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Underserved Elderly Issues in the United States: Burdens of Oral and Medical Health Care

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Several recent national reports, such as the Institute of Medicine report on Understanding and Eliminating Racial and Ethnic Disparities in Health Care (March 2002) [1,2], the US Surgeon General Report on Oral Health in America (May 2000) [3], and the National Call to Action Initiative (May 2003) [4], have highlighted the disparate quality and extent of health care services received by racial and ethnic minorities in the United States. The gaps in health care services vary by race or ethnicity, income stratum, age, and area of residence (urban versus nonurban) [5–10]. Low income, lack of supplemental insurance, and age of 85 years or greater are other risk factors for poor access and use of health care [5,7,8]. Some prospective studies conducted in the United States and other nations demonstrate racial disparities in receipt of services that are not explained by differences in access or disease severity [11–13]. Even when one controlled for socioeconomic differences, many of these disparities remained [8,13]. Hence, these disparities in health care may be attributable to multiple longstanding factors, one or more of which may be confounded by other factors [13]. Although most of these reports charge their readers with reducing or eliminating these disparities, effective strategies must target every level of the health care system, including cross-cultural training, regulatory and policy interventions (eg, national consensus on best practices, using evidence-based guidelines), and financing [14].

This article focuses primarily on African Americans, Hispanics, and American Indians or Alaskan Natives. Although several other racial or ethnic groups have experienced disparate health care access or disease burden in the United States, most research and data collected by Summary

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Health Statistics (surveys administered by the US Department of Health and Human Services) were not available for these groups, particularly distinct subgroups of Asian Americans. Distinctive cultural influences, traditions, and belief systems, as well as genetic or hereditary factors of disease, are observed among certain subgroups. Current and future oral health research should strive to assess these trends among and within distinct subgroups of racial or ethnic populations to identify successful strategies to eliminate or reduce these health care disparities.

Rationale for targeting older Americans

As of the year 2000, the elderly represented about 12.4% of the general population [15], yet their health care expenditure gross national product (GNP) was approximately 14% in 2003 [16]. In 1996, the annual range was from \$8,742 per capita as a group to \$38,906 per capita for the institutionalized elderly [7]. By 2000, total health care expenses for those 65 years of age or older approached \$204 million, compared with about \$424 million for those less than 65 years of age [17]. Although most of the elderly have some form of medical insurance (89%) [11,18], only about 22% have dental insurance [7,19]. Census projections for the year 2030 predict that there will be 54 to 56 million Americans aged 65 years or older, with an expected health care GNP of 25% [7,15].

Older Americans' health status has shown improvements over the past decade [6], yet there are tremendous gaps in the health care services received by this population [1,2,5]. Although most older Americans have either Medicare or private health insurance, many live alone, and barriers such as chronic illness, social distraction, poor literacy, cultural practices, and even mental disorders limit their access to Medicare and their ability to navigate the health care maze [8–11,14].

In 2000, 0.9% of the United States population self-identified as American Indians or Alaskan Natives (AI/ANs), with another 1.5% identifying themselves as combined AI/AN and one other race or ethnicity [15]. It is generally accepted that American Indians and Alaskan Natives have a higher burden of disease, injury, and premature mortality than non-Hispanic whites [20]. Average life expectancy among AI/ANs has increased 39% over the past 5 decades [21]. The Indian Health Service (IHS) has been credited with surveillance and interventions for infectious and chronic diseases among AI/ANs [21]. These interventions are reported to have contributed to the improved health outcomes in this population since the 1980s [22]. However, Katz [20] reports that IHS may not be an adequate source of care for most AI/ANs and that pervasive disparities within this subgroup may go unrecognized. Others have reported troubling gaps in health care access and use, insurance coverage, and income among various subgroups of AI/ANs, even among those receiving care from the IHS.

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Trends in quality of care also show significant disparities among older minority Americans and those with functional limitations or disabilities requiring long-term or home health care, palliative care, pain management, hospice care, or even preventive care (eg, adult immunizations) [6,23]. Over the past decade, the number of elderly persons with disabilities has declined; their access to disability benefits has been better than that of nonelderly low-income persons [6]. Disabled older minority persons report more problems with quality of care (11%) than do whites (4%), yet blacks and Hispanics (12%) are less likely than whites (20%) to report delays in access to care due to costs [6,8,16]. Within nursing homes, there are racial disparities among older adults receiving influenza or pneumococcal immunizations, pain management, and rehabilitative care, even with equitable insurance coverage [6,8,9,11].

The gap among older Americans is even wider for dental care, where demand for services trails need. In addition to lacking resources for this perceived optional health care [19,24], most elderly people are more concerned about basic necessities, such as maintaining shelter, food, and prescription medications [8]. Hence, the dental profession should improve its role and responsibility in caring for the elderly by (1) improving understanding of the relationship between oral and systemic health [6,25], (2) broadening cultural competence to close the gaps between available, accessible, and acceptable oral and dental care [3,4,26], and (3) marketing or promoting high-quality continuous dental care for this expanding and needy subpopulation [6,8,27].

History of disparities in health care

The Civil Rights Act (1964) prohibits discrimination by institutions receiving federal funds, and the Medicare and Medicaid Act (1965) reduced financial barriers to care for minority and nonminority elderly low-income Americans [8,9]. Nonetheless, health care among older underrepresented racial and ethnic populations still differs from that of the majority population, and these disparities have not been explained by factors such as access, insurance status, needs or preferences, or type of interventions or services [5,9].

In fact, several studies and clinical trials reported fewer underrepresented minorities receiving preventive care (eg, cancer screening), cardiac care or surgery, diabetes management, and home health or rehabilitative nursing care [10,12,13,18]. However, more of these individuals received aggressive irreversible surgeries (eg, amputation, bilateral orchiectomy) or experienced poor outcomes from coronary events, cardiac surgery, or cancer or diabetes treatment [5,8,12,13].

These different subgroups have variable needs among, within, and across communities, ethnicities, and income strata [1,2,6,8]. Thus, viable solutions

must also identify specific and multiple factors that contribute to these disparities.

These health care disparities have been recognized for decades [6], but only within the past 20 years has there been demonstrable national response. The Clinton administration's 1998 Initiative on Race was the broadest, resulting in the Health and Human Services Racial and Ethnic Health Disparities Initiative [1,2,6,28]. During the last decade, federal agencies have actively supported research aimed at reducing health disparities in minority populations, including biomedical, behavioral, and evidence-based clinical research activities [28]. These activities have yielded the national reports cited in this article: Healthy People 2010, Oral Health in America, the National Call to Action Initiative, the Institute of Medicine reports, and a recently developed Regional Research Center on Minority Oral Health in Los Angeles, California, supported by the National Institute of Dental and Craniofacial Research [28].

Older Americans and oral health status

Over the past few decades, growth among Americans over the age of 65 years has surpassed expectations [3,15]. By 2030, this age cohort will account for almost one third of the United States population and will significantly burden the health care system [7]. As with medical care, the oral and dental needs of the elderly vary widely and according to similar factors [6,19]. Although the majority are likely to retain teeth throughout their lifespan, routine dental care and screening for oral disease will increase either demand for access or use of dental care services by elderly subgroups [4,29].

Subsidized medical versus dental care

Medicaid, a jointly funded federal–state program for eligible low-income persons and the disabled low-income elderly, provides limited reimbursements for selected dental care in some states [11,30]. Poor elderly, therefore, may not even seek dental care because of socioeconomic constraints [24,29]. These poor elderly tend to be overrepresented by racial and ethnic minorities [8,9,30]. Limited resources and inability to pay may be among several factors that explain poor access to preventive or routine dental care among these underserved elderly. Patients' perception of need and, often, patients' and providers' poor understanding of the associations between oral health and systemic disease also contribute to inadequate health promotion and referral [3,4,30].

Dental use services

Use of dental services by the elderly correlates with dental insurance or income status; only 22% had private dental insurance in 1995, and most of

these services were paid for "out of pocket" [19,31]. One dental visit per year, a measure of use, was reported by 54% of all elders surveyed in 1997 [7,19]. However, when the elders were asked how often they visited the dentist, that proportion varied from 37% of those with teeth to 75% of those without teeth [19].

A modified survey, administered in 2002, yielded more useful data on access. Of a representative sample of elderly persons aged 65 years or older, 48.4% of those who had private insurance had visited the dentist or dental health provider within the previous 6 months, as had 48% of those with Medicaid, Medicare, or no insurance [16]. An additional 38% reported no dental visit for more than 5 years, and 2% reported never having visited a dentist [16].

Untreated dental caries

Several recent reports indicate that almost one third of the elderly have untreated caries or periodontal disease [3,19]. The prevalence of dental disease (caries, missing teeth, periodontal disease, and oropharyngeal cancer) is disproportionately greater among the African American and Hispanic elderly [30]. In 2001, Vargas et al [19] reported that 47% of African American elders had untreated dental disease; adding poverty to the equation increased the proportion to 50%.

Comparisons from sampling over 3-year intervals spanning 3 decades (National Health and Nutritional Examination Survey [NHANES] I–III) [16] showed little overall change in the proportion of 65 to 74 year olds with untreated dental caries: 29.7% (1971–1974) versus 25.4% (1988–1994). However, blacks had worse caries, changing from 41.5% to 46.7% over the same survey period. Hispanics were surveyed only in the last 2 decades, 1982 to 1984 and 1988 to 1994, but they showed negligible improvement, from 44.3% to 43.8% [16]. Among these minority elders, being "near poor" as opposed to "poor" (ie, below the federal poverty threshold) was associated with fewer untreated dental caries: 22.7% for whites and 43.6% for blacks, whereas 39% of the white poor and 50% of the black poor had untreated caries [16].

The percentage of edentulism in 2002 was 24% for all persons between 65 and 74 years old and 32.5% for those aged 75 years or greater [7]. These proportions varied by insurance status for those over the age of 65 years: 24% of those with private insurance were edentulous, compared with 45.4% of those with Medicaid or Medicare, 31.8% of those with Medicare only, 34% of those with another insurance source, and 29.2% of the uninsured [16]. In the NHANES III survey of noninstitutionalized elderly between the ages of 65 to 74 years, 46.7% of blacks and 43.8% of Mexican Americans were edentulous, compared with 22.7% of whites [7]. More data about health status and less about oral health were available for AI/ANs. However, the 2002 National Health Interview Survey reported that 29.2% of AI/ANs at least 18 years old had visited a dentist in the past 6 months,

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13.9% had not seen a dentist in more than 5 years, and 1.2% reported never having visited a dentist [16]. In this minority group, the rate of edentulism (8.6%) was reported for all adults in 2002, without age stratification [16].

Periodontal disease

Along with dental caries, periodontal disease is more prevalent among adults and children the lower socioeconomic strata of United States adults and children. Nutritional status may be adversely affected by these socioeconomic factors [28]. Because racial and ethnic minorities are disproportionately affected by each of these factors, we see a higher prevalence of gingivitis (Mexican Americans), general periodontitis (blacks), caries, and edentulism among these subpopulations [16]. At least 36% of lowersocioeconomic-status adults over 75 years of age have moderate to severe periodontal disease [28]. According to the Centers for Disease Control and Prevention, 23% of all 65 to 74 year olds have severe periodontitis [30].

A Finnish group reported increasing retention of teeth in the expanding subgroup of elderly in all industrialized nations [32]. In a population-based Helsinki Ageing Study, a cohort of 65 to 75 year olds were assessed and treated between 1990 and 1991 [32]. Because most of these elders retained about 50% of their natural dentition, establishing and maintaining a healthy periodontium was the goal of the investigators. A small percentage of these elders had no signs of periodontal disease, but the vast majority required scaling and root planning, and at least 11% needed complex periodontal procedures. Overall, as a group, their need for frequent or complex therapy was very low [32]. American and British investigators have reported similar findings about periodontal health in the elderly who retained their teeth [33–35].

IHS's primary care providers have reported two major comorbid conditions that appear to magnify dental and periodontal disease among older AI/ANs: type II diabetes and long-term tobacco use [36]. These adults had 2% edentulism (complete) and 60% untreated caries; the rates varied widely by state or region. Risk factors included smoking and smokeless tobacco use, high consumption of refined sugar, diabetes, and infrequent dental care. Elders were defined as those of at least 55 years of age, of whom 23% had no remaining upper teeth and 20% had no dentures. Root caries was common in 33%, even though the overall percentage with untreated caries was about 60%. These providers found that periodontal disease was underestimated because of high tooth loss. The lowest percentage of advanced periodontitis was in Alaska, and this figure was still three times the national average (for adults at least 35 years old) [36]. Results of NHANES III reflected 8.6% edentulism among AI/ANs aged at least 18 years as of 2002; these data were not stratified by age greater than or equal to 65 years [16].

Oral cancer

With the exception of oral cancer, dental disease is not usually lifethreatening. Hence, many policymakers do not appreciate the need for dental care as a priority when appropriating limited health care resources [3,19]. Racial and ethnic minorities are disproportionately affected by oropharyngeal cancer, from staging of diagnosis through 5-year survival [7,28,37].

Even though younger African American men have the highest incidence and worst prognosis, older men in this racial and ethnic group are similarly overrepresented [7,28,37]. In 1990, oral/pharyngeal cancer incidence for United States males was 18.7% (white), 26.1% (black), 15.1% (Asian), and 10.9% (Hispanic). By 1999, the incidence declined by 2.2% to 2.7% in every group except black and Hispanic males, whose incidence varied each year (blacks) or increased by 0.9% (Hispanics) [7]. Overall, as of 2002, 56% of elderly whites and 34% of blacks survived oral cancer at 5 years following diagnosis [30]. Five-year survival relative rates were available for blacks and whites only over a 25-year period. White males showed a 3.4% improved survival rate between 1974 and 1998 (54.4% versus 57.8%), whereas the rate for black males showed a slight decline, from 31.2% to 29.5%, over the same period [7,28].

Racial differences in survival often are explained by stage at diagnosis, as in the work of Brazilian investigators Franco et al and several previously published American studies [37]. However, despite diagnosis at a similar stage, blacks still had poorer survival than whites with oral or pharyngeal cancers [37]. In the North Carolina cohort, study subjects ranged from 14 to 108 years old; however, 17.8% were aged at least 75 years, and 56% were aged between 55 and 74 years. Survival was assessed over 18 months following diagnosis of oral or pharyngeal cancer; blacks died at a relative rate of 7.1% compared with whites (4.5%) within the first 2 months [37]. From 3 to 18 months, blacks still had about twice the hazard of whites for localized tumors; pharyngeal sites had eight times greater hazard than did oral sites [37].

A recent report of cancer rates among AI/AN reflects a lower mortality, 161.4 per 100,000 population, than the United States rate for all racial and ethnic minorities combined (205.5 per 100,000) [21]. Although oral/pharyngeal cancer was not among the top 10 types of cancer in this minority group, an average life expectancy of 71 years (1995) [21] and improved oral health care services (eg, early screening) should result in a low incidence of oral/pharyngeal cancer if key risk factors are significantly reduced—such as chronic use of alcohol and tobacco, especially in selected tribal regions [21,22].

Socioeconomic disparities

Socioeconomic status (SES) is a useful measure but is often complicated to ascertain. NHANES III used a composite index (measure) derived from individual education achievement and family income relative to poverty threshold [38]. SES is reported to be associated with differential health outcomes across societies [33,39] or on a gradient (lower SES associated with worse health outcomes; higher SES with better outcomes) [38]. Drury et al [38] assessed adults (>18 years) for indicators of oral disease or need for dental restorations. Lower SES (24%) was associated with a higher proportion of untreated dental caries (49.9%), more edentulism and gingivitis, and limited root canal therapy (2.4%). The investigators found that racial and ethnic minority status intensified these effects; SES interacted with race and ethnicity, particularly for edentulism. Although the elderly were not well represented in their sample, the investigators' findings implied similar or more pronounced disparities among older Americans [38].

The International Collaborative Study of Oral Outcomes-II USA Ethnicity and Aging Research Project evaluated population sociodemographic characteristics and dental care delivery in several communities: Native Americans in urban or rural locations, with and without fluoridated water, and Hispanic and African American communities across the United States [22,40]. Challenges in delivery of dental care were found to be diverse and often unique, varying by location, source of finances, type of provider or provider setting, and available special services [22]. SES indicators selected by this group included proportion of adults with a high school diploma, per capita income, and proportion of residents employed [22]. In only one of the study locations, near a dental school in Baltimore, was there a dental treatment project specifically for the elderly; African American elderly were overrepresented and were more likely to have unmet needs [22].

A Florida Dental Care Study assessed the oral health status of 724 persons of different ages, genders, and races or ethnicities [39]. The group conducted phone interviews to document self-reports of pain over various orofacial sites, along with other subjective ratings [39]. Comparing their findings with other studies that evaluated the association of SES with perceptions of health, predictors of behavior, and other lifestyle-related factors, the authors described the limitations of some of these studies [39]. For example, one study used composite measures of subjective oral health to demonstrate an association with SES among disadvantaged Hispanic and African American adults [24], whereas another reported SES as a predictor of avoidance of certain oral habits [39].

Among elderly patients in the Florida Dental Care Study, black or African American race or ethnicity was the only significant predictor of orofacial pain (tooth- and non-tooth-related) in multivariate analyses that included factors such as poverty status, lack of dental insurance, and lower educational attainment [39]. The authors cited studies conducted in Sweden, Canada, and the United States that found no associations between toothache or jaw pain and SES, and others that reported strong associations [39]. Demand for oral and dental care is neither equitably distributed across SES nor explained by cost of care among the elderly [41]. A cohort study using data from insurance claims assessed multiple variables (eg, pharmacy use, medical visits, lab services) relevant to health care in a comparison of dental users with nonusers. Most elders in this group consistently had low use of oral health care services over their lifespans. Minority elders, particularly African Americans with moderate education, were twice as likely as whites to participate in a program offering a waiver of fees for dental care. This finding suggests that eliminating financial barriers to oral health care would affect use of these services, even among minorities with moderately high income or educational status [41].

Impact on quality of life and longevity

With the goal of improving quality of life and sustaining healthier lives as life expectancy increases, we must engage all resources to prepare for future productivity. By 2011, today's middle-aged baby boomers will be elderly (>65 years), and their demands for high quality of life will require expansion of social and health care services [42]. Disease prevention, health promotion, and independent lifestyles are major requirements for high quality of life. Health care expenditure for tomorrow's elderly is expected to reach 25% by 2030 [42]. Aging is usually associated with chronic or disabling disorders and increased morbidity [8]. Preventing or reducing morbidity may be one of the best proactive methods of keeping health care costs down, not only for ambulatory and inpatient hospital care but also for long-term care [42]. Health promotion programs that seek out the elderly to teach them self-management and injury prevention or to provide them with early screening will likely yield better outcomes and reduced morbidity [8]. Although Medicare covers preventive services, only about 10% of the elderly receive recommended screening and immunizations [7,42].

Measuring the impact of oral health on quality of life may be a costeffective and invaluable strategy. A national survey in the United Kingdom assessed oral health disparities among a random probability sample of households in 1999 [43]. Several factors (n = 16) related to oral health status were categorized as physical, social, or psychologic, and their impact on quality of life was stratified by good, bad, or no effect among the adults surveyed, only 23% of whom were aged at least 65 years [42]. Although 73% of all respondents perceived that oral health did affect their quality of life, physical attributes weighed more heavily with them than social or psychologic ones (eg, smiling, laughing, confidence). Higher social status or income was a significant predictor of the impact of oral health status on quality of life, but the most predictable positive oral health indicator was the retention of teeth without the need for dentures [42].

Discussion

Health care outcomes are influenced by an individual's timely access to essential services, ability to pay for services, understanding of signs or symptoms, and need to seek care. Other factors (eg, belief system, trust in providers or offered interventions) and comorbid conditions have been identified as potential barriers [8,9,44]. Evidence-based research has demonstrated strong links between the development of oral/pharyngeal cancers and the chronic use (and dose-response relationship) of tobacco and alcohol [16,30,37,42]. Early detection and treatment are associated with greater proportional survival [16,30,37]. Hence, screening campaigns not only need to be broadened but to be targeted to racial or ethnic groups with specific high-risk behaviors, whose members still may be unaware of these associations.

During the twenty-first century, health care services will be in greater demand as the graying of Americans proceeds and as better-educated consumers seek specific care [31]. Oral health services have not been well used by those with greatest need or worst health status [25,31]. Use of dental care is attributable to factors other than manpower and access; beliefs about oral health, personal practices, national agenda, financial resources, and health professionals' commitment to improving the system are at least equally important [22,40]. Dental health care professionals should become better equipped to treat underserved populations and to adopt partnerships that expand financial resources to cover essential costs of oral and dental care for the needy, especially the elderly [25,31].

Several strategic plans have been echoed by many research investigators, educators, and communities [8,9,45]. Multiple disciplines of health professional educators and institutions consistently working together to reduce disparities should positively affect these shortages at the primary and secondary levels: namely, the education and training of health professionals and the delivery of basic health care [2,31,45].

Although medical care is not optimally distributed, the dentist-topopulation ratio in several areas of the United States is even worse [31]; it is grossly inadequate to meet the needs of many underserved communities [46]. Government has traditionally taken the primary responsibility for reducing shortages, eliminating disparities, and providing resources to train more providers for hardship areas. However, successful expansion of quality health care for needy subpopulations requires multilevel commitment by stakeholders (providers, policymakers, communities, and consumers) [46]. All stakeholders must share the tasks of targeted health promotion, advocacy, and lobbying for better distribution of resources to improve coverage, access, and availability of culturally representative providers.

Instead of practicing traditional roles in segregated disciplines, health professionals could serve multiple roles. For instance, a specialist diagnostician who screens for signs of disorders affecting selected organs could then play the "gatekeeper" in directing families immediately to other disciplines for assessment and care of the detected disorder [45]. Sharing expertise between medical and dental health care professionals serving highrisk families and communities has shown promising success (eg, a pediatric oral screening and prevention campaign: dental caries assessment and referral concurrent with Immunization Outreach) [45].

Prevention and management of dental disease among the elderly may continue to be a challenge over the next decade, particularly in underserved communities. The many tiers of intervention required to eliminate these disparities are distinct in certain areas but interactive in others. The fundamental approach—primary prevention and education—could be simple to implement jointly with medical screening programs for the elderly. Community-level outreach involving culturally representative staff or culturally sensitized professionals is essential to overcoming barriers such as belief systems (eg, oral health is insignificant) and problems in personal motivation (eg, concerns about expense, lower priority given to oral health, misunderstanding of the impact of oral health on overall health, nutrition, and aesthetics).

Despite ongoing initiatives, progress is slow toward eliminating racial and ethnic disparities in the United States, particularly in oral health. Racial and ethnic disparities persist among the 10 leading indicators identified in Healthy People 2010 Objectives [16,28,45]. Whether one looks at chronic disorders common to aging populations or at the provision of essential preventive or intervention services, the experiences and outcomes of racial and ethnic minority elders are still distinct [21,44].

Communication can be improved through provider behavior changes, including the motivation to become culturally competent, and through media-driven community-level health education [1,5]. Economic factors that influence health insurance coverage or ability to pay for noncovered services must be favorable to the implementation of policy changes. Expanding the eligibility for broad coverage, particularly when it is deemed a "medical necessity," may greatly affect access to care. If managed care, as we now know it, were established as "prospective" reimbursement for medically necessary dental care, the most vulnerable populations would be able to receive essential services [2,25,31]. Otherwise, financial incentives (eg, broader provider's professional tax relief) might offset many nonreimbursed fees to promote routine screening for subpopulations with greater risk factors for oral disease.

Older Americans and racial and ethnic minorities, as separate risk populations, may experience some similar challenges that perpetuate health care disparities. Reducing or eliminating these inequities will probably require an attack on known barriers to access, consistent efforts to dispel misperceptions of health and disease, mistrust, and other detrimental belief systems, and an easing of financial constraints. Perhaps we need to declare a national moratorium to ensure equitable access and quality primary care for all. Another option may be to implement a functional, universally accepted health system that addresses special needs of the currently high-risk subpopulations without compromising coverage limits for the terminally ill. In essence, the best goal may be to prioritize coverage for the most needy at the primary level, with the long-term goal of reducing costs at the tertiary level.

Proposal: a 5-year implementation and corresponding evaluation plan for such a health system could be developed. Not only would this plan serve to correct what we have experienced as failures in health care delivery, while prospectively budgeting for comprehensive health care for the underserved elderly, but it could measure efficacy and cost-effectiveness of primary prevention and early intervention for the medical and dental needs of one of the nation's most vulnerable subpopulations. Then, the Healthy People 2020 Objectives may be strikingly less monumental to achieve.

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