

Oral Health and Older Americans: A Santa Fe Group White Paper

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Policy points:

- Medicare is a primary source of health services reimbursement for individuals over age 65 but provides dental coverage only in limited circumstances. While over half of the non-retired US population has dental insurance, only one-third of retired adults have dental coverage.
- Americans 65 and older have significant disparities in access to dental care and oral health resulting in tooth loss, untreated tooth decay and periodontal disease.
- Removal of the dental exclusion in Medicare would pave the way for its inclusion in Part B and integration of oral health care with general health care.

Keywords: Aging, oral health, policy, health care disparities

Abstract:

By 2030, one in five Americans will be over age 65, with a longer life expectancy and a dynamic balance between oral and systemic health. Only a limited proportion of these older adults will have the resources to maintain good oral health throughout life. A rigorous review of existing literature on aging, oral health, and access to care was conducted to identify barriers and propose solutions to promote the oral health of older Americans.

As the U.S. population ages, the greatest growth will be among those suffering most from oral diseases. National data show that poor and non-Hispanic Black and Latino seniors, populations growing as a percentage of the older population, have the highest rates of dental caries and periodontal disease and that poor, near poor, and non-Hispanic Blacks have the most tooth loss. Dental insurance coverage is strongly tied to access to dental care and oral health status. Many older adults on limited and fixed incomes are without dental insurance and unable to meet the financial burden of out-of-pocket costs of dental care. Age prevalent systemic diseases and their treatments can adversely impact oral health; and poor oral health is associated with systemic diseases. Dental care utilization may substantially reduce total health care costs for seniors with certain comorbid conditions while improving oral health.

Four issues must be addressed to realize policy changes to improve access to oral health care for older Americans: 1. integrate oral health into the US health care system; 2. Identify strategies to reverse declining dental care access among older Americans; 3. Test potential for medical cost savings associated with dental treatment for persons with comorbid chronic illnesses; 4. Assess and act on the political feasibility of a universal Medicare dental benefit.

Introduction:

Oral health is essential to overall health and well-being throughout life. The 2010 Patient Protection and Affordable Care Act (ACA) improved access to oral health care among American children and some Medicaid eligible adults.¹ Yet, critical disparities remain for adults, especially adults 65 years and older, in access to dental care.² Older Americans need efficient, effective, individualized, and population-based approaches to oral disease prevention and care to improve and maintain oral health. Maintaining oral health and function requires not only access to appropriate professional care, but effective self-care and available community programs that support access to oral health care. With age the needs in each of these areas increase due to increased likelihood of co-morbid conditions that compromise overall health and the capacity for adequate self-care. Disparities in access to care for seniors can result in higher costs to manage advanced oral and systemic diseases and pronounced effects on quality of life.^{3,4}

Having dental insurance matters in access to care, yet at age 65 there is a major shift in coverage for this population. Among seniors, “more adults (54%) with private health care coverage had visited a dental professional within the past 6 months, compared with 41% of adults who had only Medicare and 25% who had Medicare plus Medicaid.”² Edentulous seniors in the US were even less likely to have dental coverage than those who were partially or fully dentate.⁵ While seniors are keeping more of their teeth than in the past, national data show that untreated dental caries is as much of a problem in older adults and seniors as it is in children.^{6,7} NHANES data from 2011-2012⁸ show that among persons age 65 and over, rates of untreated dental caries were highest among the poor and near poor. Non-Hispanic Black, Asian, and Hispanic seniors had substantially higher prevalence of untreated caries than among Whites.⁹ Gaps in care due to costs and lack of insurance can contribute to disease initiation and progression. The gap in coverage for adult oral care contributes to widespread disparities for 21-64 year olds in the U.S., especially among vulnerable populations. As adults reach retirement, the majority do not have coverage for dental care. This is a vestige of the original design of the Medicare program; while some modifications have been made using Medicare Advantage programs, they are insufficient to meet the needs of this diverse population. When people cannot afford basic dental services, society is often called upon to pay for more costly, complicated or emergency, procedures.^{10,11}

Dental problems are often exacerbated by comorbid medical, behavioral, and mental conditions, their therapeutic treatments, and sometimes age itself. Adults with special needs, and people who are

institutionalized or have functional dependency are disproportionately affected.¹² Disparities based on income, insurance, race and ethnicity must be considered.¹² And, by the time people with cognitive dysfunction are homebound or reside in nursing homes, their dental needs are at their greatest.¹³ In Massachusetts, “35% of participants at seniors’ meal sites had untreated caries and 17% had major to urgent dental needs, while 59% of seniors in long-term care facilities had untreated caries and 34% had major to urgent dental needs.”¹³

This paper examines what we know and need to know about the oral health needs of America’s seniors, describes gaps that exist in access to care and outcomes, proposes options for improving access to care, and estimated costs of those options. In examining the options and costs for improving access and ultimately oral health, consideration will be given to: the need for oral health to be reintegrated into the evolving U.S. health care system; emerging trends in dental care use among older adults; the potential for overall cost savings with the inclusion of coverage for dental care, based on retrospective evaluations in persons with comorbid medical conditions; and the question of political feasibility. In order to ensure that oral health care provided during the last stages of life focuses on oral health maintenance and palliative care only,¹⁴ seniors must receive appropriate prevention and care while they are well and functionally independent.

Conceptual framework: Social Determinants of Health

Underpinning analyses in this paper is the World Health Organization (WHO) Commission on Social Determinants of Health Framework.¹⁵ Mutable factors at multiple levels need to be modified in order to improve health. Success in improving population health and well-being depends on interventions aimed at individual, family, and community levels and the overall health care system, as they exist within the societal, behavioral, political, and economic climate.¹⁵ The WHO recognizes the value and efficiency of a life-course approach to improving oral health. The WHO further suggests that “public health solutions for oral diseases are most effective when they are *integrated* with those for other chronic diseases and with national public health programmes.”¹⁶ While there are many modifiable and confounding factors at play, gaps in the health care system, such as we currently have in oral health care, directly affect the distribution of health and well-being and can lead to inequities in healthcare that further strain socioeconomic structures.¹⁵ Thus the gap in oral health care for seniors will be considered

within the context of the strain that this places on individuals and society. As the WHO framework suggests, the knowledge of any negative effects of the current health care system will need to be directed back into the political, social, economic and cultural spheres in order to influence change for individuals and populations. We identify determinants of health that can be modified to elevate the importance of oral health, such that oral health will be included in the scope of overall health and recognized and valued as an integral part of successful aging.

Governance and Political context: State of Public Program Coverage for Oral Health

Public coverage of dental services predominately comes from Medicaid and Medicare. Medicare is a federally managed program designed to provide health benefits for individuals aged 65 and older, and has limited dental coverage.¹⁷ Medicaid is a state managed program for health benefits that can be provided from birth up to age 65.¹⁷ While 98.5% of persons age 65 and over were insured for medical care,¹⁸ insurance coverage for dental care was reported as 37% in those age 65-74 and 26% of those age 75 and over in 2006.¹⁹ For dental service coverage, children and youth have fared better than adults due to recent mandates from the Patient Protection and Affordable Care Act (ACA), but there were no such mandates for adult dental care. Medicaid, which allows for adult dental coverage for the poor, varies from state by state (see Figure 1)²⁰ and is subject to state budget fluctuations, so there is no guarantee of ongoing support. Lack of ongoing dental benefits not only affects public health and personal well-being, it can strain and add cost to other areas of the health care system. In a recent study by Singhal et al., sharp increases in costs and hospital use for dental emergencies were demonstrated in California when adult dental benefits were eliminated by Denti-Cal (Medicaid in California) in July 2009.¹⁰

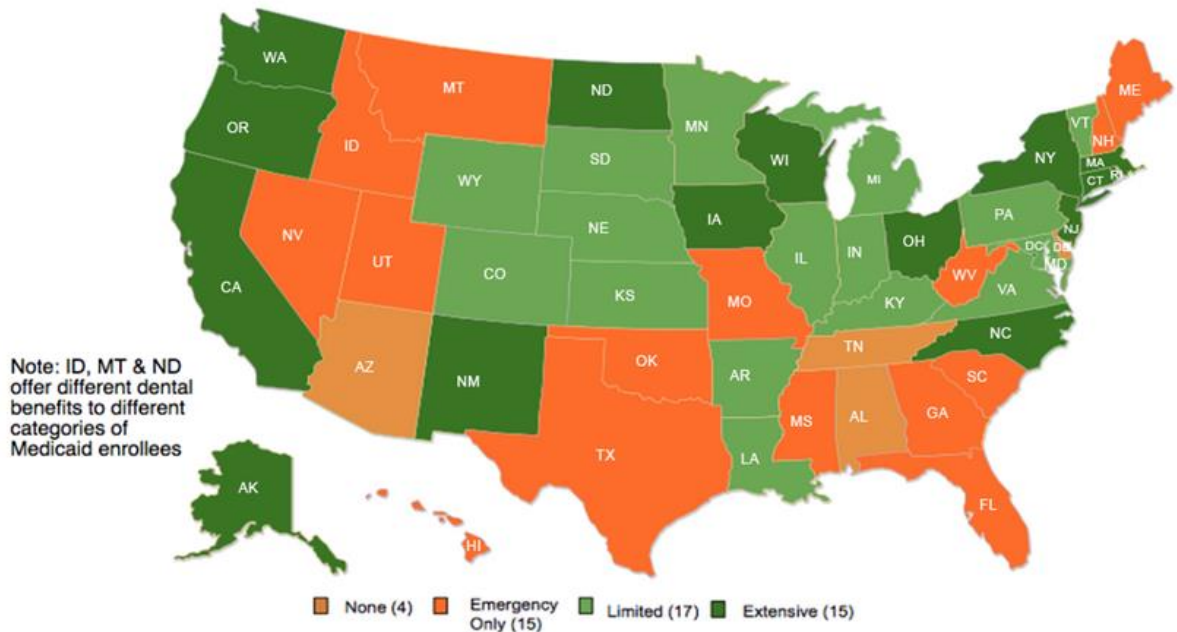


Figure 1: Adult dental variation in benefits by state ²⁰

Source: Center for Health Care Strategies, “Medicaid Adult Dental Benefits: An Overview” (2015)

Accessed Dec 14, 2015 <http://www.chcs.org/media/Adult-Oral-Health-Fact-Sheet-21915.pdf>.

<http://nashp.org/map-of-current-adult-dental-coverage/>

Emergency Only: Relief of pain under emergency situations.

Limited: Fewer than 100 dental procedures covered; annual benefit cap of less than \$1,000.00.

Extensive: More than 100 dental procedures covered; annual benefit cap of \$1,000.00 or more.

Medicare had a blanket exclusion of dental benefits from its inception in 1965 until 1980 when it was amended to include dental procedures that necessitated inpatient hospitalization under Part A. Under Part B, Medicare covers dental extractions in preparation for radiation therapy, inpatient dental examinations prior to kidney transplant, or oral examinations performed in a Rural or Federally Qualified Health Center prior to a heart valve replacement. No other dental services are included. Dual eligible enrollees may receive dental benefits, depending on state Medicaid funding for such care; however the scope is variable as shown in Figure 2. Programs of All-Inclusive Care for the Elderly (PACE) do have access to dental. Participants must be 55 years or older, certified by the State Medicaid Authority for nursing home enrollment, and reside in a designated area. Most PACE enrollees are dual eligible. Dental benefits provided through PACE are varied and based on individual assessments and needs. Enrollees do not pay any additional fees nor have any co-pays for dental services. PACE programs receive capitated payments to provide all Medicare and Medicaid services, but are not limited to those services available in

the fee for service models.²¹ Medicare Advantage (MA) plans are private insurance alternatives to the government Medicare program; dental benefits are included in some of the plans. Table 1²² shows the percentages of plans that include the procedures listed. There are a variety of MA plans: Health Maintenance Organization (HMO) plans, Preferred Provider Organization (PPO) plans, Private Fee-For-Service (PFFS) plans, and Special Needs Plans (SNPs).

Table 1. Percentage of MA* and Zero Premium MA plans that provide coverage for specific dental procedures, CMS, 2015 ²²		
Procedures covered	Total beneficiaries [MA] covered (%)	Zero premium MA beneficiaries covered (%)
Dental x-rays	58.1	48.6
Oral exam	57.8	48.1
Prophylaxis/cleaning	54.5	45.6
Fluoride treatment	15.2	20.1
Prosthodontics/maxillofacial surgery	42.8	35.7
Non-routine services	19.5	21.7
Diagnostic services	20.7	19.5
Restorative services	31.1	26.6
Endodontics/perio/extractions	29.4	24.8
*Medicare Advantage		

Medicare Advantage plan options also include HMO Point-Of-Service (HMO POS) plans and Medical Savings Account (MSA) plans. The costs of the plans vary from plan to plan and between locations.²³ It is unclear what role dental

coverage, premium options, co-pays, out of pocket expenses, and reimbursement rates play in enrollment and utilization.

Interface of the current public system with social position and the distribution of wealth and well-being

Table 2. Estimates of 65+ year olds by poverty level, 2012, in thousands ¹⁸		
Percent of FPL*	% of seniors	numbers of seniors
<100%	9.1	3,913
100-199%	24.1	10,363
200-299%	15.1	6,493
300-399%	12.6	5,418
>=400%	39.1	16,813
*FPL: Federal Poverty Level, or \$11,720 for one person in 2012		

Adding to the limitations in government support for services are the limitations seniors experience from reduced or fixed incomes following retirement. The median income of persons age 65 and older was \$33,848 in 2012. Of the 43 million people age 65 and older that year, 2.7% were under 50% of the federal poverty threshold,

9.1% were below the threshold (\$11,720 for one person; \$23,492 for a family of four), and 33.7% were below 200% of the poverty threshold¹⁸ (See Table 2). Importantly, the percent of persons age 65 and over

below 100% of the Federal Poverty Threshold varied by race and ethnicity: 6.8% of whites fell below the threshold, compared with 18.3% of Blacks (Black alone or in combination), 12.4% of Asians (alone or in combination), and 20.6% of Hispanics (alone or in combination).

Income and education have important associations with life expectancy and quality of life in old age. While the differences in life expectancy between males and females are well established, life expectancy differences between socioeconomic groups are underappreciated. Persons who experience poverty in middle and old age have shorter life expectancy. When controlling for race and health behaviors, life expectancy of the poor can be up to twenty fewer years compared with non-poor.²⁴ For those over age 65, health-related quality of life (HRQoL) has a positive linear relationship with income level: as income level increases so does HRQoL in older age.²⁵ Education is also known to be a social determinant of health in the elderly.¹⁵ Low levels of elders' educational attainment are associated with poorer psychological function, less optimal health behaviors, and poorer biological conditions.²⁶ Increased levels of education are strongly associated with increased physical health, mental health, better functioning in later age, and higher levels of social support.^{27,28} Further, Wu et al. found that after controlling for education and access to care, disparities in edentulism between racial groups were more evenly distributed, suggesting that the existing disparities were largely a result of socioeconomic status.²⁹

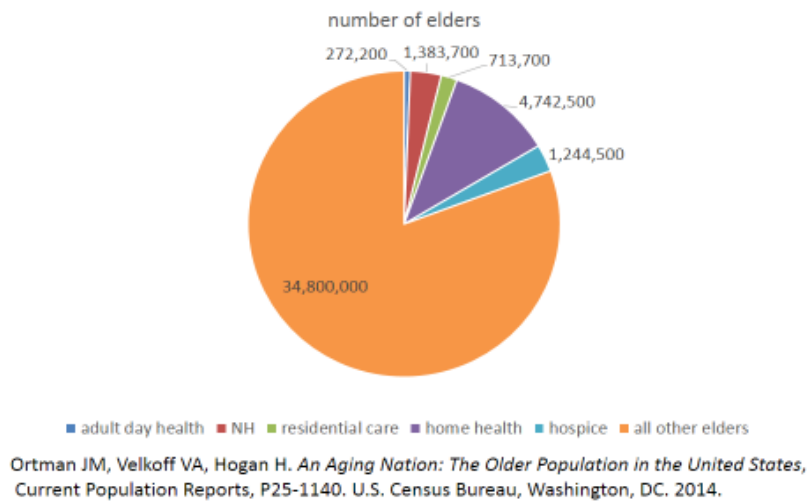
Population growth and cultural and societal norms and values: Who are seniors today and tomorrow?

The cohort over 85 years old, “the oldest old” is the fastest growing segment of the population and this is expected to continue with the aging of the Baby Boomers between 2030 and 2050. Estimates suggest that the 85-and-over age group will increase from 5.7 million in 2010 to 8.5 million in 2030, and to 18.2 million in 2050. The proportion of 85-and-over population is anticipated to increase to 4.6 percent in 2050, compared with the 2% estimated for 2020.^{30,31}

Baby boomers, who began turning 65 in 2011, are different than previous generations. Born after WWII, this generation was shaped by the growing national prosperity of the fifties, the activism of the sixties, the Vietnam era, flower power, and the civil rights struggles. The differences in numbers, wealth, and diversity of the growing 65 and older population in America are unlike any generation before them.

Currently there are 41.3 million persons age 65 and older in the U.S. (Figure 2).³¹ That total will swell with aging of the 72 million baby boomers, born between 1946 and 1964, the largest cohort to ever age in the U.S. Eighty-four percent of elders are well enough to live in the community, while 16% receive long term care services in a variety of settings. Home health services are provided to 11.5%, 3% are in nursing homes, 3% in hospice, 2% are in residential care and <1% are in adult day health. By 2030, one in

Figure 2. 41.3 M Elders in USA, 2012/13



five Americans (~72 million) will be age 65+. They will also be the most diverse elders in history; by 2060 nearly one third of seniors (32%) will be foreign born. The greatest growth among native born elders will be among Latinos, African Americans, and Asians. From 2012 to 2050, the percent of Hispanic elders will more than double (7.3 to 18.4%), as will Asians (3.8 to 7.1%). For Blacks, the percent will increase from 8.8 to

12.3%, while for Whites it will decrease from 86 to 77%. Thus, the groups currently experiencing the greatest inequities in oral health [described below] will be the ones that experience the greatest growth.^{31,32} If these inequities persist, there will be a profound demand on our health care system to provide appropriate oral health care for this generation of seniors. Given what we know about current and near future socio-economic and demographic characteristics of seniors and the current status of public and private dental coverage for adults and seniors, we are on a trajectory, as described below, that will compromise oral and general health, increase the costs of health care and diminish general well-being.

Comorbid medical conditions are associated with limited access to care and poor oral health.

Studies show that oral diseases and conditions are associated with age-related and age-prevalent systemic diseases, conditions and polypharmacy.³³ Tooth loss is associated with increased mortality.³⁴ Periodontal diseases are associated with coronary heart disease, even when socioeconomic and traditional

risk factors are adjusted,³⁵ and many studies have suggested a bi-directional relationship between periodontal disease and diabetes.^{36,37} Aspiration pneumonia, one of the leading causes of morbidity and mortality in nursing home patients, is associated with poor oral hygiene.³⁸ Aspiration pneumonia is a particular risk among institutionalized seniors who are often underserved with regard to oral health and dependent upon others to provide daily oral care for them.^{39,40}

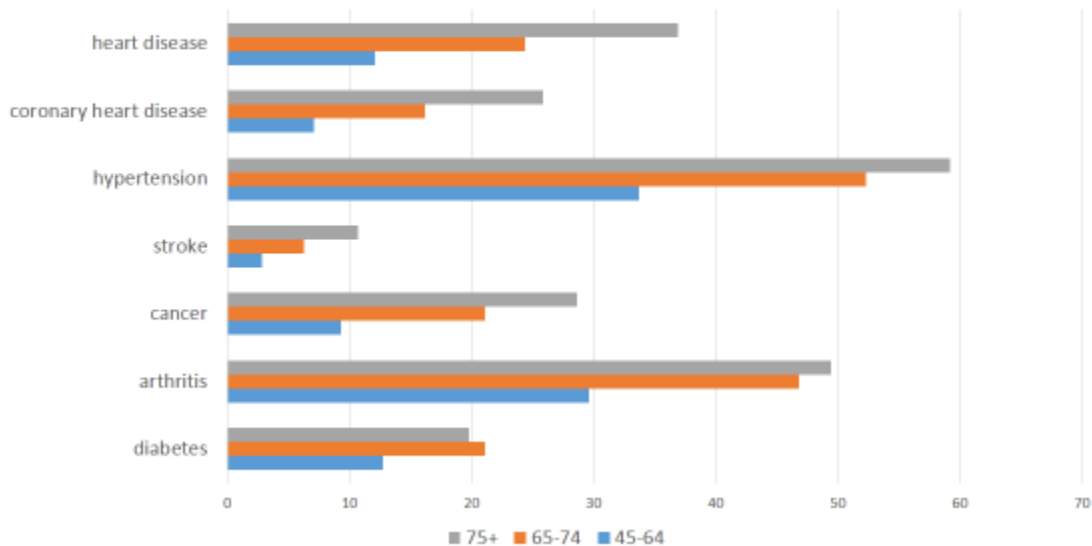
Seniors often have atypical responses to diseases; lack of pain is one of these atypical responses.⁴¹ Unfortunately, the treatment of dental disease in seniors must often be justified by pain, especially for those who have had to limit their dental care to urgent needs during their lifetime. This is a particular challenge for people who may be unable to express pain or discomfort, such as persons with dementia who often rely on others to express a concern or report pain and other oral problems on their behalf.⁴²

Important links between chronic inflammation, such as occurs with chronic periodontal disease, and systemic inflammatory burden are well established.⁴³ Likewise links between nutritional status and oral health status have been reported. Diminished chewing ability limits food choices, poor food choices increase the risks for oral diseases, and sub-optimal nutrition poses a risk to general health and well-being.^{44,45} Left untreated, chronic oral diseases can impact quality of life, result in social isolation, cause acute infections and conditions, and result in the need for hospitalization or even death.⁴⁶

Although the data in support of improvement or prevention of chronic systemic diseases as a result of improved oral health become more compelling each year, the presence of many chronic diseases and conditions have a clear impact on oral health.⁴⁷ Comorbid medical conditions common in the elderly, e.g., hypertension, heart disease, arthritis, cancer, and diabetes (Figure 3), along with many medications such as antidepressants, anticholinergics, and antihypertensives, have been well-documented to directly affect the oral cavity. Poorly controlled diabetes increases the risk for periodontal diseases as well as other oral diseases and conditions.^{48,49} Cancer can occur as primary or

Figure 3: Prevalence of chronic conditions, U.S.A.

(NHIS 2012, Series 10, No.260)



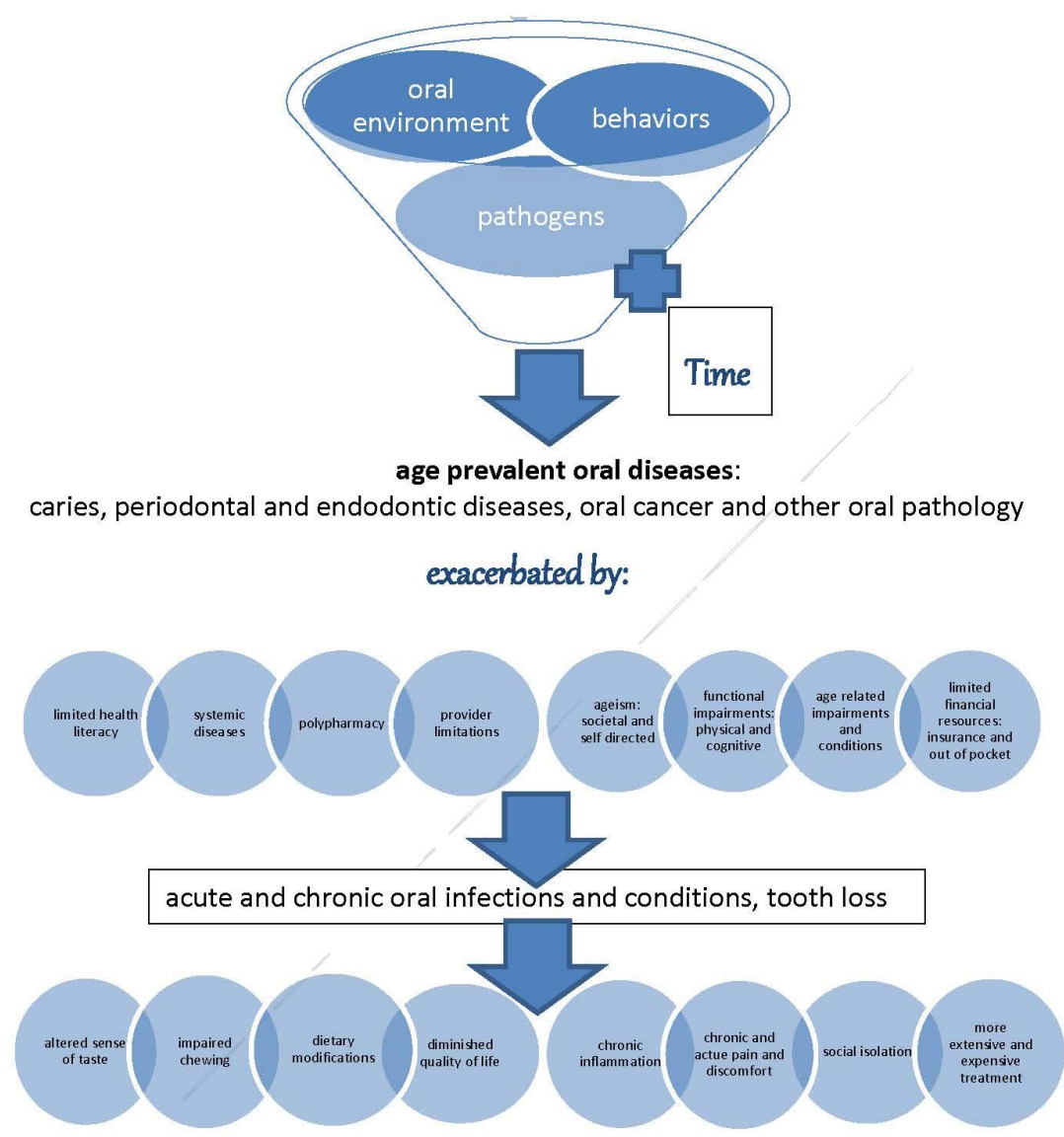
metastatic disease in the oral cavity.^{50,51} Bisphosphonates used to manage osteoporosis carry a risk of osteonecrosis of the jaw for those with untreated dental disease as well as those who require extractions or other bony surgical procedures.⁵² The temporomandibular joint (TMJ) is susceptible to arthritic destruction and TMJ pain and discomfort can alter food choices and nutrition.⁵³

Many commonly prescribed medications have the side effect of reduced salivary flow which can lead to an increased risk of caries, soft tissue trauma, altered taste sensation, and difficulty swallowing. Patients may not even report a sensation of diminished salivary flow (xerostomia) which can result in delayed diagnoses, inadequate prevention, and poor oral health outcomes.^{29,54} Diseases and conditions such as arthritis, depression, dementia, and history of stroke, along with the medications used to treat them, can indirectly impair oral health. Individuals with a history of arthritis and stroke often have limited dexterity to perform oral hygiene. People with depression may have limited motivation to address their oral health needs. People who suffer from dementia may forget to, or how to, provide their own oral care. And, when people are managing many chronic diseases at once, the risks to oral health are even greater.⁵⁵ The risks of polypharmacy, such as xerostomia, altered taste (dysgeusia), and adverse drug interactions and reactions with oral manifestations such as gingival enlargement and mucositis, increase as the medication list grows.⁵⁶

Oral diseases and conditions, if not prevented and appropriately managed, progress with time and lead to acute and chronic infections and eventual tooth loss compromising basic functions critical to overall health and well-being, and diminish quality of life. The systemic consequences of cascading general and oral health problems mandate that treatment and aggressive prevention of oral diseases be coordinated and considered part of the overall patient care plan for patients who are living with one or more chronic diseases and for those recovering from acute conditions such as a heart attack or stroke (See Figure 4). During recovery, elders may be less able to care for themselves and experience changes in independence, living, and economic and social situations, all of which may prevent them from providing optimal self-care.¹²

As patients experience chronic diseases, polypharmacy, and related oral pathology, practitioners must spend more time on their care to ensure that treatment is appropriate, timely, and safe, especially for frail elders. There are issues of consent to sort through for individuals with dementia, laboratory testing to monitor the effects of anti-coagulant or immunosuppressant medications, and coordination with caregivers around appointments, post-operative care, and maintenance of oral health.⁵⁷ This additional time can make it cost prohibitive for providers to see large numbers of frail older patients in their practices, especially if reimbursement rates cannot match the expenses that are incurred in order to provide appropriate care. Furthermore, unless the practitioner is already part of an interdisciplinary team such as a community health center, the Veteran's Health Administration, a PACE program, or the like, the time required to prepare for and manage patients with these complex needs can be even greater. The economic challenges for providers and patients posed by the realities of reimbursements and out of pocket costs adds even greater complexity to the difficulty seniors have in accessing appropriate care for their complex oral and systemic health needs.

Figure 4: Cascade to Poor Oral Health and Its Sequelae ^{11,28,37,38,40,41,43-45,47,48,50-52}



Complications Due to Limited Incomes and Ageism

The World Health Organization (WHO) defines oral health as “a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual’s capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing.”¹⁶ Yet, the impetus for seeking and justifying oral health care for seniors is often based solely on the presence of pain, despite the presence of frank disease, infection or significant risk factors for poor oral health.⁵⁸ When seniors contend with poor oral health on a daily basis, even in the absence of pain, there is a cost to the individual and society.^{10,11}

Risks to oral health from systemic diseases are not only because of an increased number of direct and indirect risks to oral health, but also because seniors may experience financial strain as a result of trying to manage their medical conditions on fixed incomes. There may be nothing left for dental care, which has historically been perceived, and advertised, as optional. So, not only are we challenged with economic issues, but also the issue of ageism which condones less than optimal oral health for older Americans.⁵⁹ Poor oral health is no more a consequence of normal aging than are systemic diseases such as diabetes and heart disease.⁵⁵

The impact of social position and material circumstances on access to care

Education, occupation, income, gender, ethnicity, and race affect access to and the outcomes of care. Manski et al., in a seminal paper on dental insurance and retirement, showed that education, income, and work affected presence of dental insurance and use of care.¹⁹ Using data from the Health and Retirement Study with 16,955 older adults and seniors representing 76.5 million adults age 51 and older in the United States, Manski et al. found that while “48% of the participants had dental insurance, coverage

rates dropped steeply for persons 65 and over” (Table 3).

Further, they found that “older adults not retired were more likely to have dental coverage than retired older adults, and coverage rates only differed significantly by retirement status for persons age 51-64. Non-Hispanic Whites and Hispanics were less likely to have insurance coverage than non-Hispanic Blacks, and high income older adults were more likely to have coverage than middle income, low income, or poor older adults.”¹⁹ Of particular note was that poor older adults were more likely to have dental coverage than low-income adults. Manski et al. suggested that this may be due to the available Medicaid coverage that reaches some but not all older adults.¹⁹ Education also plays an important role: college graduates were more likely to have coverage than seniors with lower education. Even high school graduates were more likely to have coverage than persons with less formal education. Marital, family and self-reported health status also mattered: “married older adults, older adults with a larger family and older adults in excellent health were more likely to have dental coverage than widowed or divorced older adults, older adults from a smaller family, or those in poorer health.”¹⁹ Finally, while bivariate results based on marital status and family size did not remain in their multivariate models, age, income, education, presence of teeth, health status, and retirement status remained significantly related in the expected directions.

Table 3. Percent of persons Age 51 Years and Above in 2006 with Dental Coverage by Retirement Status¹⁹

Population Characteristic	% population with dental coverage		
	All	Not Retired	Retired
Total	47.46	58.28	37.94
	0.74	0.87	1.04
Age in Years			
51-64	61.62	64.65	54.21
	0.86	0.98	1.49
65-74	37.16	40.08	36.30
	1.06	1.67	1.17
75 and over	25.95	23.37	26.47
	1.13	2.05	1.12
Sex			
Male	49.39	62.93	38.68
	0.81	1.08	1.10
Female	45.83	54.77	32.27
	0.81	1.00	1.21
Teeth			
Has Teeth	50.88	61.46	40.52
	0.78	0.94	1.16
Has No Teeth	30.21	34.33	28.17
	0.94	1.56	1.21
Health Status			
Excellent/V.			
Good	53.84	64.16	41.88
	0.8	1.06	1.29
Good	46.11	59.38	35.61
	1.06	1.55	1.32
Fair/Poor	38.63	43.71	35.45
	1.10	1.74	1.28

Manski et al.’s work is important because it clearly demonstrates that insurance is strongly tied to access. Their work builds on the CDC finding that among persons age 65 and over, “54% of adults with private health care coverage had visited a dental professional within the past 6 months, compared with 41% of adults who had only Medicare and 25% who had Medicare plus Medicaid.”² Manski et al. also found that edentulous people in the US were less likely to have dental coverage than persons who were partially or fully dentate.^{5,19}

The impact of social position and material circumstances on oral health outcomes

NHANES and large national and international studies provide data on oral health outcomes. In addition to the factors associated with oral disease in Table 5, tooth loss, dental caries, periodontal diseases, and oral cancer incidence and mortality also vary by age, race and ethnicity, education, and income as noted insurance status as noted below.

Tooth loss: NHANES data from 2011-2012 show that complete tooth loss in persons age 65 and older was more common in persons age 75 and older (25.8%) than 65-74 year olds (13.0%), in women (19.4%) than men (17.5%), and in non-Hispanic Blacks (29.2) and non-Hispanic Asians (24.2%) than in Whites (16.9%) and Hispanics (14.9%).⁶⁰ NHANES data from 1999-2004 also showed that edentulism increased with poverty: < 100% (44%), 100-199% (37%), ≥ 200% (17%).⁶¹

Dental Caries: NHANES data from 2011-2012⁸ show that among persons age 65 and over, rates of untreated caries were highest among the poor (39.5%) and near poor (33%) *versus* non-poor (12.2%). NHANES data from 2011-2012⁶⁰ also show that among persons age 65 and over, rates of untreated caries also varied by race and ethnicity: 41% of non-Hispanic Black elders and 27% of Hispanic and Asian elders had untreated caries *versus* 16% in White elders.⁶⁰

Periodontal Diseases: Disparities were also present in periodontal disease prevalence: NHANES 2009-2010 prevalence rates varied by age, race and ethnicity, and income.⁶² “Periodontitis was highest in men, Mexican Americans, adults with less than a high school education, adults below 100% Federal Poverty Levels (FPL), and current smokers.”⁶² Periodontitis was also more common in persons over age 65 than younger age groups: 64% of those over age 65 had either moderate (53%) or severe periodontitis (11%).⁶²

Oral cancer: Oral Cancer rates and outcomes varied by age, race, and ethnicity. National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) data from 2008-2012 showed that age-adjusted rates of oral and pharyngeal cancers peak in persons age 65-69; overall age-adjusted death rates were highest among Black males (5/100,000) compared with White males (3.7) and females (1.3).

Age-adjusted death rates among persons age 65 and older were also highest among Black males (22.2/100,000) compared with White males (17.7), White females (7.4) or Black females (4.9). Inequalities in incidence and death rates were, at least in part, related to access to care; Blacks were twice as likely to be diagnosed when there are distant metastases (27%) than whites (16%).⁶³

Health Policy considerations

Four critical issues from the macroeconomic, social, and health policy perspectives are considered to address the oral health needs of older adults. The first is for oral health to be integrated into the evolving U.S. health care system. Second is the need to reverse the emerging trends in decreasing dental care use among older adults. Third is to explore the potential for substantial cost savings based on retrospective evaluations in persons with comorbid medical conditions. Finally, the question of political feasibility needs to be addressed. Each of these perspectives is discussed below.

Opportunity for Oral Health to be Re-Integrated into the Evolving U.S. Health Care System: The Affordable Care Act (ACA) increased healthcare coverage for Americans and redirected U.S. priorities toward innovation in healthcare; i.e., to increase quality and effectiveness and to reduce costs. The ACA created the Centers for Medicare and Medicaid Innovation (CMMI) to explicitly seek out and pilot innovations in healthcare. Since the creation of CMMI in 2010, the focus has been on exploring and testing innovative payment and service delivery models, evaluating best practices in healthcare, and engaging stakeholders in developing new models of delivering healthcare.^{17,64} CMMI drives many innovations that are improving quality and effectiveness of healthcare in the U.S. However, because of the limited inclusion of oral health in Medicaid (especially for adults and seniors) and the near total exclusion of oral health from Medicare (except in Medicare Advantage and PACE), the dental care delivery system and dental patients are not benefitting from this national movement toward innovative and effective healthcare. In the original 1960's legislative process to create Medicare and Medicaid, organized dentistry lobbied during the congressional review to eliminate dental care for the elderly in Medicare but supported inclusion of dental care in Medicaid.⁶⁵ The current very limited Medicare funding for dental contributes to the dental care access challenges for older Americans and the present situation where the U.S. dental care system is not able to evolve alongside the other U.S. healthcare systems. The inclusion of a dental benefit in Medicare would enable oral health and dental care to be

reintegrated into the U.S. healthcare system for seniors and join the national progress toward more effective and higher quality health and healthcare in the United States.

Reversing emerging trends in Decreased Dental Care use among Older Adults:

American Dental Association reports show that U.S. trends in adults’ access to dental care has been level since 2010.⁶⁶ Further, dental care use among adults age 65 and older showed no changes from 2012 to 2013. However, dental care use among the poor seniors was 19.4% in 2013, a significant reduction when compared to 24.0% in 2012.⁶⁶ This decreasing trend for poor seniors began in 2010 when the utilization rate was then 29.6%. In contrast, seniors with private dental benefits had increased dental utilization rates from 66.9% in 2012 to 68.6% in 2013.⁶⁶ This increase shows that providing dental insurance to a larger proportion of the population over age 65 could help to slow or reverse the downward trends in U.S. dental care use among seniors. There are large disparities in access between the poor seniors (19.4% used dental services in 2013) and the seniors with private dental insurance (68.6% dental services utilization in 2013). As the U.S. population ages, implementing a Medicare dental benefit may support not only the health of seniors but also boost dental economics by helping to reverse U.S. downward trends in dental utilization.

Healthcare Provider Claims Data Retrospective Analyses Identify Potential Cost Savings:

Three insurance providers (Cigna, United Concordia and United Healthcare) and the American Dental Association (ADA) Health Policy Institute retrospectively analyzed insurance claims data to examine the effect of the provision of dental care on the cost of treating beneficiaries with select chronic diseases in U.S.

adults. While the findings differed by analysis, all four analyses found substantial medical cost savings when

Table 4. Four estimated cost savings per beneficiary per year for select chronic diseases				
Disease	Cigna ^{67,68}	United Concordia ⁶⁹	United Healthcare ⁷¹ compliant patients	American Dental Association ⁷⁰
Stroke	\$10,142	\$5,681	NA	N/A
CHF	\$647	\$1,090	\$8,466	N/A
Diabetes	\$1,418	\$2,840	\$923	\$788.5

dental treatment was implemented. Table 4⁶⁷⁻⁷¹ shows the reported estimated annual cost savings per beneficiary for treatment of stroke, congestive heart failure (CHF), and diabetes from the Cigna, United Concordia, United Healthcare, and ADA studies when dental care was provided.

Given the prevalence of chronic diseases in the Medicare population, the cost saving impact of managing oral health has the potential to be substantial.⁷² To project these potential savings, we multiplied the average annual saving per beneficiary as reported by individual studies by the number of Medicare beneficiaries with the corresponding chronic condition. The numbers of Medicare beneficiaries with chronic diseases and the average annual cost to Medicare per beneficiary to treat the chronic diseases are shown in Table 5.^{73,74} To ensure that savings were not double counted for

	Medicare Beneficiaries with Diagnosis ^{73,74}	Unique Medicare Beneficiaries within condition category	Average Monthly Cost Per Beneficiary ^{73,74}	Average Annual Cost Per Beneficiary ^{73,74}	Total Medicare Cost due to Disease Annually ^{73,74}
Stroke	1,879,021	1,287,280	\$3,820	\$45,840	\$59,008,915,200
CHF	4,814,660	2,052,953	\$2,456	\$29,472	\$60,504,630,816
Diabetes	8,657,223	3,278,663	\$1,509	\$18,108	\$59,370,029,604

beneficiaries with comorbid chronic diseases, we used the unique number of beneficiaries with a condition category of stroke, CHF, and diabetes as defined by CMS.⁷³ Estimated cost savings have also been shown by others to exceed estimated costs of adding a dental program to Medicare.⁷⁵

Data from the Cigna study estimated that routine dental treatment could result in medical cost savings of over \$19 billion for the U.S. Medicare population with stroke, CHF, and diabetes annually.^{67,68,76} The United Concordia study projections estimate \$18.8 billion savings for those with stroke, CHF, and diabetes^{69,71} and United Healthcare estimates \$20 billion medical cost savings for those with CHF, and diabetes.^{69,71} The 2016 publication by Nasseh et al. reviewing insurance claims data only for patients newly diagnosed with diabetes quantified the medical cost savings of dental treatment to be \$1,577 per beneficiary over two years or potentially \$6.8 billion annually for the U.S. Medicare population.⁷⁰ Potential savings for those with stroke, CHF, and diabetes by each insurance study are shown in Table 6.⁶⁷⁻⁷² While the results of these studies vary, all report reductions in the total annual health care spending by Medicare among persons with stroke, CHF, and diabetes.

Table 6. Potential annual savings for stroke, CHF, and diabetes, by study cited.				
	Cigna ^{67,68,72}	United Concordia ^{69,72}	United Healthcare ^{71,72}	ADA ^{70,72}
Stroke Savings	\$13,055,593,760	\$7,313,037,680	N/A	N/A
Stroke Savings %*	22%	12%	N/A	N/A
CHF Savings	\$1,328,260,591	\$2,237,718,770	\$17,380,300,098	N/A
CHF Savings %	2%	4%	29.5%	N/A
Diabetes Savings	\$4,649,144,134	\$9,311,402,920	\$3,026,205,949	\$6,826,220,336
Diabetes Savings %	8%	16%	5%	4%
Total Savings	\$19,032,997,485	\$18,862,159,370	N/A	N/A

Political Feasibility:

The current exclusion of dental benefits from Medicare stems from Section 1862(a) of the Social Security Act (42 U.S.C. 1395y (a)), paragraph 12, that specifically excludes dental benefits. The paragraph states that Medicare coverage is excluded “where such expenses are for services in connection with the care, treatment, filling, removal, or replacement of teeth or structures directly supporting teeth, except that payment may be made under part A in the case of inpatient hospital services in connection with the provision of such dental services if the individual, because of his underlying medical condition and clinical status or because of the severity of the dental procedure, requires hospitalization in connection with the provision of such services.”⁷⁷ In order to change this stipulation, federal legislation will have to be passed to remove the exclusion.

Inclusion of a Dental benefit in Medicare

Given the increasing polarization of the U.S. political system there is not a single best option when considering the political feasibility of including oral health and dental care in Medicare. Leaders in the fields of medicine, dentistry, geriatrics, insurance, and policy would need to work together to define a proposed Medicare dental benefit, determine the benefit’s fiscal impact, build a constituency, and engender legislation to implement a Medicare dental benefit. Repurposing wasteful spending from the budget to fund a Medicare dental benefit will be viewed as more fiscally responsible than increasing the Medicare budget to support the benefit. The potential substantial cost savings from dental care on chronic disease treatment costs (detailed above) presents Medicare dental in a positive light during the ongoing political discussions to reduce Medicare spending while improving quality of care. Demonstration of such savings would require testing of benefit products. This may require starting with minimal global (basic) benefits and allow other components to evolve as more information on

utilization and savings is gathered. Because changes to the basic Medicare benefit will require the passing of a bill, politicians may be more inclined to pursue such a change if the proposal coincides with political ‘seasons’ conducive to such changes. For example, the first 100 days following presidential inauguration is often a time of significant changes and bill passing through Congress.⁷⁸ Medicare Advantage programs in contrast, could build enhanced oral care benefits without necessarily requiring an act of Congress. If and when a bill to make significant Medicare changes is introduced, it would be imperative that proponents of oral health care make a strong grass roots effort to bring the importance of oral health to the growing U.S. senior population to the forefront and take advantage of all political opportunities to create support for a Medicare dental benefit.

Effect of Increased Public Insurance on Dental Workforce

One potential barrier regarding the expansion of Medicare to include dental benefits is the effect on dental providers in the U.S. and the increased demand for dental services. The expansion of adult dental benefits by some states following the Affordable Care Act serves as a model of the potential effects of expansion of publicly funded dental insurance on dental providers. Expansion of public insurance coverage of dental care is associated with increased participation in public dental programs by providers.⁷⁹⁻⁸⁰ A concern regarding Medicare dental coverage expansion could be the crowding of dental practices due to increased numbers of individuals seeking dental care following newly received dental coverage.

Interestingly, results from analyses of Medicaid dental expansion showed that dentists were able to increase the number of newly-publicly insured patients they saw without reducing the care they provide to other patients.⁸¹ Analyses showed that the increase in patient load without decrease in care can be partially attributed to increased use of midlevel providers and other dental personnel. For example, increases in dental hygienist visits were 16-33% larger than increases in dentists visits following adult Medicaid dental expansion.⁸¹ Moreover, dentists were more likely to employ dental hygienists and more hygienists per practice following expansion of state adult dental Medicaid coverage.⁸¹ Implementing Medicaid dental benefits resulted in increased income by \$15,096-\$20,365 per practice annually in those states.⁸¹ There was some increased wait time associated with state expansion of Medicaid dental benefits, but it was negligible. In states that expanded adult Medicaid

dental benefits, an increased wait time for an appointment was between 0.6 to 0.7 days on average.⁸¹ Overall, the supply of dental services was able to meet the demand for new dental services following the expansion of publicly funded dental insurance with a modest increase in wait time for patients. This research suggests that the dental workforce supply could meet the demand of increased publicly funded dental insurance through Medicare without detriment to the dental profession or other patients.

Medicare Dental: Options for the future

The development of a model that includes oral health care services for Medicare enrollees through Part B as an integral, rather than a supplemental program within Medicare, is essential to improve oral health for seniors. Inclusion in Part B would assure greater stability and longevity than is currently available through state-funded Medicaid programs, ensure access that is not guaranteed through the supplemental plans, and reduce the administrative burden of creating a stand-alone benefit. A universal benefit in this program is a critical step toward increasing the public's perception about the value of oral healthcare. A universal benefit raises the visibility and importance of oral health care to other health professionals and encourages timely and appropriate referrals for their patients.

Universal coverage could be achieved with a hybrid model where the first level is a benefit to all Medicare enrollees that includes basic diagnostic, preventive and emergency coverage focused on reducing microbial and inflammatory bioburden. A single global payment for basic care and an incentive structure that encourages cost containment and optimal outcomes in disease prevention would be needed. The second level of the Universal plan would require a premium and co-insurance model, like those provided for medical insurance. This level would include access to a full range of treatment and restorative options at pre-determined percentages of UCR (usual, customary, and reasonable) rates for services that encourage provider participation by providing reasonable fee-for-service reimbursement rates. The broad scope of services provides an opportunity for treatment plans to be tailored to individual needs, improving both patient and provider satisfaction with treatment options and avoids disincentives to provide less than optimal care. Medicare Part B plans currently have a *Table of Monthly Premiums* schedule (Table 7) which could be considered for modification and the addition of a basic and an optional dental premium. Both Premium and co-insurance costs for the second level of benefits could be stratified by income in line with Federal Poverty Levels previously documented in Table 1.

Individual return	Joint return	Monthly premium for medical coverage	Proposed income-related monthly adjustment for inclusion of a dental benefit
<=\$85,000	<=\$170,000	121.80	0
>85k, <=107,000	>170k, <=214,000	170.50	48.70
>107k, <=160,000	>214k, <=320,000	243.00	121.80
>160k, <=214,000	>320k, <=428,000	316.7	194.90
>214,000	>428,000	389.8	268.00

Next steps: Addressing The Triple Aim

The Santa Fe Group and other organizations support a life-course approach to oral health care in which oral health outcomes are integrated with general health outcomes. As a preliminary goal, we support the development of an 80/20 goal within the Centers for Disease Control and Prevention’s Healthy People 2030, to be implemented in conjunction with the addition of a dental benefit to Medicare. The objective would be to add a Universal benefit package to Medicare Part B by 2020 to promote an increase in the percent of persons age 80 and over with 20+ teeth by 10% by 2030. The 80/20 goal is based on work by the Japanese Dental Association, in their Tokyo Dental Declaration, and is in agreement with WHO’s 80/20 goal and studies that chewing function can be maintained with the retention of 20 sound teeth in reasonable chewing pairs.⁸²⁻⁸⁴ Other outcome measures for oral health will develop as the program, and knowledge gained through its implementation and utilization, evolves. In addition to improved oral health and function by the retention and maintenance of healthy teeth and oral tissues, the inclusion of a dental benefit in Medicare and the establishment of outcomes for oral health as components of general health will stimulate research into the impact of maintaining oral health on aging and opportunities for improving overall health outcomes. Further, the insurance studies previously cited must be validated by additional retro- and prospective studies that examine potential overall medical cost savings when oral health care is included as a benefit. The value of oral health, in and of itself, the risks to oral health in the presence of multiple co-morbid diseases, the associations of poor oral health with systemic diseases, and the potential cost savings from the inclusion of oral health benefits to the health care system will need to be communicated directly to seniors and legislators. All must have a clear understanding of the importance of this issue so that they are prepared and willing to incur some expenses in adding these benefits to create a comprehensive benefit plan. Increased awareness of the value of oral health may encourage seniors who

are eligible for these services to make use of a new resource. A broad reaching public health campaign will be needed to raise the level of awareness on all fronts.

Some older Americans are accustomed to viewing oral health care as elective and declining oral health as a consequence of aging. However, the Baby Boomers have a different set of expectations and knowledge about oral health than generations before. Still, we cannot presume that the public is ready to embrace the value of oral health care and will fully support the costs and utilize the benefits if seniors continue to deny that needs exist.⁸⁵ The more seniors take advantage of the plans, the greater impact on the oral health status of seniors as a population and the better information we will gain in regard to the potential benefits of maintaining oral health across the life span. The goals and strategies outlined above are in line with achieving the Triple Aim: lower total health care costs per capita; improved patient outcomes and experience; and improved population health.^{86,87}

Conclusion

The mouth is essential for human interaction. Few would argue with the centrality of the mouth for human health and function. We use our mouths to eat, speak, and engage others. The oral cavity forms the first line of defense for the human body. In the words of the late C. Everett Koop, MD, “*You can’t be healthy without good oral health.*” Yet, more than fifteen years after a Call to Action in the 2000 Surgeon General’s Report that provided a clear rationale for and urgency to reduce oral health disparities, we are faced with a generation of baby boomers with increased life expectancy, a multitude of comorbid chronic health conditions, and increasing evidence of a dynamic balance between oral and systemic health. Only a limited percentage of older Americans will have the resources to maintain good oral health to the end of life.⁴⁷ Research shows that people with medical and dental insurance and higher incomes have better oral health and oral health related quality of life.⁸⁸ Can we say that we are successfully managing systemic disease or that people are aging successfully when oral health breaks down along the way? Just as systemic diseases can accelerate aging, so too can poor oral health. What is more symbolic of old age than dentures? Or no teeth at all? Oral diseases are highly preventable with routine measures and care, and yet for many older adults, what was once routine, must be abandoned due to disability, lack of knowledge, lack of access, lack of funds, and lack of societal will. Are the consequences of tooth loss, chronic infections, and acute oral conditions as complications of systemic disease, inadequate

resources, and lack of awareness acceptable? Can we still ignore the call that has been sounding for decades? The inclusion of a Medicare Dental Benefit does not require the addition of any new entities within CMS for its administration. The removal of the exclusion alone, by federal legislation, would open the door for a benefit to be created. We must insure that oral health is put back into healthcare. Oral health is a basic human need, and is required to preserve dignity and function at every age.

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