



Older Adults – Implications for Private Dental Practitioners

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Abstract

Currently, 35 million people are over the age of 65 in the United States. This number is expected to double to 70 million by 2030 (Figure 1). In California, 3.7 million people are over the age of 65, and this number is expected to increase to 6.4 million in the next 20 years or within the practice lifetime of students presently enrolled in California's dental hygiene and dental schools. The oldest old, those over age 85, are the fastest-growing segment of the United States and California's population. California's aging population will reflect the diversity of the state in general. Table 1 lists California's 65-plus population by age and ethnic/racial categories.

By 2030, one in five Americans and Californians will be 65 years or older. Women who reach age 65 can expect to live an additional 19 years of life, while men can expect to live an additional 16 years. The gap in life expectancy between men and women is narrowing due to improvements in medical care, preventive health services, and healthier lifestyles. Figures 2-4 show the improvements in life expectancy at birth, age 65, and age 75 for the U.S. population.

In the United States, there are an estimated 1.8 million nursing home beds used by 80 percent of the residents over age 65. A report by the U.S. General Accounting Office estimated that 43 percent of all Americans over age 65 will reside in a nursing home at some time in their life. California currently has approximately 100,000 residents living in one of the 1,503 nursing home facilities throughout the state. Nursing home care in California accounts for \$5.6 billion. In 1998, the U.S. General Accounting Office reported that one in three California nursing homes was cited for serious or potentially life-threatening care problems.

With an aging imperative in California, this paper will discuss the implications of an aging society on maintaining oral health throughout one's life, and the ability of dental professionals to meet the oral health needs of this population.



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Unlike previous cohorts of elders, today's adults over the age of 65 and the baby boomers who follow them are equating health and wellness with good oral health. The baby boom generation, those born between 1946 and 1964, was the first to benefit from widespread community water fluoridation and fluoride in toothpastes and mouthrinses. As a result, they have retained more natural teeth and maintained higher levels of oral health than their previous cohorts. Current elders also expect to take advantage of modern dental treatments like whitening, and are expressing an increased interest not only in maintaining their oral health and preventing oral diseases, but also improving oral/dental/facial esthetics.¹

While the baby boom generation is expected to receive significant wealth transferred from their World War II generation parents, disparities exist among seniors in terms of economics, health, and expectations.²

Table 1

California's 65-Plus Population by Age and Racial Background

Age in years	Total population	% Asian	% Black	% Hispanic	% White
65-74	1,887,823	11.2	5.5	15.7	65.3
75-84	1,282,178	8.7	4.5	10.8	74.2
85+	425,657	6.6	4.4	9.1	78.2

Reference: www.dof.ca.gov (Accessed July 6, 2005.)

Chronic Diseases and Patient Assessment

With increased age comes increased chronic disease. More than half of older adults report at least one physical or nonphysical disability. Disability is more severe in the very old, and the presence of a severe disability is associated with lower education and income. Arthritis occurs in half of older persons with hypertension, hearing impairments, and heart disease occurring in approximately one-third of older persons. Most older adults have at least one chronic condition and many

have multiple conditions. **Table 2** lists the common chronic diseases in older adults. Disability from chronic disease can increase an older adult's risk for oral diseases. **Table 3** lists the causes of death in adults over the age of 65.

Research on periodontal disease continues to demonstrate linkages between periodontal disease and cardiovascular disease, and periodontal disease and stroke.^{3,4} Treating periodontal disease has been shown to improve the metabolic management of poorly controlled diabetics.⁵

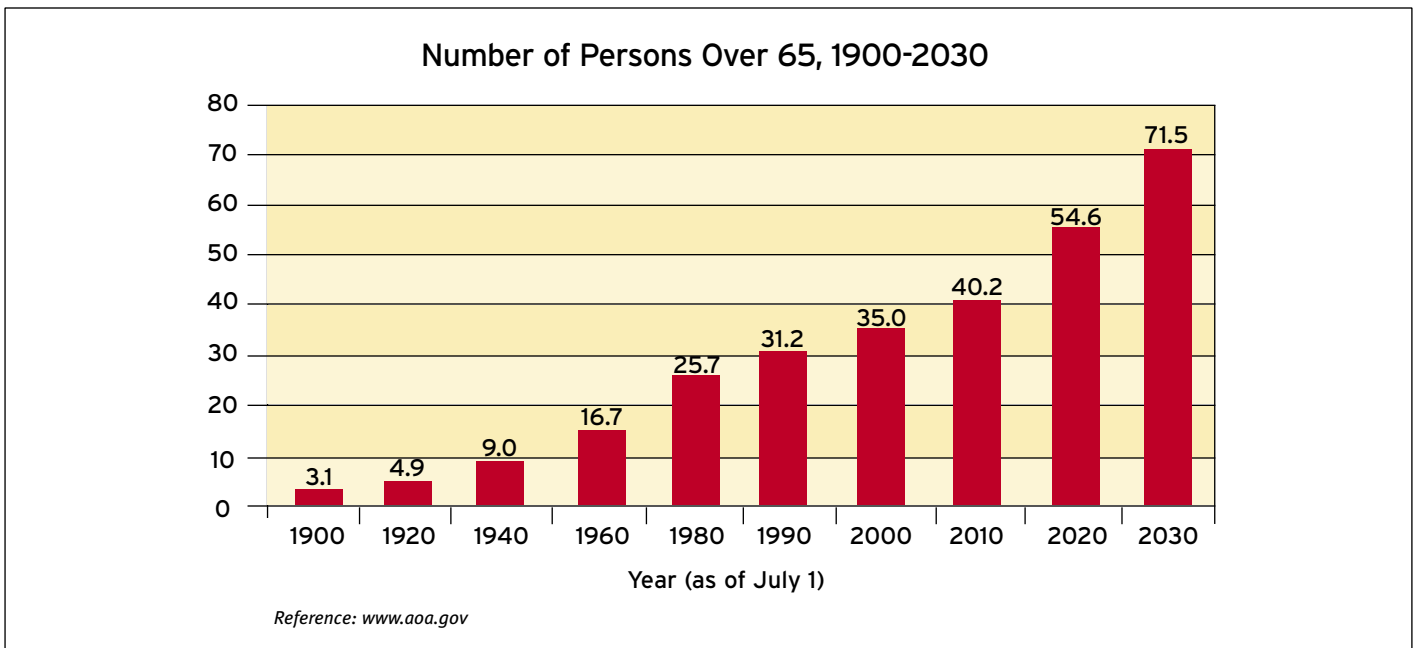


Figure 1. Number of persons 65+, 1900-2030 (numbers in millions).

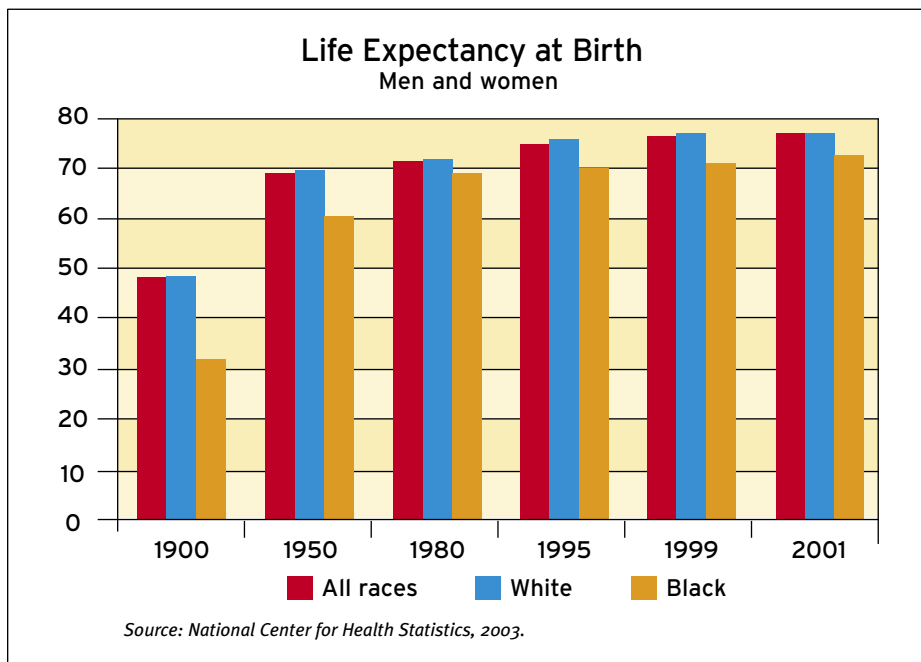


Figure 2. Changes in life expectancy at birth from 1900-2001.

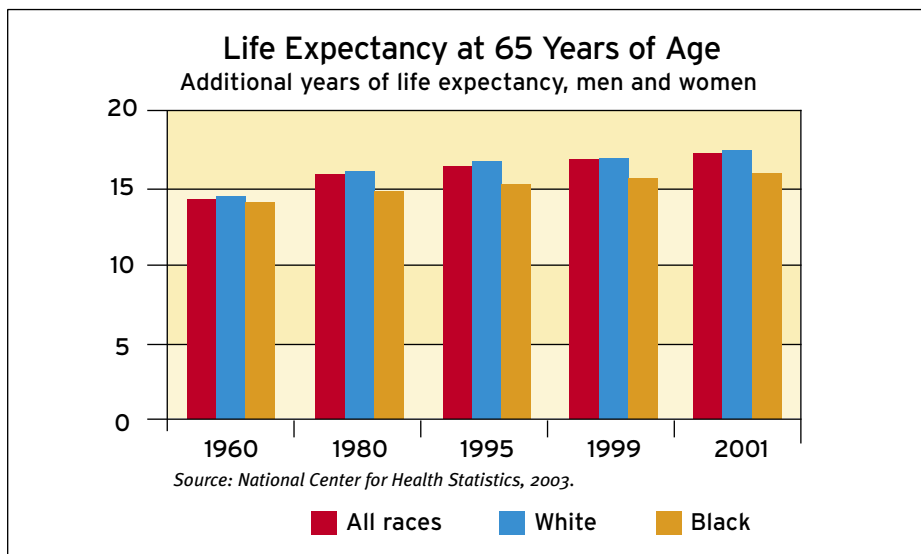


Figure 3. Changes in life expectancy at age 65 from 1960-2001.

Evidence on the relationship between oral diseases and systemic health continues to strengthen. A recent study showed that periodontal pathogens were linked to increasing carotid intima-media thickness.⁶ Researchers at

the University of Buffalo studied elderly nursing home residents and found that those who had certain bacteria in dental plaque were at increased risk for developing pneumonia.⁷ This study suggested that dental plaque may serve

as a reservoir for respiratory pathogens. As a result, oral hygiene care for institutionalized elders may not only improve oral health, but also decrease their risk for pneumonia.

Older adults frequently take multiple prescriptions and over-the-counter medications. Medications such as antidepressants, antihistamines, antihypertensives, and diuretics are most often associated with a decrease in salivary flow.⁸ More than 500 medications are known to induce xerostomia or dry mouth. Reduced salivary flow compromises the ability to chew, speak, taste, and swallow, and increases the risk for dental caries, periodontal diseases, and soft-tissue trauma.

Oral candidiasis may occur with long-term use of antibiotics, steroid therapy, or chemotherapy. Other medical conditions that compromise the immune system such as diabetes mellitus, head and neck radiation therapy, and human immunodeficiency virus infection place the patient at risk for candidiasis.⁹ A number of medications frequently prescribed to older adults can alter the gingival tissue. Gingival overgrowth can be induced by medications such as anticonvulsants (phenytoin), cyclosporines, and calcium channel blockers such as nifedipine, in the presence of poor oral hygiene, further complicating the ability to maintain good oral hygiene. Fluctuating female hormones during menopause may affect the gingival tissue and periodontal status.¹⁰

Obtaining a complete history may take longer with older adults who have various chronic diseases and are taking multiple medications. Dental professionals must become comfortable with the medical aspect of a patient's oral health care. Dialogue between the clinician and the patient often yields valuable information and builds a relationship. A comprehensive medical review includes an evaluation of systemic diseases and

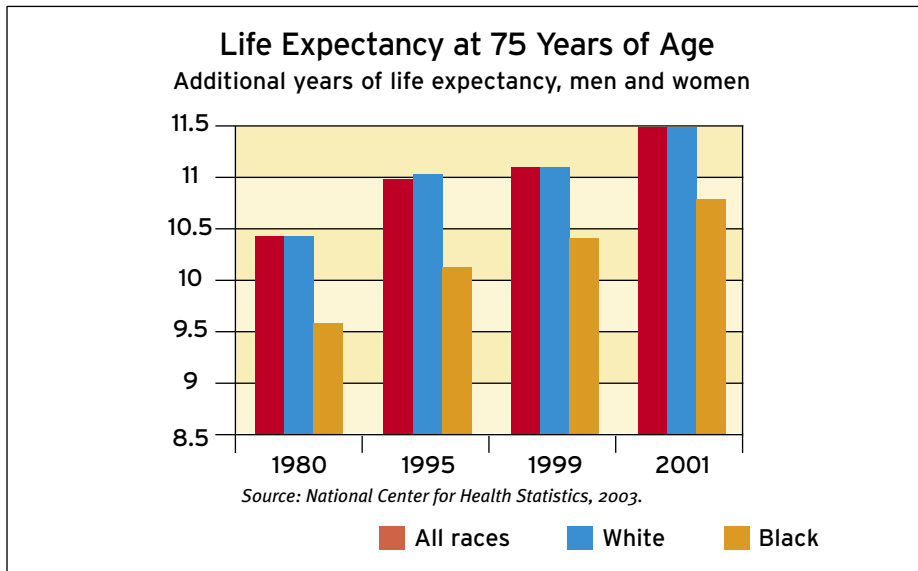


Figure 4. Changes in life expectancy at age 75 from 1960-2001.

Table 2	
Common Chronic Diseases in Older Adults	
Most frequently occurring conditions of elderly 2000-2001, by percent	
Condition	Percent
Hypertension	49
Arthritis	36
Heart disease	31
Cancer	20
Sinusitis	15
Diabetes	15

Reference: www.aaa.gov

conditions that can affect oral disease susceptibility. Past hospitalizations can reveal a history of serious illnesses and provide the opportunity to evaluate long-term consequences of these illnesses. Consultation with the patient's physician occurs far more frequently with older adults and individuals with complex medical problems prior to routine dental care, not to mention when invasive procedures are planned.

Ambulation in the reception and operatory areas allows an opportunity to observe the patient for physical limita-

tions and signs of underlying disease. A patient's appearance, weight, and posture are often indicators of general health. For example, impaired vision, dementia, or arthritis can have a profound effect on oral hygiene, with dementia and arthritis impeding routine self-care procedures, indicating the need for modification. Patients with diabetes must understand that their diabetes places them at risk for periodontal disease.

Additional information about family status, social support system, economics, housing, living arrangements,

and access to transportation are important since these lifestyle factors may play a role in the patient's ability to access needed oral health care. For nursing home residents, obtaining needed dental care may be even more difficult given that most facilities don't have dental operatories on site to provide dental care.

Oral Health Status in Older Adults

Dental Caries

Until recently, dental caries was considered a childhood disease. Data currently demonstrates decreased caries prevalence among school-age children and an increased prevalence of coronal caries through the fifth decade of life.¹¹ Older adults present with the greatest increase in the number of teeth at risk for caries. Estimates show that by 2030, the number of teeth at risk in 45- to 64-year-olds will increase by 73 percent; and the 65- to 84-year-old group by 104 percent.¹²

Root caries occurs more frequently in older adults. National survey data shows that 47 percent of individuals age 65 to 74, and 56 percent of individuals 75 years and older, have decayed or filled root surfaces.¹¹ Risk factors for root caries are dry mouth (Table 4), poor oral hygiene, exposed root surfaces (gingival recession), cognitive or physical deficits, elevated numbers of cariogenic bacteria, a high carbohydrate diet, and partial dentures.

Studies on nursing home residents has shown poor levels of oral hygiene and increased root caries in this population. Anecdotal reports suggest a patient can be admitted to a nursing home with intact dentition, only to have the patient succumb to root caries in a relatively short period of time, e.g. six to nine months. Others suggest that with patients remaining in their homes longer prior to nursing home admission, patients may enter the nursing home

Table 3

Causes of Death in 65-Plus in 1980 and 2001
Leading causes of death 65 years and older, United States

Rank	1980	2001
1	Heart disease	Heart disease
2	Malignant neoplasm	Malignant neoplasm
3	Cerebrovascular disease	Cerebrovascular disease
4	Pneumonia and influenza	Chronic respiratory disease
5	COPD	Pneumonia and influenza
6	Arteriosclerosis	Diabetes mellitus
7	Diabetes mellitus	Alzheimer's disease
8	Unintentional injuries	Kidney disease
9	Kidney disease	Unintentional injuries
10	Liver disease and cirrhosis	Septicemia

Source: National Center for Health Statistics, 2003.

Table 4

Medical Conditions or Disorders Associated With Dry Mouth

Medication use
Radiation treatment for head and neck cancer
Sjögrens syndrome
Bone marrow transplant
Thyroid disorder
Depression
Diabetes

Source: Fox, PC. Management of dry mouth. Dent Clin North Am, 1997.

with considerable unmet dental problems. Research is needed to understand the oral health status of patients as they enter the nursing home and the changes that occur during their residence in the nursing home. If a decubitus ulcer in a nursing home resident triggers a quality assurance audit, why doesn't a mouth full of root caries during one's nursing home admission trigger the same type of quality assurance audit?

Periodontal Disease

Advanced periodontal disease is less prevalent than moderate disease in older adults.¹³ Little evidence exists that the risk factors for periodontal disease in older adults are different than the risk factors for younger people. Systemic disease, medications, and depression can contribute to modifying risk factors of periodontal disease with age. Regardless of age, periodontal disease

may progress faster and the response to its treatment may be slower in smokers than nonsmokers.¹⁴ In addition, periodontal disease in older adults is most likely the result of disease accumulation and effects over time, not the occurrence of new disease in later life.¹⁵

For the nursing home population, oral hygiene programs must be developed to assist residents who, because of physical or mental infirmities, are unable to perform oral self-care. Dental professionals have the opportunity to share their oral health knowledge with caregivers, nurses, and nurses aides in long-term care facilities to improve the oral health of the residents. One study that provided a professionally administered oral hygiene program to long-term care residents resulted in the reduction of the occurrence of fever and death due to pneumonia.¹⁶

Oral Cancer

It is estimated oral and pharyngeal cancer accounted for 28,900 new cases and 7,400 deaths in the 2002 in the United States.¹⁷ Oral and pharyngeal cancer increases with advanced age, with most occurring after age 40. Men are diagnosed with the disease twice as often as women. Data suggests the sex gap is slowly narrowing.¹⁸ Research indicated that several factors are associated with increased risk for oral and pharyngeal cancers. However, some people who develop oral cancer have no known risk factors, while others, who do not develop the disease, have multiple risk factors.

Tobacco and alcohol use are the major risk factors for oral and pharyngeal cancers. Approximately 90 percent of people with oral and pharyngeal cancers use tobacco. All forms of tobacco, including smokeless/chewing, cigars, and pipes increase the risk for the disease.¹⁴ Smokers are up to six times more likely than nonsmokers to develop oral cancers.¹⁹ Also, about one-third of

Table 5
Preventing Oral and Pharyngeal Cancer
Limit/quit alcohol intake
Limit/quit tobacco use
Avoid midday sun
Wear a wide brim hat
Use sunscreen
Eat a healthy diet
<i>Reference: www.cancer.org. Accessed July 6, 2005.</i>

Table 6
Categories of Recommendations to Improve Oral Health for Special Needs Populations
■ Education in medicine, medications, and complex dental skills
■ Office environment modifications
■ New models of delivery of dental care
■ Reimbursement rates for oral health services
■ Clinical research
■ Development and implementation of preventive protocols
■ New practitioners to provide primary oral health care

people who continue to smoke after successful treatment of their cancer develop second cancers of the oral, pharynx, or larynx (compared to 6 percent who stop smoking). In addition, people who frequently drink alcohol are six times more likely to have oral cancer than those who do not consume alcohol. More than 75 percent of oral and pharyngeal cancers are associated with alcohol use.

Ultraviolet light is a significant risk factor for lip cancer. The incidence of lip cancer is decreasing in the United States.¹⁸ One-third of people with lip cancer have occupations with significant sun exposure. Also, vitamin A deficiency, Plummer-Vinson syndrome, and human papillomavirus infection have also been suggested as possible risk factors for oral cancer. Other factors

that increase risk for oral cancer include organ transplantation and subsequent long-term immunosuppression.²⁰

Alcohol and tobacco work together to damage the cells of the mouth. **Table 5** shows habits that could prevent or minimize the risk for oral and pharyngeal cancer. Eliminating tobacco or alcohol consumption, even after many years of use, lowers the risk for disease. Although great strides have been made to improve the prognosis of several cancers, the prognosis for oral and pharyngeal cancer has not improved.¹⁷

Implications for Private Practitioners

As a result of the changing demographics, several implications for private practitioners are proposed. **Table**

6 lists these recommendations by category with the additional following descriptions.

Education in Medicine, Medications, and Complex Clinical Dental Skills

Demographics demand that dental practitioners be prepared to care for an increasing number of special care individuals. This population will require dental professionals to be comfortable caring for patients with more chronic illnesses and who take multiple medications. The medical laboratory may be used as frequently in the future as the dental prosthetic laboratory. A patient recovering from a stroke and taking anticoagulants will require the medical laboratory to determine the international normalization ratio to check bleeding status prior to scaling and root planing or a surgical procedure. The medical history will take longer, and future care for older adults may require taking vital signs (blood pressure, pulse, respirations) and perhaps other primary care preventive services like screening for diabetes, inquiring about flu shots, etc. The dental office of the future may even employ a nurse practitioner to provide these primary care services.

Dental schools may need to establish both long- and short-term training programs in geriatric dentistry and/or special needs dentistry. Perhaps the second year of a general practice residency could be dedicated to special populations, such as caring for older adults in acute or long-term care facilities. Currently, the U.S. Department of Health and Human Services fund several geriatric medicine and dentistry fellowship programs. These two-year training programs enhance the medical knowledge and clinical skills of physicians and dentists. The physicians and dentists work together learning a team approach to geriatric patient care. It is hoped that graduates of these programs will pursue academic careers and

Table 7**Nursing Home Ownership, Reimbursement and U.S. Elderly Population Over Age 65**

Nursing home ownership	NH reimbursement	U.S. elderly population (% of total U.S. population)	
66% for profit	8% Medicare	65-74	18,759,000 (7%)
27% not for profit	68% Medicaid	75-84	11,145,000 (4%)
7% government	23% private pay	85+	3,625,000 (1%)

Reference: www.state.ca.gov

serve as faculty members in medical and dental schools role modeling this collaborative behavior.

Short-term programs or “mini-residencies” similar to those developed by the University of Minnesota would enable practitioners to enhance their medical skills in a shorter time. These short-term programs on site at special care facilities can provide more simulation-based experiences.

Dental Office Environment

With the aging of the population, the dental environment may need to be modified. The reception area should include a few firm chairs that are easy to sit in and rise from. While soft, plush living room-type furnishings appear lovely, they are often difficult for older adults to sit in and even more difficult to get up from.

The dental office should be evaluated for wheelchair accessibility as individuals who use wheelchairs have difficulty negotiating corners. Ensure that space in the reception area accommodates a wheelchair without having to move furniture. One should also consider an operatory that is larger than usual, and equipping the operatory with the dental chair on an air bladder that can be moved out of the way should one need to treat a patient who arrives in a litter or a wheelchair and cannot be transferred, like a spinal cord injury patient. A headrest can be attached to the wheelchair and the patient treated

in the wheelchair. Similarly, patients arriving in a “geri-chair” can be treated in that chair since it provides head support for the patient. Recognize that the litter or geri-chair will require more space in the dental operatory than a conventional wheelchair. The dental team should work with physical therapists to learn how to transfer patients safely so the patient and the staff don’t risk an injury. To the extent possible, the dental team may wish to encourage the patient to come to the dental office with an aide who is familiar with transferring the individual.

Access to Oral Health Care

The surgeon general’s report called attention to the growing problem of access to oral health care for special needs patients.²¹ Increasing access to oral health care services for older adults has been called a “looming crisis.”²² For many older adults, finances may not be the only issue. For the medically compromised in a nursing home, even those with resources, they may have difficulty accessing oral health services. Many volunteer programs exist to help meet the oral health needs of underserved individuals, but as James Bramson, DDS, executive director of the American Dental Association noted, “Volunteerism is not a delivery system.”

New models for oral health care delivery need to be developed. **Table 7** lists the percentage of nursing homes by

ownership, reimbursement sources and the U.S. elderly population. Currently, individuals in nursing homes have very limited, if any, access to needed oral health care. Dentists are initiating portable dental practices where the dentists use portable equipment and provide care in the patient’s home.

Similarly, dentists are developing nursing home-based dental practices where they contract with the facilities to provide dental care to their residents, usually on a fee-for-service basis. Private corporate entities also are developing to contract with nursing homes to provide dental care for nursing home residents.

Baby boom children evaluating nursing homes for their aging parents should ask if the nursing home has a dentist on staff. CMS-reimbursed nursing homes are required to complete a minimum data set assessment on each patient within 14 days of admission. The minimum data set includes six questions on oral health. These questions are completed by nurses who have little training in differentiating healthy vs. diseased oral tissues. If a problem is identified on the oral health section of the minimum data set, the nursing home is responsible for providing a resolution to this problem.

Reimbursement Rates

Reimbursement plans and rates for dental services need to be re-evaluated. For the baby boom population,



who has had workplace-related dental insurance, when they retire and switch their health insurance to Medicare, they will lose their dental insurance. Dental office managers will become the bearer of this bad news.

Some have advocated extending dental insurance through retirement for more than 20 years.²³ In September 2004, Judith Jones, DDS, MPH, of Boston University convened an “Elder’s Oral Health Summit” to examine options for financing oral health care for older adults. (Papers of the conference will be published.) The AARP recently launched a new dental insurance program managed through Delta Dental of California for retired individuals so that older adults can maintain dental insurance coverage through their retirement.

Medicare currently does not reimburse for services for “the teeth and/or supporting structures.” However, Medicare will reimburse a dentist for an oral health service they would reimburse a physician, e.g., a biopsy or treatment of an oral candida infection. However, this reimbursement to dentists can be difficult to obtain from Medicare. Medicaid reimbursement for oral health services varies by state, with some states only providing reimbursement for children’s oral health services. If a state Medicaid program does reimburse for adult oral health services, the reimbursement rates are often very low and/or the participation by dentists is not sufficient to meet the needs of the patients requiring care. Current data on Medicaid dental utilization for children suggest that for every four children who are eligible for Medicaid dental services, only one in four receives the care to which he or she is eligible. Experience has shown that when state budgets are cut, adult dental Medicaid coverage can be one of the first areas to be eliminated.

Clinical Research

Additional research is needed to continue to identify the relationships between systemic disease and oral disease. Several years ago, the Institute of Medicine studied extending Medicare coverage for three different conditions: skin cancer screening, medically necessary dental care, and the elimination of time limits on coverage of immunosuppressive drugs for certain transplant recipients.²⁴ In the area of medically necessary dental care, the Institute of Medicine committee evaluated cancers of the head and neck, leukemia, lymphoma, organ transplantation, cardiac

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valvular repair, and replacements. The Institute of Medicine recommended that the four requirements be present for dental care to be considered medically necessary. These requirements included: 1) the benefits of dental care outweigh the harm; 2) dental care improves the outcome for medical conditions; 3) effective dental care exists for those oral health risks; and 4) the disease burden from oral health risks on the medical condition is substantial.

The committee concluded that “little systematic research is available to assess the prevention and management of the oral-medical problems” stud-

ied. They further stated, “Standards of practice for these practices have been developed, often on the basis of plausible biological reasoning but without much evidence from well-controlled clinical trials.”²⁴ The committee concluded that “direct evidence to support coverage for ‘medically necessary dental services’ varies depending on the medical condition to which dental services are related.”²⁴

“More and better research is needed on the systemic implications of dental problems and the dental interventions to guide clinicians in caring for people with serious health problems and policymakers in supporting financial access to effective care.”²⁴ Clinical research to develop evidence regarding best practices and standardized protocols for preventing and treating oral diseases in special needs populations will strengthen the ability to provide care and seek financial reimbursement for these services.

Preventive Protocols

The success of prevention of dental caries in children speaks to the dental profession’s ability to creatively design preventive programs for special needs populations. Clinical trials to develop evidence-based protocols for fluoride varnishes and/or chlorhexidine rinses to prevent root caries and periodontal diseases are needed. Methods to educate family caregivers and/or nurse’s aides on daily oral hygiene regimens for patients who need assistance, provide a leadership opportunity for the dental assistant, dental hygiene, and dental professions.

New Practitioner Models

Finally, the increase in special needs patients with oral health needs may require a new practitioner who can provide basic oral health care. Within the dental profession, several states are

expanding the role of dental hygienists within nursing home settings to improve access to primary preventive oral health care and triage oral health problems more readily.

Registered nurses have successfully demonstrated the ability to develop certified nurse practitioners in several areas, including geriatrics. Perhaps nurses could develop a certified nurse practitioner in oral health. The registered nurse would receive additional training in oral health and could work in a hospital and a long-term care facility. This person would have the ability to educate caregivers and other nurses in oral health, and oversee the daily oral hygiene care, minimum data set completion, and triage dental care for the residents.

Conclusion

Oral health doesn't have to decline with advancing age. Chronic illnesses, age, and multiple medications can increase the risk for root caries, periodontal disease, oral cancer, and other soft-tissue lesions. Once risk factors are identified, strategies to eliminate them can be implemented. Health and dental professionals must work together with special needs populations, their family members and caregivers to diagnose, treat and prevent oral diseases, subsequently maintaining health and improving their quality of life.

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