AAPHD 59th Annual Session Abstracts

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CONCENTRATION OF FLUORIDE ION IN DRINKING WATER FROM DIFFERENT SOURCES IN THE REPUBLIC OF KOREA

The purpose of this study was to determine the concentration of F in drinking water obtained from different sources and to provide scientific data for a water fluoridation program in the Republic of Korea. 226 samples of drinking water were collected from stratified districts by province and cities. Tap, ground, and medicinal (natural) water samples were collected from 36 cities and 29 districts. Eighteen commercially available bottled water samples and 13 samples from hot springs also were included in this study. One hundred ml each of these samples were transferred into standard plastic vials previously coded by random numbers. After buffering the test samples with equal volume of TISAB III, the fluoride ion concentrations of test samples, in triplicates of each, were determined using an Orion ion-specific electrode and a miniature Calomel reference electrode coupled to a potentiometer. The results were summarized as mean ppm F (SD): tap water, 0.28 (0.23); ground water, 1.02 (2.28); medicinal water, 0.78 (2.24); hot springs, 8.80 (8.02); and bottled water, 0.61 (0.68). It is concluded that tap water needs to be readjusted at the fluoride ion concentration of 1.0 ppm for dental caries protection.

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CHANGES IN DENTAL FLUOROSIS AFTER FLUORIDATION IN NEWBURGH TOWN

Several studies have examined the changes in dental fluorosis over time in the United States. However, data on changes in dental fluorosis levels after a community is fluoridated are lacking. As part of an ongoing study in the cities of Newburgh and Kingston, NY, data were collected on 289 children who resided in the nearby town of Newburgh, a separate jurisdiction from the city of Newburgh. The town of Newburgh fluoridated its water supply in 1984. In 1995, 262 children from the town of Newburgh were examined and data were analyzed to determine the changes in dental fluorosis after 11 years of water fluoridation. In both studies, trained examiners measured fluorosis using Dean's Index. The examiners were not aware of the residential or fluoride history of the subjects. The prevalence of very mild to severe categories of dental fluorosis among 7–14-year-old children was 13.9 percent (SE=2%) in 1986 and 14.3 percent (SE=2%) in 1995. The reported regular use of fluoride supplements declined from 31 percent in 1986 to 21 percent in 1995. A ridit analysis showed that the mean ridit for the 1995 group was .503. These results show that neither the prevalence nor the severity of dental fluorosis changed significantly in the town of Newburgh after 11 years of fluoridation. (Supported by a grant from NIDR—1RO1DE1088801)

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PATTERNS OF FLUORIDE DENTIFRICE USE AMONG 20-MONTH-OLDS

Dental fluorosis prevalence has increased in the United States, Canada, and other industrialized nations. Several recent studies have identified ingestion of fluoride (F) dentifrice as a risk factor associated with dental fluorosis, but few studies have investigated use of F dentifrice by young children (while developing teeth were at risk of fluorosis). The purpose of this paper is to summarize patterns of F dentifrice use at age 20 months among a birth cohort recruited during 1992–94. Parents completed self-administered questionnaires at 4-month intervals, with 366 responding at 20 months. Ninety-four percent reported teeth brushed, with 98 percent using child- and 2 percent adult-sized toothbrushes; 67 percent used F dentifrice regularly, 19 percent occasionally, and 14 percent not at all. Daily brushing frequency was 20 percent less than daily, 48 percent once per day, 29 percent twice per day, and 3 percent three or more times per day. Estimated mean quantity of F used per brushing was 0.24 (range to 0.88 mg); and mean daily mg F used was 0.30 (range 0–1.75 mg F/day). Some children received several times the mean quantities. Results support the conclusion that dentifrice ingestion among 1-year-olds varies substantially, can be substantial, and could be a risk factor for dental fluorosis. (Supported in part by RO1-DE09551 and P30-DE10126)

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BACKGROUND FLUORIDE INTAKE FROM PROCESSED FOODS DURING THE VULNERABLE YEARS

Both prescribed fluoride supplements and ingested fluoride toothpaste have been identified as contributors to the increased prevalence of fluorosis. Also, since Dean's time, there has been an increased consumption of canned foods and bottled beverages frequently processed with fluoridated water. The purpose of this study was to estimate the total fluoride consumption from water added to processed foods. We analyzed the 1977–78 Nationwide Food Consumption Survey of the US Department of Agriculture, which used a stratified probability sample of 14,930 households. Since children are at greatest risk of fluorosis of the maxillary central incisor teeth from approximately 15 to 30 months, we focused our analysis on 492 children between 1 and 2 years of age with complete three-day food and beverage diaries. We assumed that the majority of foods are processed in the region of consumption and used weighted mean fluoride levels for the water added by commercial processors, i.e., 0.51, 0.73, 0.59, and 0.25 ppm for the Northeast, North Central, South, and West regions, respectively. Water added by food processors contributes approximately 14.3 percent to total fluoride intake from water in the Northeast, 11.9 percent in the North Central, 8.8 percent in the South, and 4.3 percent in the West for children between 1 and 2 years of age. While water added by food processors can be a substantial source of fluoride in certain age bands, it was not found to be a major contributor in children between 1 and 2 years of age.

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DENTAL SEALANT: ELIGIBILITY, RECOMMENDATION AND PATIENT ACCEPTANCE IN PRIVATE SOLO PRACTICE

The purpose of this study was to determine if in-office education programs can increase the use of dental sealants. Three solo practice general dentistry offices were selected to participate. During the first 2 months, offices recorded data on 78 patients 6–16 years of age. At the start of the third month, an in-office education program for the entire dental staff was presented in each office, emphasizing the benefits of dental sealants. A similar program was given again one month later. The data forms continued to be completed for 2 more months on an additional 86 patients. All offices were provided with American Dental Association posters and patient handout materials, as well as sealant kits. After the education programs, the mean number of eligible teeth to be sealed increased from 4.4 to 4.7, and the mean number of teeth recommended to be sealed increased from 3.4 to 3.9, while the number actually sealed decreased from 2.8 to 2.4. The number of eligible teeth was significantly more than the number recommended for sealants, and the number recommended for sealants was significantly more than the

number sealed ($P<.05$). The educational component increased dentists' awareness in the identification of eligible teeth and recommendations for sealants. More efforts should be made toward educating patients in accepting sealants. (Partially supported by Jeneric/Pentron)

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THE IMPACT OF A COMBINED PRIMARY PREVENTIVE PROGRAM IN THE MOCKCHEON GRADE SCHOOL IN CHEONAN, KOREA

The purpose of this study was to evaluate the six-year impact of a combined preventive dentistry program on the incidence of dental caries in schoolchildren of Mockcheon grade school, Cheonan, Korea. The program consisted of a school-based weekly fluoride mouthrinse, a clinic-based pit and fissure sealant placement, an annual topical fluoride application, and frequent dental health education. At baseline, 3, 5, and 6 years, age and sex adjusted cross-sectional random samples of approximately 250 schoolchildren, from 6–11 years of age were examined for DMFT using WHO criteria. DMFT Indices were 2.12 in 1989 (baseline), 1.80 in 1992 (year 3), 1.53 in 1994 (year 5), and 1.41 in 1995 (year 6). These results indicate reductions of 15.1 percent after 3 years, 27.8 percent after 5 years, and 33.5 percent after 6 years of program implementation in a school setting. Therefore, it is concluded that during the 6 years of the program the incidence of dental caries was significantly reduced by 33.5 percent. These preventive school health programs were very effective in controlling dental caries.

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FLUORIDE MOUTHRINSING PROFICIENCY OF PRESCHOOL-AGED CHILDREN

Due to concern about fluorosis, some countries and the WHO recommend that fluoride mouthrinse is contraindicated for children under age 6. Because caries rates are high in Japan and because community water fluoridation is not available, many nursery schools have implemented daily fluoride mouthrise programs after the children practice with tap water. The aim of this study was to determine if 4- and 5-year-old children swallow the solution when rinsing, and if so, how much was retained. 509 children in 27 nursery schools rinsed with 7 ml of 0.05 percent NaF solution for 1 minute. The expectorate was weighed and F ion was measured by the electrode technique. No children swallowed all of the solution. The mean amount of fluoride retained was 0.17 mg (SD=0.09), corresponding to 10.7 percent of the administered dose of 1.58 mg. 91.5 percent retained less than 0.25 mg, an amount well within recommended guidelines. Only four children (0.8% of subjects) had relatively larger values that ranged from 0.5–1.17 mg. The questionnaires taken at this time showed that the percent of children who used fluoridated toothpaste once or twice a day was 37.6 percent, and that 89.8 percent of them used a pea-sized amount of F paste at each brushing. The results of this study demonstrate that Japanese preschool-aged children can perform the rinse procedure safely and well.

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MEDICAID ATTITUDES AND PARTICIPATION OF IOWA DENTISTS

Dentists' participation in the Medicaid program is one of the principal factors affecting recipients' access to dental services. A written survey about dentists' attitudes and participation in Medicaid was mailed to all actively practicing Iowa dentists in the fall of 1995 (n=1,233). 937 responded for a 76 percent response rate. 42 percent of the dentists were accepting all new Medicaid recipients in their practice, a 20 percent decrease from 1992. 22 percent of dentists were accepting only some new Medicaid patients. Univariate analyses were conducted to determine if dentists who accept all new Medicaid patients (full participants) differ from those who do not (limited participants). Full participants differed significantly on some demographic characteristics (e.g., specialty, sex and urban/rural location), some attitudes toward both the Medicaid program and Medicaid patients, and whether dentists have an ethical obligation to treat Medicaid patients (X^2, $P<.05$). The most important problems with the Medicaid program for all dentists were low fees, broken appointments, and patient noncompliance. Access to dental care is decreasing for Iowa Medicaid recipients. (Funded in part by the Iowa Department of Human Services)

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DEVELOPING A PROCESS FOR EVIDENCE-BASED GUIDELINES IN DENTISTRY: THE RESULTS FOR ONE REGULATORY BODY

A Guideline Process Development Workshop was held by the Royal College of Dental Surgeons of Ontario, the regulatory body for dentists. Some 45 dentists, specialists, public members, and members from other regulatory bodies attended. The workshop generated a seven-step process unanimously supported by all attendees. The resulting evidence based process shares many commonalities with similar processes developed elsewhere. The seven steps are: define the problem, assemble and review the evidence, develop preliminary evidence-based report (EBR), review and revise EBR, publish the guideline, disseminate the guideline, and update the guideline. These steps are similar to those used in the USA by RAND and the Agency for Health Care Policy and Research (AHCPR) as well as those used in Canada by the Ontario Cancer Treatment and Research Foundation (OCTRF) and CDHSRU, and should lead to valid guidelines. (Supported by Ontario Ministry of Health, Grant #04170)

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ONTARIO DENTISTS' OPINIONS OF PRACTICE GUIDELINES

Ontario legislation requires the Royal College of Dental Surgeons of Ontario to develop a quality assurance program, including standards of practice, for Ontario dentists. For these standards to have the greatest chance of success, practicing dentists need to understand and support their development. We surveyed 771 dentists who treat children in North York, Ontario, on their opinions regarding quality assurance and practice guidelines. 282 dentists (36.6%) responded to our questionnaire, but their demographics were not significantly different from the demographics of nonresponders ($P>.05$) and were similar to dentist demographics for the province. Over 90 percent of dentists agreed that the development of practice guidelines should be part of a quality assurance program and 89 percent felt that practitioner compliance to these guidelines should be assessed. Responses to several questions indicate that dentists believe practice guidelines will positively impact dentistry. However, responses to other questions indicate that dentists favor expert and practitioner opinion over scientific evidence as the basis of these guidelines. Opinions were not significantly related to dentists' age, sex, year of graduation, dental school or speciality ($P>.05$). Understanding these views should help facilitate guideline development in Ontario. (Supported by a grant from the Ontario Ministry of Health #04170)

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FIRST NATIONS ASSUME CONTROL OF CANADIAN DENTAL THERAPY TRAINING PROGRAM

July 1, 1995, the Saskatchewan Indian Federated College (SIFC) assumed the Health Canada contract to operate the National School of Dental Therapy (NSDT) in Prince Albert, Saskatchewan. For more than 20 years the NSDT, in association with the University of Toronto, trained dental therapists to provide oral health services in Inuit and First Nations communities across Canada. In so doing they created a solid foundation for the next evolutionary phase: control of the program by the people it serves. After overcoming some pressure to maintain the status quo, SIFC was selected as the most appropriate First Nation-con-

trolled institution to manage the NSDT. SIFC is integrating into the program traditional Aboriginal knowledge and values as part of its efforts to help the program better meet the needs of Canada's Aboriginal peoples.

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COMMUNITY-ORIENTED DENTAL EDUCATION (CODE): OUTCOMES FROM THE FIRST YEAR OF FULL IMPLEMENTATION

The University of Medicine and Dentistry-New Jersey Dental School implemented a pilot Community-based Dental Education program (CODE) where senior students spend 80 percent of their senior year in community health centers. Program goals include training dentists in a more time- and cost-efficient manner and improving access to oral health care. This paper compares student clinical activities in the community-based (CODE) sites to activities in a traditional clinical program located at the New Jersey Dental School. To measure quantity of clinical activities, relative value units were assigned to all clinical procedures. On average, CODE (n=8) students completed 1,892 points versus a randomly selected matched group of traditional curriculum students (n=16) who completed 645 points (Kruskal Wallis P<.001). Student success rate on mock board exams conducted by dental school faculty were similar between the two groups [amalgam[2] P=0.950, composite[2] P=0.324, bridge preparation[1] P=1.000, bridge temporization[1] P=1.000 ([1]=Kruskal Wallis, [2]=Fishers Exact Test)]. These results show that students were able to provide three times as much care in community-based settings and suggest a comparable level of quality. Other outcome measures also will be presented. (Partially funded by the US Department of Education—Fund for the Improvement of Postsecondary Education)

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AVAILABILITY AND DISTRIBUTION OF DENTISTS IN NEW JERSEY

A study was conducted by the New Jersey Department of Health and the Oral Health 2000 Policy Committee to assess the availability and distribution of dentists in New Jersey. It was found that, while the total number of dentists and dental specialists appear more than adequate when compared to national figures, inequities in distribution were apparent. The dentist-to-population ratios for the five highest and the five lowest counties were used. Bergen County, the highest ranked with 10.7 percent of the population had 17 percent of the state's dentists, while Cumberland County with 1.8 percent of the population had only .7 percent. The five lowest ranking counties all fell significantly below the national average. Merely reducing the supply, i.e., the 1989 closure of Fairleigh Dickinson Dental School, will not ensure adequate distribution of dentists in the absence of an effective plan.

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FACTORS INFLUENCING PERCEIVED NEED FOR DENTAL CARE AMONG MILITARY RECRUITS

Factors influencing perceived need for dental care were studied in a systematic random sample of 2,711 US Army, Air Force, Navy, and Marine Corps recruits. Recruits answered demographic and perceived need queries on self-administered questionnaires and received a comprehensive dental examination from a calibrated dentist. Data collection extended from February to July 1994. Bivariate (weighted data) and logistic regression (unweighted data) analyses were performed to determine associations between demographic and clinical measures and perceived need for dental care. All analyses were done using Stata and SUDAAN statistical software. Bivariate results show that, overall, 61 percent of US military recruits perceive a need for dental care with statistically significant differences across race, age, and dental fitness classification. Logistic regression results show that the likelihood of perceiving a need for dental care is influenced by sex, home region of the United States, calculus, extensive decay, dental utilization, dental fitness classification, and branch of service. These results suggest that although oral health status, dental utilization, and demographic factors contribute to shaping perceived need for dental care in US military recruits, as they do in active duty military personnel, the actual factors and the magnitude of their impact differ between the groups.

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A COMPARISON OF CLINICAL DENTAL SERVICE UTILIZATION PATTERNS FINANCED BY CAPITATION AND INDEMNITY INSURANCE

This paper presents information on clinical dental services provided to persons in a large group practice from January–December 1995. Eighty-eight thousand six hundred and seventy-nine (88,679) dental services were provided to 8,614 patients during 24,628 visits at 12 clinical sites. Of the total number of 88,679 dental services, 34.6 percent (30,659) are diagnostic; 24.7 percent (21,906) preventive; 6.8 percent (6,001) general restorative; 1.8 percent (1,549) crown restorative; 1.3 percent (1,171) endodontic; 1.3 percent (1,144) periodontic; 1.2 percent (1,094) removable prosthodontic; 1.0 percent (860) fixed prosthodontic; 1.4 percent (1,282) oral surgery; 13.7 percent (12,164) orthodontic; and 12.2 percent (10,849) adjunctive general services. When these 88,679 dental services are stratified by health care financing mechanism, 61.8 percent (54,769) are capitation and 38.2 percent (33,910) are indemnity insurance. When these dental service utilization data are controlled for orthodontic services, the largest percent increases occur in the diagnostic and preventive service categories. Diagnostic and preventive services comprise over half of all care for each group, with capitation patients receiving a slightly higher percent (69.6%) of these services than persons whose care is funded by indemnity insurance (67.2%). The differences between capitation and indemnity insurance patients in the various frequency distributions of diagnostic, general restorative, crown restorative, endodontic, periodontic, removable prosthodontic, fixed prosthodontic, and oral surgery services are each 7 percent. Indemnity insurance patients exhibit a slightly higher utilization (15.2%) of adjunctive general services than those whose care is funded by capitation (13.5%). Capitation patients proportionally receive slightly more (29.3%) preventive services than those with indemnity insurance (27.6%). In general, these data demonstrate that there are many similarities and few differences among the frequency distributions of dental services provided to these two patient populations. Preliminary findings of this study appear to indicate that these capitation and indemnity insurance patients are provided comparable dental care, irrespective of the dental health care financing method utilized.

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EVALUATION OF THE NUTRI-DENT PROJECT: IMPACT OF OUTREACH WORKERS ON DENTAL STATUS AND ACCESS TO DENTAL CARE

A program and evaluation were conducted to determine if an intervention of health education and intensive case management would impact the dental health status of children of migrant families. Preintervention baseline dental exams were conducted on 95 3–5-year-old children of migrant families. The three-month intervention consisted of nutrition and dental health education as well as active case management by community health workers. Postintervention exams were conducted to ascertain project results. Key results included a 20 percent decrease in untreated dental decay in program participants. Oral hygiene scores improved by 41 percent and gingival index scores improved by 47 percent from baseline. Health workers were able to site specific barriers to accessing the dental health care system. Implications for the role of the health worker in facilitating entry into the dental health care system will be discussed.

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A MULTIDISCIPLINARY SCHOOL-BASED CLINIC: PUBLIC AND

PRIVATE COLLABORATION

Accessibility of dental care is an important concept in promoting oral health of the underserved populations. A multidisciplinary school based clinic was recently developed in Houston as a result of private and public collaboration. The UT Dental Branch has a required rotation for senior dental students who will rotate through the clinic for three weeks during the academic year and provide services along with medical, nursing, public health, allied health, and optometry students. Rusk serves low-income and homeless children from an inner-city area of Houston. The demographic constitution of Rusk's 429 students is 80 percent Hispanics, 18 percent African Americans, and 2 percent Caucasians. Over 90 percent of the students are eligible for the free or reduced lunch program, with 30 percent living in homeless shelters. Initially, dental services will be limited to Rusk students and their 600 siblings, and later to everyone living in Rusk's attendance zone. Contribution of private and public agencies to the clinic will be discussed. In addition to improving access to oral health care for Rusk's students, the objective of the rotation is to provide learning experiences for dental students emphasizing community oriented primary care (COPC), which takes into account cultural and socioeconomic factors that may influence the use of health care.

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AN ALTERNATIVE ORAL HEALTH CARE SETTING THAT COMBINES MOBILE PREVENTIVE AND RESTORATIVE SERVICES TO IMPROVE ORAL HEALTH CARE ACCESS IN UNDERSERVED AREAS OF WASHINGTON STATE

The working model employs a combination of preventive and restorative methodology within a mobile dental clinic delivery setting that serves Head Start programs, people with disabilities, elementary schools, middle schools, and mental health groups. The emphasis is on serving children in underserved areas. A Medicaid population of 90–95 percent is routine. The clinic serves an Hispanic population of 60 percent. Innovative aspects include: assistants place sealants, polish teeth, apply fluorides, take X-rays; hygienists perform prophylaxis, anesthesia, pack and carve amalgams, and place composite fillings; and dentists do exams, prep teeth, and provide supervision for multiple hygienists and assistants. This arrangement better utilizes the highest paid health care professional in the performance of supervision and more technical dental work and reduces costs of service delivery. The benefits of preventive methodology are maximized (at 60–70 patients per day with one dentist) as the clinic combines its emphasis on prevention (through use of fluoride, sealants, and varnishes) with the target population (90% children). Restorative care is maximized (at 50 patients per day) by setting up regional "networks of care" that utilize health care professionals part-time.

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FIVE-YEAR RESULTS OF PRIMARY DENTAL HEALTH CARE PROJECT (PDHC) IN DOMINICA, WEST INDIES

In 1989, the Dominican primary dental health care system lacked a specific plan to measure or address the country's needs, had little means of assessing progress toward goals, too few providers, and poorly functioning equipment. The primary dental health care (PDHC) project established a partnership between the University of Toronto and the Ministry of Health that set out to develop the dental system to a level equivalent to the nation's other health care services. The project included setting health goals for children's dental health and program targets to achieve them, developing management information systems, training current and new dental therapists plus an equipment technician, and re-equipping the program with more rugged portable equipment that could be maintained. The project began in 1991. We planned to hold the mean DMFT (age 12) at 2.8 or less and improve the F/DMFT from 8 percent to 80 percent. We achieved almost all the program development and training objectives. Dental sealants were introduced into the program and services were planned with the staff to focus on priority age groups. On resurveying children in 1995, we found the mean DMFT at age 12 fell to 2.0 and the F/DMFT rose to 33 percent. The Dominican PDHC system was strengthened by the project and is seen as a model for other Caribbean countries. (Funded by the Canadian International Development Agency)

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ORAL MANIFESTATIONS OF HIV INFECTION IN VENEZUELAN CHILDREN

Epidemiologic surveillance of human immunodeficiency virus (HIV) infection started in 1983, currently representing a major public health challenge. Forty-five out of 46 countries and territories in the Americas have reported cases of AIDS from 1983 to 1991. In the United States almost three-fourths of women and children with AIDS are either black or Hispanic. This study retrospectively examined medical and dental records of 29 HIV-infected children from two main referral centers in Caracas, Venezuela, from 1987 through 1995. The patient population consisted of 20 males and 9 females, ranging in age from 2 to 13 years. All patients were born to HIV-seropositive mothers and their weights at birth ranged from 2 to 5 kilograms. Early clinical manifestations seen included lymphadenopathy, persistent fever, chronic or recurrent diarrhea, pneumonitis, anemia, malnutrition, and various bacterial infections. The oral manifestations most commonly noted included oral candidiasis (55% of all cases), especially of the pseudomembranous type, apthous ulcerations, HIV-associated gingivitis, and primary herpetic gingival stomatitis. Diagnosis and early treatment of HIV infection continues to be a challenge in Latin America. Epidemiologic regional studies and alternative health services delivery models are necessary to diagnose and treat the infection in different population groups.

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ORAL HEALTH AS A COMPONENT OF HCSUS: A NATIONAL STUDY OF HIV-POSITIVE PATIENTS AND THEIR ACCESS TO MEDICAL CARE IN THE UNITED STATES

Health Cost Services Utilization Study (HCSUS) will use a national probability sample of HIV infected patients accessing medical care at large and small provider sites. 3,300 subjects will be interviewed at baseline and follow-ups conducted at 6-month intervals over a two-year period. Additional data from medical records and pharmacy logs will augment survey data. The Oral Health Supplement to HCSUS, started 9/30/95, provides a unique opportunity to examine the oral health implications of HIV. The research will: 1) estimate the incidence and prevalence of HIV/AIDS-related oral conditions, and the number and type of symptoms found among HIV infected persons; 2) determine the self perceived and clinically assessed oral health status of HIV infected patients and the relationship of that status to HRQOL; 3) determine the extent to which HIV infected patients perceive an unmet need for dental care and the extent that barriers to accessing dental care exist for these individuals; 4) determine the amount of dental treatment received by patients and determine the degree to which the services are related to their HIV infection and its sequelae; and 5) determine the degree to which HIV infected patients are satisfied with the care they are receiving. This presentation will present the research design of HCSUS and the Oral Health component, describe key variables and their operational definitions, and illustrate the analytic approach that will be used to assess key research questions.

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THE PUBLIC HEALTH COST OF ORAL FACIAL TRAUMA

Treatment of oral facial trauma represents a major public health problem for many large, urban cities. The individuals involved are minority, socially disadvantaged individuals. Preliminary information

was gathered about the physical, psychosocial, and economic cost of oral facial trauma at the Martin Luther King County Hospital, in South Central Los Angeles. Of 264 subjects, they were predominantly black (72%) and Hispanic (25%), male (84%), and young (mean age 34). All subjects had at least one mandibular fracture. Assault was the primary etiology of the injuries (73%). Treatment regimens included maxillomandibular fixation (MMF), requiring one's jaws to be wired shut for over 1 month, and rigid internal fixation (RIF), which returns a patient to immediate function. The economic difference between the two regimens was impressive, with hardware costs ranging from a low of $8 for MMF to a high of $19,000 for one of three types of RIF. Hospital charges represent another economic cost to the public, with inpatient days ranging from a mean of 2.2 for MMF to 5.3 for RIF. The implications of balancing economic costs with physical or psychosocial costs will be discussed. (Supported by the National Institute for Dental Research, the UCLA/Drew Regional Research Center for Minority Oral Health, Grant #DE/RR10598)

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ANALYSIS OF DIAGNOSTIC PARAMETERS FOR EVALUATION OF TMJ DISORDERS

Ishigaki et al. (1993) have reported that temporomandibular joint dysfunction (TMD) contains at least five multifaceted categories. Various epidemiologic studies report the presence of at least one sign of TMD as a common finding. Studies report that objective diagnostic data are difficult to obtain due to various TMD etiologies and symptoms. The purpose of this study was to investigate the chief complaint that forced patients to seek clinical treatment. Our questionnaire (Dworkin et al., 1990; Cox et al., 1995) attempted to measure the degree of chronic pain severity as reported by each patient. In addition, several clinical examination parameters were performed on each patient. Sixty-six subjects (48 female, 18 male) completed a personal demographic history questionnaire followed by a comprehensive clinical exam that collected specific clinical data. Patients were divided into asymptomatic and symptomatic groups for evaluation and data collection. Data revealed that some clinical signs are a relatively common phenomenon for all patients. Other clinical signs are rarely reported in nonpatient populations. The chief complaint was presence of pain in both joints at a frequency of 80.0 percent. Chi-square tests of the association between chronic pain severity (CPS) and other parameters in asymptomatic patients revealed: CPS showed a positive correlation in the overall population that reported depression, correlated strongly with headache in symptomatic patients, and demonstrated a higher correlation with all parameters in the symptomatic group and a lower correlation in the asymptomatic group.

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ASSESSMENT OF ORAL HEALTH AND NUTRITIONAL STATUS IN A COHORT OF ACUTELY ILL HOSPITALIZED ADULTS

Oral health and nutritional status were assessed in more than 300 adults using both patient self-reported and physician-reported inventories. Chi-square tests were used to compare categories of nutritional risk with parameters of self-reported oral health. Measures of agreement between patient and physician were used to assess reliability. Oral health status and nutritional risk were statistically associated ($P<.0001$). Patients who self-reported poor oral health status were at greatest nutritional risk. Eating less than two meals per day ($P=.008$), eating few fruits and vegetables ($P=.042$), having tooth or mouth problems ($P<001$) and not having enough money to buy food ($P<.021$) were associated with poor oral health status. Patients with difficulty chewing ($P<.001$), enjoying food ($P=.007$), and difficulty swallowing ($P=.036$) were more likely to be identified in the highest nutrition risk category. Teeth and prostheses reported by patients and observed by physicians were highly reliable and consistent, functional and sensory measures were less consistent, and oral health status was the least reliable. The combination of nutritional and oral health screening measures may be an efficient and cost-effective way to identify oral problems for persons who do not seek traditional oral health care.

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A SURVEY OF ORAL CARE PROTOCOLS AND DENTAL TEAM INVOLVEMENT IN BONE MARROW TRANSPLANTATION

Oral complications account for a significant number of the side effects experienced by patients undergoing BMT. Mucositis, xerostomia, and oral hemorrhage, combined with the myelosuppressive state of the BMT patient, allow the oral cavity to serve as a potential source of local and systemic infection. To minimize the oral complications of therapy and the potential for infection, it is imperative that an oral care protocol be followed and that dental professionals participate in the multidisciplinary care of the BMT patient by providing dental evaluation and treatment before, during, and after transplantation. Currently, information specific to the oral care protocols of bone marrow transplant centers or dental team involvement during bone marrow transplantation is lacking. Therefore, a survey of the 78 BMT centers participating as transplant centers in the National Marrow Donor Program was conducted. The results of this survey did not identify a standardized oral care protocol for the BMT patient. Although trends in oral care were demonstrated, many differences existed among the oral care protocols surveyed. Additionally, some of the data collected did not compare favorably with the literature reviewed. Dental team involvement in patient care during the pre-transplant phase was apparent. However, during the transplantation hospitalization, dental team involvement was found to be minimal. Based on the data collected, the literature reviewed, and the investigators' experience, a protocol was proposed for the oral/dental management of the bone marrow transplant patient.

Huyen Ung, University of Toronto.

AN ASSESSMENT OF ORAL HEALTH NEEDS OF THE COMMUNITY SERVED BY WEST CENTRAL COMMUNITY HEALTH CENTRES

The primary objective of this research is to determine how to improve the quality of community dental services presently offered to the community by West Central Community Health Centres. Marginalized clients ($n=214$) and 17 employees from 18 social services agencies were interviewed. Contrary to general beliefs, oral health is an important issue for these clients even though they face many other difficulties in life. Lack of ability to pay for dental care was stated by clients as the primary barrier to oral health. Clients also articulated that they lack information about the services for which they are eligible. The research has indicated a low level of awareness about West Central dental clinic, especially among clients in the outreach sites that are visited less frequently. Besides the economic barrier to assessing treatment, in significant number, these clients express a fear of visiting the dentist as well.

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DENTAL STUDENTS' ATTITUDES TOWARD THE TREATMENT OF HIV-INFECTED DENTAL PATIENTS

The aim of this study was to assess the dental students' knowledge of the HIV virus, the association of oral manifestations with HIV, and cross-infection routes for HIV. The study population consisted of all 264 undergraduate dental students at the University of Texas Dental Branch in Houston (UTDB). Data were collected by a pretested, self-administered mail survey consisting of 40 precoded and 2 open-ended questions. The effective response rate was 33.3 percent. While only 10 percent of the respondents were very concerned about treating patients not at risk for AIDS, more than half of the students (53%) were very concerned about treating patients at risk for AIDS. Only 32 percent of the students were able to identify an asymptomatic carrier of the AIDS virus, and 66 percent of the respondents believed every patient as a potential carrier of the AIDS virus. A majority of students were aware of the association between HIV and Kaposi's sarcoma, oral candidiasis, and hairy leukoplakia. Despite the majority of respondents reporting adequate infection control, 52 percent believed themselves to be at an

increased risk for the AIDS virus due to occupational exposure and 66 percent were concerned about transmitting AIDS to a family member if exposed. A course on the treatment of HIV-infected patients, as well as increasing opportunity for experience, is recommended.

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A PILOT STUDY OF ESTHETIC PERCEPTIONS OF DENTAL FLUOROSIS VS. OTHER DENTAL CONDITIONS

Few studies have considered opinions of people, either dental professionals or lay people, about the esthetics of enamel fluorosis. The purpose of this study was to compare perceptions of the esthetics of fluorosis with other oral considerations. 179 family practice patients (75% female), aged 18–80 (mean=37), completed questionnaires about sets of paired photographs. Each consisted of fluorotic teeth (TSIF levels 1 to 6) vs other (malocclusions, tetracycline staining, isolated enamel opacities, "normal"). Six questions, both qualitative and quantitative, were asked of each pair of photographs. One question had respondents rate the appearance of the teeth from 1 (very pleased) to 10 (very embarrassed). Another question involved visual analog scales (69 mm long), from good to bad, and from satisfactory to unsatisfactory. Paired t-tests, using the visual analog scales, showed that all 5 pairs of fluorotic teeth scored less favorably than the nonfluorotic teeth. When rating the appearance of the teeth from 1 to 10, fluorotic teeth generally were scored less favorably, with 3 of the 5 pairs significantly different ($P<.05$). Respondents were asked which pair of teeth they liked better, and the fluorotic teeth scored less favorably in all five pairs. Respondents also were less likely to purchase toothpaste from a person with fluorotic teeth, and in 3 of 5 pairs, respondents would be less likely to smile with their teeth showing if their teeth were fluorotic. Results suggest that even mild fluorosis can be of esthetic concern and further study, including comparisons with other oral conditions, is warranted.

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CARIES STATUS AND SUBSEQUENT SEALANT DECISIONS IN NC MEDICAID RECIPIENTS

This study investigated the association between caries status and sealant need at a prior survey and sealant used in a Medicaid program. Clinical data from a 1986-87 statewide epidemiological survey (n=8,026) representative of NC schoolchildren (grades K–12) were linked with all NC Medicaid dental claims submitted by practicing dentists during 1987-93, yielding 570 subjects in the survey who had at least one dental visit during 1987–93. From the 570, 390 were selected: 71 who received sealants (S) and 319 who received nonsealant care (NS). NS subjects were 6–15 years old at first visit and had at least one "sealable" first or second molar or premolar (scored sound or with sealant need on survey). S and NS groups were compared on baseline dfs, DMFS and sealant need (defined by explorer sticking in one or more teeth with no obvious decay), controlling for age, number of visits and provider's propensity to seal. At 6-15 years, NS was more likely to have had any prior dfs or DMFS (OR=2.06, 95% CI=1.13, 3.75). At 6–11 years, S and NS subjects were about as likely to have had sealant need (OR=1.40, 95% CI=0.59, 3.36). At 12–15 years, NS was more likely to have had sealant need (OR=6.80, 95% CI=1.18, 38.46). Sealant recipients had lower measures of past caries experience. The likelihood of sealant receipt was not related to sealant need. Sealants were used infrequently by most providers and for a minority of patients. Policies such as need for prior approval and one life-time sealant application may influence providers' sealant decisions. (Supported by AHCPR R01HS06993-02 and 5-T32 HS00032-05)

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PERCEPTIONS AND ACTIVITIES OF STATE, TERRITORIAL AND LOCAL DENTAL PROGRAMS TOWARD THE PERIODONTAL DISEASES

Recent research contradicts past beliefs concerning the periodontal diseases (PDD), necessitating a reexamination of dental public health's role in PDD prevention and control. This study describes PDD activities of state and local dental programs and assesses dental directors' attitudes toward the control and prevention of PDD. Some 58 state and 341 local dental program directors were mailed a questionnaire assessing program structure, PDD activities and directors' attitudes toward PDD. These programs focus primarily on children with local programs providing more clinical care (92%) compared to states (41.3%). PDD screening is provided by 88.6 percent of local and 41.3 percent of state programs. Clinical PDD care is confined to basic diagnostic/treatment services, with little complex care provided. Only 60.9 percent of state and 49.4 percent of local programs provided PDD education beyond oral hygiene instruction. Few programs can collect meaningful PDD data: gingivitis is most commonly assessed, while more appropriate measures such as attachment loss have rarely been assessed. Most directors lack up-to-date knowledge regarding PDD, feel they lack resources for adequate PDD prevention and control, and believe the public is unable to recognize and prevent PDD. Public health dentistry's role in PDD prevention and control should be to assess the periodontal health of the population; educate the profession and the public; and to enable patients to seek timely PDD prevention and control services in concert with other public and private dental organizations.

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EFFECTIVENESS OF TWO ELECTRIC TOOTHBRUSHES ON NURSING FACILITY RESIDENTS

Extensive oral hygiene needs have been identified in most nursing home residents. Previous studies have attempted to determine the best method of mechanical plaque removal, but few have attempted to determine the effectiveness of toothbrushing in a functionally dependent population in a truly natural setting. The purpose of this study was to determine the effectiveness of two electric toothbrushes (Oralgiene and Interplak) on 16 care-dependent residents of a nursing facility in a 15-week crossover clinical trial (with a three-week washout period between two 6-week brushing periods). Nursing aides, already employed by the facility, were trained and were to brush each subject's teeth for 1 minute each day of the week. Blinded exams were performed at baseline and 3, 6, 9, 12, and 15 weeks, with plaque index (PI) and gingival index (GI) scores for all teeth being recorded. MANOVA showed no significant effect for the order of use of each device. Use of both devices results in statistically significant ($P<.05$) reductions in PI scores, but on average much plaque remained. There was no significant difference in PI by device. GI scores declined with both devices, although statistically significant with the Interplak only. "More compromised" subjects had a greater baseline GI and a statistically significant decline in GI. Additional study is necessary of the special challenges of the nursing facility and the possible need for various toothbrush types selected specifically for various defined levels of functional and/or cognitive impairment. (Supported in part by NIH grant P30-DE10126)

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SURVEY OF OHIO WATER PLANT OPERATORS WHO FLUORIDATE DRINKING WATER

Last year marked the 50th anniversary of water fluoridation. Since 1969 Ohio has had a state law requiring that all community water systems serving over 5,000 people be optimally fluoridated. In Ohio 224 water plants fluoridate drinking water according to Ohio EPA's range of 0.8–1.3 ppm fluoride. The "optimum" fluoride concentration for Ohio is 1.0 ppm fluoride. A survey was mailed to all 224 water plant operators to determine the expertise of water plant operators and identify factors responsible for variations from the "optimum" fluoride concentration of 1.0 ppm. One-hundred percent of plant operators responded to the questionnaire. Nearly 90 percent of operators reported the "optimum" fluoride concentration as 1.0 ppm, with the remaining 10 percent reporting "optimum" values from 0.8 to 1.3 ppm fluoride. Of the factors responsible for variations from "optimum," the major factors were fluoride feed problems (28.8%), main water flow variations (26.0%), and raw water fluoride fluctuations (12.3%). State fluoride coordinators/en-

gineers must ensure that water plant operators, especially those in small water plants, know the "optimum" fluoride concentration and the pitfalls of attaining and maintaining the desired fluoride concentration.

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A CROSS-SECTIONAL STUDY ON THE CARIES PREVENTIVE EFECTIVENESS OF DISCONTINUED WATER FLUORIDATION IN KOREA

Water fluoridation has proven to be an effective way to prevent caries. The prevalence of dental caries has increased among Korean children along with an improvement in their socioeconomic status. This study was done to estimate the carryover effect of water fluoridation on dental caries in an area where it had been discontinued (DWFA). Jin-hae city (JHC), where water flouridation was temporarily stopped because of a lack of NaF, was selected as the DWFA and Sun-cheon city (SCC) was selected as the nonfluoridated area. The populations of these two cities were similar in their sociodemographics and oral health care systems. In 1994, a dental survey of primary schoolchildren was done (2,599 in JHC; 2,401 in SCC) and analyzed using SAS. The prevalances of one or more df and DMF teeth were 77.4 percent and 49.9 percent, respectively, in JHC, and 78.8 percent and 66.0 percent, respectively, in SCC ($P<.001$). Mean dft and DMFT scores were 3.40 and 1.30, respectively, in JHC, and 4.06 and 2.22, respectively, in SCC ($P<.001$). The rate of caries prevention was 16.26 percent in the primary dentition and 41.44 percent in the permanent dentition. Even though water fluoridation had been discontinued for a long time, its residual benefits were evident. The use of water fluoridation is increasing in Korea.

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PROFICIENCY TESTING FOR FLUORIDE CONTENT OF DRINKING WATER

The CDC provides proficiency testing of water fluoride samples for state, local, or government water system laboratories. Typically these are the reference labs used by local water systems that fluoridate. Monthly, each participating lab receives 3 water samples from CDC and determines its fluoride content. CDC compares the state or local lab results to the known value. In 1994, 56 labs participated, testing a total of 1,780 fluoride samples; 33, 11, and 5 labs participated for 12, 11, and 10 months, respectively; 7 other labs participated for 7 months or less. Overall, 80 percent of samples were correctly tested within +5 percent of the actual value. Labs participating 12, 11, 10, and 7 months correctly identified, on average, 85 percent, 81 percent, 77 percent, and 62 percent of the samples, respectively. 84 percent of supraoptimal (n=647), 83 percent of optimal (n=838), and 76 percent of suboptimal (n=295) samples were identified correctly. Four of 49 labs participating for 10 or more months correctly identified all 3 samples every month; an additional 15 labs missed only 1 sample for 1 or 2 months. Errors typically were either 10–15 percent above or below the actual value and tended to occur fairly randomly; for samples in the optimal range, 2.5 times as many errors were above the actual value. Continuation of proficiency testing for fluoride content of water is warranted to maintain quality assurance mechanisms for public water supplies that fluoridate.

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ADA FLUORIDATION INITIATIVES TOWARD THE 21st CENTURY: EDUCATION, COLLABORATION, LEGISLATION, AND CELEBRATION

During this decade, the American Dental Association undertook a variety of fluoridation initiatives. This presentation will highlight these activities, which include: the ADA's new fluoridation audiovisual materials; collaboration with federal, state, and local entities regarding fluoridation campaigns and quality initiatives; fluoridation legislative advocacy; media advocacy; and contributions to the celebration of the 50th anniversary of fluoridation. The Healthy People 2000 fluoridation objective served as an added incentive to actively pursue these projects.

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SEALANTS 2000—A PREVENTIVE ORAL HEALTH PROGRAM

Sealants 2000 is a five-year community education program designed to provide educational materials and programs regarding pit and fissure sealants. This program addresses three primary factors related to acceptance and use of sealants: awareness of the existence and efficacy of sealants, recommendation by oral care providers, and insurance coverage. Educational and media information systems are used to access three populations within the target communities: school and community groups, health care professionals, and insurance providers. The objectives of the program are to reduce the incidence of dental caries in children in Iowa by the year 2000 by increasing the awareness and utilization of pit and fissure sealants. This program supports the US Public Health Service objective that 50 percent of schoolchildren have sealants on permanent molars by the year 2000. Iowa is among the states with the lowest rate of sealant placement in the nation. Oral surveys of Iowa children indicate that 90 percent of existing caries is on the occlusal surfaces. Educational programs are needed to increase the demand for sealants by consumers and the recommendation and usage of sealants by oral care professionals. To evaluate the program, project data sheets are completed for each educational activity. Preprogram surveys of insurance coverage and use of sealants in dental offices will be repeated to provide outcome data. End-of-the-year reports are prepared annually to assess the progress of the program.

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IOWA'S FIRST SCHOOL-BASED SEALANT PROGRAM

To increase sealant utilization among children from low-income families, some states and local agencies are implementing school-based sealant programs. With cooperating efforts from the Iowa State Department of Health and the University of Iowa, a pilot school-based sealant program was initiated in Iowa. This presentation will describe some of the unique aspects of the pilot program and report dental findings. Children in grades 1–4 in an Eastern Iowa metropolitan school district were selected to receive sealants based on their eligibility for free or reduced lunch. Dental exams were conducted by University of Iowa pediatric dentistry faculty and residents. Third year dental students placed the sealants. As of April 1996, five schools had been visited, 346 children had been examined, and 179 children had received one or more sealants. Forty percent of the children examined had untreated dental decay. Following completion of sealant placement, six- and 12- month evaluations will be made of sealant retention. A survey of parents, school personnel, and local dentists is underway to determine their attitudes and concerns about the program.

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ACUTE TOXICITY DUE TO ETHANOL INGESTION FROM MOUTHRINSES IN CHILDREN LESS THAN 6 YEARS OF AGE

In 1994, there were 2,937 reports by local poison control centers to the American Association of Poison Control Centers of suspected ethanol overingestion from mouthrinses among children less than 6 years of age; an estimated incidence of 168 per 100,000 children under age 6. Lethal and toxic doses of ethanol were calculated using peak blood ethanol concentrations of 3g/kg and 50 mg per 100 mL, respectively. A 15-kg child who ingests 212 mL (7.1 oz) of Listerine (26.9% ethanol) ingests 57 mL (1.9 oz) of ethanol, a potentially lethal dose. Approximately one-tenth that volume can produce a toxic reaction that may produce symptoms (i.e., irritability) that differ from those seen in adults. Physicians and dentists should inform parents of the dangers associated with ingestion of mouthrinse and encourage them to keep it out of the reach of children. The FDA should require readily visible warning labels and child-resistant caps for containers with potentially toxic volumes of ethanol. The ADA should evaluate the feasibility of requiring cosmetic mouthrinses to use child-resistant caps and warning labels as a condition for advertising in its publications and at annual meetings.

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ORAL HEALTH KNOWLEDGE, ATTITUDE AND PREVENTIVE PRACTICES AMONG 6TH GRADERS IN THE CITY OF MILWAUKEE, WI

The objectives of this study were: to determine oral health knowledge, attitudes, and preventive practices among 6th graders in Milwaukee; and to decide if differences exist among various ethnic groups. 7 schools participated. 449 children qualified. An 18-item, pretested questionnaire was given to each child to be completed in the school. The response rate was 99 percent (n=446). Data were analyzed using frequencies and chi-square tests (P=.05). 2 percent were correct when asked the best way to avoid caries. 17 percent were correct when asked about the purpose of fluorides. In regards to the last visit to a dentist, 16 percent answered more than a year or never. 30 percent were correct when asked about the side of the tooth where sealants are placed. 21 percent had sealants placed on their teeth while only 22 percent were correct when asked about the purpose of sealants. No significant differences were found among ethnic groups. Based on this study, the education needs in regards to oral health knowledge, attitude, and preventive practices among 6th graders in the city of Milwaukee are universal accross ethnic groups.

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PREVENTION, CARE, AND EDUCATION: 75 YEARS OF DENTAL PUBLIC HEALTH IN VIRGINIA

"Prevention, Care, and Education" is the theme for this poster session which describes 75 years of dental public health in Virginia. Established in 1921, this statewide dental program continues to grow. Preventive services provided during 1995 include 90,000 sealants, 36,000 children participating in school fluoride mouthrinse programs and community water fluoridation for more than 4 million Virginians. Care provided by 75 dental programs throughout the state included 413,344 services for 49,409 schoolchildren. Dental health education has always been part of the local programs. To achieve year 2000 goals, specific populations are being targeted for expanded education programs including sealants, nursing bottle caries, and smokeless tobacco.

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EMERGENT DENTAL CONDITIONS OF NAVY PERSONNEL

The Department of Defense (DOD) Dental Classification System serves the dual purpose of prioritizing treatment needs of DOD personnel as well as identifying individuals at greatest risk to develop future dental emergencies. Assignment of a DOD dental classification 3 implies the diagnosis of a condition that, if left untreated, has a significant probability of developing into an unplanned dental emergency within the next year. Analysis of 132 dental emergencies at the Naval Training Center, Great Lakes, IL, show patients with a DOD classification 3 experience dental emergencies at a rate which is 5.8 times greater than class 2 sailors and 7.3 times the rate of class 1 sailors. The dental condition which resulted in the emergency visit was diagnosed and treatment planned prior to the acute episode in 67 percent of class 3 patients, but only 14 percent of the class 2 patients. Sixty-six percent of dental emergencies occur in class 1 and class 2 patients, a population that is theoretically free of potential emergent conditions. More work needs to be done to enhance our ability to diagnose potential emergent conditions. (Supported by NMRDC Project Number 63706N.M0095. 006.0506)

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PERIODONTAL STATUS OF MARINE CORPS RESERVE PERSONNEL

Over 20,000 Marine Corps reserve personnel were activated for Operation Desert Shield/Storm. Examination data of 1,040 activated reserve personnel (mean age=23 years) were collected from dental records maintained by reserve centers in 1993. The periodontal status and needs of this sample are described as follows. Oral hygiene: excellent—2.3 percent; good—56.9 percent; fair—32.2 percent; poor—8.6 percent. Bleeding on probing: yes—51.0 percent. Greatest probing depth: mm—60.0 percent; 4–5mm—14.9 percent; 6mm—2.3 percent. Need for oral prophylaxis: 75.5 percent. Need for evaluation by periodontist: 3.8 percent. Results from this study indicate that the majority of this young population have gingivitis and are in need of preventive treatment. Severe periodontal destruction is relatively infrequent. (Supported by NMRDC Project Number 63706N.M0095.006.0003)

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COMPARING CORONAL CARIES STATUS OF US MILITARY RECRUITS WITH CIVILIANS

This study compares coronal caries status of US military recruits with their employed civilian cohorts. The military data come from a systematic, random sample of 2,711 Army, Navy, Air Force, and Marine Corps recruits collected from January to July 1994. Women and minorities were oversampled. The civilian data come from the Oral Health of US Adults: 1985–86 (NIDR, 1987). Coronal caries was assessed on all recruits by calibrated dentists. After weighting the data to reflect the military recruit population (101,072), the data for whites and blacks were stratified by age, sex, and race to allow comparisons with weighted civilian data. Mean DFS and DFT scores were calculated using Stata; 95 percent confidence intervals were generated using SUDAAN. Results show that military recruits have slightly lower DFS and DFT scores than their employed civilian cohorts. Further, in general, military recruits have a substantially higher proportion of unfilled, decayed teeth or surfaces when compared to their employed civilian cohorts. These results suggest that US military recruits enter active duty service with substantial restorative treatment needs.

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MIX OF DENTAL SERVICES CONSUMED BY US ACTIVE DUTY MILITARY PERSONNEL

This study profiles the mix of dental services consumed within the past year by US active duty military personnel across DoD dental readiness classification. The data come from the 1994 Tri-Service Comprehensive Oral Health Survey that collected dental utilization data on a prestratified, random sample of 12,050 active duty military members from February 1994 to January 1995. Data were weighted to reflect the population sampled. All analyses were performed using Stata and SUDAAN. Results show strikingly different profiles in mix of dental services consumed across DoD dental readiness class. Overall, active duty members in dental readiness class 1 were more likely to have received dental examinations and teeth cleanings and less likely to have received emergency care, restorations, extractions, and root canals than class 2 or class 3 personnel. There was no difference in consumption of periodontal surgery, orthodontics, prosthodontics, or other dental services among these groups. Among those who had seen a dentist within the past year, more class 1 personnel had received teeth cleanings than class 2 or class 3 personnel, whereas more class 2 and class 3 personnel received emergency care, restorations, extractions, root canals, and fixed prosthodontic services. There was no difference in the consumption of removable prosthodontics, periodontal surgery, or examinations. These results suggest that the DoD dental classification system is an effective triage tool for identifying those individuals who are more likely to need restorations or care for acute dental problems.

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PERIODONTAL DISEASE PREVALENCE AMONG FEDERAL INMATES USING THE CPITN INDEX

In 1994, a survey of over 2,000 federal inmates was conducted to determine the epidemiologic prevalence of periodontal disease along with that of decayed, missing, and filled teeth. This stratified survey was carried out at 27 federal correctional institutions and 2 medical referral centers. The sites were randomly selected and included the population variables of security level and special medical needs. The

mean age upon examination intake was 35.4 years. The periodontal disease status was measured using the Community Periodontal Index of Treatment Needs (CPITN) index. This method is comparable to other studies and methodologies utilizing mean pocket depth and attachment level. Results revealed that 37.6 percent of all subjects scored at 2 (presence of calculus and/or restorative overhangs), 30.5 percent scored at 3 (one or more pockets at 4 to 5 mm), and 17.2 percent scored at 4 (one or more pockets at 6 mm or greater). Scores of 0 and 1 were reported at 6.4 percent and 8.3 percent, respectively. There were no significant differences in average CPITN scores across sex. Black subjects displayed a mean of 2 percentage points higher in scores of 2 and 3 than white subjects, while Hispanics were significantly higher than whites and blacks in a score of 4. CPITN scores increased with age (50 years and older), most probably due to the decreasing number of dentate subjects in this range. 2 percent of the surveyed population was completely edentulous. While CPITN should not be used to infer levels of periodontal disease, CPITN is useful and efficient in providing data on prevalence and severity of periodontal disease in large populations.

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ORAL HEALTH STATUS OF RURAL MISSOURI CHILDREN

It is well known to the dental community that dental caries prevalence in children and adolescents has declined dramatically in the United States and most of the industrialized world during the past three decades. This decline has been well documented in the United States by several nationwide surveys, and has been attributed to factors such as the increased availability of fluorides in various forms and the use of pit and fissure sealants. However, these surveys and others also have suggested that while dental caries has, on average, declined among children, high rates of dental caries are often concentrated in a small proportion of children. Caries remains high in children from low SES, rural areas, and large family size. Little is known about the caries experience of Missouri's current generation of children and adolescents, or how much caries may be concentrated in a small proportion of children. In addition, Missouri currently offers school districts the option to have school rinse programs at no cost. Fluoride rinse programs have been shown to be successful in reducing the caries rates of children who participate in the program. No data exist on the effectiveness of these programs in Missouri. The objective of this study was to determine the prevalence of dental caries, fluorosis, and other oral conditions in Ozark County, Missouri. A secondary objective is to examine the impact of a school rinse program on caries prevalence and past disease. This study suggested that the DMFT for rural Missouri children was below national DMFT averages for nonrural children, K–12. The comparison of schools using a fluoride rinse program and schools not using the program suggests no difference in the DMFT between the two groups.

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CASE DEFINITION IN EARLY CHILDHOOD CARIES: AN ANALYSIS OF NHANES III

Studies of early childhood caries, particularly those associated with baby bottle usage, have used a variety of operational definitions or indices to measure caries, often focusing only on the primary maxillary incisors (PMI). The purpose of this study is to apply various indices (number of carious or filled PMI, presence of buccal or lingual caries or restorations on the PMI, presence of at least one carious lesion or restoration) to the NHANES III-Phase 1 caries data on 2–5-year-old children. Data from 2,171 children examined in this US national survey were weighted to represent 13.8 million children. Of these children, 22.5 percent had at least one carious or filled tooth. Limiting the caries history to the PMI, 9.8 percent had 1 or more PMI with caries experience, 7.8 percent had 2 or more, 4.6 percent had 3 or more, 2.7 percent had 4 or more. 7.4 percent had at least one carious lesion or restoration on a buccal or lingual PMI surface. Age was a factor in the representativeness of PMI caries for total caries experience for all subgroups of sex, race, and race-ethnicity. In the overall group, the presence of PMI caries at age 2 was a better indicator of caries in the mouth (1+ PMI captured 77.6 percent of the children with caries) than at age 5 (31.6% of the children with caries). This study demonstrates that at the national level, screening children by PMI caries would identify a subset of children with caries; however, evaluation is needed of PMI caries as an indicator of the magnitude of total caries involvement.

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BABY BOTTLE TOOTH DECAY INTERVENTION IN A NATIVE AMERICAN COMMUNITY

Decay rates in primary teeth in the Navajo Area have been the highest among all IHS areas for several years. BBTD rates in the Gallup Service Unit far exceed the IHS rate. This ongoing BBTD prevention effort is a multidisciplinary, community-based project. Working with other professionals and community leaders, parents, and grandparents are encouraged to adopt healthy feeding practices. The program includes one-on-one counseling, group teaching, and a media campaign. The community where the intervention was done has experienced a 17 percent drop in BBTD rates over the past two years. BBTD rates in nearby communities where the intervention was not done have remained unchanged.

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HOSPITAL ORAL HEALTH CARE PROGRAMS—ACCESS TO THE POOR

This presentation reflects the impact of 12 New Jersey Hospital oral health care programs with 34 general practice residents on the treatment of the poor in New Jersey. The number of routine care visits for 1992 was 58,023 and emergency care visits was 12,289, a total of 70,312 visits. The waiting lists from comprehensive care varied from two months to two and one-half years, with seven programs reporting waiting lists from one to two and one-half years. Four programs reported waiting lists of only two months. New Jersey presently has 16 American Dental Association approved oral health care residency programs. This report highlighted the state's reliance on hospital-based oral health care.

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MEASURING PATIENT EXPECTATIONS AND SATISFACTION IN A DENTAL SCHOOL CLINIC

Patient recruitment and retention are essential for the educational mission and financial viability of dental school clinics. To assess how patients view the College of Dentistry Clinics at the University of Iowa, a questionnaire was developed to measure patient expectations and evaluations of dental service. A cross-section of patients (n=84) were recruited in December 1995. The questionnaire contained 65 items and respondents were asked to rate the clinics' physical facilities; service delivery; and quality of student dentists, instructors and staff. A 7-point scale combined patient expectations and evaluations with the end anchors labeled: 7=much better than expected, and 1=much worse than expected. The overall mean satisfaction score was 5.98. Factor analysis revealed that seven factors could be extracted that explained 70 percent of the variance: "quality of care," "explanation of treatment process," "costs," "physical facilities," "interaction between instructors and student dentists," "length and number of appointments" and "staff quality." The results of this pilot study were used to create a shorter survey instrument and this modified questionnaire is currently being used in a longitudinal survey of patient satisfaction at the University of Iowa College of Dentistry Clinics.

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THE DENTAL PUBLIC HEALTH INFOSERVER

A search of all current dental schools' World Wide Web sites has indicated a lack of comprehensive electronic information in dental public health. The Dental Public Health InfoServer at Creighton University School of Dentistry provides resources and information of inter-

est to dental public health dentists, dental hygienists, and other professionals involved in the field of public health. The main purpose of the server is to provide access to up-to-date, validated public health information, and appropriate learning and reference materials. Information is organized into four different categories: education, research, service, and links to public health sites. The education section contains information (syllabi, slide shows, electronic books and quizzes, pointers to grading criteria, and copies of class projects) of courses actually taught at Creighton University School of Dentistry. In addition, it includes information about courses taught at other dental schools and the American Board of Dental Public Health objectives and guidelines. The research section contains descriptions of current national and international projects, abstracts, and scientific presentations in dental public health. The service section includes information available to the public on dental public health issues. Links to other public health sites provide information on government agencies, public health sites, university sites, libraries, and funding resources that are available to the public health professional. This initiative will serve as a catalyst for other public health agencies to develop similar documents and to promote more interactivity.

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FACTORS AFFECTING THE UTILIZATION OF DENTAL SERVICES BY ADOLESCENTS

Little is known about factors that influence the utilization of dental services by adolescents. This investigation studied 433 adolescents attending traditional (68%) and alternative (32%) high schools in two metropolitan areas in Iowa, using a 41-item self-administered questionnaire. Factors that were positively associated (bivariate analyses, $P<.05$) with adolescents' self-report of receiving routine dental care were: younger age (14–16 vs 17–18+), higher parental education, higher family income, "better" attitude scores toward dental health, greater frequency of brushing and flossing, dental insurance, adolescents who scheduled their own appointments, and nonsmokers. Not significant were: race, sex, level of involvement in school activities, employment status, and knowledge about dental disease. These and other factors that affect dental health seeking behaviors of adolescents are important for developing future preventive strategies and dental health promotion programs. (Supported in part by University of Iowa College of Dentistry, Graduate College and UISG)

Mara Teresa Canto, MS, DDS, MPH, Harold Goodman, DMD, MPH, Alice Horowitz, PhD, Mara Rosa Watson, DDS, MS, MPH, Joseph Doherty, DDS, MPH, Carmen Duran-Medina, PhD.*

A QUALITATIVE APPROACH TO ASSESS HISPANIC/LATINO YOUTHS KNOWLEDGE, OPINIONS, AND PRACTICES CONCERNING TOBACCO, ALCOHOL, AND ORAL CANCER

Major risk factors for oral and pharyngeal cancers are use of tobacco and alcohol products. Habitual use of these products often develops during adolescence. Eight out of 10 smokers start smoking before the age of 18 and unsupervised alcohol consumption starts as early as age 12. Qualitative methods, such as focus groups (FG), are a recommended approach to the development of questionnaires and complement quantitative research. The purpose of this study was to use FGs to gather information for the development of a questionnaire to assess the knowledge, opinions, and practices of Hispanic/Latino youth regarding oral cancer, tobacco, and alcohol use. This study is part of a larger health promotion project for Hispanic/Latino youths. Standard FG methodology was used to conduct six focus groups in the Mount Pleasant area of Washington, DC. Relevant cultural and linguistic expressions were contributed by 52 participants. This presentation will include the results of the FG and final survey instrument.

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COMMUNITY-ORIENTED DENTAL EDUCATION (CODE): STUDENT SURVEY RESPONSES REGARDING HEALTH CARE DELIVERY

In 1993, UMDNJ received a grant to develop and implement a pilot curriculum to educate dentists who can respond to community needs. The CODE curriculum provides students the opportunity to spend 80 percent of their fourth year in a community health care facility. As part of the evaluation process, fourth year dental students are being surveyed to determine changes in attitudes and beliefs about health care. A modification of the 1993 Health Professions Education Student Questionnaire of Michigan State University was administered to the entire class at the start of their fourth year. Thirty-nine of 66 students responded (59%). Students generally agreed that: greater collaboration among disciplines would improve patient care ($\bar{x}$=1.37, scale 1=strongly agree to 4=strongly disagree), active involvement in community life is important ($\bar{x}$=2.06), everyone should be entitled to the same quality of care regardless of finances ($\bar{x}$=1.83), and equal access to care is a major problem in the United States ($\bar{x}$=1.63). The survey will be readministered in May 1996 (corresponding with the end of the fourth year CODE program). Results will permit assessment to determine if CODE influenced student attitudes and beliefs. (Partially funded by the US Department of Education—Fund for the Improvement of Postsecondary Education)

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IOWA DENTISTS' VIEWS ON EXAMINING YOUNG CHILDREN

Under federal EPSDT guidelines, all Medicaid-enrolled children are to be referred to a dentist by 3 years of age. However, Iowa's EPSDT guidelines require referral to a dentist by age 1. To investigate the attitudes and current practices of Iowa dentists concerning the treatment of very young children, a series of questions was included in a 1995 survey of Iowa dentists. The survey was mailed to all actively practicing licensed dentists in Iowa (n=1,233) with 937 dentists responding (76%). Dentists were asked at what age they believed children should make their first visit to the dentist and at what age they were willing to see children in their practice. Only 11 percent thought children should be seen by age 1, 35 percent thought children should be seen by age 2, and 84 percent believed children should visit a dentist by age 3. Twenty-six percent of dentists reported they were willing to accept patients as young as 1 year of age, 47 percent at 2 years of age and 82 percent were willing to see 3-year-olds in their practices. The attitudes and practices of Iowa dentists regarding the timing of a first dental visit appear inconsistent with current EPSDT requirements in Iowa.

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IOWA DENTAL STUDENTS' PERSPECTIVES ON MENTORING ACTIVITIES

Focused and strategic mentoring provides one way to educate and develop dental professionals who may pursue careers in dental public health. In order for successful mentoring to occur, there must be both a supportive academic environment and the perception by students that mentoring activities are available. The purpose of this study was to assess dental students' perspectives on mentoring activities. The results indicated that of the 50 respondents (74% response rate), 60 percent indicated that there was a person at the dental school whom they considered a mentor. 52 percent, however, had no idea if the school provided a list of faculty who were willing to advise students on career choices, and 36 percent were not aware if there was a faculty mentor program for students. 50 percent were not aware if there was a mentor program where students are mentors. Although all the respondents were aware of the student research program, only 44 percent felt that the number and scope of general mentoring activities were sufficient to nurture a student/mentor relationship. It appears that additional efforts are needed to make dental students aware of specific mentoring activities that are available at the University of Iowa.

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ATTITUDES OF PENNSYLVANIA DENTAL HYGIENISTS REGARDING PRACTICE AND LEGISLATIVE ISSUES

This study was completed to determine the level of support for dental hygiene practice and legislative issues among licensed dental hygienists in Pennsylvania (PA). Random sampling using the state licensing list was employed to distribute a 36-item survey instrument. A response rate of 56.65 percent (n=1,023) was achieved with one mailing. Results of the survey reveal strong support for legislative policies of the Pennsylvania Dental Hygienists' Association (PDHA) among PA dental hygienists. 98 percent agree that dental hygiene should remain at the college level, 90 percent support general supervision, 86 percent support self regulation, and 80 percent agree that dental hygienists should be recognized as primary oral care providers. Specific PDHA legislative initiatives also showed high levels of support: administration of local anesthesia (83%), nitrous oxide/oxygen analgesia (78%), and mandatory continuing education (80%). Correlations between selected pairs of variables were investigated using chi-square tests of association with phi and Cramer's V coefficients. No significant differences were found between dental hygiene practice issues and age, nor between dental hygiene practice issues and ADHA membership; however, significant differences based on the dental hygienists' level of education were shown. PA dental hygienists with BS degrees are more likely to belong to ADHA (P=.010), maintain professional liability insurance (P=.004), support general supervision (P=.05) mandatory continuing education (P=.006), and a dental hygiene licensing board (P=.04). (Funded by the Pennsylvania Dental Hygienists' Association)

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SELF-REPORTS OF ORAL HEALTH STATUS IN PERSONS WITH CHRONIC CONDITIONS

Some chronic conditions, such as diabetes, have documented clinical effects on oral health (OH). Few data, however, describe the impact of chronic conditions on a person's self-reported OH status. The primary objective of this pilot study was to learn if persons with chronic conditions have more negative OH perceptions than those without. A self-administered questionnaire with 130 items assessing general and OH status and other personal characteristics was completed by a convenience sample of 135: 97 dentate (1 tooth) workers at the University of California at Los Angeles (UCLA) both well (no chronic conditions) and sick (1 chronic condition); and 38 dentate patients at UCLA ambulatory diabetes clinics. Multi-item OH subscales measuring functioning (e.g., chew, speak), feelings about OH and looks, and ratings of OH were identified through item correlation, Chronbach's alpha coefficient and factor analysis. Differences were compared by ANOVA. Patients had lower relative scores on scales of OH ratings and feelings than workers (P<.05). There were no differences in dental functioning among the 3 groups although more workers had all or most teeth (97% vs 67% of patients). Mean scores on single-item OH ratings ranged from very good (well workers) to good (sick workers) to fair (patients) (P<.05). Diabetes patients scored more poorly on some self-reported OH measures than workers including those with chronic conditions.

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GERIATRIC DENTAL PROJECT

In 1991, the 65 Plus Clinic, WVU's first geriatric primary care clinic, received a private grant to provide dental services for indigent elderly. A project was designed to provide emergency dental care to financially and age-eligible clinic patients, and eligible referrals from local social service agencies. New patients to the 65 Plus Clinic receive comprehensive assessments, including oral screenings by faculty-supervised dental hygiene students. Of the 368 screenings provided, 52 qualified for this project. The average age of project participants was 72 years, 75 percent were females, 40 percent were edentulous, and 35 percent had 10 or fewer teeth. The average household income was $6,772; average individual income was $4,924. WVU's School of Dentistry provided services at a reduced fee. Payments from the grant were for: dentures (43%), removable partial dentures (20%), operative procedures (18%), surgical procedures (12%), assessments (3%), and miscellaneous procedures (4%). Annual reported accomplishments of this project have justified yearly renewal with its sponsors.

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CHANGES IN FUNCTIONAL HEALTH STATUS AND DENTAL SERVICE USE OF OLDER ADULTS OVER A THREE-YEAR STUDY PERIOD

Barriers to dental care for subgroups of older persons are well documented. However, research examining changes in functional health over time in relation to dental service use is limited. This study attempts to determine whether compromised functional status interferes with dental service use. Data from a health promotion randomized trial of community dwelling adults age 75+ years living in Santa Monica, CA, from 1988 to 1993 were analyzed. The study featured in-home assessments of physical, dental, social, emotional, and environmental domains at baseline (B), 12, 24, and 36 months. At B, 331 subjects (Ss) were, on average, 80.9 years of age (SD=3.9), 96.9 percent were white, 69.8 percent were female, 78.2 percent were HS graduates, 72.8 percent visited a dentist in the previous year. A mean score of 2.50 (SD=1.9) on the Kempen functional limitations scale at B suggested a relatively healthy older sample. A series of discrete time hazard models was used to weight the effects of functional status, socioeconomic characteristics, and physical and dental health measures on dental use. Functional impairment was associated with a decreased likelihood of a dental visit. Ss also were less likely to visit the dentist if they reported their general health as poor, if they were edentulous, and if they did not visit the dentist in the year prior to baseline. (Funded by AHCPR #1 R03 HS08124-01)

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DENTO: AN EDUCATIONAL GAME TO CLARIFY DENTAL MISCONCEPTIONS FOR SENIOR ADULTS

The Florida Dental Hygienists' Association (FDHA) has targeted senior adults as one of their target populations for oral health promotional activities. Available materials for senior adult groups are educational but rarely enjoyable. Attendance for presentations on oral health is usually low even when well publicized. Senior adults are at risk for dental disease due to periodontal attachment loss, increased drug use which may cause dry mouth, as well as other physiological changes in the body and the mouth resulting in reduced capacity. We developed DENTO in an attempt to present educational material with a game methodology. The objectives of DENTO, played the same way as BINGO, are to educate senior adults about common oral health concerns; to clarify dental misconceptions to promote good health behaviors; and to provide an easy and enjoyable format which dental and nondental individuals can facilitate. Information to promote access to care also is included in each DENTO packet to assist in referrals to community agencies and local dentists through the state and local dental societies. The evaluation component will be conducted in May 1996 coinciding with Senior Smile Month. Evaluation criteria include: was the format enjoyable and educational (as measured by a pre- and posttest) and were there any behavior changes (to be evaluated by phone call follow-up one month later to assess short-term behavior change). Pending positive evaluations, the game will be offered for distribution by the FDHA as part of their commitment to oral health promotion in Florida.

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SURVEY OF TOBACCO CONTROL PRACTICES OF MASSACHUSETTS DENTISTS

Dentists are in a unique position to assess the tobacco use practices of their patients. The purpose of this investigation was to assess the tobacco control efforts of practicing dentists in Massachusetts. A survey devised by the National Tobacco Free Steering Committee for use within the dental profession was mailed to Massachusetts licensed dentists. After three mailings, 1,677 (36%) dentists responded. Demo-

graphic variables such as age, sex, and type of practice of respondents were compared with data on Massachusetts dentists provided by the ADA. The sample closely reflected the ADA data (within 0.5–1%). Ten percent of respondents reported discussing tobacco cessation with their patients who smoked cigarettes and 12.7 percent reported routinely advising smokeless tobacco users to quit. When asked how often during the past 30 days they had provided tobacco control counseling to their patients, 76 percent reported never and only 1.3 percent responded that they routinely provided tobacco control counseling. Ninety percent of respondents reported that they had not received training in tobacco counseling and 69 percent responded that they were interested in receiving training. Results of this survey indicate a need within the dental profession for training in tobacco control counseling if dentists are to incorporate this into their preventive dentistry programs. (Supported in part by the Mass. Dept. of Public Health and the VA HSR&D Service)

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SMOKING CESSATION REDUCES THE RISK OF TOOTH LOSS

Cigarette use is associated with increased tooth loss, but it is not well known to what extent tooth loss risk is reduced after smoking cessation. Smoking and smoking cessation were examined in 495 male veterans in the Dental Longitudinal Study, a component of the VA Normative Aging Study. The men were medically healthy at baseline in 1968–72. Number of teeth, including third molars, and smoking status were assessed every 3 years. Data from up to 8 examinations were analyzed and follow-up time ranged from 11 to 26 years. Tooth loss rates (number of teeth lost/person-years x 10) were computed for 3 groups of men: those who never used tobacco products (n=281), continuous cigarette smokers (n=55), and men who smoked at baseline but later quit (n=159). In the last group, separate rates were computed for the duration as a smoker (baseline to the first exam they reported having quit, mean SD=8±5 years), and the duration as an ex-smoker (first exam they reported having quit to last available exam, 14±6 years). All rates were adjusted for baseline age and oral health habits (daily brushing, prophylaxis visits, restorative treatments). At baseline, smokers had fewer teeth than nonsmokers (23±6 vs 25±5, P<.001). Tooth loss rates were 2.93 per 10 person-years (p-y) in continuous smokers and 1.36 per 10 p-y in never smokers (RR=2.16, 95% CI=1.89–2.46). In men who quit, the tooth loss rate was 2.46 per 10 p-y during the years smoked but decreased to 1.76 per 10 p-y after cessation (risk difference=0.72 per 10 p-y, CI=0.40-1.03). Tooth loss risk after smoking cessation remained higher than that in never smokers (RR=1.29, CI=1.14–1.46). These results indicate that cigarette smoking is associated with a 2.2-fold increase in the risk of tooth loss in men. This risk is significantly reduced following smoking cessation, but within 14 years of quitting, does not return to the level observed in never smokers.

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THE AHCPR CLINICAL PRACTICE GUIDELINE NO. 18: SMOKING CESSATION

Most tobacco users wish to free themselves of their tobacco habits and nicotine dependence. Hundreds of smoking cessation methods exist and new ones periodically are developed. Sound science supports the effectiveness of a fraction of the methods advocated. In April 1996, the Agency for Health Care Policy and Research released a clinical practice guideline on smoking cessation. An expert panel followed a rigorous analysis of the world scientific literature on clinical smoking cessation methods; arrived at conclusions about the validity and effectiveness of various methods; and developed recommendations for clinicians, smoking cessation specialists, health care administrators, and health care purchasers. Recommendations were categorized by the strength of scientific evidence, and other useful criteria. No recommendations were developed for methods that lacked sound scientific support. Some clinical methods are appropriate in special circumstances while others are generally practical. The guideline's principal findings and recommendations are presented by the expert panel's dental representative.

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AN EPIDEMIOLOGIC STUDY OF DENTAL CARIES AND DENTAL FLUOROSIS IN AN AREA POLLUTED BY AIRBORNE FLUORIDE IN CHINA

In order to estimate the influence of air pollution by airborne fluoride on dental health, an investigation of dental caries and dental fluorosis was carried out in two villages with a low level of fluoride in the drinking water. The villages are located in Changping, a coal-burning area, and Zhangjiafang, a firewood-burning area, in Pingxiang, China. 193 junior high schoolchildren in Changping and 183 in Zhangjiafang had dental examinations. The DMFT indices in Changping and Zhangjiafang were, respectively, 0.06 (0.33) and 0.2 (0.62); the DMF person rates were 4.2 percent and 13.1 percent, and the prevalences of dental fluorosis were 22.8 percent and 0.6 percent. A statistically significant difference was found between the two groups for each measure. In addition, the CFI was 0.578 and 0.052 in Changping and Zhangjiafang, respectively. The residents in Changping have been using local coal containing a high level of fluoride as fuel for living, but there are no chimneys for their kitchen ranges. These results suggest that air pollution-type fluorosis is a problem in these areas.

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CARIES PREVALENCE IN ALACHUA COUNTY HEAD START CHILDREN

A convenience sample of 323 Head Start participants (one-third of the Head Start population in Alachua County, FL) was screened by one trained examiner to assess caries prevalence and access to dental care. Decayed, missing, and filled primary tooth surfaces were recorded using standard criteria during classroom dental exams with portable dental equipment and mouth mirrors. Twenty subjects were reexamined several weeks later, and coding of decayed teeth yielded good intraexaminer reliability (kappa=.71). Data revealed 24 percent of subjects were caries free, 43 percent had mild-moderate caries (dmft=1–4), and 33 percent had severe caries (dmft≥5). Mean dmft and dmfs scores were 3.63 and 6.81, respectively. Females were more likely to be caries free (29% vs 19%; X^2; P=.049). No other demographic variables were associated with significant differences in caries prevalence or severity (X^2, Wilcoxon rank sum). Decayed surfaces accounted for 89 percent of total dmfs, indicating limited access to care. Water fluoridation was associated with a 15 percent reduction in dmft and a 35 percent reduction in dmfs. These data show that Head Start participants continue to experience high levels of caries and have limited access to dental care at the time of enrollment. (Supported by a New Faculty Research Award from the University of Florida)

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ORAL HEALTH STATUS OF AN INNER-CITY SCHOOL CHILDREN

University of Texas Dental Branch recently implemented a rotation for senior dental students in a multidisciplinary school clinic at Rusk elementary school. Prior to the rotation, we conducted an oral health needs assessment for all the children attending Rusk. The study population (n=429) consisted of 80 percent Hispanics, 18 percent African Americans, and 2 percent Caucasians. Over 90 percent of the students are eligible for free or reduced lunch program, with 30 percent living in homeless shelters. Ages of the children in pre-K to seventh grade ranged from 4 to 14 years with 49.7 percent being girls. Oral health status was assessed using the WHO pathfinder model and direct data entry. The prevalences of dental caries in primary and permanent teeth were 60.6 percent and 44.8 percent, respectively. While the mean number of decayed, missing, and filled teeth (dmft) was 2.67, the mean dmfs was 5.88. In the permanent dentition, DMFT scores were 1.38 and DMFS scores 2.18. Mean number of teeth needing caries arresting care/sealant was 5.3, 1.1 teeth needed one surface filled, and 0.5 tooth needed two or more surfaces filled. Girls had significantly higher DMFT (1.53 vs 1.23), DMFS (2.50 vs 1.87) scores, and need for one-surface fillings (1.14

vs 0.96). The study provides invaluable baseline data prior to the implementation of a dental student rotation, which also will be an aid in evaluating the effectiveness of the student rotation.

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ORAL HEALTH IN A RURAL COMMUNITY'S BIRTH- to 4-YEAR-OLD CHILDREN

Taylor County is a rural community in West Virginia. As part of the Family Resource Network, multiple agencies sponsor a birth- to 4-year-old health screening. This includes: hearing, language, vital signs, vision, nutrition, child abuse, drug and alcohol prevention, home safety, overall development, as well as oral health. Oral health is assessed by a brief history and screening exam. Preventive care instructions are reviewed with parents, and follow-up visits to a local dentist are recommended. In the 1995–96 programs, 75 children were screened: 42 were males and 33 were females; 22 were free of oral disease with good spacing of their primary dentition; 19 had no evident oral disease but primary teeth were crowded; 25 had caries—4 of these were rampant; 7 had previous restorative dental care; and 2 had fused teeth. Nursing bottle caries was present and/or previously treated in 10 children. The data suggest that children need very early oral care evaluations with preventive interventions. This birth- to 4-year-old assessment program is a viable public health tool to inform, prevent, and promote oral health among children especially in a rural community.

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CARIES PREVALENCE AND TREATMENT LEVELS IN ARIZONA PRESCHOOLERS

The purpose of this study was to describe dental caries experience and treatment levels in a large population of preschool children, including many under the age of 3 years. Dental caries data were collected from oral health screenings on 5,171 children, ranging in age from 5 to 59 months, conducted by five dentists trained and calibrated in caries diagnosis using WHO criteria. Children in Head Start and WIC programs (low SES), day care centers, and health fairs throughout Arizona were screened between February 1994 and September 1995. Approximately half of the children were in WIC programs, and approximately half were Hispanic. The recently published NHANES III study reported a mean dfs of 1.2 for the 2–4-year-old age group and showed that 83.1 percent of 2–4-year-olds were caries-free. In contrast, results from this study in 2–4-year-old Arizona children showed a mean dmft of 1.59: 0.70 for 2-year-olds; 1.35 for 3-year-olds, and 2.36 for 4-year-olds. Only 62 percent of 2–4-year-olds were caries free. Even among 1-year-old children in Arizona, 7 percent had caries. Treatment levels were less than 50 percent for all age groups; in fact, almost no children had received treatment until the age of 3 years. SES level was not a determinant of treatment. These results strengthen the argument that dental caries and lack of its treatment are still major health issues in preschool children. (Supported by NIDR grant DE-10592)

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KEOKUK COUNTY RURAL HEALTH STUDY: ORAL HEALTH OF ELDERS

The Keokuk County Rural Health Study is a population-based prospective study of environmental exposures and health status of residents of Keokuk County, Iowa. This study, conducted through the University of Iowa's Great Plains Center for Agricultural Health, tracks injury rates, respiratory and skin disease, and monitors health care delivery and health status of a household sample of county residents. Recruitment and data collection are ongoing with a planned final sample of 1,200 households which will be followed for 20 years. Oral health status information has been obtained from interviews with 625 residents age 18 and older, representing 460 households. 31 percent (n=194) of these adults are age 65+ and 23 percent of these elders are edentulous. 51 percent of the elders report visiting a dentist at least once a year and 35 percent visit only when needed. 18 percent indicated that they sometimes have difficulty eating solid foods because of problems with their mouth or teeth. Only 20 percent of the 149 dentate elders rated the condition of their natural teeth as excellent or very good, while 40 percent rated the condition of their teeth as fair to poor. However, only 26 percent reported that they needed a checkup, 14 percent reported that they needed a tooth filled or replaced, and less than 6 percent reported needing an extraction or gum treatment. Although few of these elders rated their oral health status as excellent or very good, few reported specific treatment needs. (Supported by NIOSH grant #U07/CCU706145)

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INTRAORAL AND EXTRAORAL PATHOLOGY PREVALENCE, DENTAL NEEDS, AND ACCESS TO CARE IN RESIDENTS OF RURAL LONG-TERM CARE FACILITIES

The increasing size of the US elderly cohort is stimulating a refocus on their dental needs, access to care, and available resources. Older adults and institutionalized individuals are included in populations which have been identified as priority for epidemiologic study. The purpose of this study was to quantify the dental needs and head and neck pathology prevalence of elderly residents of rural long-term care facilities. Approximately 360 residents in three rural southern Illinois nursing homes constituted the study sample. Intraoral and extraoral exams were conducted by one dentist examiner. Preliminary results from this study show that there are proportionately more women in the two age groups studied, those 65–74 years old and 75 years and older. Seventy percent of those examined were edentulous, the majority having no prosthesis. Intraoral findings which occurred most frequently were candida, xerostomia, and TMJ crepitus. Access to care varied by site. Implications of the gathered data are that rural elderly have a high prevalence of edentulism and limited resources.

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ORAL HEALTH OF ELDERS WITH DAT, OTHER DEMENTIAS AND NO DEMENTIA

Differences in oral health among persons with dementia of the Alzheimer's type (DAT), other dementing illnesses (OTHER), and persons with no cognitive impairments (NORMAL) have not been well described. We investigated the oral health characteristics of 230 mostly community-dwelling elders that were patients of the Geriatric Assessment Clinic at University of Iowa Hospitals and Clinics. 45 had diagnoses of DAT, 49 had diagnoses of OTHER, and 132 were NORMAL. There were few differences between the groups on measures of oral health, although DAT patients had a mean of 10.0 teeth present, compared to 13.0 for each of the other two groups; DAT patients had 14.4 filled surfaces, compared to 25.2 for OTHER and 21.4 for NORMAL. In a matched-pair analysis of DAT and NORMAL, patients matched on age, sex, and dentate status, there were no meaningful differences in any oral health measures. However, analysis based on level of impairment determined from Mini-Mental Status Exam found gingival health, oral hygiene, and other measures declined with increased impairment level, while time since last dental visit increased. While as a group, the oral health of patients with DAT may not differ substantially from that of other elders, those with more advanced cognitive impairments, regardless of diagnosis, appear to have reduced measures of oral health. (Supported by R03-DE10660, P30-DE10126 & American Fund for Dental Health)