Abstracts

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MISSOURI MEDICAID ENROLLEE'S PERCEPTIONS OF ACCESS TO AND SATISFACTION WITH DENTAL SERVICES: THE IMPACT OF MANAGED CARE ON CHILDREN

State Medicaid programs nationally have been introducing managed care into their Medicaid programs. In some states Medicaid managed care programs include dental as part of their managed care plans while in others, dental is a separate fee-for-service program operated by the state Medicaid program. Access to and satisfaction with dental services are particularly important issues for Medicaid enrollees because of the possible additional barriers they face in obtaining dental care. This study evaluated access to and satisfaction of Medicaid enrollees in three different types of dental plans in Missouri: traditional fee-for-service (FFS), Medicaid HMOs, and a sole-source contracting in the mid-Missouri (mid-MO) region. A sample of 3,000 Medicaid enrollees were selected from a list of all Medicaid enrollees, 1,000 from each dental program. Results found enrollees in the HMO significantly more likely to make their last visit for a check-up/cleaning compared to the other two programs and rated their child's ability to get dental care as very good/excellent. A significantly greater percentage of enrollees in the FFS reported the following reasons for stopping their child from receiving dental care: unable to find a provider, transportation, travel too far, and waiting to long to get an appointment. A significantly greater percentage of enrollees in the HMO rated their satisfaction/quality of their child's dental care and respect received from the dental office as very good/excellent. These results suggest that significant differences exists in access and satisfaction to dental care among different Medicaid programs in Missouri.

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CARIES AND TREATMENT STATUS OF UNINSURED CHILDREN, ELIGIBLE UNDER THE CHILDREN'S HEALTH INSURANCE PROGRAM (CHIP)

The objective was to define the caries and treatment status of uninsured children from families with income $16,000–$30,000 per annum, who were considered eligible for enrollment in the forthcoming Texas CHIP. 1,124 children in grade 2 and 802 in grade 8 were randomly selected and participated, from 16 elementary and 16 middle schools with >60 percent of students in the free lunch program, and in all 8 state public health regions. Protocol based clinical exams were made by one dentist. One-third of families met these income limits, and from these, 39 percent of children were dentally insured (74 Medicaid, 139 private). The majority lacked public or private dental insurance. There was no significant difference between the insured and uninsured for caries prevalence by dentition or grade (Gr. 2 primary 59 vs 63%, perm 15 vs 9%, both 62 vs 64%; Gr. 8 perm 54 vs 51% with a history of caries, $P<.05$). Mean dft and DMFT did not differ in Gr. 2 (2.5 and 0.2 overall), although in Gr. 8 insured children had significantly higher mean DMFT (2.26 vs 1.34) due to the FT component (2.02 vs 0.88 = insured vs uninsured). Treatment completion rate consistently and significantly favored the insured by grade and dentition over the uninsured (Gr. 2 f/dfs 78 vs 71%, Gr. 8 F/DMFS 88 vs 60%). Need for urgent care did not differ with/out insurance. Gr. 8 uninsured children were more likely to need complex (2+ surfaces) restorations. Both public and private dental insurance are associated with caries treatment, but not with caries reduction in these children. Improved periodicity and prevention, starting at younger age, will be necessary to lower the overall disease rate in CHIP. (Support: TX Dept Health)

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THE INVERSE CARE LAW IN ORAL HEALTH CARE AMONG CHILDREN, UNITED STATES, 1988–94

Julian Hart's Inverse Care Law (ICL) states that those who need the most health care get the least. Data from NHANES III are used to analyze the ICL in dental care among US children aged 2–5 (n=4,411) and 6–18 (n=5,311) years. Dental care need was measured as perceived (self-reported treatment needs) and normative (untreated caries determined by a dentist). Dental care utilization was measured as self-reported past year visits and frequency of visits. Results compare children with and without dental needs and control for sociodemographic factors. Younger children with perceived and normative needs are more likely to be episodic users (aOR [adjusted odds ratios] 1.60 and 1.52 respectively). Children with only normative needs are less likely to be regular users (at least one visit every year) (aOR 0.56) and more likely to have never seen a dentist (aOR 1.49), while younger children with only perceived needs are more likely to be regular users (aOR 1.59) and less likely to have never seen a dentist (aOR 0.46). Older children with perceived and normative needs are more likely to be episodic users (aOR 1.68 and 1.81) and less likely to be regular users (aOR 0.68 and 0.49). Low-income and ethnic minority children were more likely to be episodic users or to have never seen a dentist while their counterparts were more likely to be regular users. For young children, their normative needs predict utilization consistently with the ICL, whereas their perceived needs do not. Dental health care among older children follows the ICL.

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IMPROVING THE ORAL HEALTH OF CHILDREN IN RURAL AREAS: A PILOT PROJECT

Access to dental care continues to be a problem for many patients, specifically those in the lower SES category. Studies have found that this problem is magnified in the rural areas. The purpose of this pilot project was to establish a collaborative partnership with a dental school, Department of Health, and local dental societies and focused on three goals. The first goal was to improve the overall oral health status of the children in a rural community school system using primary preventive techniques. The second goal was to treat dental needs for a population that does not have access to dental care. Dental and dental hygiene students together were given the task to develop and implement the first two objectives. The third goal was involvement of dental hygiene students in a community outreach program that exposed them to significantly different clinical challenges that from their traditional academic experiences. Specific outcomes for the dental and dental hygiene students included an increased awareness of oral health and lack of access issues in rural areas versus urban areas and increased social awareness of volunteerism and outreach. For the children in the rural area, the project decreased DMFT scores, increased oral health

status and decreased absenteeism of the project participants. Recommendations from this pilot project conclude that active partnerships with key players in oral health can have a positive impact on oral health.

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ORAL HEALTH STATUS OF SPECIAL OLYMPICS ATHLETES

Previously published data on Special Olympics athletes have been limited and has not been available from a large number of sites. This study presents data collected on oral health status of self-selected samples of Special Olympics athletes at 20 Special Olympics sites in the United States, representing 18 states, in 1999 (n=5980). Athletes ranged in age from 8 to 80 years (mean 23.0). Data were collected visually and by self-report by trained screeners using a standardized protocol. Results for each variable are shown as the percentage of athletes reporting with that condition; range indicates minimum and maximum percentages among the sites. The greatest ratios between lowest and highest range were seen in need for urgent treatment (2.6–21.3); injury (4.4–23.9); and decayed molars (7.1–33.6). The smallest ratios between ranges were seen in filled teeth (39.7–80.2); missing anteriors (6.2–15.8); and need for nonurgent treatment (14.7–38.1). Ranges for other variables include self-reported tooth pain (4.3–16.5); self-reported other oral pain (1.3–8.9); decay anywhere in the mouth (10.4–38.0); missing molars (8.5–26.5); presence of sealants (7.2–21.8); and gingival signs (17.3–59.1). These findings indicate that notable differences in oral health status exist among sites and that, at a number of sites, unmet oral needs of athletes are substantial. Further investigation is warranted to determine the reasons for these differences. Supported by Boston University and Special Olympics Inc., using a protocol developed in collaboration with the Centers for Disease Control and Prevention.

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EARLY FINDINGS FROM A PILOT PREVALENCE STUDY OF EARLY CHILDHOOD CARIES IN RURAL NEBRASKA CHILDREN FROM BIRTH TO AGE 5 YEARS

Objective: For the first time ever, provide prevalence data on Early Childhood Caries for rural Nebraska children. Methods: Screenings were conducted by two Community Dental Health Coordinators (Certified Dental Assistants) for children ages birth to 5 years in Head Start Programs and day care centers. The day care centers were selected on the basis of low income and the Head Start Centers were selected based on accessibility. All screening sites were located in nonfluoridated areas of Central and Western Nebraska. The screenings were conducted using a flashlight and a tongue depressor in a knee-to-knee position. The Association of State and Territorial Dental Directors, (ASTDD) Screening Training Project, (STP) index was utilized. Findings were characterized as 0 (no obvious oral health problems; routine dental care recommended), 1 (observable oral health problems; early dental care recommended) or 2 (presence of pain, swelling and possible infection, or three or more areas of possible decay; emergency dental care recommended). No examiner calibration was used. 923 children were screened in 12 Head Start and 40 day care centers. 203 children or (22%) were in Head Start and 720 (78%) were in day care centers. A total of 37 children or (4%) needed urgent dental care, 160 (18%) needed early dental care and the remaining 717 (78%) had no obvious problems. Of the total number of children screened in low income Day Care and Head Start Centers in rural Nebraska, 22 percent had visible decay in which they needed to see a dentist. Further prevalence studies of early childhood caries in Nebraska need to occur in order to develop appropriate preventive programs.

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USE OF SMOKELESS TOBACCO BY US MEN: AN UPDATE

Use of snuff or chewing tobacco (smokeless tobacco, or ST) is a risk factor for oral cancer and other health conditions. This report provides recent data on ST use by men in selected states. Data were derived from the Behavioral Risk Factor Surveillance System, a continuous, state- and telephone-based surveillance system for modifiable chronic disease risk factors among the civilian, noninstitutionalized population aged 18 years and older. For 1 or more years between 1995 and 1998, 27 states administered the optional ST module. Data were weighted to permit state-specific estimates, aggregated across multiple years to increase precision, and analyzed by using SUDAAN. Of the 65,143 male respondents in these states, 62,378 (95.8%) provided information on ST use. A total of 7.6 percent (95% confidence interval [CI]: ±0.3%) of men reported current ST use. In 1995–1998, current ST use by state ranged from 2.2 percent (DE) to 17.8 percent (WV). ST use was higher among men aged 18–24 years (10.1%; 95% CI: ±1.1%) or 25–34 years (11.6%; 95% CI: ±0.8%) than among those aged 35–44 years (6.2%; 95% CI: ±0.6%), 45–64 years (5.7%; 95% CI: ±0.5%), or ≥65 years (5.1%; 95% CI: ±0.6%). Among men aged 18–34 years, current ST use was more prevalent among former smokers (16.3%; 95% CI: ±2.7%) or those who only smoked on some days (15.5%; 95% CI: ±3.6%) than among current everyday smokers (9.4%; 95% CI: ±1.4%). Men aged 18–34 years who were former ST users were more likely to be current everyday smokers (38.1%) than were current ST users (24.9%) or never users (24.8%). Findings suggest that male ST use has changed little over the past decade, there is still wide variation among the states, some men may use ST to supplement or replace cigarette smoking, and ST use may be a precursor to subsequent cigarette smoking.

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TREATING TOBACCO USE AND DEPENDENCE: A CLINICAL PRACTICE GUIDELINE—WHAT IS IT AND HOW CAN IT BE USED IN DENTAL PUBLIC HEALTH PRACTICE?

The 1996 Clinical Practice Guideline: Smoking Cessation proved to be the most successful guideline ever produced by the Agency for Health Care Policy and Research. Well over a million copies were distributed worldwide. It quickly became the gold standard for clinical tobacco intervention services. Now, only four years later, the tobacco cessation research base has doubled. Over 6,000 peer reviewed scientific articles provided the foundation for fresh conclusions and recommendations to clinicians. Many 1996 recommendations were strengthened, new ones added, and a few discontinued in the 2000 upgrade. Tobacco use adversely affects oral health and dental care in so many ways that treating tobacco use and dependence is becoming an essential dental service. Scientific advances that aid understanding of human behavior, addiction and cessation, revelations about tobacco industry behavior, and growing public concern about high risk behavior by youths, have helped elevate the new Guideline to the Surgeon General's level. Year 2000 Guideline recommendations of particular importance to dental public health practice will be presented.

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TOPICAL FLUORIDE USE DURING THE FIRST FOUR YEARS OF LIFE

Topical fluoride exposures are believed to be more important than ingested fluoride in caries prevention, but little is known about the frequency of overall topical fluoride use (dentifrice, mouthrinse, gel) among young children. The purpose of this report is to present the distribution of estimated numbers of topical fluoride exposures per year from birth to 48 months of age among participants in the Iowa Fluoride Study. Responses 2–5 times per year to series of questions about use of these fluoride products allowed the calculations to be made. Median values were fairly stable, but there was substantial individual variation in estimated frequency of topical fluoride exposure. Overall, the large majority of these exposures were to fluoride dentifrice. Supported in part by NIH grants RO1-DE09551 and P30-DE10126.

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SCHOOL-BASED SCREENING PROGRAM OF ADOLESCENTS WITH SEVERE GINGIVITIS

A high prevalence of severe gingivitis had been observed in a sample of Hispanic adolescents in south Texas (Cappelli, 1993). Understanding the importance of school health professionals, this pilot project utilized a school nurse to identify students with gingivitis. Following return of an IRB approved consent form, 84 seventh grade students from a middle school in the Edgewood Independent School District were visually screened by a school nurse and dentist independently. The screening instrument included a visual gingival scale (gingivitis) and visual oral hygiene scale (plaque). After visual screenings, an oral examination was performed using traditional index measures of gingival disease (GI, PI, PD) on Ramjford teeth. Referrals for treatment were based upon the clinical exam. Examinations were performed on the UTHSCSA dental van over a one-week period. Verification of treatment was sought by self-report and by telephone. Both screeners demonstrated a level of agreement for the visual gingival scale (83.33%) and visual oral hygiene scale (87.70%) with statistically significant kappa values (0.5794/0.5006). The screening tool correlated highly with gingival and plaque indices, demonstrating a high level of sensitivity (96.23%/98.44%). The data demonstrated that the nurse was able to accurately identify students who required referral for scaling and oral hygiene instruction (OR=5.94/5.75). This protocol provides a mechanism for identification of frank gingival inflammation in an adolescent population. The school nurse can provide a valuable resource for this oral health screening and health promotion.

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PRELIMINARY PERIODONTAL DISEASE FINDINGS FROM THE INDIAN HEALTH SERVICE 1999 NATIONAL ORAL HEALTH SURVEY

Periodontal disease status was determined among approximately 5,000 Native Americans in 11 geographic areas of the United States, by trained dental examiners. An age-stratified convenience sample of Indian Health Service (IHS) dental clinic users was examined using the Community Periodontal Index of Treatment Needs (CPITN) with WHO periodontal probes and a National Institutes of Dental Research (NIDR) methodology. The NIDR methodology measures probing pocket depth (PPD) and calculated loss of attachment (LOA) at the mesial and midbuccal of 14 teeth in each patient using NIDR 12 mm probes with color-coded 2 mm markings. While periodontal risk factors such as diabetes and tobacco use were also collected during the survey, the results presented here are not controlled for these risk factors. Preliminary results indicate that 1.6 percent (26) of 15–19-year-olds, 19.5 percent(330) of 35–44-year-olds and 24.8 percent (316) of 55 and older patients had at least one sextant of CPITN with a score of 4 (PPD ≥5.5 mm). Using the NIDR methodology, 2.6 percent (46) of 15–19-year-olds, 15.3 percent (261) of 35–44-year-olds and 15.7 percent (205) of 55 and older patients had at least one site of PPD ≥6mm. The preliminary results of the OHS suggest that advanced periodontal disease is common for Native Americans 35 years of age and older. Further the results from two periodontal disease indices, CPITN and NIDR, produced relatively similar percentages of deep pocketing among Native American survey patients.

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ASSOCIATIONS OF TOOTH LOSS AND EDENTULISM WITH ESTROGEN REPLACEMENT THERAPY AND FEMORAL BONE MINERAL DENSITY: CROSS-SECTIONAL EVALUATION OF US ADULTS FROM NHANES III

The objectives of this study were to evaluate the possible associations of tooth loss and edentulism with 1) femoral bone mineral density (BMD) and 2) history of estrogen use in a sample of US adults 40 years or older (*N*=8,621). The number of missing teeth per person and edentulism were the outcome variables. Based the total BMD of the proximal femur, according to the diagnostic criteria established by the World Health Organization, subjects were classified as having osteoporosis, osteopenia and normal BMD. Multivariate analysis conducted in the whole sample revealed that, after adjusting for confounders, there was a significant association between edentulism and BMD. However, among dentate individuals, there was not a significant association between missing teeth and BMD. The adjusted odds ratios (95% CI) for edentulism were 1.56 (1.24, 1.96) and 1.19 (1.00, 1.41) for osteoporotic and osteopenic persons, respectively (in reference to persons with normal BMD). Postmenopausal women who reported having used estrogen supplementation in the past, presented significantly less missing teeth and were less frequently edentulous than those who never used estrogen ($P<.005$). The data also suggests that this association between estrogen and missing teeth is greatly influenced by the protective effect of estrogen against periodontal loss of attachment.

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MONITORING CARIES STATUS AMONG AMERICAN INDIANS: COMPARISON OF THE INDIAN HEALTH SERVICE 1991 AND 1999 ORAL HEALTH SURVEYS

The Indian Health Service (IHS) monitors oral health status of its dental clinic clients. To determine national and regional trends in the caries status of American Indian people, results from the IHS 1991 survey (*N*=16,687) were compared with results from the IHS 1999 survey (*N*=11,880). Nationally, there was a significant (α=.05) increase in caries among adults over age 55 and no changes in adults age 35–44. Among older adults DFT increased. Mean (SD) values were 7.5 (5.2) in the 1991 survey and 8.8 (5.4) in the 1999 survey. There was no change in the average number of missing teeth. Regional trends varied. Only 4 of the 11 regions had a significant increase in DFT among adults over the age of 55 and no region had a decline. Among children, nationally, there was a significant decline in caries in the permanent dentition and a significant increase in caries in the primary dentition. For children aged 15–19 years, DFT decreased from 7.2 (4.6) to 6.5 (4.8). For children aged 6–14 years, DFT decreased from 2.3 (2.7) to 2.0 (2.7) and dft increased 2.5 (3.1) and 2.6 (3.2). Among children aged 2–5 years, caries trends were notable in the data describing tooth surfaces: dfs increased from 8.6 (9.3) to 11.4 (13.0). Regional trends varied. For children aged 15–19 years, there was a decrease in DFT in five of 11 regions. For children aged 6–14 years, there was an increase in DFT combined with a decrease in caries in the primary dentition in one region, a decrease in caries in the permanent dentition in four regions and an increase in caries in the primary dentition in three regions. Caries in the primary dentition of children aged 2–5 years increased in eight areas and decreased in one area.

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THE $d_1d_{2\text{-}3}$ CARIES INDEX FOR THE PRIMARY DENTITION: CRITERIA, RELIABILITY AND PREVALENCE OF DISEASE

Traditionally, little attention has been focused on caries in the primary dentition. However, there has been a renewed interest in this topic due to the recognition that caries in the primary dentition is highly predictive of later caries experience, and because of recent efforts to address early childhood caries. Unfortunately, indices and criteria for caries diagnosis in the primary dentition have lacked detail or were difficult to use. As part of the Iowa Fluoride Study, we developed an index and criteria specifically for the primary teeth. The criteria include noncavitated (d_1) lesions and cavitated ($d_{2\text{-}3}$) lesions. The latter category is broadly defined as frank decay that is confined to enamel or penetrates into dentin. We conducted 560 examinations of children in the primary dentition, and the two examiners did duplicate examinations on 12 percent (*n*=67) of these children. Dental caries reliability was assessed at the person and tooth levels. For any d_1 and any $d_{2\text{-}3}$ there was 100 percent agreement at the person level. For d_1 at the tooth level, agreement was 97.0 percent agreement and kappa=0.24. For $d_{2\text{-}3}$ it was 99.4 percent agreement and kappa=0.81. At the tooth level for $d_{2\text{-}3}f$, reliability was 98.9 percent agreement and kappa was 0.86; for $d_1d_{2\text{-}3}f$, there was 98.5 percent agreement and kappa was 0.91. Prevalence of

d_{2-3} was14.1 percent while that of d_1 was 21.6 percent; 15.5 percent had 1+ filled surface. We conclude that the d_1d_{2-3} index is reliable and useful for the primary dentition. (Supported by NIDCR grants R01-DE09551 and P30-DE10126)

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WATER CONSUMPTION AND NURSING CHARACTERISTICS OF INFANTS BY RACE AND ETHNICITY

Dental fluorosis is associated with fluoride intake during the first years of life. The purpose of this study, therefore, was to analyze infant feeding characteristics. Data were obtained from the 1994–96 Continuing Survey of Food Intakes by Individuals (CSFII) and are weighted to represent the US population. For black non-Hispanic children younger than 2 years old (n=121), 5.8 percent of the children were currently being breastfed. This is lower than that seen in other racial/ethnic groups. For white non-Hispanic children (n=620) this percentage was 9.7 percent,12.3 percent for Hispanic children (n=146), and 16.9 percent for "other" children (n=59). Few infants were breastfed past 2 years of age. Black non-Hispanic children drank more tap water than the other groups and had the highest total water consumption. Less breastfeeding and higher tap water consumption could play a role in the observed higher levels of fluorosis in black children.

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TOBACCO USE AMONG NATIVE AMERICANS: RESULTS OF A 1999 IHS NATIONAL ORAL HEALTH SURVEY

The Indian Health Service dental program conducted a national oral health survey, collecting data from all 12 geographic regions in 1999. A convenience sample of dental program patients, stratified by age, was utilized. Participants were asked questions concerning their use of tobacco products. Self-reported prevalence of use of smoked tobacco varied widely by geographic locale, ranging for adults ages 35–44 from 14 percent at Navajo (northeast Arizona) to 54 percent in the northern plains. Reported history of use of smokeless tobacco by adults ages 35–44 varied from 13 percent at Navajo to 53 percent in the northern plains. Use of tobacco products among Native Americans appears to continue to be significantly higher than available estimates of tobacco use among non-Native Americans. During the eight years since the previous IHS national oral health survey, no significant decrease in use is noted among Native Americans.

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AN ANALYSIS OF SMOKING INITIATION DIFFERENCES AMONG TODAY'S YOUTH POPULATION

Smoking accounts for a significant number of preventable deaths within the United States and as the number of childhood smokers increase so will the deaths associated with tobacco use. This is a significant public health problem that will also impact medical and health related finances for the 21st century. This specific research project highlights the contrast between African American and white youths in regards to smoking initiation patterns. It has been noted that African American children smoke less than white children, but this pattern changes during the early adult years. African American adults as a whole smoke significantly more than whites and are therefore at increased risk for smoking related diseases. Children begin smoking for many reasons, but the most prevalent are image, peer pressure and self-esteem related issues. For African American children it is most often their family values that keep them from initiating the smoking habit; however, a significant number have difficulties remaining nonsmokers throughout adulthood. Because the best form of control with youth smoking is to stop them prior to adopting the habit, better education and intervention programs need to be implemented starting with the elementary school systems. Stronger enforcement of underage tobacco sales also needs to be better regulated so children are unable to buy cigarettes, snuff, and smokeless tobacco. With the inability to purchase tobacco substances coupled with total school involvement for decreasing the desire to smoke, the public health goal for reducing youth tobacco usage will be positively impacted.

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UTILIZING DENTAL OFFICES TO PROMOTE SMOKING CESSATION

Forty-five offices randomized to three experimental conditions ("basic, augmented, and control") have been contacted during the pilot phase of a Columbia University/AETNA US Healthcare collaboration to test the utility of using dental offices, linked to a managed care organization, as a venue for promoting tobacco cessation. Barriers to enlisting dentists in this project included increased paper work for dentists and patients. Other barriers perceived by some dentists included potential stigmatization and alienation of patients and also a sense that tobacco cessation was not within the realm of dental practice. Facilitators for enlisting dentists included continuing education credit, compensation, free education materials, information about nicotine replacement therapy, and information about support systems patients can access. Analyses indicate that a majority of dental offices declined to participate in this project and that a labor-intensive effort is required not only to enlist offices, but also to ensure compliance with our need for delivery of data. Pretest data also indicate that about one-fourth of dentists inquire about smoking from 10 percent or less of their patients; approximately one-third of dentists report initiating smoking cessation advice only when asked and less than half discuss quit strategies with smokers. Supported by The Robert Wood Johnson Foundation.

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MAINTENANCE OF FLUORIDATION OF PUBLIC WATER SUPPLIES IN IOWA

Purpose: This study was conducted to systematically assess the maintenance data concerning adjusted water fluoridation programs in Iowa. Methods: Periodically collected water fluoridation maintenance data from 250 fluoridated public water systems in Iowa from 1991 to 1997 were used. These data were: 1) the results of water systems' fluoride assay of designated known "standard" water samples to assess the testing accuracy; and 2) monthly reports of fluoride levels from water systems daily and certified labs monthly, respectively. Results were grouped by the system size. Results: Most of the water systems were able to measure fluoride content fairly accurately (difference within 0.10 PPM), but the smallest systems (<500 people) reported statistically significantly greater errors. Most of the fluoride levels in these fluoridated public water systems were in the recommended range for Iowa (0.9–1.6) during the seven-year period from the reports of both the water systems and certified labs (92.6% vs 85.3%). Large water systems were more likely to have higher quality control of desired fluoride range. The differences in results between the water systems and certified labs varied, but most of the differences were considered acceptable (within 0.10 PPM). Those differences were also significantly associated with the system size. The testing device used, lack of training, and heavy workload may be greater problems in smaller systems. Conclusion: Most of the public water systems were able to maintain fluoridation in the recommended range and to measure the fluoride content fairly accurately. An increase in system size was associated with an increase in water fluoridation compliance and accuracy of testing. Future study of the effect of testing device and maintenance personnel characteristics is warranted.

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EFFECT OF 0.05 PERCENT NaF-RINSE ON PLAQUE FLUORIDE LEVELS IN LOW SOCIOECONOMIC BANGLADESHI CHILDREN

The aim of this study was to evaluate a school-based fluoride rinsing program on plaque fluoride levels in a low socioeconomic area in

Bangladesh where fluoride exposure was assumed to be low. Vestibular plaque samples from the upper central incisors and the lower first molars of 15 children (8–9 years old) were collected and frozen down on day 1. The children rinsed with 0.05 percent NaF every school day—that is, five days a week. The surfaces were re-sampled on the first and last school days during the week. The program continued for 18 days. DMFT and dmft were recorded according to WHO criteria. The fluoride content of each sample was extracted in 10 µl of 0.25N HClO4, neutralized and quantified on an inverted ORION 9409 electrode in an oil-bath with a microreference electrode operated under the microscope. Total plaque protein was quantified by the micromethod of Pearce upon digestion in 4N NaOH. For calculating F in ppm, 50 µg of protein was considered as 1 mg of plaque. Data were analyzed by paired *T*-test. The mean (±SD) DMFT and dmft were 0.11 (±0.46) and 1.98 (±1.71) respectively. At baseline, the mean (±SD) plaque fluoride level was 12.63 (±13.07). The mean (±SD) levels on days 4, 7, 11, 14 and 18 were 32.95 (±31.71), 14.35 (±19.21), 28.86 (±25.04), 9.51 (±11.53) and 25.69 (±35.90) respectively. The levels during week days (on days 4, 11 and 18) were significantly higher than baseline ($P<.001$), whereas the differences after weekends (on days 7 and 14) were nonsignificant ($P=.536$ and 0.172, respectively). Hence, the rinsing program increased total plaque fluoride levels significantly after continuous use. The baseline plaque fluoride levels were higher than expected.

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PREVENTIVE ORAL HEALTH KNOWLEDGE AND BEHAVIORS AMONG CHANGCHUN-AREA RESIDENTS

The purpose of this 1998 epidemiologic study was to investigate preventive oral health knowledge and behaviors among Changchun-area residents. A total of 2,000 residents (10–75 years old) were investigated. The randomly selected participants were divided into four groups according to age: group 1, children (12 years old); group 2, youth (18–25 years ikd); group 3, middle-aged (35–45 years old); and group 4, elderly (55–75 years old). Each group consisted of 250 men and 250 women; half of the participants live in city, the others live in rural areas. To evaluate the participants' preventive oral health knowledge, participants completed a standard questionnaire provided by the national preventive oral health epidemiologic investigation program. The questions assessing preventive oral health knowledge are as follows: the aim of toothbrushing; whether or not to have your decayed teeth filled as early as possible; you will adopt which measure to control gingival bleeding (visit a dentist or brush the affected part); how to deal with dental calculus; the way to obtain preventive oral health information; preventive dental behaviors—i.e., (1) whether or not have oral health care within one year: regular oral health examination, measures to prevent dental caries, the use of fluoride, and the use of pit and fissure sealants; (2) how many times you have visited dentists before the investigation; are you aware of dental floss, do you know how to use it; how many preventive oral health lessons you have had—were assessed by self report. The results of the study revealed that: the main purpose of toothbrushing is to prevent dental caries. Mass media (television, radio, and newspapers, etc) is the major way to get preventive oral health information. Preventive oral health knowledge and behaviors are significantly associated with sociodemographic factors (age, education, and income). Preventive oral health lessons are the main way for children to obtain oral health knowledge. The results also indicated that only a few participants are aware of dental floss and know how to use it. Many participants do not know the importance of regular cleaning of dental caculus, especially rural residents. The conclusions of the study suggest that the preventive oral health knowledge and preventive dental behaviors of public are rather limited; we still have much work to do to enhance the oral health of the public.

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VALIDITY OF ORAL HEALTH OUTCOME INSTRUMENTS: A COMPARATIVE ANALYSIS

Valid and reliable measures of self-reported oral health are necessary to assess outcomes of dental care from a patient perspective. We examined content, concurrent and criterion validity of three measures of oral-specific health-related quality of life: the General Oral Health Assessment Instrument (GOHAI: Atchison and Dolan, '90), the Oral Health Impact Profile (OHIP: Slade and Spencer, '94) and the Oral Health-related Quality of Life instrument (OHQOL: Kressin et al., '96) in a combined sample of two very different groups of veterans: (1) 538 male users of VA outpatient medical care from the Veterans Health Study (VHS: age=62±12); and (2) 202 relatively healthy men from the VA Dental Longitudinal Study (DLS: age=71±7) who do not use VA care. We used general linear modeling with the number of teeth as an ordinal explanatory variable (0, 1–10, 11–24, 25+) and mean instrument score as the dependent variable. Number of teeth was significantly related to GOHAI and OHIP but not the OHQOL ($F>10.9$, $df=3$, $P<.0001$). Similarly, we used the single-item self-report of oral health (OH1) as the explanatory variable and outcome instrument as the dependent variable in three separate analyses. OH1 was significantly related to all three oral quality of life measures ($F16.49$, $df=4$, $P<.0001$). The results suggest that all three of these measures are valid for measuring oral-specific health-related quality of life and that the single-item self-report of oral health is a valid, global oral health outcome measure. Supported by VA HSR and D Service.

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DIFERENCES IN QUALITY OF LIFE AS A RESULT OF DENTAL CONDITIONS AMONG A MEXICAN SUBURBAN POPULATION

A sociodental investigation using the Oral Index of Dental Problems-OIDP index-, was carried out among 228 people between 35–44 years old living in a suburban Mexican state. The aim was to determine social impact of dental disease. The OIDP Index measures problems—frequency and severity—in the nine most important physical, psychological, and social aspects of daily activities and allows us to know the extension of dental condition and the way they modify social roles. 69.3 percent of all subjects reported at least one daily activity affected in the last six months. The mayor activities affected were: to eat 69.3 percent with a median of 3.5 in a scale of 0–5, washing teeth 46.5 percent and a median of 3.9, 46.1 percent for smiling and a median of 3.9, and interacting 35.5 percent with a median of 3.9; the other five activities reported a frequency and severity less than 26 percent. The OIDP Index shows an alpha Cronbach confiability of 0.9595 for the frequency, 0.9503 for the severity, 0.7561 for the principal symptoms, and 0.8859 for dental damage. The comparative study between sex shows significant differences, with major problems in women; the *T*-test of student results in 2.36 *T*-value obtained. The study of dental health problems in Mexico always has been done by clinical index; this investigation shows the importance of sociodental indicators for planning and allocating the correct dental services and for measuring the social dimension of oral health problems.

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ASSESSING THE IMPACT OF ORAL HEALTH ON QUALITY OF LIFE IN OLDER ADULTS

Oral diseases are among the most prevalent chronic conditions experienced by older adults. Although the sequelae of these diseases can have adverse effects on general health, and psychological and social well-being, utilization of dental services by the elderly, especially minority elderly, is low. A number of possible explanations of this phenomenon have been suggested, but the most important reason appears to be that older adults expect oral dysfunction to be a natural consequence of aging, and accept diminished quality of life without seeking treatment. Considering that perceived quality of life is shaped, in part, by cultural and social factors, it is likely that the associations between perceived oral health and its impact on quality of life and health-seeking behaviors may help explain some of the variation in dental service utilization patterns by race. The aim of this pilot project was to determine the differences and relationships between oral health status,

perceived impact on quality of life, perceived need for oral health services, and utilization of dental services in two minority populations (African American and Latino), in New York City. Preliminary data suggest that although perceived importance of oral health and function is high, perceived oral health-related quality of life and utilization of dental services are not correlated with objective measures of decline in oral health status. Supported by the Center for the Active Life of Minority Elders, an NIA-funded Resource Center for Minority Aging Research.

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ASSESSING THE ORAL HEALTH NEEDS OF ASIANS AND PACIFIC ISLANDERS LIVING WITH HIV IN PHILADELPHIA

The incidence of HIV infection among Asians and Pacific Islanders (APIs) in the United States has been rising rapidly. Few data have been collected on this population because of the relatively low numbers of reported HIV/AIDS cases among APIs compared to other ethnic groups. The purpose of our pilot study is to assess oral health needs of APIs living with HIV in Philadelphia. Sample populations from AIDS Services in Asian Communities (ASIAC) and Philadelphia Community Health Alternatives (PCHA) were given a written survey. The survey questions were designed to collect information in three areas: ease of access to dental care, utilization of care, and oral health knowledge. In addition, participants received dental screenings to assess current dental needs as well as the prevalence of oral manifestations of HIV/AIDS in APIs living with HIV. Information collected from the study will be used to design appropriate dental health education programs to APIs for HIV.

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PERIODONTAL DISEASE AND HELICOBACTER PYLORI INFECTION AMONG ADULTS IN THE UNITED STATES: A POSSIBLE ASSOCIATION

The relationship between *Helicobacter pylori (H. pylori)* and selected oral conditions is unclear. Most studies have relied on microbiologic analyses performed on relatively small, homogenous populations to evaluate a hypothesized correlation between dental plaques or oral lesions and *H. pylori*. Recent experimental studies have still been inconclusive. This observational study examines the relationship between pathologic dental conditions and the seroprevalence of *H. pylori* using a nationally representative sample. Data were examined from approximately 4,500 persons aged 20–59 years who participated in the first phase of the third National Health and Nutritional Examination Survey (1988–91). Periodontal attachment loss and pocket depth, root furcations, aphthous ulcer history, and supragingival and subgingival calculus had an association with *H. pylori*. In a multivariate logistic model adjusting for socioeconomic status and demographic variables, pocket depth remained as the only periodontal factor independently associated with *H. pylori* seropositivity. We conclude that moderate-severe pocket depth may increase the odds of *H. pylori* seroprevalence by nearly 50 percent (OR=1.47; 95% CI=1.12, 1.94). The strength of this relationship is quite similar to the independent effects of poverty. This is the first epidemiologic study to demonstrate a positive association between *H. pylori* and periodontal disease. These findings may help explain earlier conflicting results and may have a significant impact on the control/eradication of *H. pylori*.

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CORRELATES OF TOOTH LOSS AMONG MEN AND WOMEN IN THE DETROIT TRICOUNTY AREA, MICHIGAN

Tooth loss among dentate men and women was compared using a probability sample of adults age 18–93 years in the Detroit tricounty area, Michigan. Data were collected by in-home interviews (*N*=787; 70% response rate) and dental examinations (*N*=577; 74% of interviewed). Among men, the mean number of teeth was 22.7, among women 21.5. Bivariate analyses showed that among men, number of teeth varied significantly with age, education, income, race, dental check-up frequency, self-rated general health, satisfaction with mouth, average loss of periodontal attachment (LPA), and percent of teeth with calculus and gingival bleeding. There was no association with dental insurance status, access to care, self-rated oral health, brushing, flossing or smoking habits, or number of filled and decayed surfaces. Among women, number of teeth varied significantly with age, education, income, dental insurance status, dental check-up frequency, self-rated oral and general health, number of filled surfaces, average LPA, and percent of teeth with calculus. There were no significant relationships with race, access to care, satisfaction with mouth, brushing or flossing habits, smoking, number of decayed surfaces, nor percent of teeth with gingival bleeding. In separate linear regression analyses, correlates of tooth loss varied by sex. Among men, number of teeth present was associated with average LPA, race, age, number of filled surfaces, percent of teeth with calculus, and having dental insurance. Among women, correlates were age, number of filled surfaces, average LPA, flossing habits, and self-rated oral health These findings suggest that different interventions to decrease tooth loss are needed for men and women. Supported by NIDR grant DE10145.

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CORRELATES OF LACK OF THIRD MOLARS AMONG AFRICAN AMERICANS AND WHITES IN THE DETROIT TRICOUNTY AREA, MICHIGAN

Lack of third molars among dentate African Americans and whites was compared using a probability sample of adults aged 18–93 years in the Detroit tricounty area, Michigan. Data were collected by in-home interviews (*N*=787; 70% response rate) and dental examinations (*N*=577; 74% of interviewed). African Americans had more third molars (M=1.67) than whites (M=0.96) (*P*<.001), and fewer African Americans (38.2%) than whites (62.1%) had no third molars (*P*<.001). Bivariate analyses showed that among African Americans, lack of third molars varied significantly with age, dental insurance, access to dental care, dental check-up frequency, brushing and flossing habits, number of decayed and filled surfaces, average loss of periodontal attachment, and dental anxiety. Lack of third molars did not vary with sex, education, income, satisfaction with mouth, self-rated oral and general health, smoking, or percent teeth with calculus and gingival bleeding. In whites, lack of third molars was significantly related only to percent of teeth with bleeding. In separate logistic regression analyses, correlates of lack of third molars were different in the two races. Among African Americans, lack of third molars was related to age, self-rated general health, brushing and flossing habits, and anxiety. Among whites, lack of third molars was associated with access to dental care and percent of teeth with gingival bleeding. Thus, no common factor predicted lack of third molars in the two races, suggesting different treatment patterns in African Americans and whites.

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OCCLUSAL AND DENTAL ARCH CHARACTERISTICS IN THE PRIMARY DENTITION

Many orthodontic problems can be prevented or more simply treated in the primary dentition resulting in considerable savings in treatment costs. However, little is known about the prevalence of anterior open bite, anterior or posterior crossbite, excessive overjet and Class II or Class III canine and/or molar relationship in the primary dentition. This study reports on the prevalence of certain occlusal traits in the primary dentition as an adjunct to the Iowa Fluoride Study. Dental examinations were conducted and study models were obtained for 213 children, aged 4–5 years old with intact primary dentitions. The models were assessed for different conditions, and measurements of the dental arches made by the study team. Overall, 10 percent had anterior open bite, 15 percent had anterior crossbite, 11 percent had posterior crossbite, and 9 percent had overjet of 4 mm or more. Canine relationships were as follows: Class I (both sides), 65 percent; Class II, 33 percent ; Class III, 2 percent. For molar relationship, 43 percent had

flush terminal plane on both sides, while 42 percent had mesial step and 16 percent had distal step occlusion. Many of these conditions, including anterior open bite and posterior crossbite, were associated with prolonged nonnutritive sucking habits. In conclusion, malocclusions are fairly prevalent in the primary dentition, and some may be preventable by modifying nonnutritive sucking behaviors. (Supported by NIDCR grants R03-DE12819 and R01-DE09551 and P30-DE10126)

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"PUBLIC HEALTH DENTURES" FOR NAVAJO ELDERS

The purpose of this project is to improve the oral function of an underserved population of Navajo elders. An oral assessment was conducted to determine the need for dentures of over 500 Navajo elders residing on the Navajo Reservation. The participants were self-selected through their interest in having dentures due to: (1) being edentulous, with no dentures; (2) having ill-fitting dentures; or (3) having few remaining teeth with poor oral function. Dentures were fabricated in 16 senior centers throughout the Navajo Reservation. Full dentures were delivered to over 400 Navajo elders with a mean age of 73 years and an age range of 53–94 years. A questionnaire was completed and an oral examination was performed on 96 Navajo elders with dentures that had been delivered at least six months previously. The answers to several questions on the use of the dentures were as follows: 94 percent wear their dentures always or sometimes, 90 percent use their dentures to eat, 95 percent with satisfied or very satisfied with their upper dentures, and 92 percent were satisfied or very satisfied with their lower dentures. This project has successfully improved the oral function of a population of Native American elders through a unique method of delivering denture services in a manner satisfactory to the elders.

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ORAL HEALTH PROFILE OF INDIVIDUALS SEEKING SERVICES AT AN ASSISTANCE CENTER FOR THE HOMELESS

The issue of homelessness is deeply rooted in chronic social, economic, and political problems. Individuals in this situation face the challenge of inadequate health care. A current oral health profile is necessary to stimulate the development of dental services for individuals who find themselves homeless. The purpose of this study was to conduct an oral health needs assessment of the homeless in the Kansas City area. Forty-three individuals seeking services at a downtown assistance center participated in the study. Dental exams were conducted in spring 1999 to determine the number of teeth present, DMFT scores, calculus levels, description of gingival conditions, and assessment of oral debris. Clients were examined and received oral health instruction and referrals for dental care. Results indicate that the average age of the individuals examined was 45 years. Clients demonstrated an average of 3.43 decayed teeth, 5.13 missing teeth, and 5.82 restored teeth per person. The program will be repeated in spring 2000 to validate previous results and add information to the oral health profile.

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ABSENTEEISM DATA AT A CHARLESTON HIGH SCHOOL: PRELIMINARY EVALUATION

State policy has been adopted to reduce the number of days a student is allowed to miss and still get credit for a course. While policy had been developed, no one had looked at what issues have actually been causing so many absences to occur. The purpose of this study was to identify key words and themes concerning absenteeism, including oral disease problems, in a suburban high school with 921 students in grades 9–11. The absentee record with the corresponding absentee excuse notes for students for spring 1999 were reviewed by the school's attendance clerk and a teacher who manually assessed a subsample by first letter of students' last names for A–C, M, and W–Z. Of the 281 records reviewed, 914 notes were found for 212 students (77.5% of the students). One-third of the notes were from parents, and 67 percent from doctors. Sixty two percent of the parent notes were for illness. Of the doctor notes, 10 percent were from dentists, with 65 percent of these from orthodontists. Only 19 percent of the notes actually described specific medical or dental problems. The doctor notes were provided by 14 physicians and five dentists. This review of the absentee records did not produce information helpful for assessing the reasons for the absences in the high school beyond a statement that the student was sick. If the school system wants to solve the absenteeism problem, a strategy is needed to identify the health problems of high school students and to aid in the development of interventions to ensure that the students are healthy enough to be in school. While absentee notes reflect illness as a common reason for missing school, currently they are not specific enough to provide information for medical or dental trends in this high school. If the reasons for absenteeism are to be studied, a new absenteeism system should be developed.

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A SCHOOL-BASED PREVENTIVE DENTISTRY PROGRAM FOR MINORITIES

The primary goal of this project at North Division High School is to familiarize dental students with a population group normally not seen in their clinical training. Two other goals of the project are to encourage high school students to consider dentistry as a career path, and to provide preventive dental care to underserved high school students. Sophomore dental students visit North Division weekly to participate in this project. North Division is located in Milwaukee's inner city, an area displaying the typical urban blight prevalent in many cities. Over 95 percent of the student body at North Division is African American. Dental students arrive at North Division and are teamed up with North Division Dental Career high school students. Utilizing North's four-chair dental clinic, dental students perform a dental examination with the high school students acting as dental assistants. The dental student and the high school Dental Careers student, working as a team, provide oral hygiene instruction, a prophylaxis, and a fluoride treatment for their high school patient. The opportunity for dental students to provide preventive dental health care services, in a school-based setting, with high school students serving as dental assistants, is unique in the United States. Working side-by-side with dental students, dental career students gain valuable insight into what dental personnel do during their workday. This program could be a model for helping to relieve the paucity of dental providers in underserved areas of minority population groups. This project was supported, in part, by the Milwaukee Area Health Education Center.

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A MODEL FOR ASSESSING PRISON DENTAL MANPOWER NEEDS

There has been a continual escalation in the number of prison inmates in the United States, thus generating an increasing demand for prison dental care. To help meet this increased demand, prison dental health care providers should be used efficiently. There is a current debate over what level of dental care should be provided to prison inmates. This project developed a model for assessing prison dental personel needs. Through use of both interviews and a survey instrument, a mechanism was designed and implemented to determine what prison dental care providers perceive to be an appropriate level of dental care for prisoners. Data analysis by Kruskal-Wallis one-Way ANOVA revealed that prison dentists, dental hygienists, dental assistants, and nurse mangers had significantly different views on what level of dental care should be provided to inmates. Data on workday activities also were collected and analyzed (Tukey-HSD) to measure dental workday efficiency. This study demonstrated that although the largest proportion of time was devoted to direct patient care, other duties—e.g., administration and security—took up significant proportions of the professional workday. Use of this model helped resolve some of the issues in delivering care to prisoners in Wisconsin, and would be suitable for use in other prison systems. This study was supported, in part, by the Wisconsin Department of Corrections.

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CLINICAL EXPOSURES OF A DOMINICAN REPUBLIC DENTAL PROGRAM

This study describes clinical exposures seen in the Dominican Republic during eight days of the summer of 1999 as part of an 18-year collaboration of several US dental schools, a Dominican dental school, and the local health committee. Data were collected from patient tracking forms completed by Dominican interviewers and the clinical care providers. Services included extractions, restorations, and esthetic dentures. Twelve percent of the care was provided by Dominican dentists; 11 percent, Dominican students; 32 percent, US dentists; and 45 percent, US students. The mean age of the 675 patients was 25.1 (SD 12.9), mean number of teeth was 23.4 (SD 6.3), 58 percent were missing a permanent first molar, and 52 percent were female. Sixty percent had participated in the program previously, 48 percent had seen another dentist, and 22 percent had never been to a dentist. This abstract concentrates on the extraction services provided. Seventy-five percent of the patients received extractions. The mean number of teeth extracted was 2.1 (SD=2.2). The mandibular left permanent first molar was the most frequently extracted tooth, with 34 percent of the patients having at least one permanent first molar extracted at this visit. This program enabled US dental students and dentists to encounter dental needs and disease distributions not frequently seen in the United States. Further study is warranted to see if such exposures alter their dental practice.

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THE IMPACT OF A NEW EMPHASIS ON DENTAL STUDENT OUTREACH

A new emphasis on dental outreach began in fall 1997 at the MUSC College of Dental Medicine (CDM). A main focus was the creation of a Community Academic Coordinator (CAC) position. The CAC-associated outreach activities centered on oral health education provided by the dental students at health fairs, in local schools, and at other community locations. This study sought to assess changes in the dental students' attitudes about and participation in dental outreach activities two years after the initiation of the CAC. The dental students were surveyed in fall 1997 and fall 1999 using a self-administered questionnaire. The response rate improved to 90 percent (192/213) in 1999 from 73 percent (148/203) in 1997. In 1997 and 1999, similar percentages (87% and 89%) of the students thought the CDM should be involved in outreach. By year of education there were increases for year 1 (79% vs 96%, $P<.007$) and year 2 (86% vs 100%, $P<.02$), and decreases for year 3 (95% vs 75%, $P<.05$) and year 4 (97% vs 83%, $P<.06$). For both surveys, 85 percent of the students would like to be involved in outreach: the percentage of the first-year students wanting to be involved increased significantly (71% vs 98%, $P<.001$). Outreach participation has changed. In 1997, 83 percent of the students had not participated in outreach; as by 1999, only 31 percent had not. This evaluation demonstrates an impact from the new emphasis on outreach, but monitoring is needed to see if the presence of outreach activities for all four years of dental school will further improve dental students' attitudes and participation.

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GEOGRAPHIC DISTRIBUTION OF DENTISTS IN CALIFORNIA: DENTAL SHORTAGE AREAS, 1998

Access to dental care services is an issue of increasing concern both in California and nationally. While not the only determinant, an important element of access to care is an adequate local supply of dentists. This study aimed to estimate the geographic supply of dentists in California and to evaluate the community characteristics of dental shortage areas. The number of practicing dentists were estimated from 1998 ADA data on dentists in California. Each practice site was geocoded and matched to a Medical Service Study Area (MSSA). Population-to-dentist ratios were computed, and the correlation between shortage levels and community characteristics determined. Of the 487 MSSAs, 97 were found to be below the federal designation guidelines level of 5,000:1 population-to-dentist ratio. Further, 32 MSSAs were found to have no dentists at all. Of the MSSAs at shortage level, 32 percent are urban and 68 percent rural, although urban shortage areas contain 74 percent of the population who reside in shortage areas. Communities with a shortage of dental professionals tend to have a higher percent of racial and ethnic minorities and/or low-income persons. Twenty percent of the state's MSSAs containing 12 percent of the state's population may have problems with geographic access to dental health services, indicating a clear geographic maldistribution of dentist in California. Access to dental care services may be compromised in many communities, especially low-income and minority communities, which are more likely to have a dentist shortage.

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UTILIZATION OF DENTAL SERVICES REPORTED BY UNIVERSITY STUDENTS

This paper describes the patterns of dental treatment obtained as reported by undergraduate students attending the University of Iowa. Data reported here were obtained by questionnaire from a sample of freshmen in fall 1999. Of the 647 students who participated, 70.4 percent were female, 90.7 percent were whites, and 96 percent were aged 18–21 years. About 84 percent reported a dental visit within the last year. Of dental treatment received in their lifetime, 51.5 percent reported orthodontic treatment; 88.3 percent reported routine dental check-ups or prophylaxis; 64.8 percent reported fillings. Extraction of teeth for braces was reported by 31.2 percent, while 38.0 percent reported extraction of wisdom teeth. Bivariate analysis revealed sex (female) to be significantly related to orthodontic treatment. Regular parental visits, one main dental office where treatment was obtained, and having dental insurance were significantly associated with routine dental check-ups and orthodontic treatment. One main dental office attended was significantly associated with extraction of teeth for braces and extraction of wisdom teeth. These university students reported higher dental utilization than the general public. Having a regular source of dental care was significantly associated with receiving routine dental care.

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PHILANTHROPIC SUPPORT FOR LOCAL WATER FLUORIDATION

Optimal adjustment of the fluoride level in the water supply is the most efficient, cost-effective, and nondiscriminatory method to improve a community's dental health. One of the largest cities in eastern Pennsylvania does not fluoridate its water. Multiple water fluoridation efforts over more than 40 years by health and social service entities remained defeated by fluoridation opponents and local politics. In 1996 a philanthropic grant-making health organization convened a series of meetings with local civic, dental, and medical leadership to determine if the public health policies regarding fluoridation could be positively influenced. This resulted in establishing Citizens for Children's Dental Health (CCDH), a coalition of community residents, health care professionals, and representatives of children's community service agencies, spearheaded by a regional teaching hospital and its medical and dental staff. Support of CCDH was considered a worthwhile philanthropic investment due to its potential to encourage grassroots education and activism in partnership with clinical and social service organizations, and its potential to contribute to a philanthropic objective to measurably improve the health of the region. The CCDH, along with underwriting to cover implementation costs, has contributed to support by the city administration, resulting in the long-awaited passage of a water fluoridation bill by the city council. Presenters will describe the potential role of philanthropic organizations to improve dental health by convening local leadership, funding grassroots advocacy, partnering with the dental and medical community, and engaging in the public policy process. Lessons learned and implications for replication in other re-

gions will be discussed.

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A DESCRIPTIVE ANALYSIS ON THE UTILITY OF A COMMUNITY-BASED ORAL HEALTH NEEDS ASSESSMENT AND PLANNING GRANT PROGRAM IN BUILDING ORAL HEALTH CAPACITY

In SFY97 the Illinois Department of Public Health's Division of Oral Health initiated a grant program for local Oral Health Needs Assessment and Planning (OHNAP) using a modified version of the ASTDD 7-step model. A survey tool was developed to assess the utility of the grant program in (1) enabling Illinois communities to determine their oral health status, (2) developing comprehensive oral health plans, and (3) building capacity at the local level around oral health issues. A survey was developed and sent to 29 local health departments who had completed OHNAPs in SFY97 and SFY98 to assess the utility of the grant program in developing oral health capacity. Twenty-one surveys were returned (response rate=72%). 80 percent of respondents felt the OHNAP was instrumental in addressing oral health issues at the community level, 70 percent said short-term objectives had been met, 70 percent felt the time and effort spent on the OHNAP were valuable, 70 percent felt local resources and barriers had been determined, 66 percent had implemented intervention strategies, and 45 percent felt oral health became a priority in the community. State-funded community oral health needs assessments are a valuable tool in developing oral health programs and service capacity at the community level.

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THE IFLOSS COALITION: ACCESS TO ORAL HEALTH CARE IN ILLINOIS

The IFLOSS Coalition is an emerging private-public partnership addressing access to oral health care in Illinois. The IFLOSS Coalition is finding solutions to access through public facilities, private providers and Medicaid reform. Formed by concerned communities in November 1998, the IFLOSS Coalition established three workgroups: Reimbursement, Clinics, and Marketing and Data. The coalition is led by two public health administrators, a unique and successful aspect to an oral health collaborative. Meeting quarterly, the coalition developed a strategic plan and is actively implementing interventions to overcome barriers to oral health access. The IFLOSS Coalition continues to grow and flourish, gaining new and influential partners such as local and state agencies, organized dentistry and dental hygiene, and child advocacy groups. The IFLOSS has distributed recommendations for positive change to the governor, legislative leaders, and key state agencies. To date IFLOSS has been instrumental in raising Medicaid rates, restoring adult Medicaid benefits, simplifying Medicaid billing procedure and paperwork, and expediting payment. The coalition continues discussions with policymakers to raise clinic start-up grant awards, improve Medicaid coverage for most needed services, develop a statewide oral health surveillance system. An oral health education and awareness marketing plan is being developed and a Clinic Development Manual compiled to assist communities with local access improvement efforts. Success will be measured and evaluated by monitoring the number of community clinics developed in the state and reforms made through state government agencies and regulations that improve access.

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AUTISM AND OTHER DEVELOPMENTAL DELAYS ASSOCIATED WITH MMR IMMUNIZATION AND DELAY IN SEEKING DENTAL CARE

Autism and other developmental delays (AOD) in children pose a challenge for treatment by dental professionals. The frequent behavioral problems seen in these children often require them to be treated under general anesthesia at higher cost. Recent reports of increases in the numbers of these patients led to this review of data to look for possible associations of AOD with childhood immunization and delay in seeking dental care. Using data from the 1997 National Health Interview Survey, an association between AOD in children with measles, mumps, and rubella (MMR) immunization was investigated. Using SUDAAN and adjusting for age, sex, time since last visit to a physician, and SES, children 2–17 years immunized with MMR were 4.7 times more likely (CI=2.0, 11.0) to have AOD than were children not immunized. A higher percentage of parents whose children had AOD reported that they delayed dental treatment for them because of cost considerations (9.6%) than did those parents whose children did not have the condition (5.8%; $P<.001$). This study suggests children with AOD have a significant association with MMR immunization and delay in seeking dental care.

UNIVERSITY OF MICHIGAN ORAL EPIDEMIOLOGY

The Program in Dental Public Health at the University of Michigan offers financial aid for US citizens and permanent residents in the PhD program in epidemiologic science. This aid, from an NIH training grant, provides tuition and a stipend for three years. The program is accredited by the ADA as meeting the educational requirements for specialty certification by the American Board of Dental Public Health. Graduates are prepared for research careers as principal investigators or collaborators. Subject areas covered include biostatistics, general and oral epidemiology, molecular epidemiology, computer data management, research design, critical analysis of the literature, and related topics. The resources in the School of Public Health, Dental School, and elsewhere on campus allow students to conduct their research dissertations over a wide range of subjects, from genetic epidemiology to social epidemiology. Positions for dentists available for September 2001 and September 2002. MPH or MS required prior to admission, although in some circumstances it can be done concurrently with the PhD. Application forms and further details available from program director Dr. Brian Burt, University of Michigan, School of Public Health, 109 Observatory Street, Ann Arbor, MI 48109-2029. Tel.: 734-764-5478; Fax: 734-764-3192; E-mail: bburt@ umich.edu. Prospective applicants are encouraged to contact Dr. Burt prior to application.