Dental Caries in Permanent Teeth in Children of Migrant Farm Workers

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Abstract: A 1984 study of dental disease in 534 children (aged 6–15) of migrant farm workers in Colorado found that the prevalence of disease for this population continues to exceed the national and regional average. The mean DMFS was 3.56 with only 23 per cent caries free compared to a regional non-migrant DMFS mean of 2.50 with 44.7 per cent caries free. Results indicate that the children of migrant farm workers should remain a priority in preventive and restorative dental care programs. (*Am J Public Health* 1987; 77:1002–1003).

Introduction

Migrant farm laborers play a vital role in the agricultural economy of the United States. Yet, they and their children continue to be plagued with multiple health problems, including dental disease. A variety of dental health programs have been designed to meet their needs since 1965.[1–7] The focus of these programs has been restorative care to deal with high dental caries rates, especially in younger children who have never received care.

Since 1972, the University of Colorado School of Dentistry and the Migrant Health Section of the Colorado State Health Department have provided preventive and restorative services to children of interstate, intrastate, and seasonal farm workers living in Colorado during the summer months.[1] The purpose of the present study was to evaluate the dental caries profile in permanent teeth of migrant children in Colorado and to identify specific groups of children requiring more aggressive preventive measures.

Methods

Data were collected during the summer of 1984. Using the methods described by the World Health Organization (WHO)[8] and the diagnostic criteria from the National Dental Caries Prevalence Study,[9] decayed, missing and filled surfaces (DMFS) scores were recorded on 534 children in eight sites.

Examiners were public health dental hygienists who participated in calibration sessions prior to the survey and performed repeat examinations on 5 to 10 per cent of the children to ensure consistently high inter-rater reliability. Examinations were conducted in the migrant schools using a reclining portable dental chair, an adjustable gooseneck lamp, a front surface mirror, and a #23 explorer. Scores were recorded on a specially designed form and were subsequently coded and keypunched for data analysis.

DMFS data were analyzed for children ages 6–15, with subgroups of ages 6–10 and 11–15. Analysis by sex, migrant status, and home base was also performed. Results were compared to national averages from the National Dental Caries Prevalence Study (NDCPS), from the NDCPS non-SMSAs (Standard Metropolitan Statistical Area) of Region V (Texas, New Mexico, Arizona, Oklahoma, and Colorado); and recent findings from similar migrant populations in Michigan and Minnesota.

Results

Of the 534 children examined, 370 (69.3 per cent) were 6–10 years old and 164 (30.7 per cent) were 11–15 years old. Approximately one-half the study population were males (52.4 per cent). Seventy-five per cent identified Colorado, Texas or a neighboring state as their home base; 8 per cent were from Mexico.

DMFS and component values are presented by age in Table 1. The 6–10 age group had a DMFS of 2.54 with the filled component accounting for only 50.4 per cent of the total DMFS. In the 11–15 age group, the filled component accounted for 69.2 per cent of the DMFS. Twenty-three per cent of the total population were found to be caries free in their permanent dentition.

Table 2 highlights the distribution of caries. Occlusal caries accounted for 73 per cent of the total caries rate among the 6–10 year olds and for 65.2 per cent in the 11–15 year olds.

No important differences were noted between sexes except that a somewhat greater percentage of the permanent teeth of males were caries free. Children of seasonal farm workers demonstrated a higher percentage of surfaces with no active decay (47 per cent) than interstate (37.6 per cent) or intrastate (36.4 per cent) migrants. Children from Mexico showed greater surface involvement than those from the US.

Discussion

The average DMFS score for all migrant children ages 6–15 in Colorado was 3.56 in 1984. The average DMFS score for the same age group from the Southwest Region, non-SMSA, NDCPS population in 1980 was 2.59 and the national average was 2.50.[9] These findings are consistent with the 1983 Michigan study (DMFS = 2.9)[6] and the 1978 Minnesota study (DMFS = 4.0),[7] although the latter two are not directly comparable because of different age groupings. "Decay" rates in the NDCPS were found to be 0.71 in comparison to 1.43 in the Colorado migrant population.

DMFS scores are, therefore, still higher for migrant children than nonmigrant children in the Southwest and nationally. This difference reflects lack of early professional treatment, sporadic exposure to optimal fluoride intake due to migratory patterns, and dietary patterns that, when com-

TABLE 1—DMFS Values of the Migrant Population Ages 6–15, 1984

	6–10 Years (N = 370)		11–15 Years (N = 164)		6–15 Years (N = 534)	
Components	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total Decay	1.26	±1.56	1.81	±2.96	1.43	±2.11
Total Filled	1.28	±2.33	4.06	±4.43	2.13	±3.38
Total Missing	0.00	±0.00	0.00	±0.00	0.00	±0.00
Total DMFS	2.54	±2.62	5.87	±4.89	3.56	±3.80

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TABLE 2—Occlusal Decay vs Smooth Surface Decay in Children of Migrant Farm Workers, 1984

	6–10 Years (N = 370)		11–15 Years (N = 164)		6–15 Years (N = 534)	
Components	Mean	S.D.	Mean	S.D.	Mean	S.D.
Occlusal Decay	0.92	±1.20	1.18	±1.64	1.00	±1.35
All Other Surface Decay	0.34	±0.73	0.63	±1.73	0.43	±1.14

bined with inadequate oral hygiene practices, are highly cariogenic. The zero missing teeth in the Colorado study versus the 5.2 per cent noted in the NDCPS study may reflect a difference in treatment philosophies rather than the severity of decay.

Occlusal decay continues to dominate the caries pattern with nearly 70 per cent of active decay found on the chewing surface. Contrary to recommendations in previous studies,[6,7] this study shows a strong need for sealants in a dental program for migrant children. Additionally, smooth surface decay still constitutes a problem, indicating justification for a professionally applied fluoride gel.

Almost 37 per cent of children nationally exhibit a caries-free permanent dentition while in the Southwest Region, non-SMSA, NDCPS population, 44.7 per cent of the children are caries free. These rates are much higher than the 23 per cent found in the Colorado sample.

The data indicate that children of seasonal migrant farm workers receive more consistent treatment than interstate migrants. Once identified as a seasonal migrant, these settled out families are eligible for year round services for five years.

We conclude that for these children of seasonal migrant farm workers:

- Aggressive preventive and restorative services should still remain a priority with interstate and intrastate migrant children targeted during summer programs;
- aggressive sealant programs are indicated; and
- a topical fluoride supplementation program appears warranted due to variable intake of fluoridated water.

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NIH Centennial: "The New Age of Health Laboratories, 1885–1915"

The National Institutes of Health has been celebrating its centennial this year. As part of its year-long celebration, numerous activities and exhibits have been prepared, including a lobby exhibit at the National Library of Medicine, entitled "The New Age of Health Laboratories, 1885–1915."

The exhibit contains pictorial and other material pertaining to many of the principal hygienic and microbiological laboratories founded in Europe and the United States during the decades just prior to World War I. Particular attention is given to the early years of the US Hygienic Laboratory, forerunner of the present-day NIH, as well as to the beginning of the Pasteur Institute of Paris, France, which like NIH is celebrating its centennial this year.

The exhibit will remain on display daily through October, Monday through Saturday, 8:30 am-5:00 pm, in the Library's main lobby, Building 38 on the NIH campus at 8600 Rockville Pike, Bethesda, Maryland.