of new medicaments in the pharmacological management of medically compromised or handicapped children, the use of new materials in interceptive orthodontics, or the prevention and control of periodontal disease in children. The hallmark of the true professional is the ability to rapidly assimilate these new research findings and apply them to one's practice.

Stephen Wei