AAPHD 61st Annual Session Abstracts

Ronald D. Venezie, DDS, MS, NC Department of Health and Human Services, Fayetteville, NC; Gail S. Mitchell, RDH, MPH, Cynthia W. Garvan, PhD, Donald R. McNeal, DMD, MPH, Anthony J. Conti, DMD, MPH, University of Florida College of Dentistry, Gainesville, FL.*

ASSOCIATION OF MEDICAID ENROLLMENT AND ORAL HEALTH STATUS OF CHILDREN

This study evaluated the association of Medicaid enrollment with several indicators of oral health status for second to fifth grade children of low socioeconomic status (SES). As part of a larger needs assessment project in two elementary schools in Manatee County, FL, a total of 284 children were identified as being eligible for either the Free or Reduced School Lunch Program. These lower SES children were classified further as being enrolled or not enrolled in the Florida Medicaid Program (by parent report). Univariate associations between Medicaid enrollment and oral health status indicators as well as several potential confounders were investigated using chi-square tests and unpaired *T*-tests. There was a trend toward higher DMFS levels for Medicaid enrollees compared to nonenrolled children (1.84 vs 1.46) but this difference was not statistically significant (P=.198; unpaired *T*-test). However, Medicaid enrollees exhibited more than twice the proportion of filled surfaces (%F/DMFS) when compared to nonenrolled children (35.9% vs 16.2%; P=.004; unpaired *T*-test). Among Medicaid enrolled children, 33.3 percent had at least one sealant. This was compared to 20.5 percent sealant prevalence among nonenrolled children (P=.018, chi-square test). On average, Medicaid enrollees had 71 percent more sealed tooth surfaces than nonenrolled children, but this difference only approached statistical significance (P=.086; unpaired *T*-test). Previous participation in Head Start was the only apparent confounder of the association between Medicaid enrollment and sealant prevalence. This study demonstrates a positive association between Medicaid enrollment and measures of access to dental care for children of low SES. (Supported by HRSA and by the University of Florida College of Dentistry.)

Michael C. Adler, DMD, Joseph Jaeger, MPH, Mary L. Voytus, DDS, Departments of Dentistry and Medical Education, Monmouth Medical Center, Long Branch, NJ.*

UTILIZATION OF DENTAL SERVICES IN A CAPITATED MEDICAID POPULATION AT A COMMUNITY TEACHING HOSPITAL

Dental health management organizations (DHMOs) are reported to be the fastest growing insurance program for dental care. While managed care penetration is varied in private practice, it is becoming more common in the academic health centers, especially community hospital-based dental programs. The present study is a preliminary description of the utilization of services in such a setting. The hospital's four-resident clinic has a contract with the largest DHMO in the state. The monthly DHMO system lists of eligible patients for August 1991 and January 1998 were compared to the dental clinic records for those months. Utilization of care was defined as dental service of any type rendered during the month. 3,700 patients (8/97=1,620; 1/98=2,080) were eligible; the overall utilization rate was 9.7 percent. However, care for those <2 years of age is by fee-for-service; thus, the true utilization rate for capitated patients was 10.8 percent. Utilization did not differ significantly by age or sex, but did by age-sex interaction; no male 21-45 years of age was seen in either month. The 28 percent increase in enrollment confirms the growth of the DHMO. Knowledge of actual utilization is important for targeting public health outreach and strategic planning as academic health centers face serious financial challenges in caring for the underserved.

Jill B. Fernandez-Wilson, RDH, MPH, Neal G. Herman, DDS, Department of Pediatric Dentistry, New York University College of Dentistry, New York, NY.*

A PEDIATRIC ORAL HEALTH CARE COMPONENT OF A MANAGED CARE PROGRAM

In anticipation of managed care for all Medicaid recipients, New York State is seeking cost-effective ways to incorporate and manage the oral health care of its child clients. New York University College of Dentistry with its diverse cultural personnel and its large capacity for treating multiethnic patients, offers a promising solution. This project aimed to develop an operational model for the provision of pediatric dental services to schoolchildren under Medicaid managed care. The model built upon the infrastructure at four New York City school-based health clinics by including dental services for children in its existing Medicaid managed care program. To date, 532 children have been examined and received preventive services in the form of prophylaxis and fluoride treatment at their school-based health clinic. Seventy-three percent (73%) of the participants of this program are from the uninsured population; the remaining 17 percent are Medicaid recipients. Of the total, 372 (70%) required additional treatment; 97 of them have enrolled in our school bussing program and have either completed treatment or are presently under care. This program has enabled a larger number of children to reap the benefits of good oral health care, i.e., improved nutrition, overall health and well being, ability to learn, social adjustment, and self esteem. It is an easily replicable model with the potential for increasing access to and utilization of pediatric dental services under Medicaid managed care.

Lester E. Block, DDS, MPH, Division of Health Management and Policy, University of Minnesota, Minneapolis, MN; James R. Freed, DDS, MPH, University of California at Los Angeles, Los Angeles, CA.*

A COMPARATIVE ANALYSIS OF DENTAL AND MEDICAL MANAGED CARE

The development of dentistry as a profession separate from and independent of medicine has resulted in significant differences between the two professions. One important difference is that in medicine, the treatment modality has been for the most part selected on the basis of medical appropriateness and effectiveness while in dentistry, the choice of treatment has often been selected on the basis of cost. This difference has been accentuated by the wide gap in dental and medical coverage. Currently there are about 40 million Americans without medical coverage and 150 million with no dental coverage. Even where there is dental insurance, the extent of coverage is limited and a range of cost-based treatment options for the same condition is offered. With the growth of managed care in medicine, the differences between medicine and dentistry have been diminishing. Instead of covering medical procedures recognized as the most effective standard by the profession, the selection of a treatment modality is now more often based on cost. A recent example of this is the selection by some managed care plans of plastic surgeons who agree to use less expensive prosthetic ear replacements in lieu of reconstructive surgery. This trend in medicine has implications for the dental profession as it attempts to ensure that managed care plans do not discourage the most appropriate dental treatment.

Donald Sadowsky, DDS, MPH, PhD, Carol Kunzel, PhD, Kavita Ahluwalia, DDS, MPH, Geeta Nanda, MS, Division of Community Health, Columbia University School of Dental and Oral Surgery, New York, NY.*

DENTISTS' DECISION TO TREAT HIV-INFECTED PATIENTS; EXPLORING A THEORETICAL MODEL

The goal of this study was to create a "working" model based on the Theory of Planned Behavior (Ajzen and Fishbein), which would depict dentists' decision to treat HIV+ patients (PHIV+). To explore constructs suggested by the theory, data generated by "guided" but unstructured in-depth interviews (average duration 40 minutes) were collected from 16 New York City general practitioners randomly assigned to the study. The extensive qualitative data collected were analyzed, after development of a coding scheme, utilizing Ethnograph, a qualitative analysis

software package. Key constructs in the model were past experience, attitudes toward homosexuals and injection drug users, subjective norms, and perceived behavioral control, all of which lead to intention to treat and finally decision to treat. Although there seems to be decreasing resistance to PHIV+, unwillingness to treat PHIV+ by dentists continues. (Supported by NIDR grant DE 11957.)

James L. Leake, DDS, Patricia A. Main, DDS, Elsa Ho, BDS, Graham L. Woodward, MSc, Rosy Pimentel, Community Dental Health Services Research Unit, Toronto Public Health and the Faculty of Dentistry, University of Toronto; Stephen Birch, PhD, Centre for Health Economics and Policy Analysis, McMaster University, Hamilton, ON.*

SEVERE OUTCOMES AMONG CHILDREN FOLLOWING SCREENING TO ALLOCATE ACCESS TO DENTAL CARE

North York Public Health Department (NYPHD) provides dental care to low-income children from school-based clinics. In response to budget reductions, managers implemented a policy to allocate services only to children who had needs identified at screening-emergency access was continued. We compared health outcomes, over 15 months, between children affected by the new policy and children who received conventional care from private dentists (PDs). Occurrences of severe outcomes, defined as extractions or large fillings, were obtained from dentists' records of care and an examination. Of 291 children with final examinations, 12.7 percent had one or more severe outcomes. For 217, initially identified by screening as needing no care or prevention, 10.6 percent had one or more severe outcomes, but there was no difference between those treated by PDs and all others (chi-square=.42; P=.51). This early analysis shows no difference in the prevalence of severe outcomes in children cared for under the new policy versus conventional care. (Supported by grants #XG 95-006 Hospital for Sick Children Foundation, #04710 Ontario Ministry of Health, and the North York Public Health Department.)

Michael C. Chisick, DMD, MSPH, JD, US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD; Pamila Richter, RDH, US Army Dental Command, Ft. Sam Houston, TX.*

A CAMPAIGN TO REVITALIZE HEALTH PROMOTION IN THE US ARMY

In January 1998, the US Army Center for Health Promotion and Preventive Medicine and the US Army Dental Command jointly launched "Put More 'Bite' Into Health Promotion," a campaign to re-vitalize health promotion in the Army Dental Care System. The "Bite" campaign consists of five patient-oriented health promotion initiatives—tobacco interdiction and cessation; sealants; mouthguards; baby bottle tooth decay; and skin, lip, and oral cancer—and two provider-oriented health promotion initiatives—ergonomics and stress management. The campaign will be limited to six sites initially, but will be expanded systemwide following evaluation and, if necessary, refinement. At one of the initial sites, during a soldier's annual dental examination, we will collect baseline data on knowledge, attitudes, risk factors, and adverse health behaviors related to common dental problems that are largely preventable. Then, through multiple channels, soldiers will receive health promotion interventions targeted at increasing their knowledge of these problems. During a subsequent dental visit, we will evaluate the effectiveness of the individual initiatives in raising awareness of the common dental problems. This paper will discuss the rationale, content, and design of the "Bite" patient-oriented, health promotion initiatives as well as the evaluation component. Provider and patient education materials and incentives will be demonstrated and explained.

Valerie Blanco Johnson, RDH, MS, Department of Periodontics , University of Missouri-Kansas City, Kansas City, MO; Karen B. Williams, RDH, MS, Division of Dental Hygiene, University of Missouri-Kansas City, Kansas City, MO.*

A MODEL COLLABORATIVE PROGRAM FOR PROMOTING ORAL HEALTH FOR ELDERLY KANSANS

Few collaborative efforts exist that promote oral health for the elderly, especially those in long-term care facilities (LTCF). The purpose of this paper is to describe an innovative model program initiated to improve the quality of life and quality of care for elderly through the promotion of oral health. A formal coalition, named Promoting Oral Health for Elderly Kansans (POHEK), was formed in 1997, and included constituents from dental hygiene and dentistry; for-profit and not-for-profit LTCFs; consumer advocacy groups for elderly; and state agencies, such as Social Rehabilitation Services and the Department on Aging. A statewide written survey was conducted to evaluate existing oral health services and support in LTCFs. This paper further describes how survey data will facilitate POHEK's development of a strategic plan to educate and support providers of elderly services and care, stimulate involvement of dental hygienists and dentists, and implement policy changes to increase access to oral heath care. POHEK has stimulated communication among interdisciplinary groups through educational programs at state agency conferences, newsletters, and the initiation of an annual Kansas Elder Smile Award.

Garry Aslanyan, DMD, MPH, Department of Public Health, American University of Armenia and Department of Community Dentistry, Faculty of Dentistry, University of Toronto.

DENTAL HEALTH EDUCATION FOR PREGNANT WOMEN: EFFECTIVENESS OF ITS INTRODUCTION TO PRENATAL CARE

The aim of this study was to evaluate the effectiveness of a health education program for pregnant women in Yerevan, the capital of Armenia. The program consisted of the distribution of a booklet developed by researchers that included dental health topic areas alongside with 10 other areas of prenatal care. Qualitative research was conducted to determine the salient messages to be targeted. A pretest-posttest controlled design was used. Ten prenatal clinics were randomly assigned to intervention and control groups. The primary variables were women's knowledge, healthy attitudes, reported practices, and counseling experiences. Paired T-tests and chi-square tests were used for analysis, and a multiple regression model was developed to adjust for nonequivalent variables for between-groups comparisons. There was a significant improvement of in knowledge, health attitude, reported practice, and counseling experiences in the intervention group. Results of the study helped to make appropriate recommendations to the Ministry of Health of Armenia to incorporate dental health education into routine prenatal care. (Supported by Jinishian Memorial Program, an International Development Program of Presbyterian Church of the USA.)

Jacqueline M. Tiffinger, RDH, BA, Bergen County Department of Health Services, Paramus, NJ.*

PARTNERING TO IMPROVE CHILDREN'S ORAL HEALTH: A CASE STUDY OF THE CAVITY FREE KIDS PROGRAM IN JERSEY CITY, NJ

Jersey City, known for its urban environment and complex ethnic diversity, was the birthplace of an innovative program to address the oral health needs of low-income preschoolers. The Cavity Free Kids Program is a comprehensive preventive oral health program that focuses on children aged 3 to 5 years. The program was developed to meet an oral health objective for an early childhood grant from the New Jersey Department of Education in 1991. It features daily classroom tooth brushing, screenings, referrals and follow-up treatment, education for parents and children, and staff and volunteer training. The Bergen County Department of Health Services, Jersey City Public Schools, Hudson County Dental Society, volunteer dentists, and parents provide these services with additional financial contributions and program supplies from local industry. This cooperative effort was the first of its kind in the state of New Jersey. Since 1991, the impact of the preventive care measures is documented in the screening statistics. For example, in 1994 over 44 percent of children screened were in need of dental treatment while in 1998 only 25 percent were referred for care. Other communities in New Jersey have adopted this model program. The most recent addition is the city of Newark, where more than 10,000 children now participate in Cavity Free Kids.

Jack Dillenberg, DDS, MPH, NSTEP, National Coordinator.

NATIONAL SPIT TOBACCO EDUCATION PROGRAM [NSTEP]: A UNIQUE PARTNERSHIP BETWEEN ORAL HEALTH AMERICA, MAJOR LEAGUE BASEBALL, THE BASEBALL PLAYERS ASSOCIATION, LITTLE LEAGUE, LOCAL TOBACCO CONTROL COALITIONS, AND ORGANIZED DENTISTRY TO REDUCE SPIT TO-

BACCO USE AMONG AMERICA'S YOUTH

In 1996 Oral Health America (OHA) received a major grant to increase the public's awareness about the dangers of spit tobacco and oral cancer through its NSTEP. Each year, from 10 million to 16 million Americans put their health at risk by using spit tobacco products. Annual sales of these products exceed $1 billion, or more than triple that of 1972. Today, annual moist snuff sales in the United States have grown to over 60 million pounds, an 85 percent increase from 1981. OHA's innovative public-private partnership—NSTEP—has been recognized by Secretary Shalala and President Clinton as the single most effective national program to help reduce the use of spit tobacco among America's 15–17-year-old children. The materials and public service announcements produced, promotions conducted, in-stadium events held, and local involvement by a broad range of concerned citizens has proven the success of this spit tobacco prevention collaboration. This presentation will discuss the program, its activities, products, and tips for local coalition building.

Linda M Kaste, DDS, PhD, Zara E Sadler, MS, MUSC, Charleston, SC; Kathy L Hayes, DMD, USPHS Rockville, MD; Sena Narendran BDS, DDPH, MSc, UTHSC, Houston, TX; Linda C Niessen, DMD, MPH, MPP, Texas A&M University System, Dallas, TX; Jane A Weintraub, DDS, MPH, UCSF, San Francisco, CA.*

TRAINING STATUS OF NONDIPLOMATE FACULTY ASSOCIATED WITH TEACHING PREDOCTORAL DENTAL PUBLIC HEALTH

The IOM report on dental education and the inclusion of dental public health (DPH) on the national board exam indicate expectations for dental school faculty with expertise in DPH. Previous work has shown that the representation of diplomates of the American Board of Dental Public Health (ABDPH) at US dental schools is weak. To better understand the training needs of the faculty without specialty boards in DPH yet who teach DPH for predoctoral dental students, a mail survey was conducted as a project of the American Association of Dental Schools (AADS): "Projects of National Scope, Council of Sections Project Pool." Questionnaires were sent to the faculty at 55 US dental schools who were dentists and at least one of the following: a member of the AADS Community and Preventive Dentistry Section, a referral from an academic ABDPH diplomate, DPH appropriate from the dental school's web page, or a DPH contact from the AADS Institutional Directory. After two mailings, the response rate was 66 percent from the identified 182 people. While over half (57.5%) of the respondents have or are in training for an MPH, 22.5 percent have or are in a DPH residency. An additional 4 percent and 10 percent reported interest in pursuing an MPH or DPH residency, respectively. The majority (60.8%) do not plan ever to take the specialty exam, and fewer than one quarter (22.5%) plan to take the specialty exam within the next five years. Some 36.7 percent perceived no institutional incentives to take the specialty exam and 50.8 percent reported no personal incentives. Incentives must be improved to encourage the faculty to pursue credentials appropriate to their level of academic training and responsibilities in DPH.

M. Ann Drum, DDS, MPH, Maternal and Child Health Bureau, Rockville, MD; Katrina Holt, MPH, MS, RD, National Maternal and Child Oral Health Resource Center, Arlington, VA; John Rossetti, DDS, MPH, Maternal and Child Health Bureau, Rockville, MD; Amy Seif, National Maternal and Child Oral Health Resource Center, Arlington, VA.*

NATIONAL MATERNAL AND CHILD ORAL HEALTH RESOURCE CENTER

To design and manage effective programs to improve the oral health of children, adolescents, and their families, oral health professionals need access to information and materials from a variety of oral health programs funded by federal, state, and local agencies professional organizations, foundations, and corporations. However, this type of programmatic information frequently cannot be found in the published literature, and is often difficult to access. The Health Resources and Services Administration's Maternal and Child Health Bureau established the National Maternal and Child Oral Health Resource Center to facilitate the exchange of knowledge about MCH oral health programs and programmatic materials among program planners, health providers, policy makers, and researchers. This presentation will describe activities of the resource center, including: (1) collecting programmatic materials such as standards, guidelines, curricula, and professional and consumer education materials; (2) providing tailored responses to information requests on topics such as dental sealants, baby bottle tooth decay/early childhood caries, low literacy materials, and fluoride; (3) developing and disseminating publications through hard and electronic copy; (4) identifying sources of data on oral health; (5) conducting outreach activities to the MCH community to promote oral health activities; and (6) increasing collaboration among oral health professionals.

Roderick MacRae III, DDS, FAGD, Private Practice, Director of Dentistry Hudson Valley Community Services, Attending Dentist, Green Chimneys Children's Service.*

DENTAL HEALTH EDUCATION FOR AN EMOTIONALLY DISTURBED PEDIATRIC POPULATION

The emotionally disturbed pediatric patient in a residential treatment setting is typically the product of a chaotic family situation or a veteran of multiple foster care placements. In an environment of neglect, abuse, erratic school attendance, and sometimes life-threatening circumstances, the information on the relevance of dental care may be completely lacking in the child's knowledge base. However, once that child is placed into the therapeutic milieu of a residential treatment facility where multiple providers can address the child's psychological, physical, and dental needs, that child can be led to understand the importance of dental health and how to pursue it after discharge from that facility. An integrated program of regular dental visits providing routine treatment as well as dental care information is reinforced through classroom modules on dental health, nutrition, and life skills. In addition, the positioning of the attending dentist as an equal partner in the medical treatment team ensures that dental health is given the same emphasis as the other health needs of the child.

Fernanda L. Cunha, DDS, MSD, Department of Pharmacology; Marcelo C. Meneghim, DDS, MSD, Antonio C. Pereira, DDS, DrPH, Department of Preventive Dentistry, University of Campinas, Faculty of Odontology, Piracicaba, SP, Brazil.*

FLUORIDATED TOOTHPASTE INFLUENCE ON DENTAL CARIES AND FLUOROSIS PREVALENCE IN A COMMUNITY WITHOUT FLUORIDE IN ITS WATER SUPPLY

A decrease in dental caries prevalence and an increase in dental fluorosis in fluoridated and nonfluoridated areas have been observed. The objectives of this research were to determine the prevalence and severity of dental fluorosis and dental caries in a city without fluoride in its water supply, and to identify a possible association between fluoridated toothpaste ingestion and dental fluorosis. Convenience samples of 200, 160, and 314 11–12-year-old students from Iracemápolis, SP, Brazil (<0.2 ppm F in the water supply) were surveyed in 1991, 1995, and 1997, respectively. One examiner conducted all the examinations. The indexes were DMFT, DMFS, and T-F index. The conclusions were: (1) caries prevalence decreased 56.7 percent and the fluorosis prevalence increased 80.1 percent between 1991 and 1997; (2) the toothpastes of choice were Kolynos (41.4%) and Colgate (17.7%); (3) the probability that children would show signs of dental fluorosis, but not have carious surfaces, was 75 percent; (4) children who start using fluoridated toothpaste before/or at 3 years of age are 4.43 times more likely to have signs of dental fluorosis than children who started after this age; (5) the use of fluoridated toothpaste in children before 3 years of age can be a risk factor for an increase in dental fluorosis prevalence. Because only slight degrees of fluorosis were observed, without esthetic problems, we conclude that fluoridated toothpastes are important instruments in dental caries prevention.

Yuling Zao, DDS, Stomatology Hospital of Changchun, Jilin Providence-130022, People's Republic of China*

THE EFFECT OF DRINKING GREEN TEA ON THE PREVENTION OF EARLY CHILDHOOD CARIES: A THREE-YEAR LONGITUDINAL STUDY

Early childhood caries is a common dental disease. In this study, the effect of drinking green tea on the prevention of early childhood caries was tested on 445 children who were selected randomly from 5,563 six-year-old children in Changchun City. Among them, 238 children

drank green tea under supervision once every day (100 ml each time) except holidays for three years, and 207 children served as the control group. The beverage matrix was water. Two oral examinations were conducted, one at the beginning and one at the end of the experiment. The concentration of fluoride in urine was also measured by ion-selective electrode and the standard curve method once every week for a sample of the randomly chosen experimental group during the experiment and twice (at the beginning and the end of experiment) for the control group. After three years, the percent affected with caries in the permanent teeth and the mean DMFT was 47.8 percent and 0.25 (±1.06), respectively, for the experimental group, and 61.5 percent and 1.25 (±1.37), respectively, for the control group. Fluoride concentration in urine of the experimental group was found to increase gradually at first, reach the maximum, and then fluctuate from 590(μg/d to 660μg/d after two years, whereas for the control group, the concentration of fluoride was around 508μg/d to 514μg/d. Therefore, the results demonstrated that after drinking green tea for three years, the percent with any dental caries and the mean DMFT decreased significantly, suggesting that drinking green tea as a beverage may be useful in the prevention of early childhood caries, especially in low fluoride areas.

D. Christopher Clark, DDS, MPH, Gerardo Maupomß, CD, MSc, DDPH RCS(E), PhD, Faculty of Dentistry, University of British Columbia, Vancouver, Canada; Steven M. Levy, DDS, MPH, Iowa School of Dentistry, Iowa City, IA.*

COMPARISONS OF THE INCIDENCE OF DENTAL CARIES FOLLOWING DEFLUORIDATION

This study reports the incidence of dental caries in two study sites following the defluoridation of public water supplies in one site. The study population consisted of all subjects in grades 5, 6, 11, and 12 who were examined at baseline and who had resided in the same community for the past three years. In 1993/94, 2,715 children in grades 2 and 3 and 3,297 adolescents in grades 8 and 9 were examined 14 to 18 months after defluoridation. Fluoride histories were collected from 2,980 participants. In 1996/97, 1,418 children and 1,492 adolescents were examined and had complete residence/fluoride/diet histories. The examinations used a modified D1/D2MFS Index.

	Caries Incidence after 3 Years					
Study Site/ Grade	N	D1	D2	FS	D1/ D2MFS Index (SD)	% Diff.
Defluoridated						
5 & 6	776	–0.21	–0.05	0.79	0.63 (2.37)	
11 & 12	643	–0.33	–0.06	2.72	2.33 5.69)	
Fluoridated 5 % 6	614	0.02	0.07	0.41	0.50 (1.58)	26.0
11 & 12	878	0.07	0.06	1.68	1.81 (4.21)	28.6

Results demonstrate the low caries incidence in both fluoridated and defluoridated communities. Caries incidence was 26 and 29 percent lower for children in grades 5 and 6 and teenagers in grades 11 and 12. (Supported by NHRDP #6610-2225-002.)

Ardean Nickerson, RDH, MeD, Department of Dental Hygiene, Eastern Washington University, Spokane, WA.*

PROMOTION OF ORAL HEALTH THROUGH A COLLABORATIVE SCHOOL BASED SEALANT PROJECT

Educational institutions can provide a unique opportunity for students to promote oral health through collaborative community projects. This presentation will describe how Eastern Washington University Dental Hygiene Department, Spokane County Health District, and Spokane County School District collaborated in a community-based sealant project to provide education and sealants to an underserved population. The goal of the project was to promote oral health in a rural school, provide dental hygiene students an opportunity to develop and conduct a collaborative community project, and develop a partnership with the school and public health districts. The project consisted of six components: (1) organizing and developing the project, (2) classroom dental health lessons, (3) dental screening, (4) application of sealants, (5) follow-up retention examination and reapplication, and (6) final evaluation of the project. This project was an excellent vehicle to educate students about collaborative community projects and oral health promotion; also, it provided an opportunity for the dental hygiene department to develop community partners.

Susan G. Reed, DDS, DrPH, Sharon Holley, DMD, Glenn Fleming, EdD, Sharon Crossley, RDH, MPH, Medical University of South Carolina, Charleston, SC.*

A PILOT DENTAL OUTREACH PROJECT IN NORTH CHARLESTON, SC

The 1997 University Strategic Plan at the Medical University of South Carolina emphasizes MUSC's role in community-based programs to be responsive both to students' education by off-campus learning opportunities and to the community's health care needs, especially in the underserved populations. The goal of this study was to introduce a pilot program of screening for dental treatment needs of schoolchildren in preschool through fifth grade in an elementary school where 99 percent of the schoolchildren are Medicaid eligible. Parental consent was obtained for 271/406 (67%) of the schoolchildren and 245/271 (90%) were screened by 7 calibrated dentists with 22 dental students trained as recorders or dental health educators. Results by category for dental treatment needs were: no obvious dental problems 155/245 (63%), obvious dental problems 78/245 (32%), and serious dental problems 12/245 (5%). Tooth alignment treatment was also indicated for 89/245 (36%). This effort was the first dental outreach study conducted by the College of Dental Medicine following release of the MUSC Strategic Plan. The results of this dental screening provide a measure of the dental treatment needs for these schoolchildren. Ongoing parts of this pilot are assessments of the impact of this program on the parents' access to dental treatment for their children and evaluations by the dental students.

Marilyn W. Woolfolk, DDS, MPH, W. Paul Lang, DDS, MPH, Wenche S. Borgnakke, DDS, PhD, Linda V. Nyquist, PhD, University of Michigan, Ann Arbor, MI.*

ORAL HEALTH IMPACT PROFILES OF MALES AND FEMALES IN THE DETROIT TRICOUNTY AREA, MICHIGAN

Oral health impact profiles (OHIPs) of males and females were compared using a probability sample of adults aged 18–93 years in the Detroit tricounty area, MI. Data were collected by in-home interviews (n=787; 70% response rate) and dental examinations (n=577; 74% of interviewed) in 1994. For males, median age=44 yrs; median income=$50,000; median education level=14 yrs; and median OHIP=14.5 (mean=22.5). For males, OHIP scores were lower among white respondents (P<.01), decreased as education level rose (P<.001), were lowest in income levels $20,000–$39,999 and $70,000+ ($P$<.001), and were lowest for those having dental insurance (P<.001). Males with >1 checkup per year (P<.001) and with a usual source of care (P<.001) had lower OHIP scores. For females, median age=41 yrs; median income=$38,000; median education level=12 yrs; and median OHIP=15.5 (mean=26.6). Female OHIP scores were no different among age groups or education levels, but were higher among nonwhites (P<.001). OHIP scores declined as income level rose (P<.001). Lower scores were observed in females with >1 checkup per year (P<.001) and those with dental insurance (P<.001). Correlates of OHIP scores varied by sex, suggesting different approaches for interventions to improve these scores among males and females. (Supported by NIDR grant DE10145.)

W. Paul Lang, DDS, MPH, Wenche S. Borgnakke, DDS, PhD, Marilyn W. Woolfolk, DDS, MPH, Linda V. Nyquist, PhD, University of Michigan, Ann Arbor, MI.*

ORAL HEALTH IMPACT PROFILES OF AFRICAN AMERICANS AND WHITES IN THE DETROIT TRICOUNTY AREA, MICHIGAN

Oral health impact profiles of non-Hispanic African-Americans (AAs) and whites (Ws) were investigated using a probability sample of adults aged 18–93 years in the Detroit tricounty area, MI. Status was measured with the Oral Health Impact Profile (OHIP). Data were collected by in-home interviews (n=787; 70% response rate) and dental examinations (n=577; 74% of interviewed) in 1994. For AAs, median age=38 yrs; median income=$30,000; median education level=12 yrs; and median OHIP=23.7 (mean=35.1). Among AAs, OHIP scores were not different by age group, sex, or education level, but were lower in income levels $20,000–$39,999 and $70,000+ ($P$<.05). Scores were lower in those with dental insurance (P<.001), but no score differences were observed related to checkup frequency, having a usual source of care or smoking behavior. Regarding Ws, median age=44 yrs; median income=$50,000; median education level=13 yrs; and median OHIP=13.3 (mean=20.8). For Ws, OHIP scores were not different by age or sex, but declined as education (P<.01) and income (P<.001) levels rose. Lower scores were observed in Ws with dental insurance (P<.01), >1 checkup per year (P<.01), a usual source of care (P<.001), and nonsmokers (P<.05). Factors associated with OHIP scores varied considerably by race. (Supported by NIDR grant DE10145.)

Dolores M. Malvitz, DrPH, Division of Oral Health; Brenda Colley Gilbert, PhD, MSPH, Mary Lyn Gaffield, MPH, Division of Reproductive Health, Centers for Disease Control and Prevention, Atlanta, GA.

THE PREGNANCY RISK ASSESSMENT MONITORING SYSTEM (PRAMS): A POTENTIAL SOURCE OF STATE-BASED ORAL HEALTH DATA

Initiated in 1987, PRAMS is an ongoing, population-based surveillance system, designed to monitor selected maternal behaviors and experiences that occur before, during, and after pregnancy among a stratified sample of mothers who have recently delivered a live-born infant. Using standardized data collection methods in participating states (n=16 in 1997), PRAMS generates state-specific data that can be used to plan for and assess perinatal health programs. In 1996 at least 70 percent of mothers in 11 states responded to the mailed questionnaire. In these states 30–40 percent reported participating in WIC, 16–32 percent initiated prenatal care after the first trimester, and 12–28 percent smoked during the last trimester. In 1997 four states (AR, IL, LA, NM) included questions about oral health services that mothers sought or received. When analyzed with other PRAMS variables (e.g., early infant development, economic status, prenatal care), findings can be useful in assessing needs and planning interventions to improve maternal and infant oral health.

Julia Pavese, RDH, Gerri Wiley, RN, Children's Dental Health Program, The PRASAD Project, Hurleyville, NY.*

A PRIVATE VOLUNTARY ORGANIZATION'S RESPONSE TO A DENTAL PUBLIC HEALTH NEED

The PRASAD Project, an international not-for-profit voluntary organization, initiated the Children's Dental Health Program to address the high rate of dental disease in Sullivan County, NY. Recognizing that dental disease and access to treatment is a major problem for children from low-income families, the Sullivan County Department of Public Health Nursing approached the PRASAD Project to develop a dental health program. With the New York State Department of Health, Bureau of Dental Health, an Oral Health Treatment Assessment survey was performed. It was found that 30.5 percent of the students screened were in need of immediate care. Forty-one percent of the respondents indicated that they were on the Medicaid program and only 40 percent indicated that they had a family dentist. The student poverty level is 36.5 percent; there is no dental clinic and there is a lack of Medicaid providers in the county. With the aid of volunteers, the school-based dental health program provides oral health education curricula for classroom instruction, a fluoride mouthrinse and tablet program, dental screenings, and restorative dental treatment available on a mobile dental clinic.

Marcelo de Castro Meneghim, DDS, MPH, Department of Preventive Dentistry, University of Campinas, F.O.P., Brazil; Nemre Adas Saliba, DDS, MPH, PhD, Department of Preventive Dentistry, University UNESP, Brazil.*

THE IMPORTANCE OF THE FIRST PERMANENT MOLAR IN DETERMINING THE DMFT INDEX

For any public health program, it is necessary to know the epidemiologic situation for planning, executing, and evaluating odontological services. The authors' objectives were to evaluate the importance of the first permanent molar in determining the DMFT index and the importance of a model of attention that prioritizes educational-preventive needs in promoting oral health. Examination was made of 2,276 permanent first molars of children from 7 to 12 years of age, of both sexes, at Iracemápolis in the state of São Paulo. The children did not have the benefit of fluoridated public water supplies. The examiners were previously calibrated. The index used was the DMFT according to WHO criteria. The clinical examination was carried out in the schoolyards, under natural light, using a plane, oral mirror, and exploratory probe. We concluded that: (1) the first permanent molar was responsible for 93.4 percent and 64.0 percent of the DMFT index at 7 and 12 years of age respectively; (2) at 7 and 8 years of age, the largest component of the DMFT index was D, while in 9 to 12 year olds, the F component was the most prevalent; and (3) the incidence of dental caries was constant throughout the time period.

Ronald D. Venezie, DDS, MS, NC Department of Health and Human Services, Fayetteville, NC; Gail S. Mitchell, RDH, MPH, Cynthia W. Garvan, PhD, Donald R. McNeal, DMD, MPH, Anthony J. Conti, DMD, MPH, University of Florida College of Dentistry, Gainesville, FL.*

CARIES EXPERIENCE OF ELEMENTARY SCHOOL CHILDREN IN MANATEE COUNTY, FL

This study assessed oral health status of children in grades 2–5 in two elementary schools in Manatee County, FL, that were targeted as having high needs by local school and health officials. Data were collected using a written questionnaire and school-based oral health examination (DMFS Index) for 453 children from 7–12 years of age. Overall caries prevalence was 43.0 percent, and mean DMFS was 1.43, representing a moderate level of disease. On average, black and Hispanic children exhibited a higher caries prevalence and severity than white children. Unmet treatment needs were common in this population, as represented by a high proportion of decayed surfaces (%D/DFS=72.8%). Black children exhibited the highest levels of unmet need (88.7%), compared to 74.9 percent for Hispanic children and 59.3 percent for white children. For the most part, these racial/ethnic differences were accounted for by controlling for differences in socioeconomic status (SES) among groups. Overall sealant prevalence in this population was 30.5 percent, and the mean number of tooth surfaces sealed was 0.84 per child. Children of lower SES (eligible for the Free or Reduced School Lunch Program) had 0.73 sealed surfaces, on average, compared to an average of 1.04 sealed surfaces for children of higher SES (29.8% difference; P=.041; unpaired T-test). Mean DMFS for children without sealants was 1.65 versus 0.93 for children with sealants (43.6% difference; P<.005; unpaired T-test). Children of lower SES exhibited higher levels of dental caries and more unmet treatment needs and were less likely to have received dental sealants, a proven preventive modality. New or enhanced school-based or school-linked public health programs may decrease the burden of dental disease faced by these children. (Supported by HRSA and by the University of Florida College of Dentistry.)

Jane A. Weintraub, DDS, MPH, Stuart A. Gansky, DrPH, Sara G. Shain, DrPH, Dept. of Dental Public Health and Hygiene, University of California, San Francisco School of Dentistry, San Francisco, CA.*

RELATIONSHIP BETWEEN CLINICAL AND SELF-REPORTED MEASURES OF PERIODONTAL HEALTH

Collecting population-based clinical data to monitor periodontal health is expensive and time consuming. This analysis compares clinical periodontal measures with self-reported ones more easily obtained. Participants in the North Carolina Piedmont 65+ dental study, their spouses, and two oldest adult children were included. Three dentist-examiners conducted clinical examinations and personal interviews. Analysis was limited to those 708 individuals who were periodontally

probed and responded to interview questions. Separate mixed model regression analyses examined the association of clinical measures (probing depth [PD], clinical attachment level [CAL], plaque, and calculus) as outcome variables with self-reported measures (bleeding gums, any loose teeth, been told or think you have gum disease) controlling for other factors (age, sex, race, income, education, smoking, # teeth, recent dental visit). Self-reports of bleeding gums were significantly associated with measures of PD, calculus and some measures of CAL; perception of gum disease with PD and CAL, but not all measures of plaque and calculus; and loose teeth with all clinical measures. Certain self-reported measures may be valid proxies for clinical indicators of periodontal disease. (Supported by NIDR DE 09856.)

Kavita P. Ahluwalia, DDS, MPH, Elizabeth Ortiz, RDH, Donald Sadowsky, DDS, MPH, PhD, School of Dental and Oral Surgery, Columbia University, New York, NY.*

THE ASSOCIATION BETWEEN ORAL CANCER RISK FACTORS AND DEPRESSION

Although the use of tobacco and alcohol are major risk factors for oral cancer, other determinants—knowledge, societal norms, infrastructural barriers, economic factors, and co-morbidities, especially depression—may play a role in individuals' health-related behaviors. Depressed individuals may be less likely to seek care, and more predisposed to smoking and drinking. A pilot face-to-face survey of senior citizens in Central Harlem, NY, is currently being conducted to determine the predisposing and enabling factors associated with oral cancer in this population. Individuals are surveyed about their oral cancer knowledge, opinions, and attitudes; a geriatric depression scale is used to determine the presence/absence of depression. Preliminary data (n=28, mean age=78) indicate that 50 percent of the subjects were smokers and 61 percent were drinkers. Eighty-seven percent had Medicare, 23 percent had Medicaid, 11 percent had private medical insurance, and 50 percent of the subjects reported having dental insurance. As measured by the Geriatric Depression Scale, 18 percent of the subjects may have some level of depression. Utilization of medical/dental services, oral cancer knowledge, opinions and attitudes, smoking, and drinking were not associated with the presence/absence of depression as measured by this scale. These findings may in part be a reflection of the inadequacy of the method used to measure depression. The instrument has not been widely tested in minority populations, and is seemingly not sensitive enough. These data also suggest that the prevalence and/or severity of depression may not be as high in disadvantaged populations as previously thought, and that health-related behaviors are not associated with depression in this population.

Rita DiGioacchino, MPH, PhD, CHES, Department of Health Science, Armstrong Atlantic State University, Savannah, Georgia; Maggie F. Keenan, RDH, EdD,* The Savannah Foundation, Savannah, Georgia.*

EFFECTS OF EATING DISORDERS ON DENTAL HEALTH: IDENTIFICATION, TREATMENT, AND MANAGEMENT

It is estimated that in the United States, 3 to 5 percent of females between puberty and age 30 are bulimic and 1 percent are anorexic (Brody, 1990). Eating disorders of these types result in significant medical complications, as well as severe dental pathosis. The most common oral manifestations include thermal sensitivity, enamel erosion, caries incidence, altered taste, xerostomia, burning tongue, petechia of soft palate, TMJ disorder, and hypertrophic salivary glands. Because dental health providers may be the first health professional to identify these oral signs and symptoms of disordered eating, they would be the primary caretaker to facilitate the initial step toward prevention, restorative care, and case management. It is essential that provider knowledge of disordered eating and association with oral assessments be implemented in total patient care.

Stuart A. Gansky, DrPH, MS, Scott L. Tomar, DMD, DrPH, Jane A. Weintraub, DDS, MPH, Dept of Dental Public Health & Hygiene, University of California, San Francisco; Sonia M. Davis, DrPH, MS, Quintiles Inc, Research Triangle Park, NC.*

NO DIFFERENCE ISN'T EQUIVALENCE: FLUORIDE VARNISH EXAMPLES

Recent papers specify criteria for determining equivalence in dental research (e.g., Kingman, 1992). We reviewed several fluoride varnish studies that found no difference between treatment groups, but concluded equivalence. We computed post hoc power to determine equivalence and tested for equivalence by comparing one-sided 95 percent confidence intervals (CIs) of treatment differences versus an a priori limit of equivalence. Some studies were underpowered to determine equivalence (e.g., Seppa et al., 1994, had 31% power; Seppa & Tolonen, 1990, had 55% power). Although CIs for the difference between groups sometimes excluded our a prior equivalence limit difference of surface/year (e.g., Seppa & Tolonen, 1990: CI of DMFS difference for two years of follow-up=0.94), many did not (e.g., Seppa et al., 1994: CI for DMFS difference for three years of follow-up=1.73). True equivalence studies need proper power. Researchers cannot simply conclude equivalence when finding no difference. Readers can better evaluate the literature with this straightforward method. (Support: by NIH/NIDR P20 DE12375-01.)

Irene V. Hilton, DDS, MPH, San Francisco Department of Public Health, CA; Samantha Stephen, RDH, MA, San Francisco Department of Public Health, CA.*

A COMPARISON OF DEMOGRAPHICS AND ORAL HEALTH STATUS OF NEW PATIENT EXAMS AT A PUBLIC HEALTH DENTAL CLINIC: 1992 AND 1997

Silver Avenue Family Health Center (SAFHC) is located in an ethnically diverse neighborhood of San Francisco and provides dental services to low-income children aged 0–17. Retrospective reviews of new patient charts in 1992 and 1997 showed that between these years, the percentage of foreign-born new patients decreased from 45 percent to 28 percent at SAFHC. In addition, the demographics of the new patient population changed. The number of foreign-born new patients from Mexico/Central America decreased, while those from China/Taiwan increased. These shifts have created new challenges in staffing and health education of parents/care givers. Consistent in both 1992 and 1997 was the differential in treatment need as defined by dt (decayed teeth) between US-born and foreign-born populations. US-born children had dt of 2.92 and 2.99 in 1992 and 1997, respectively. Foreign-born children had dt of 4.80 and 4.14, respectively. These surveys support the contention that dental public health activities in a diverse urban environment such as San Francisco should continue to include a treatment component as well as prevention activities that are able to respond to rapidly changing patient populations.

Aljernon J. Bolden, DMD, MPH, Boston U School of Dental Medicine, Boston, MA; Peter C. Damiano, DDS, MPH, Elizabeth T. Momany, PhD, Jean C. Willard, MPH, U of Iowa College of Dentistry, Iowa City, IA; Louise C. Merriman, BA, Boston U School of Dental Medicine, Boston, MA.*

AN EVALUATION OF DENTAL CARE OF ADULTS ENROLLED IN IOWA'S MEDICAID HMO

In July 1990 Iowa implemented a managed care demonstration program for individuals eligible for Medicaid. A medical/dental survey was sent to a sample of the 6,000 enrollees in the spring of 1997 (response rate=35%). The purpose of this study was to ascertain these enrollees' perspectives on the dental care they received while participating in the program. Even though the respondents were enrolled in an HMO, the dental services were still fee-for-service. The dental questions addressed utilization, perceived dental needs, ability to access care, and satisfaction with the dental care they received. Thirty-seven percent (n=255) of the respondents had not visited a dentist in a year or more; 30 percent rated their dental health as fair or poor; 68 percent (n=467) believed they were currently in need of care. Approximately 25 percent of respondents rated their ability to obtain dental care as fair or poor. Nineteen percent of respondents indicated the length of time to get a dental appointment was a barrier in accessing care; 19 percent of the respondents rated their satisfaction with dental care as fair or poor. Over 22 percent delayed seeking care because of inability to find a dentist willing to treat them. One-quarter of Medicaid enrollees appear to have their access to dental care limited to some extent. Future studies with privately insured populations should be conducted to establish benchmarks.

James N. Sutherland, DDS, MPH, Office of Public Health, New Orleans, LA; Jay D. Shulman, DMD, MA, MSPH, Department of Public* Health Sciences, *TAMUS-Baylor College of Dentistry, Dallas, TX; Susan O. Griffin, PhD, Division of Oral Health, Centers for Disease Control and Prevention.*

THE LOUISIANA DENTAL MEDICAID PROGRAM: UTILIZING MEDICAID DENTAL CLAIMS DATA FOR ORAL HEALTH NEEDS ASSESSMENT

The objectives of this study are to analyze Louisiana Dental Medicaid Program claims data. Dental specific Medicaid claims data were downloaded from the Louisiana Medicaid program for the period October 1994 to October 1996. In the two-year period, 1,761,724 procedures were completed on 225,436 patients at a cost of $46,491,902: 0.57 percent of the overall Medicaid budget. A higher proportion of pediatric dentists (71%) participated in the Medicaid Program as compared to general dentists (37%). The mean reimbursement for all procedures, all ages, was $142.14. The percent Medicaid-eligible with at least one dental visit was highest for age 4 (55%) and age 20 (47%). Pediatric dentists have a higher per capita reimbursement and higher proportion that participate compared to general dentists. Utilization of services is low for Medicaid-eligibles under age 3, but increases appreciably for all other ages. The download of the dental Medicaid claims data into a format that allows unlimited statistical analysis provided an opportunity for the Oral Health and Dental Medicaid programs to greatly enhance their capability to function as public health programs.

Emmanuel O. Ezemobi, DDS, MPH, Howard University Dental School; Jay D. Shulman, DMD, MA, MSPH, Department of Public Health Sciences, TAMUS-Baylor College of Dentistry, Dallas, TX; James N. Sutherland, DDS, MPH, Robert Barsly, DDS, JD, Louisiana Department of Health.*

THE ATTITUDES OF LOUISIANA DENTISTS TOWARD MEDICAID

The objectives of this study were to determine factors influencing Louisiana dentists' participation in the Dental Medicaid Program. Surveys were mailed to a census of pediatric, public health, and general dentists. A second mailing was made to nonrespondents. From a sampling frame of 2,003, 1,050 surveys were returned for a 52.4 percent response rate. Of 533 dentists (50.4%) who treated Medicaid patients, only 293 (55%) treated all eligibles. Newly graduated dentists were more likely to be actively enrolled than their more established counterparts (chi-square=10.67; P=.014). Medicaid reimbursement levels were viewed as "much less" than private fees by 62 percent, "less" by 32.8 percent, and "the same" by 3.8 percent of the respondents. Broken appointments were the most prevalent reported problem (80%), followed by low fees (60.8%), patient noncompliance (58.7%), (unreasonable) denial of payments (56.9%), slow payment (43.5%), and complicated paperwork (41.5%). The Dental Medicaid Program should establish an advisory board of practicing, academic, and public health dentists. Third- and fourth-year students at LSU Dental School should be made aware that the Medicaid program is an excellent way to maintain cash flow while building a practice. Consideration should be given to reprogramming funds to increase the level of reimbursement.

Charles J. Kay, DDS, MS, Chicago, IL.

PRACTICE COSTS THAT VARY AS A FUNCTION OF PATIENTS AGE AND AFFECT ON NET DENTAL PRACTICE INCOME

Previous studies have suggested that dental procedure productivity may decline as the proportion of older patients in the practice increase. Net practice income generated, however, is also dependent on practice costs. The purpose of this study was to determine if certain overhead costs such as uncollectible accounts, delay in payment for services, use of credit cards, and missed appointments vary as the proportion of older patients in a dental practice increase. These costs were studied retrospectively in a group of about 10,000 patients from both private general practice and dental school records. About 11 percent of these patients were over the age of 65. All of these variable costs were found to be at least three times and as much as 10 times greater for younger (<65 years old) than older patients. Preliminary calculations using the average affect of all of these increased cost factors associated with younger patients combined with estimated declines in productivity associated with older patients indicated that increasing the proportion of older patients in a dental practice may not substantially decrease net practice income.

Benetta F. Whitfield, DDS, Joseph Jaeger, MPH, Mary L. Voytus, DDS, Departments of Dentistry and Medical Education, Monmouth Medical Center, Long Branch, NJ.*

RESTORATION OF EARLY CHILDHOOD CARIES UNDER GENERAL ANESTHESIA

Full-mouth rehabilitation for pediatric patients under general anesthesia (GA) is often necessary due to rampant caries and fear that results in a lack of cooperation in the routine dental setting. This study examines the age distribution of patients treated under GA. The charts for all patients admitted for a two-year period (1/96–12/97) for restorative dentistry with possible extractions under GA due to rampant caries and uncooperativeness who were ASA Level I were reviewed retrospectively. The 233 patients had a mean age of 3.5±1.2 years. For the 2,112 total carious lesions, 1,943 restorations were placed and 169 extractions were performed. The frequency of specific restorations includes a mean of 3.8 stainless steel crowns (SSC), 2.8 anterior composites (ACOMP), 1.6 amalgams (AML), and .7 extractions (EXT) per patient. The mean number of total procedures (SSC+ACOMP+AML+EXT) by age was 6.5 for 2-year-olds, 9.3 for 3-year-olds, 11.0 for 4-year-olds, 9.8 for 5-year-olds, and 9.4 for 6-year-olds. The range of mean numbers of restorations (6.5–11.0) confirms that GA is being used for the treatment of rampant caries. A mean >10 procedures (as in the 4-year-olds) indicates that more than 50 percent of the dentition is being restored at one time. Although procedures peaked at 4 years of age, a mean above 9 procedures in 5- and 6-year-olds indicates that early childhood caries is not simply due to nursing/baby bottle issues.

Michael C. Chisick, DMD, MSPH, JD, US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD; Mark J. Piotrowski, DDS, MPH, University of North Carolina, School of Public Health, Chapel Hill, NC.*

ESTIMATED COST OF DENTAL TREATMENT FOR US MILITARY RECRUITS

In this paper, we estimate the cost of completely treating the dental treatment needs of US military recruits. The data come from a systematic, random sample of 2,711 Army, Navy, Air Force, and Marine Corps recruits who were assessed for dental treatment needs between February and July 1994. Women and minorities were oversampled. One dentist per service charted a comprehensive dental examination on each recruit. Examiners were not calibrated on treatment need assessment, but were advised to apply their best clinical judgment for restoring the service member to optimal oral health. Radiographs were taken and used for making treatment decisions. After the sample was weighted to reflect the 1994 population of US military recruits (n=202,144), total treatment costs were calculated by applying the median fees reported by US general dentists in the American Dental Association 1995 Survey of Dental Fees. Results show that the total estimated cost of restoring military recruits to optimal oral health is $203 million, with treatment of oral surgical needs ($65m) accounting for the greatest proportion of all dental treatment costs. The cost of dental treatment per recruit ranged from $141 to $9,879 with a mean cost of $1,060 (SE=$20). The cost of restoring US military recruits to optimal oral health is substantial.

Michael C. Chisick, DMD, MSPH, JD, US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD; Mark J. Piotrowski, DDS, MPH, University of North Carolina, School of Public Health, Chapel Hill, NC.*

ESTIMATED COST OF DENTAL TREATMENT FOR ACTIVE DUTY US MILITARY PERSONNEL

This paper estimates the cost of comprehensive dental treatment for active duty US military personnel. The data come from a 26-site survey of Army, Air Force, Marine, and Navy personnel conducted from April 1994 to January 1995. A prestratified, random sample was drawn. Women and minorities were oversampled. All 13,050 respondents (82% response rate) were assessed for dental treatment needs between February and July 1994. One dentist per study site charted a comprehensive dental examination on each service member. Examiners, not calibrated on treatment need assessment, were advised to apply their best clinical judgment for restoring the service member to optimal oral health. Radiographs were used for making treatment decisions. After the sample was weighted to reflect the 1994 population of active duty

service members (n=1,699,662), total treatment costs were calculated applying the median fees reported by US general dentists in the American Dental Association 1995 Survey of Dental Fees. Results show that the total estimated cost of restoring service members to optimal oral health is $1.9 billion, with periodontal treatment accounting for the greatest proportion (47%) of these costs. The mean cost per service member is $1,117 (SE=$11). The cost of restoring active duty US military personnel to optimal oral health is substantial.

Michael C. Chisick, DMD, MSPH, JD, US Army Center for Health Promotion and Preventive Medicine, APG, MD; Bruce Brehm, DDS, MPH, National Naval Medical Center, Bethesda, MD.*

US SERVICE MEMBERS' SATISFACTION WITH FAMILY DENTAL CARE

This paper explores satisfaction of US service members with family dental care. The data come from a 26-site survey of Army, Air Force, Marine, and Navy personnel conducted from April 1994 to January 1995. A prestratified, random sample was drawn. Women and minorities were oversampled. Of 12,050 respondents (81% response rate), 4,412 had at least one child under 21 years of age or a nonmilitary spouse and answered 17 questions on satisfaction with family dental care. Simple descriptive statistics (weighted data) were derived, as was an overall composite satisfaction score using factor analysis. Composite scores were converted into a continuous variable with mean 100 and standard deviation 10. This variable was regressed (unweighted data) on respondent demographics to determine which factors influence service members' overall satisfaction with family dental care. Stata statistical software was used for all analyses. Descriptive results show satisfaction ratings between good and very good. Regression results show satisfaction varies with sex, branch of service, years of service, perceived barriers to dental care, and insurance status. Satisfaction with family dental care is relatively high. However, because this survey was conducted under the former terms and contract carrier for family dental care, these findings may not describe the current state of service members' satisfaction with family dental care.

Suhaila Shariff, DMD, MPH, Harvard School of Dental Medicine, Boston, MA; Catherine Hayes, DMD, DMSc, Head, Division of Public Health and Practice Management, Tufts University School of Dental Medicine; Timothy S. Martinez, DMD, Co-director, Boston Health Care for the Homeless Program.*

BATTERED HOMELESS WOMEN AND THEIR UTILIZATION OF FREE DENTAL CARE

This project was created to assess the attitudes and the use of free dental care services at the Boston Health Care for the Homeless (BHCH) dental clinic by battered homeless women. We wanted to compare their utilization rates to those of nonbattered women. In addition, we were interested in describing the battered population relative to the homeless women based on several dental health characteristics. These characteristics included: (1) importance of dental health, (2) perceived dental health, (3) self-reported dental problem list, (4) last visit to the dentist, (5) attendance, (6) gender preference for a dentist, and (7) future intentions to utilize BHCH. The data suggest that battered women rated their perceived dental health lower and importance of dental health greater than the nonbattered population. Furthermore, nonbattered women who were aware of the BHCH clinic were found to be 2.25 times more likely to utilize these services than the comparison group. Both groups overwhelmingly had no gender preference for the dental practitioner, and both groups claimed they would use services in the future.

Wang Xiang, DDS, Department of Stomatology, Affiliated Hospital, Advanced Medical College of Beijing, Beijing, China.*

STUDY ON TWO-STAGE OSSEO-INTEGRATED TITANIUM DENTAL IMPLANTS IN CHINA

Two-stage osseo-integrated titanium dental implants were performed from February 1990 to March 1992 with five-year follow-up. The success rate was 87.06 percent (249 of 286), while the failure rate was 12.93 percent (37 of 286). Within two months after the first operation, 3.85 percent of all implants were unsatisfactory because of infection, pain, and fistulae causing loosening and even discharge; one-half year after the first operation until the second operation, fibrous tissue was formed in the bone-implant interface, with I-II° mobility and some were removed, accounting for 6.64 percent (19 of 286). During the five years postreconstruction of the dental crown, 2.45 percent (7 of 286) of implants were removed because of gradual loosening and discharge. Follow-up results show that failure is more likely to happen in the thinner alveolar bone region (5.94 percent; 17 of 286), and accounts for 45.94 percent (37 of 286) of total failures. The possible reason for this finding is that the alveolar bone in Chinese is thinner than in Western people, especially in the anterior and premolar regions. The average thickness of the anterior region in Chinese is 6–8 mm, while the diameter of implants is 3.75 mm, leaving an alveolar thickness in the labial-lingual areas of 1–2 mm. This situation leads to a shortage of local blood supply, further infection and fistulae formation, and finally loosening of implants, requiring their removable or the formation of fibrous tissue in the interface of the bone and the implants. Now implants 3.0 or 3.2 mm in diameter suitable for the Chinese have been made and used successfully.

Michael J. Kanellis, DDS, MS, John J. Warren, DDS, MS, Steven M. Levy, DDS, MPH, Pediatric Dentistry and Preventive & Community Dentistry, University of Iowa, Iowa City, IA.*

PRIMARY TOOTH DENTAL FLUOROSIS

Studies suggest that fluorosis of the permanent teeth has become more prevalent in North America over the past few decades. It is likely that fluorosis of the primary teeth also has become more prevalent. However, little is known about trends in primary tooth fluorosis because it is often difficult to recognize, and rarely studied. As part of a large longitudinal study of fluoride exposures and fluorosis, we have developed criteria for identifying and assessing primary tooth fluorosis. Like permanent tooth fluorosis, primary tooth fluorosis is due to excessive fluoride exposure during the prenatal period or first year or so of life. We believe that most primary fluorosis in the United States is due to postnatal fluoride ingestion, so that only primary teeth formed after birth are affected. Thus, primary fluorosis is seen almost exclusively on the primary molar teeth, especially the second molars. While generally similar in appearance to permanent tooth fluorosis, primary tooth fluorosis is somewhat more solid and less "lacy" in appearance, does not contrast from normal tooth color as much, and does not follow perikymatic lines. Primary tooth fluorosis is rarely severe, so that its typical presentation is more subtle than its permanent tooth counterpart. Using clinical photographs, this presentation will review criteria for primary tooth fluorosis. Recognition of primary tooth fluorosis can help clinicians to identify individuals and communities at increased risk for permanent tooth fluorosis. (Supported by NIH grants 2R01-DE09551 and 2P30-DE10126.)

John J. Warren, DDS, MS, Steven M. Levy, DDS, MPH, Michael J. Kanellis, DDS, MS, Departments of Preventive & Community Dentistry and Pediatric Dentistry, University of Iowa, Iowa City, IA.*

PATTERNS OF DECAY AND FLUOROSIS IN THE PRIMARY DENTITION

While it has been widely reported that there has been a decline in caries prevalence and an increase in fluorosis prevalence among US children, most of the emphasis has been placed on the permanent dentition. This paper presents preliminary data on patterns of fluorosis and caries experience in the primary dentition of a subset of the Iowa Fluoride Study cohort. Examinations were conducted by two trained and calibrated examiners on 105 4–5-year-old children. A modified TSIF fluorosis index and a d1d2fs were used. Of the 105 children, 68 had neither caries experience nor fluorosis, 25 had d2 caries or filled surfaces, 10 had fluorosis only, and 2 had both caries experience and fluorosis. The number of surfaces with fluorosis ranged from 0 to 14, and the number of d2f surfaces ranged from 0 to 18. Nearly all fluorosis (98%) identified was on molar teeth, while 94 percent of decay experience was found on molar teeth. Of the molar teeth, fluorosis was much more common on the second molars, while caries experience was more evenly distributed between first and second molars. Results suggest that primary tooth fluorosis may be more prevalent than previously believed and that primary tooth caries and fluorosis are rarely coincident in the same 4–5-year-old individual. (Supported by NIH grants 2R01-DE09551 and 2P30-DE10126.)

Hannu W. Hausen, D.Odont, MPH, Sakari Kärkkäinen, PhD, Liisa Seppä, D.Odont, Institute of Dentistry, University of Oulu, Oulu, Finland.*

APPLICATION OF THE HIGH RISK STRATEGY IN CONTROLLING DENTAL CARIES

The aim of this pragmatic trial was to find out whether targeting prevention to high-risk individuals is applicable in a child population with a low overall caries frequency. Caries risk was assessed in 1,465 12-year-old children using data from clinical examinations and salivary tests. The children who were regarded as having a high risk were randomized into two groups. Half of them (HRI) were offered truly intensive prevention (counseling, F-varnish applications, F-lozenges, sealants, CHX), and the rest (HRB) the same basic prevention that was given to low-risk children (counseling, one F-varnish application/year). A random sample of the low-risk children (LRB) was followed up for the same three-year period as the high-risk children. The number of children completing the study was 216 in LRB, 199 in HRI, and 174 in HRB group. The mean (SD) three-year DMFS increment was 2.0 (2.4), 4.4 (4.7), and 5.0 (5.0) in the LRB, HRI, and HRB group, respectively. Comparison between LRB and HRB groups reveals that risk assessment was fairly successful in terms of mean DMFS increment. However, 63 percent of children in LRB group developed at least one new lesion (maximum=12). The negligible difference between HRI and HRB group implies that intensifying the prevention produced practically no additional benefit. By offering all the children basic prevention only, virtually the same preventive effect could have been obtained with substantially lesser effort and costs.

Thomaz K. Chianca, DDS, MPH, CEDROS Network/Department of Pediatric Dentistry, Federal University of Rio de Janeiro, Brazil; R. Gary Rozier, DDS, MPH, School of Public Health, University of North Carolina; Rebecca King, DDS, MPH, North Carolina Division of Dental Health.*

EFFECT OF A SEALANT PROGRAM ACCORDING TO PERSON AND SURFACE RISK

The study had two aims: (1) to evaluate the effects of dental sealants on caries increments in permanent teeth, and (2) to determine if any observed sealant effect was modified by either person- or surface-level caries risk. Second grade students (age=7.13 years) in Madison (n=106) and Mitchell (n=89) counties (NC), two nonfluoridated communities, were assigned in a five-year nonrandomized longitudinal study to an experimental (sealants) and control group (no sealants). The experimental group had sealants placed or replaced in pit and fissure surfaces in 1990 and 1992. Dental examinations were performed in 1990, 1992, and 1995. Person-risk for caries was determined based on caries experience in primary dentition. Surface-risk for caries was assigned based on surface morphology. No significant effect of sealants on caries increment could be observed at the individual level. At the tooth surface-level the overall percent effectiveness of sealants in surfaces of high caries risk children was 70.25 percent. The regression model indicated that sealed surfaces of high-risk surfaces (OR=.153; 95% CI=.051, .456). Surfaces from high-risk children were at higher risk for caries than those of low-risk children over five years and benefited from sealants. To have a detectable sealant effect on a community, a substantial but unknown proportion of the community must be at high risk. Providing cost-effective public health programs might require that research on risk assessment shift its focus from individuals to communities in an effort to identify high-risk communities.

Jacqueline M. Tiffinger, RDH, BA, Kathryn E. McSorley, BA, Bergen County Department of Health Services, Paramus, NJ.*

TARGETING POPULATIONS AT RISK FOR ORAL DISEASES USING GEOGRAPHIC INFORMATION SYSTEMS (GIS) TECHNOLOGY

While the use of Geographic Information Systems (GIS) in public health is increasing dramatically, oral health programs may not be aware of the advantages of this innovative technology. The Oral Health Program in New Jersey used this technology to redirect the program's funds. Due to increasing demand for program services, it became necessary to develop eligibility criteria for municipalities to receive services. The Bergen County Department of Health Services GIS was used to identify areas of the state with the highest percentage of at risk populations. It was also used to map the distribution of program funds and activities. The information and maps produced by the GIS made it clear to the NJ Department of Health and Senior Services that both funding and programmatic changes would enhance the effectiveness of the statewide Oral Health Program and assure that it reached those at greatest risk. Using GIS in this manner has tremendously increased the credibility of the Oral Health Program. In July 1998, allocated funds that had been static for 14 years will be increased substantially due to the clearly demonstrated need.

S.L. Barrow, RDH, MA, G.D. Cruz, DMD, MPH, Xiaonan Xue, PhD, M.P. Snead, RN, DDS, T. Ottey, BS, A.R. LeGeros, BS, R.Z. LeGeros, PhD, New York University College of Dentistry and Colgate-Palmolive, Inc, (JA).*

DENTAL CARIES PREVALENCE IN A GROUP OF SCHOOL - CHILDREN IN JAMAICA, WEST INDIES

The purpose of this preliminary study was to describe the prevalence of dental caries and treatment needs in a group of schoolchildren in Kingston, Jamaica, West Indies. A convenience sample of 509 schoolchildren, aged 5 to 12 years from three selected primary schools (2 in Kingston and 1 in the Spanish Town region) were examined. Clinical examinations were conducted by calibrated examiners using NIDR criteria in Jamaica Ministry of Health Dental Clinics and in a mobile dental unit. The dft, DMFT, plaque, and calculus indices were calculated from the collected data. Children were grouped into two age groups: 5–8 (48.3%) and 9–12 (51.7%) for analysis purposes. The mean age of the study sample was 8.6 years, with a sex distribution of 41.1 percent male and 58.9 percent female. The 5–8-year-old age group had a mean dft of 2.89 and a mean DMFT of 1.62. For the 9–12-year-old age group, the mean dft was 1.49 and the mean DMFT was 2.75. The d/dft was 93 percent for the 5–8-year-old age group and for the 9–12-year-old age group it was 87 percent. The D/DMFT was 96.5 percent for the 5–8-year-old age group and for the age group 9–12 years it was 95 percent. The mean plaque and calculus indices scores for the study sample was 2.06 and 0.13, respectively. The results from this preliminary study indicate a high amount of untreated decay in this particular group of children. Further studies are needed to identify factors contributing to the high treatment needs of this group. (Statistical support was rendered by the Minority Oral Health Research Center of New York University College of Dentistry. Supported by Colgate-Palmolive JA, West Indies.)

Johng-bai Kim, DDS, MSD, PhD, Dai-il Paik, DDS, MSD, PhD, Hyock-soo Moon, DDS, MSD, PhD, Dept of Preventive and Public Health Dentistry, College of Dentistry, Seoul National Univ, Seoul, Korea; Hyun-duck Kim, DDS, MSD, PhD, Chester W. Douglass, DMD, PhD, Dept of Oral Health Policy and Epid, Harvard School of Dental Medicine, Boston, MA; Alice M. Horowitz, PhD, NIDR, Bethesda, MD.*

ORAL HEALTH STATUS AND TRENDS IN KOREA: 1990–95

Goals of this study were to: (1) evaluate dental caries status and trends in 1990 and 1995; (2) evaluate periodontal status and trends using the Community Periodontal Index of Treatment Needs (CPITN) in 1990 and 1995; (3) identify progress toward oral health targets in Korea by the year 2000; and (4) suggest oral health program changes. In 1995, 3,000 persons were selected evenly by area, rural and urban, sex, and age (5, 12, 15, 35–44, and 65-74 years) using a cluster sampling strategy. WHO diagnostic criteria for dental caries assessment and CPITN for periodontal disease were used. 1995 data were compared with 1990 National Oral Health Survey data. The DMFT index in 12-year-old children had increased from 3.0 per child in 1990 to 3.11 per child in 1995. The prevalence of dental caries was 76 percent in those older than 12 years of age. Dental caries was more severe in rural areas than in urban areas. The prevalence of dental caries in permanent teeth increased dramatically from age 5 to 12 years. The percentage of persons without any periodontal signs and symptoms at age 12 was 60 percent in urban areas and 56 percent in rural areas. The percentage of persons needing oral prophylaxis at age 15 was 36.2 percent. The percentage of persons needing periodontal surgery was 5 percent by the age of 40 years. Dental caries is increasing and widespread. Periodontal disease is also widespread. Moreover, both dental caries and periodontal disease are more problematic in rural populations than in urban populations. To improve the oral health for all Koreans, public oral health promotion should focus more positively on water fluoridation and school-based incremental dental care programs.

Patricia A. Main, DDS, DDPH, MSc, FRCDC, James L. Leake, DDS, DDPH, MSc, FRCDC, Toronto Public Health Division and Faculty of Dentistry, University of Toronto, Ontario.*

IMPLEMENTING DIAGNOSTIC CODES FOR DENTAL PUBLIC HEALTH STAFF

A system of codes for recording diagnosis was planned in the summer of 1997. Initially all clinical staff were asked to submit their most frequently used diagnoses, so that a two-stage implementation plan could be used to introduce the concept of codes for diagnosis. We were assisted in this effort by the requirement in Ontario for all dentists to record diagnoses as well as a treatment plans. A system of codes was developed using the five-digit system already in use for procedure codes, which allocates special meaning to each digit. We chose to have a four-digit code with a leading X, so that we would not be confused about whether a code was for diagnosis or for a procedure. Staff were oriented to the codes at the start of the school year in September 1997. They were provided with a short list of their stated diagnoses, from their own input in June. It was immediately apparent that they would prefer to use the full code manual. The first year of implementation will be discussed.

Georgina P. Zabos, DDS, MPH, Forough Parvizian-Yazdani, DDS, Evonne Hwang, DDS, Yong Bae Whang, DDS, Eli Rachlin, DDS, Woosong Yun, DDS, Department of Community Health, Columbia University School of Dental and Oral Surgery (SDOS).*

THE EFFECT OF COMBINATION ANTI-RETROVIRAL TREATMENT ON THE PREVALENCE OF HIV-RELATED ORAL LESIONS IN A PRIMARY ORAL HEALTH CARE PRACTICE

The Columbia University SDOS's HIV-related primary oral health care (POHC) program, in collaboration with Presbyterian Hospital Infectious Disease Clinic, provides comprehensive primary oral health care for HIV patients. The objective of this practice-based study is to compare the prevalence of HIV-related oral lesions in the POHC program before and after the implementation of combination antiretroviral treatment. In the first phase of investigation, retrospective chart reviews of 270 patients were analyzed prior to the introduction of combination antiretroviral treatment (October 1993–June 1996). During chart reviews, information collected included demographics, biomarker (CD4 level), presence of HIV-related oral lesions (oral candidiasis, oral hairy leukoplakia, ulcerative lesions, Kaposi's sarcoma), and clinical diagnosis (HIV/AIDS). The second phase of investigation was executed after the implementation of combination antiretroviral treatment (July 1996–March 1998). Demographic information was compiled from the QSI system for 206 patients. Clinical information was collected as stated before; in addition, viral load was recorded. The preliminary statistical analysis suggests that with the implementation of combination antiretroviral treatment in July 1996, there is a 50 percent decrease in the prevalence of HIV-related oral lesions. Further statistical analysis utilizing SPSS (Statistical Program for Social Sciences) will be performed to investigate the correlation of biomarkers and HIV-related oral lesions.

Scott L. Tomar, DMD, DrPH, University of California - San Francisco; Stephen E. Marcus, PhD, National Institute of Dental Research, Bethesda, MD.

CIGARETTE SMOKING AND PERIODONTITIS: FINDINGS FROM NHANES III

This study examined the relation between cigarette smoking and periodontitis in the United States. Data were derived from the Third National Health and Nutrition Examination Survey, a nationally representative health survey conducted in 1988–94. Participants were interviewed about tobacco use and examined by dentists using standardized criteria. Analysis was limited to dentate persons age 18 years of age or older with complete information on tobacco use and periodontal data (n=13,650). Analyses account for the complex sample design. We defined periodontitis as >1 site with loss of periodontal attachment >6 mm. Among dentate adults, 27.9 percent were current smokers and 23.4 percent were former smokers. Overall, 8.7 percent of dentate adults had periodontitis. Modeling with multiple logistic regression revealed that, compared to never smokers, current smokers (OR=3.96; 95% CI=3.04, 5.15) and former smokers (OR=1.66; 95% CI=1.31, 2.12) were more likely to have periodontitis, after adjusting for age, sex, race/ethnicity, and poverty status. Among current smokers, the odds of periodontitis increased with increasing number of cigs/day, ranging from OR=2.87 for 1–10 cigs/day to OR=4.96 for >31 cigs/day. Among former smokers the odds of periodontitis declined with the number of years since quitting, ranging from OR=3.50 for 0–2 years to OR=1.19 (95% CI=0.91, 1.55) for >11 years. Applying standard epidemiologic formulas, we estimate that 45.2 percent of periodontitis in US adults was attributable to current smoking and 13.4 percent was attributable to former smoking. We conclude that cigarette smoking appears to be a major risk factor for periodontitis, responsible for 58.6 percent of periodontitis in the United States. A large proportion of adult periodontitis may be preventable through prevention and cessation of cigarette smoking.

Sena Narendran, BDS, DDPH, MSC, James Quartey, DDS, MPH, Robert Wood, MPH, Ryan Lindner, DDS, University of Texas Health Science Centers at Houston and San Antonio, TX.

EPIDEMIOLOGY OF PERIODONTAL DISEASES ALONG THE TEXAS-MEXICO BORDER

The purpose of the study was to investigate the epidemiology of periodontal diseases among a Texas–Mexico border population. The study population consisted of 414 adults from two border counties, aged 20 and older, and more than 93 percent being Hispanics. Nearly two-thirds of the study population were females. Data were collected by two trained examiners using the WHO oral health status form consisting of the Community Periodontal Index of Treatment Needs (CPITN) and periodontal attachment loss (PAL). More than 40 percent had not graduated from high school, and 55 percent had an annual household income of less than $10,000. The distribution of CPITN scores by sextant was: 43.2 percent healthy, 20.6 percent bleeding gums, 41.5 percent calculus, 21.6 percent 4–5 mm periodontal pockets and 5.3 percent periodontal pockets greater than 5 mm. For PAL, 67.2 percent did not have any attachment loss greater than 3 mm, 25 percent had 4–5 mm, 8.8 percent had 6–8 mm, and 5.5 percent had greater than 8 mm. While the need for scaling ranged from 18.6 percent in the lower anterior to 25.4 percent in the upper anterior segment, the need for complex periodontal treatment ranged from 1.8 percent in the upper anterior to 4.8 percent in the lower anterior sextant. Associations between periodontal diseases and educational level, socioeconomic status, and sex also were explored. The prevalence of periodontal diseases (14.3%) along the Texas–Mexico border appears to be similar to that of more recent national surveys. (Supported by Oral Health America.)

Michael D. McCunniff, DDS, MS, Gerry J. Barker, RDH, MA, Department of Dental Public Health and Behavioral Science; Karen Williams, RDH, MS, Department of Dental Hygiene; Bruce F. Barker, DDS, Department of Oral and Maxillofacial Pathology, University of Missouri-Kansas City, School of Dentistry, Kansas City, MO.*

HEALTH PROFESSIONALS BASELINE KNOWLEDGE OF ORAL/PHARYNGEAL CANCER

More than 30,750 cases of oral/ pharyngeal carcinoma are diagnosed in the United States each year. In a 1995 study, only 32 percent of physicians felt that their oral cancer knowledge was current and only 18 percent reported that they provided a routine oral cancer examination for 50 percent or more of their patients. The purpose of this study was to evaluate: self-perceived competency in screening for oral cancer; knowledge about signs, symptoms, and risk factors for oral pharyngeal squamous cell carcinoma; and percent of patients examined for oral and pharyngeal cancer. A total of 352 health professionals from community health centers and hospital training centers completed the assessment. Of the 352 health professionals who completed the assessment, 110 primary care providers were identified. Of those, 33 had specialty training (ST) related to the oral cavity and 77 were general practitioners (GP). Results found only 5 percent of GPs reported examining 100 percent of their patients for oral cancer; 32 percent of GPs compared to 76 percent of STs felt their knowledge about oral cancer was up to date. Only 44–59 percent of GPs accurately identified common signs of early cancer compared to 76–97 percent of STs. In addition, approximately 22–31 percent of GPs were unaware of common sites for oral cancer compared to 94–97 percent of STs. Eighty-four percent of GPs reported the need for additional training. These results suggest the need for oral

cancer educational programs aimed toward primary care providers without specialty training.

T. F. Drury, PhD, A. M. Horowitz, PhD, NIDR, Bethesda, MD; H. S. Goodman, DDS, MPH, Maryland Department of Health, Baltimore, MD; J. P. Yellowitz, DMD, MPH, University of MD Dental School, Baltimore, MD.*

EVALUATING DENTISTS' REPORTS OF ORAL CANCER EXAMINATION (OCE) PRACTICES

This study sought to identify needs for continuing education in the use of OCEs among dentists who reported making a more than average effort to provide their patients with an OCE. Information on OC knowledge, opinions, and examination practices obtained through a national mail survey of 3,000+ general practice (GP) dentists was analyzed using SAS. The results showed that about 15 percent of the dentists were consistently above average in the use of a comprehensive list of OC risk factors in taking a health history and in their compliance with recommended OCE practices among patients 40+ years of age. Among this group of self-reported high performers, about 85 percent believed that their knowledge of OC was current. This finding was borne out by their correct responses about commonly known OC risk factors: 100 percent, tobacco; 97 percent, alcohol; 98 percent, prior OC lesion; and 70 percent, old age. However, among this group of high OCE performers, only 62 percent knew that lip cancers were related to sun exposure and only 34 percent correctly knew that most OC diagnoses occur among persons 60+ years of age. Conversely, as many as 51 percent did not know that poor oral hygiene was not an OC risk factor. Although at least 70 percent had a fairly complete idea about basic OCE principles, as many as 47 percent did not know that most OC lesions currently are diagnosed in an advanced stage. Ninety-one percent of these high performers were interested in future OC continuing education. These findings suggest that even among GP dentists who are making a more than average effort to provide their patients with an OCE, there is both an interest in, and a need for, continuing education on this topic.

Janet A. Yellowitz, DMD, MPH, University of Maryland Dental School, Baltimore MD; Alice M. Horowitz, PhD, NIDR; Harold S. Goodman, DMD, MPH, State of Maryland DHMH; Thomas F. Drury, PhD, NIDR, Bethesda, MD.*

A SURVEY OF US DENTISTS' KNOWLEDGE OF ORAL CANCER

Pilot surveys have shown that dentists' (DDS) oral cancer knowledge is not as current as they think, which may negatively impact the quality of their oral cancer (OC) exams. The purpose of this study was to obtain baseline data on OC knowledge of US general dental practitioners. A sample of 7,000 ADA and non-ADA general DDS, purchased from the ADA, was mailed a pretested 34-item survey in July 1996; 3,200 usable responses (RR=50%) were received and analyzed with SAS and SUDAAN software. Almost all DDS correctly identified tobacco use (99%), alcohol use (96%), and having a prior OC lesion (92%) as key risk factors for OC; yet almost 50 percent incorrectly identified poor oral hygiene as a risk factor. While 70 percent of DDS correctly identified older age as a risk factor, only 35 percent identified the majority of OC diagnoses to occur in those 60+ years of age. Fifty-two percent of DDS correctly identified tongue and floor of mouth as the most common sites of OC, with only 40 percent identifying erythroplakia and leukoplakia as lesions associated with OC. Almost 33 percent did not identify that patients with early OC lesions are usually pain free. When differences among DDS occurred (P=.05 level), more recent graduates and those with recent continuing education had higher knowledge scores than their counterparts. Many DDS reported unclear information about oral cancer. These findings support the need for ongoing educational programs to clarify risk factors related to OC prevention and detection.

A. M. Horowitz, PhD, T. F. Drury, PhD, NIDR/NIH Bethesda, MD; H. S. Goodman, DDS, MPH, MD State DHMH; J. A. Yellowitz, DMD, MPH, UMD Dental School, Baltimore, MD.*

PRACTICES OF MARYLAND DENTISTS: ORAL CANCER PREVENTION AND EARLY DETECTION

Maryland ranks 27th among states for incidence of oral cancers (OC), but has the highest mortality rate among black males. Early detection is pivotal to reduce mortality and morbidity; yet only 28 percent of Maryland adults report ever having an oral cancer exam (OCE). The purposes of this study were to describe and evaluate OC practices of MD general dentists (n=508). Questions on the conduct of an OCE, use of health histories to assess patients' OC risks, and opinions about OC practices were obtained as part of a mailed survey and analyzed using SAS and SUDAAN. 83 percent reported providing OCE for all patients at least 40 years of age at initial exam; 3 percent did not provide OCE for this cohort and 86 percent did not provide OCE for nondentate patients. Forty percent palpated lymph nodes for 80–100 percent of all patients; 24 percent did not palpate lymph nodes of any patients. Eighty-one percent agreed they were adequately trained to perform an OCE, but only 24 percent strongly agreed that they were adequately trained to do so. When there were differences (P=.05 level) among dentists regarding their OC practices and opinions, more recent graduates and those with recent CE courses were more likely than their counterparts to practice and have opinions in accord with those now recommended. Eighty-one percent were interested in attending CE courses on OC. This finding as well as the self-reported practices suggest that these sampled dentists not only need, but also would like, to have continuing education courses about oral cancer.

Harold S. Goodman, DMD, MPH, State of Maryland DHMH; Alice M. Horowitz, PhD, NIDR; Janet A. Yellowitz, DMD, MPH, University of Maryland Dental School; Thomas F. Drury, PhD, NIDR, Bethesda, MD.

A SURVEY OF MARYLAND DENTISTS' KNOWLEDGE OF ORAL CANCER

Maryland has one of the highest oral cancer (OC) mortality rates in the United States. Early detection of oral lesions can effectively help reduce this death rate yet results from a regional pilot convenience sample of Maryland dentists (DDS) found that their OC knowledge was not as current as they thought, which may negatively impact the quality of OC exams. The purpose of this study was to obtain statewide baseline data on OC knowledge of Maryland general DDS. A sample of 1,000 ADA and non-ADA Maryland DDS, purchased from the ADA, was mailed a pretested 34-item survey in July 1996. Over 500 usable responses were received (RR=50%) and analyzed using SAS and SUDAAN software. Tobacco use (99%), alcohol use (95%), and having a prior OC lesion (97%) were correctly identified by nearly all respondents as key risk factors for OC; however, poor oral hygiene was incorrectly identified as a risk factor by 43 percent of DDS. Over 68 percent correctly identified older age as a risk factor for OC; yet only 35 percent identified the majority of diagnoses to occur in those 60+ years of age. Seventy-two percent of DDS correctly identified the ventral lateral portion of the tongue as the site most likely to develop OC, while 62 percent correctly identified the tongue and floor of mouth as the most common sites of OC. Only 32 percent correctly ranked erythroplakia and leukoplakia as lesions most likely associated with OC and 24 percent did not identify that patients with early OC lesions are usually pain free. A substantial number of DDS reported an uncertain understanding about key aspects of OC. These findings support the need for statewide educational programs that comprehensively address OC prevention and detection.

Jane L. Forrest, RDH, EdD, National Center for Dental Hygiene Research, Thomas Jefferson University, Philadelphia, PA; Alice M. Horowitz, PhD, NIH/NIDR, Bethesda, MD.*

DENTAL HYGIENISTS KNOWLEDGE AND PRACTICE RELATED TO ORAL CANCER RISK ASSESSMENT

The purpose of this national study was to determine RDHs' knowledge, opinions, and practices regarding oral cancer. Knowledge of risk factors and assessment procedures are reported in this presentation. A pretested 62-item survey instrument was mailed to a stratified random sample of ADHA members and nonmembers (n=1,060). A modified Dillman method was used including three complete mailings to nonrespondents (RR=68%). Of the 68 percent return, 64 percent (n=458) were usable. An overwhelming majority correctly identified tobacco use (96%), alcohol use (85%), and prior cancer lesion (94%) as key risk factors, while over 61 percent incorrectly identified poorly fitting dentures as a risk factor. Although knowledge of alcohol use as a risk factor was high, there was a significant difference between knowledge and practice, with only 48.5 percent asking about current alcohol use on the health history (P<.006) and 39 percent asking about past alcohol use

($P<.02$). RDHs' knowledge and practice were more consistent in regard to current tobacco use. Over 74 percent correctly identified that a patient with an early oral cancer lesion is asymptomatic; however, over 46 percent incorrectly indicated that most lesions are diagnosed in an early stage. Only 45 percent reported their knowledge of oral cancer to be current and only 27 percent believed they were adequately trained to provide tobacco cessation education. Statistically significant differences were found among age groups and mean knowledge scores ($P=.03$) and year of graduation and mean knowledge scores ($P=.004$), with younger, more recent graduates achieving higher scores. Results indicate a need for interventions to increase the knowledge of risk factors and to decrease the gap between knowledge and practice.

Sheryl L. Syme, RDH, MS, Department of Dental Hygiene, University of Maryland, Baltimore, MD; Alice M. Horowitz, PhD, Thomas F. Drury, PhD, NIDR/NIH, Bethesda, MD.*

MARYLAND DENTAL HYGIENISTS' KNOWLEDGE OF ORAL CANCER

Maryland is ranked fourth highest in overall oral cancer mortality and highest in the nation among black males. Dental hygienists' (DH) knowledge of signs, symptoms, and risk factors for oral cancer is important in early detection and prevention. The purpose of this study was to provide baseline data on oral cancer knowledge among Maryland DH. In November 1997 a pretested, 40-item survey instrument was mailed to a scientific sample of DH ($n=700$). A follow-up postcard and two additional complete mailings were sent to nonrespondents. Results were based on 331 usable respondents (RR=60%). SAS and SUDAAN software were used for data analysis. Risk factors and diagnostics were the two assessed knowledge domains. Almost all correctly identified tobacco use (99.7%) and alcohol use (89%) as high risk factors; however, 31 percent incorrectly identified poor oral hygiene as a high-risk factor. Sixty-four percent of DHs correctly identified older age as a high-risk factor; yet only 16 percent identified that the majority of oral cancers are diagnosed in the 60+-year-old age group. Within the diagnostics knowledge domain, only 53 percent correctly identified both the tongue and floor of the mouth as the most common sites of oral cancer. Nearly 91 percent correctly identified the examination procedures of the tongue for oral cancer detection, while only 16 percent of DHs correctly identified erythroplakia and leukoplakia as the most likely conditions to be associated with oral cancer. Only 76 percent correctly identified that early oral cancers are asymptomatic. Neither year of graduation nor recentness of taking an oral cancer continuing education course was associated with higher levels of knowledge. Gaps in knowledge exist in both domains studied and suggest strongly the need for continuing education courses to clarify risk factors and diagnostic procedures associated with earlier oral cancer detection and prevention.