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Dental Considerations for the Frail Elderly

ORAL HEALTH AND DENTAL CARE ACCESS CHALLENGES

How Many Elderly Are There?

America's older population, which includes people who are age 65 or older, grew to 34.5 million in 1999.¹ As Figure 3-1 illustrates, the number of older Americans is growing rapidly and has increased 10-fold since 1900. In 10 years, the "baby boom" generation will begin to turn 65, and by 2030, one-fifth of the American population will be 65 or older. The size of the older population is projected to double over the next 30 years, growing to 70 million by 2050. The population age 85 and older is currently the fastest growing segment of the older population. Projections by the U.S. Census Bureau suggest that the population age 85 and older could grow from about 4 million in 2000 to 19 million by 2050.¹

Where Do the Elderly Live?

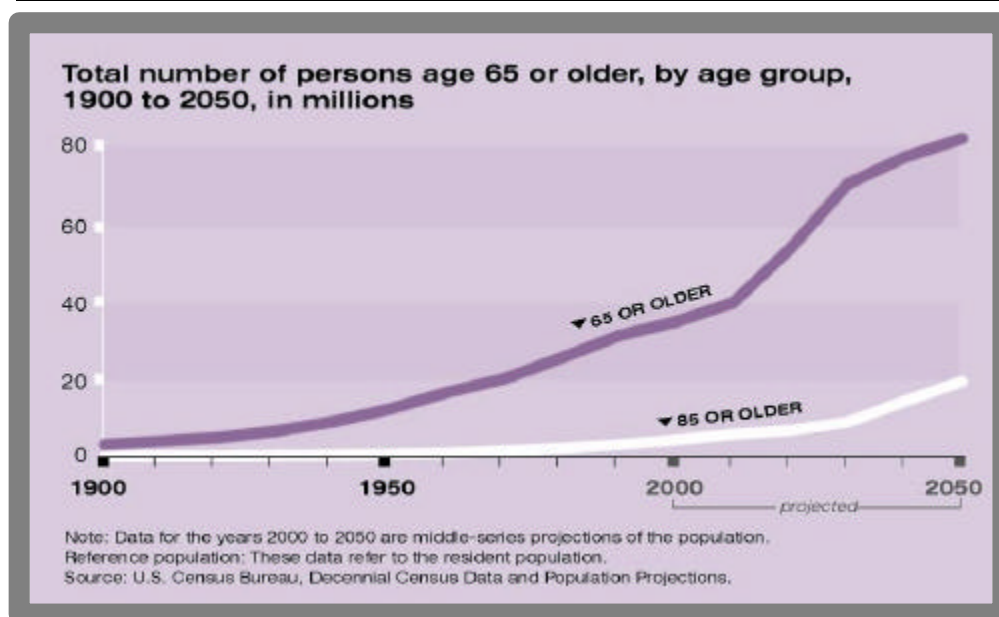
In 1999, about half of persons 65 or older lived in nine states: California (3.6 million), Florida (2.7 million), New York

(2.4 million), Texas (2.0 million), and Pennsylvania (1.9 million); Ohio, Illinois, Michigan, and New Jersey each had well over 1 million. The 65 or older population was slightly less likely to live in metropolitan areas in 1999 than younger persons. About 50 percent of older persons lived in the suburbs, 27 percent live in central cities, and 23 percent lived in nonmetropolitan areas.²

Living arrangements of America's older adults are closely linked to income, health status, and the availability of caregivers. Older persons who live alone are more likely to be in poverty and experience health problems, compared with older persons who live with a spouse or a relative. In 1997, 1.6 million elderly lived in nursing homes, less than 5 percent of the elderly.³ The percentage of the population who live in nursing homes also increased dramatically with age, ranging from 1 percent for persons 65-74 years, to 5 percent for persons 75-84, to 19 percent for persons 85+.⁴ About 558,400 older adults live in assisted-living facilities. The use of assisted-living facilities, board and care homes, continuing-care retirement communities, and other types of facilities in addition to long-term care in a nursing home has grown over

the last 15 years. Current surveys rarely distinguish between these different types of institutional settings and the characteristics of older persons within these settings, but the fact that they are increasing in numbers does indicate the growing need for health care services for frail elderly citizens.²

Figure 3-1 Total number of persons age 65 or older by age group 1900 to 2050 in millions



Who Are the "Frail Elderly"?

Ettinger and Beck⁵ developed a functional definition of the elderly based upon an older person's physical ability to seek dental services. The categorization that they developed is threefold:

- The functionally independent older adult
- The frail older adult
- The functionally dependent older adult.

According to this schema, the vast majority of older adults, 70 percent, are able to get to the dentist and are categorized as functionally independent. About 14 percent of community-dwelling elderly fall under the frail adult category. These are persons with chronic conditions that create major limitations in mobility. About 5 percent of community-dwelling elderly are homebound or functionally dependent.⁶ Another group of functionally dependent older adults are those who are institutionalized in nursing homes.

Another way to classify the frail elderly is to count the seniors who have one or more physical or mental disabilities. National surveys have tracked the numbers of older adults with disabilities, and although these numbers are helpful, they are also problematic. The concept of disability includes several dimensions of health and functioning, and several conceptual frameworks have been used to define this term. With this caveat in mind, more than half the population (52 percent) in 1994-95 reported having at least one disability. One-third had at least one severe disability. About 4.4 million older adults (14 percent) had difficulty in carrying out activities of daily living such as bathing, dressing, and eating, and 6.5 million (21 percent) reported difficulties with instrumental activities of daily living, which include preparing meals, shopping, managing money, using the telephone, doing housework, and taking medication. The percentages with disabilities increase sharply with age. The percentage of those age 80 or older having difficulty with activities of daily living is about double that of the 65 or older population.¹

For purposes of the following discussion, older adults who face great dental access barriers due to physical limitations and functional dependence will be referred to as the "frail elderly." This includes the medically compromised and homebound living in the community, as well as those institutionalized in nursing homes.

What Are Their Characteristics?

The frail elderly are predominantly female and over age 75. As early as age 65, females outnumber males by a ratio of 141:100. By age 85, this ratio increases to 237:100. Not surprisingly, many of the frail elderly are alone, having outlived spouses and sometimes their children.¹ In addition to decreased social and financial resources, chronic diseases limit daily activities of the frail elderly. Table 3-1 displays the percentage of common chronic conditions of those over age 70.⁷

For some older adults, dependencies resulting from chronic illness are managed by a combination of family and/or professional services provided in their homes. Although homebound, these individuals maintain some level of independence. Strayer⁸ characterizes the homebound elderly as:

- Dependent in physical function.
- Cognitively impaired.
- Incontinent.
- Economically disadvantaged.
- Users of home services.
- Less likely to be living alone.

Table 3-1 Percentage of U.S. persons 70 years of age and over who reported selected chronic conditions: U.S., 1995

Chronic Condition	%
Arthritis	56
Hypertension	34
Heart disease	25
Diabetes	11
Respiratory diseases	11
Stroke	9
Cancer	4

Source: Centers for Disease Control and Prevention, National Center for Health Interview Survey, Second Supplement on Aging.⁷

When the severity of impairment, whether physical, medical, or emotional, can no longer be managed in the home, institutionalization and loss of independence results. The 1995 National Nursing Home Survey⁹ describes elderly nursing homes residents as:

- Female.
- 75+ years of age.
- White, non-Hispanic.
- Widowed.
- Dependent in Activities of Daily Living (ADL; i.e. bathing, dressing, eating, transferring, toileting.)
- Dependent in Instrumental Activities of Daily Living (IADL; i.e. care of personal possessions, managing money, securing personal items, using the telephone.)
- Incontinent.
- Relying on Medicaid as primary source of payment.

Why Is Dental Care of Particular Importance for Them?

The U.S. Surgeon General's report, *Oral Health in America*, emphasizes the fact that oral health is integral to general health and describes the disparities in the availability of dental care, especially for very young and very old populations.¹⁰ The report uses the phrase "silent epidemic" to characterize the disparity between the epidemic of oral disease and the silence from those who need care. This report highlights many reasons that dental care is of particular importance for frail older adults:

- Oral diseases are cumulative and become more complex over time. The older adult population has high rates of oral diseases, exacerbated by the fact that many elderly adults lose their dental insurance when they retire. Medicare does not reimburse for routine dental services, and many states do not have Medicaid dental coverage for the frail elderly.
- Oral problems have a negative effect on quality of life. Oral-facial pain and tooth loss can greatly reduce the quality of life and restrict major functions. Problems with the teeth and mouth can affect the ability to eat and communicate. Individuals with facial disfigurements due to oral diseases can experience loss of self-esteem, anxiety, depression, and social stigma. Diet, nutrition, sleep, psychological status, and social interaction are all affected by impaired oral health.

- Dental disease has a significant impact on general health. The oral cavity can be a portal of entry for microbial infections that affect the whole body. Oral diseases give rise to pathogens, which can be blood borne¹¹ or aspirated into the lungs,¹² bringing about severe, even life-threatening consequences. Recent research findings have pointed to possible associations between chronic oral infections and diabetes, heart and lung disease, and stroke.

Why Do the Frail Elderly Need “Special Care”?

The frail elderly need special care because they suffer from extensive oral diseases, have medical problems that complicate their care, and also because their age and state of health complicate their diagnosis and treatment.¹³ Adding to these problems are a multitude of impediments to maintaining their oral health, as discussed in Section B of this report.

They Have Extensive Oral Diseases

Older adults suffer from the cumulative effects of oral diseases over their lifetime. This results in extensive oral disease.¹³ Berkey, Berg, Ettinger *et al.*¹⁴ in a comprehensive review of oral health studies of institutionalized elderly published between 1970 and 1989, described the compromised oral health status of nursing home residents. Up to 70 percent of residents had unmet oral needs, exhibiting high rates of edentulism (complete tooth loss), dental caries (decay), poor oral hygiene, periodontal disease (diseases of the supporting structures of the teeth), and soft tissue lesions.¹⁴ A survey conducted in 1993 on 3479 patients treated in Minneapolis–St. Paul, MN, nursing homes found that 39 percent of the edentulous had oral problems and 61 percent of the dentate (those with some natural teeth remaining) had oral problems. Of the dentate that needed care, 41 percent had dental caries, 14 percent had root caries (decay on the root surfaces), and 18 percent had retained root tips (teeth so damaged by caries that the tooth crown was no longer present) (D. Smith, personal communication / unpublished study, May 1993). Gift, Cherry-Peppers, and Oldakowski,¹⁵ reporting on the 1995 U.S. National Nursing Home Survey, reported that only 15 percent of the residents were described as having excellent or very good oral health.

Over 30 percent of community-dwelling elderly in 1997 were edentulous with the rate rising to 43 percent of those over 85.⁷ Approximately one-third of community-dwelling elderly have untreated coronal or root caries, and other oral health problems including periodontal disease, attrition, unreplaced missing teeth, abrasion and erosion, broken or failing older dental restorations, dry mouth, mucosal diseases, oral cancer, and alveolar ridge atrophy.¹⁶ The homebound often face insurmountable dental access barriers. Among the elderly receiving home health services noted in one study, the majority reported their oral health was “fair” or “poor” and nearly 80 percent reported a perceived dental care need. In addition, only 26 percent reported having been to the dentist within the past 2 years, while 40 percent reported not having been to the dentist in more than 10 years.¹⁷

Medical Problems Complicate Their Care

As we age, we experience a number of significant age-related changes. Fortunately, most of these normal aging changes do not cause oral diseases.^{18,19} Instead, it is the cumulative effects

of both oral and systemic diseases that account for the extensive pattern of oral disease among the elderly. It is interesting to note that increasing numbers of “well elderly” are able to retain their natural teeth and enjoy normal oral function throughout old age. For the frail elderly the situation is quite different.

Shay and Ship²⁰ provide an excellent overview of how oral and systemic diseases contribute to poor oral health in the elderly. They explain that, “loss of one or more teeth as a result of disease can predispose to further tooth loss,²¹ destruction of alveolar bone (the bone surrounding the teeth),²² dependence on and compromised function of prosthetic replacements (dentures),²³ and mucosal disease.” The same oral diseases that lead to tooth loss also cause tooth sensitivity, pain, and impair chewing and speaking ability. In addition, lesions of the soft tissues of the mouth can interfere with mastication and can affect nutritional status.²⁴ Oral cancers such as squamous cell carcinoma can cause extreme disfigurement and even death.²⁵ Systemic diseases may directly or indirectly harm the oral cavity by altering saliva flow, which plays an essential protective role in the mouth.²⁶ The effects of oral diseases are not limited to the oral cavity. Oral diseases can release blood-borne bacteria¹¹ or cause bacteria to be aspirated into the lungs.¹²

A major impact of systemic diseases on the oral health of older adults is caused by the side effects of medications. With increasing age and associated chronic disease, the elderly are prescribed an ever-expanding variety of medications. Besides the desired therapeutic outcome, adverse side effects may alter the integrity of the oral mucosa. Problems such as xerostomia (dry mouth), bleeding disorders of the tissues, lichenoid reactions (oral tissue changes), tissue overgrowth, and hypersensitivity reactions may occur as a result of drug therapy.²⁷ Ship and Chavez²⁸ summarized these effects in Table 3-2, which illustrates many of the oral health problems created by commonly prescribed medications.

Cardiovascular diseases were the leading cause of death among the elderly in 1997, followed by cancer, stroke, chronic obstructive pulmonary diseases, pneumonia and influenza, and diabetes.² For those over 85, heart disease accounted for 40 percent of all deaths.²⁹ Beck, Offenbacher, Williams *et al.*³⁰ and others³¹ have published research suggesting a possible link between cardiovascular and periodontal diseases, but more research is needed to clarify the findings. Heart diseases may trigger symptoms that appear in and around the oral cavity, such as when angina presents as pain in the neck, jaw, or teeth.

Cancer, the second leading cause of death among the elderly, also has a significant impact on the oral cavity. Oral and pharyngeal cancers account for about 5 percent of all cancers, and they increase in prevalence with age. Cancer treatments including chemotherapy, radiation, and surgery can cause severe stomatitis (inflammation of the mouth), xerostomia (dry mouth), disfigurement, altered speech and mastication, loss of appetite, and increased susceptibility to oral infections—including those that cause caries and periodontal diseases.³²

Stroke, pulmonary diseases, and diabetes are also common among the elderly. Each has important consequences in managing oral care for the elderly. In addition to these conditions, impairments in hearing, vision, and orthopedic function are the most common impairments among the elderly,

Table 3-2 Overview of oral problems caused by medications

Drug Category	Drug	Oral Problem
Analgesics	Aspirin NSAIDs ^a	Hemorrhage, erythema multiforme
	Barbiturates, Codeine	Hemorrhage, erythema multiforme
Anesthetics (local)	Benzocaine, Procaine, HCl Lidocaine	Taste disorders
Antiarrhythmics	Procainamide	Lupus-like reaction
	Quinidine	Lichenoid mucosal reaction
Antiarthritic	Allopurinol, Auranofin, Colchicine, Dexamethasone	Taste disorders
Antipyretic	Hydrocortisone, Levamisole	
Anti-inflammatory	D-Penicillamine, Phenylbutazone, Salicylates 5-Thiopyridoxine	
	Gold salts	Taste disorders, lichenoid reaction, oral pigmentation vesiculoulcerative stomatitis
Antibiotics	All	Oral candidiasis
	Erythromycin	Hypersensitivity reaction, vesiculoulcerative stomatitis
	Penicillin	Hypersensitivity reaction, erythema multiforme, vesiculoulcerative stomatitis
	Chloramphenicol	Erythema multiforme
	Ciprofloxacin, Clindamycin, Dapsone, Isoniazid	
	Sulfa antibiotics, Tetracyclines	
	Minocycline	Melanosia
	Chlorhexidine	Brown pigmentation of teeth and tongue
	Ampicillin, Cefamandole, Ethambutol HC1	
	Griseofulvin, Lincomycin, Metronidazole, Niridazole, Sulfasalazine, Tetracyclines	
Anticoagulants	All	Hemorrhage
Anticonvulsants	Carbamazepine	Erythema multiforme, taste disorders
	Phenytoin	Erythema multiforme, gingival enlargement, taste disorders
Antidiarrhea	Bismuth	Dark pigmentation of tongue
Antihistamines	All	Salivary dysfunction
	Chlorpheniramine maleate	Taste disorders
Antihypertensives	All	Salivary dysfunction
	Calcium channel blockers	Gingival enlargement
	ACE ^b inhibitors	Vesiculoulcerative stomatitis, pemphigus vulgaris
	Chloramphenicol	Vesiculoulcerative stomatitis
	Hydralazine	Lupus-like reaction, erythema multiforme
	Methyldopa	Lupus-like reaction and lichenoid mucosal reaction
	Thiazide diuretics	Lichenoid mucosal reaction
	Minoxidil, Verapamil	Erythema multiforme
	Acetazolamide, Amiloride	Taste disorders
	Captopril, Diazoxide, Diltiazem, Enalapril	
	Ethacrynic acid, Nifedipine	
Antilipidemics	Cholestyramine, Clofibrate	Taste disorders
Antimicrotics	Griseofulvin	Erythema multiforme, black pigmentation of tongue
	Amphotericine B	Taste disorder

Drug Category	Drug	Oral Problem
Antineoplastics	All	Oral candidiasis, oral hemorrhage, recurrent oral viral infections, aphthous stomatitis, vesiculoulcerative stomatitis
Anti-Parkinsonian	All Levodopa	Salivary dysfunction Taste disorders
Antireflux agents	All Cimetidine	Salivary dysfunction Erythema multiforme
Antithyroids	Carbimazole, Methimazole, Methylthiouracil Propylthiouracil, Thiouracil	Taste disorders
Antioxidants	Octyl gallate	Allergic ulcerations
Anxiolytics	Benzodiazepines	Salivary dysfunction
Chelating agents	Penicillamine	Ulcers and pemphigus vulgaris
Corticosteroids immunosuppressants antiproliferatives	All Azathioprine, Bleomycin, Carmustine Doxorubirin, 5-Fluorouraci, Methotrexate, Vincristine, Sulfate Cyclosporine	Oral candidiasis, recurrent oral viral infections, vesiculoulcerative stomatitis Taste disorders Gingival enlargement
Hypoglycemics	Sulfonylurea agents Glipizide, Phenformin and derivatives	Erythema multiforme Taste disorders
Muscle relaxants	All Baclofen, Chlorzoxazone	Salivary dysfunction Taste disorders
Others	Etidronate, Germine Monoacetate, Idoxuridine, Iron Sorbitex, Vitamin D	Taste disorders
Psychotherapeutics	All Glutethimide, Meprobamate Phenothiazines Lithium carbonate Trifluoperazine HCL	Salivary dysfunction Erythema multiforme Oral pigmentation, tardive dyskinesia Erythema multiforme, taste disorder Taste disorders
Sympathomimetics	Amphetamines, Amrinone	Taste disorders
Vasodilators	Bamifyline HCL, Dipyridamole Nitroglycerin patch, Oxyfedrine	Taste disorders

^a NSAIDs - nonsteroidal anti-inflammatory drugs.

^b ACE - angiotensin converting enzyme.

Source: Ship and Chavez.²⁸

and each has consequences for maintaining oral health.¹³

Geriatric Diagnosis and Treatment Planning Are Complex

The dental treatment needs of the elderly differ from those of younger adults, and newer cohorts of elderly have significantly different needs than older cohorts. Shay³³ reports that in 1957, 70 percent of adults over age 75 were fully edentulous, while today the number has dropped to less than 40 percent. This means that 40 years ago, most dental treatment for older adults

involved making and repairing full dentures. Today the picture has changed dramatically, with far more natural teeth present, and significantly different attitudes towards oral health and dental care among newer cohorts of the elderly. The elderly now receive a full range of dental services from examinations and preventive services to complex restorative and periodontal services.

Aging has an impact on oral tissues just as it has on other tissues throughout the body. As teeth age, the enamel, dentin, and pulp undergo progressive changes. The enamel becomes

less hydrated and may gain fluorine superficially if fluoride toothpastes, rinses, or drinking water are used.^{34,35} In addition, the thickness of the enamel decreases as enamel is lost from abrasion and attrition. Dentin changes more profoundly over a lifetime. The dentin volume expands into the pulp chamber as secondary dentin forms in response to decay and mastication. Many dentinal tubules narrow and others close altogether, forming sclerotic dentin. These changes make the older tooth more brittle, less resilient, less soluble, less permeable, and darker in color.^{36,37} The pulp chamber, where the blood vessels and nerves of the teeth are located, also undergoes significant changes. The volume of the chamber declines as secondary dentin is deposited. The blood vessels and nerves in the pulp decline with a loss of myelinated nerve fibers and a gain of dystrophic calcium.³⁸

All these changes in the teeth have implications for many dental restorative procedures. Acid etching and bonding materials and techniques, for example, need to be modified. The aging of the teeth affects the design of cavity preparations, the choices of restorative materials, and the anatomy and esthetics of the final restorations. Pulpal sensitivity is diminished in older teeth, and normal symptoms of dental decay or pulpal infections are reduced, altered, or eliminated. The radiographic appearance of teeth is also affected by aging, requiring modified interpretations and diagnosis.

It is not just the teeth and other oral tissues that change with age and have an impact on the special needs of the elderly. With increasing disability, functional impairments, and declining cognitive functions in the frail elderly, the dental team is faced with important ethical issues that have an impact on dental diagnosis, treatment planning, and how dental care is actually provided. Shuman³⁹ reviews a number of these key ethical concerns and offers guidelines for addressing them. Securing informed consent when the cognitive function of an older adult is impaired requires interaction between the clinician, the patient, and the guardian. The clinician must be able to make mental status assessments and to form judgments about a patient's capacity to understand and act upon choices. In addition, the clinician must be knowledgeable about the legal and ethical responsibilities placed on those providing geriatric care to vulnerable adults. In situations where the patient is incompetent to make treatment decisions, the clinician must be familiar with two alternative care standards, the substituted judgment standard and the best interest standard. The best interest standard suggests that the dentist should plan care that reflects what other reasonable people would do under similar circumstances, while the substituted judgment standard suggests that the dentist should plan care that the patient would have chosen if he or she could have expressed their wishes.⁴⁰

Other important special care issues for the frail elderly involve knowledge about the use of sedation, behavior management and restraint in cognitively impaired patients,⁴¹ issues related to death and dying,⁴² and issues related to elder abuse.

IMPEDIMENTS TO MAINTAINING AND IMPROVING THEIR ORAL HEALTH STATUS

Lack of Effective Dental Care Delivery Systems

It has been said that the greatest failure in modern dentistry is

the failure to treat. At the same time that dentistry is able to provide implants, esthetic veneers, and other "high-tech" treatments that would have been unimaginable only a few years ago, large segments of the population, including the frail elderly, lack access to necessary basic care. Why are current dental care delivery systems failing to meet the needs of the frail elderly?

Inadequate Facilities and Equipment

Inadequate facilities and equipment in nursing homes, private dental offices, and many portable dental services create a significant dental access barrier. Permanent dental offices located within nursing homes, when they exist, generally do not have sufficient equipment to provide primary dental care. Such basic equipment as an X-ray machine and developer are frequently not available. Although a few permanent dental clinics within nursing homes do have adequate equipment, they often do not have the portable equipment necessary to serve bedridden residents. Some bedridden residents cannot be transported or transferred to a dental chair even if it is located within the nursing home. Like the homebound, these residents must have access to portable dental services in order to receive dental care at their bedside.

Research into the availability of either permanent dental clinics within nursing homes or portable dental services has been conducted in several states. In a study of Louisiana nursing homes, Garbee, Legett, Lee et al.⁴³ stated: Dental resources in the surveyed nursing homes were almost non-existent. Over 98 percent of the homes surveyed had no dental equipment. There was no regular staff dentist in 93 percent of the homes, and 82 percent had no staff hygienist. Most of the homes (84 percent) called upon non-affiliated private dentists to take care of their patients, on an ad hoc basis, whenever emergencies arose. Some of the homes (34.1 percent) took their residents to outside dental clinics for their dental care. This data suggests that the only nursing home residents who receive more than emergency dental care are those who are sufficiently mobile to be transported to either a private office or clinic.

Although 34.1 percent of the nursing homes reported that they transported some of their residents to outside dental clinics, the other 65.9 percent did not.⁴³ It is important to note that transporting residents is generally not undertaken for primary dental care, but rather occurs when problems or emergencies arise. Further, even those nursing home residents who are physically capable of being transported to dental offices must overcome other nontransportation-related barriers to receive the care they need.

Siegel⁴⁴ conducted a survey of dentists practicing in New Mexico. He obtained responses from over 70 percent of all the dentists practicing in the state (N=410), making his study the most representative study of its kind available. Only 2.2 percent of the dentists in New Mexico indicated that they owned portable equipment. This contrasts with 32 percent who stated that they made more than one visit to homebound patients during the previous year. How could these dentists be providing dental care to the homebound, in their homes, without portable equipment? Siegel addresses this question as follows:⁴⁴ This relatively small number of New Mexico respondents (who own portable equipment), when compared with the larger number who reported making at least one

home visit in the previous year, raises questions about the distribution of the equipment and perhaps the nature of the care provided.

Siegel found that 67.8 percent of the dentists had not made a single visit to a homebound patient within the previous 12 months; 27.8 percent of the dentists reported making one to five visits during the same period. Thus, a total of 95.6 percent of the dentists reported making five or fewer visits during the previous 12 months. How many patients could these dentists treat in 1 year? Elderly patients who seek regular dental care average 3.26 visits per year,⁴⁵ so each dentist could treat only about two patients.

Lack of basic portable equipment such as portable high- and low-speed drills, portable X-ray equipment, and common dental supplies creates a significant barrier to primary dental care. Traditional delivery systems characterized by permanent offices and immobile equipment cannot adequately meet the needs of the long-term care population group.

Lack of Special Equipment for Special Patients

Many patients cannot be treated without special equipment. A Hoyer Lift, for example, is a crane-like device that is used in hospitals and nursing homes to transfer patients to and from beds and wheelchairs. By providing on-site dental care within a nursing home, those patients who need the Hoyer Lift can be treated using the nursing home's lift. Many homebound patients have these lifts in their homes, but are unable to transport a large Hoyer Lift to or from a dental office. A Hoyer Lift is one example of a special device that enables access to care for a number of long-term care recipients.

Many long-term care recipients suffer from Alzheimer's disease and other types of dementia. These patients are profoundly confused and disoriented and must often be sedated for dental care—even for something as basic as an adequate oral examination or dental cleaning. Because of their age, and the presence of multiple medical problems and medications, sedating these patients must be a cooperative effort between the physician, nursing staff, and dentist. At the nursing home, the medications most appropriate for each patient are available and, if on-site dental care is provided, the nursing staff can administer the sedation and help monitor the patient both before and after dental treatment. Thus, by providing dental care that is integrated into overall care at the nursing home, a very large group of mentally impaired nursing home residents can gain access to primary rather than emergency dental care.

Lack of Nursing Staff in Traditional Dental Offices

The nursing staff could provide several essential services for frail elderly nursing home residents seeking care in a traditional dental office. However, for a variety of reasons, including financial, residents who receive dental care outside the facility are accompanied by nurses' aides rather than nurses. As a result, several vital nursing functions are lost to the dental team. For example, sedation and patient monitoring which facilitate care of the cognitively impaired resident cannot be provided by a nurse's aide. The nursing staff plays other critical roles when dental care is provided within the nursing home. The nursing staff has intimate knowledge of the functional capabilities of each nursing home resident and can help assess the ability of residents to provide self-care including oral hygiene. The staff can provide information about the resident's

ability to tolerate appointments at certain times of day and on the need for medications when breathing problems or angina occur. If severely handicapped or incontinent residents need to urinate during a dental procedure, the nursing staff can help the resident as needed. Incontinence is one of the most common problems of nursing home residents and the homebound.

Lack of Properly Trained Oral Health Providers

Dental disease continues to be widespread and unchecked among functionally dependent older adults. One reason for this is that few dentists have received the level of training needed to make them comfortable in providing oral health care services outside the traditional office situation.⁸ Dr. Teran Gall, Director of Special Projects for the California Dental Association and a recognized expert in geriatric dentistry, makes the following observation:⁴⁶ Dental education is limited largely to working on well patients. Most dental school interactions are not with compromised patients and there are very few opportunities for students to work with patients in nursing homes or do mobile dentistry and visit homebound individuals. Dental school training does not afford students the same opportunities as medical school opportunities to work with physically and medically compromised patients. As a result, many dentists may be uncomfortable working with patients who have special needs.

Ettinger, Watkins, and Cowen²⁷ reviewed the status of geriatric dental education and found that the number of dental schools reporting the existence of didactic geriatric content has risen to 100 percent but that great curricular variation exists. Often a course in geriatrics is taught as an elective, so only a portion of the dental student body receives it. Variability exists in faculty training as well. The most recent survey reports that 12 percent of schools still have no required course and 17 percent have no specific geriatric course. Clinical preparation in geriatric dentistry lags behind. Ettinger, Watkins, and Cowen²⁷ state: Regardless of repeated epidemiological evidence of the increasing dental need and demand of the older patient, over 25 percent of schools still report no geriatric clinical component. In addition, years after the Omnibus Reconciliation Act mandating a dentist of record in each nursing home facility, 45 percent of dental schools do not offer students any opportunity to experience working in a nursing home environment.

Dr. Michael Strayer, a Professor of Geriatric Dentistry and Gerontology at Ohio State University College of Dentistry, is involved in one of the few programs in the country that offer students experience in treating geriatric patients. Dr. Strayer acknowledges that treating older patients presents diagnostic challenges:⁴⁶ "One of the things I try to stress to students is that as patients get older, the signs and symptoms are not the same as they are in younger adults. For example, when older patients have pneumonia, they don't necessarily present with a fever or cough. They often just have a general, vague feeling of not being well. The same thing can apply to periodontal disease or even dental abscesses in natural teeth. They may have dental problems but don't have the symptoms you would find in a younger population. So it becomes problematic for practitioners."

Lack of Medical Integration with Oral Health Care

Physicians, nurses, and nurses aides have regular contact with homebound and nursing home residents. But training to recognize oral problems, oral lesions, or oral sequelae of chronic systemic conditions and the medications to treat these conditions is limited.⁴⁷ The following exemplifies how the limited training and lack of medical integration with oral health care contributes to unmet need. Federal legislation enacted into law in 1992 (Omnibus Budget Reconciliation Act or OBRA 1987) was an ambitious effort to improve the standards of nursing home care in all areas, including oral health and dentistry. Any nursing home accepting Medicare or Medicaid reimbursement is required to complete a Minimum Data Set (MDS) assessment upon resident admission and at least yearly thereafter.⁴⁸ Two sections of the MDS deal specifically with oral conditions. A nurse typically completes the oral/dental status section; a dietician completes the oral/nutritional status section.

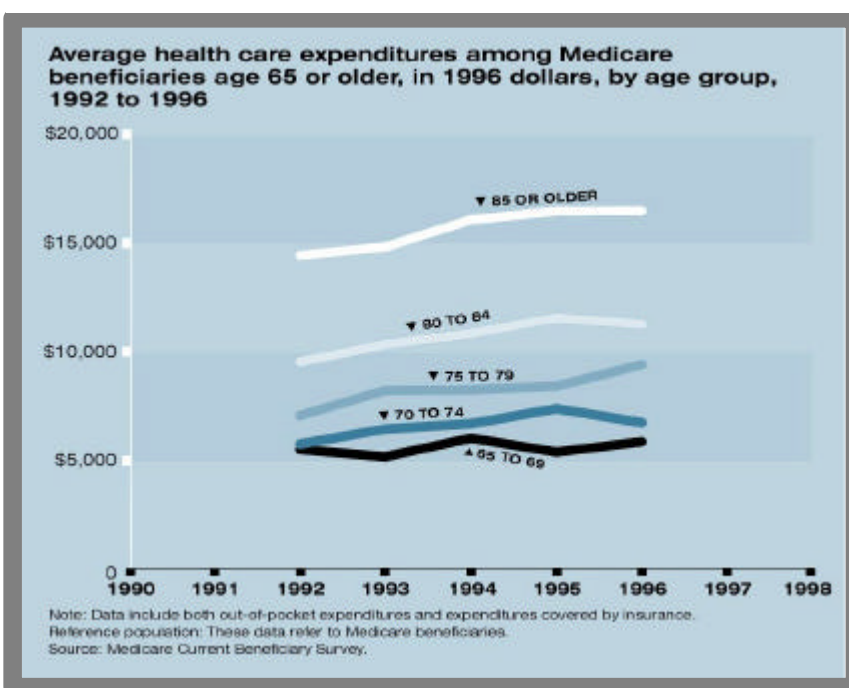
Thai, Shuman, and Davidson⁴⁹ investigated the adequacy of the MDS to identify oral health problems. MDS data from Minnesota nursing homes and records of subsequent dental care were compared. Of 466 residents, nurses identified 3.2 percent with oral debris; 3.0 percent with broken, loose, or carious teeth; and only 4 (0.9 percent) with gum inflammation/soft tissue problems. In contrast, subsequent utilization measured in dental visits per year and gross dental charges per year bore no relationship to the MDS findings. The authors concluded that the nurse's assessments identified few oral health problems and that the problems identified did not translate into dental treatment.⁴⁹ A study by Blank, Arvidson-Bufano, and Yellowitz⁵⁰ found that more experienced nurses were able to identify broken or carious teeth nearly 85 percent of the time among nursing home residents. However, regardless of the nurse's experience level, they were less able to identify soft tissue lesions.⁵⁰ Taken together, the potential for misidentification and underreporting of oral health problems is difficult to ignore.

Lack of Dental Insurance or Financial Resources

While only about half of all Americans have any type of dental coverage, most with this employment benefit lose it upon retirement and subsequently decrease their utilization of dental care. As a result, most older adults lack dental insurance and must pay for dental care as an out-of-pocket expense.^{51,52} This phenomenon unfortunately occurs at a time of increased oral health needs and, with declining function into old age, oral health needs often are further relegated due to other pressing health care needs as well as a reduced ability to pay for services out of pocket.

Further eroding dental access for seniors is the fact that

Figure 3-2 Average health care expenditures among Medicare beneficiaries age 65 or older, in 1996 dollars, by age group, 1992 to 1996.

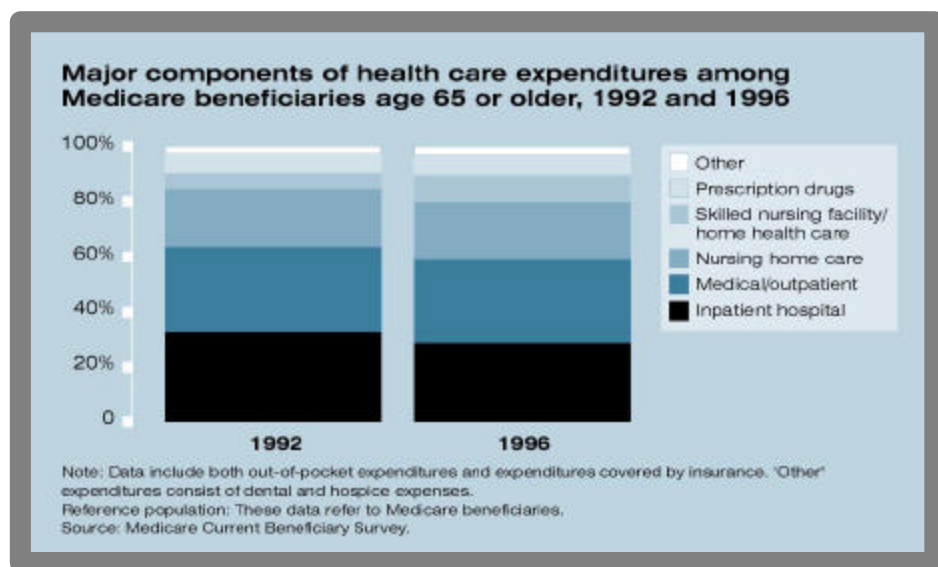


many states' Medicaid programs do not provide dental coverage for adults. Even in states with adult dental benefits, dental services vital for the frail elderly are frequently not covered. For these Medicaid recipients, dental coverage represents an empty promise because access is limited by extremely low levels of participation by dentists who cite low fees, complex administrative policies, and a host of other reasons for not participating. Numerous states have recently made significant changes in their Medicaid dental programs to increase dental provider participation. Although the American Dental Association has recommended that fees be set at the 75th percentile in order to increase participation, there is a pressing need to also simplify administration, eliminate treatment delays, and, in general, reduce provider disincentives within the program.

Figure 3-2 shows the average health care expenditures for older adults from 1992 to 1996. Health care costs for the elderly have been rising over time, and are higher for older cohorts. Adults 85 years of age and older have significantly higher health care costs than those who are in the 65 to 84 age bracket. This phenomenon, where various diseases and health care costs are pushed farther and farther into old age is sometimes called the "compression of morbidity."

Institutionalization not only changes access to a routine source of dental care, but also reduces the out-of-pocket resources available to pay for services. Dental services for older adults are largely an out-of-pocket expense (79 percent), with only 10 percent covered by private insurance.⁵³ Unfortunately, public programs do not fill the gap. Medicare does not cover routine dental services, and Medicaid does not offer dental benefits for adults in many states. Figure 3-3 shows the small portion of the total health care expenditures of

Figure 3-3 Major components of healthcare expenditures among Medicare beneficiaries age 65 or older, 1992 and 1996.



Medicare beneficiaries that went towards dental care in 1992 and 1996.

Lack of Understanding of the Importance of Oral Health

Lack of knowledge and low expectations about oral health and its value influence care-seeking behavior and can result in care being deferred or neglected entirely. Among the elderly living independently, the most commonly cited reason for not seeking dental care is a lack of perceived need.⁵⁴ Seeking help for a dental problem is less likely when there is a belief that tooth loss is inevitable or oral problems are part of the aging process. For the institutionalized elderly, often the decision whether or not to receive care is determined by others. Warren, Hand, and Kambhu⁵⁵ investigated the role of nursing home residents' family members in the utilization of dental services for nursing home residents. "Utilization of dental services" was defined as consent for the completion of a comprehensive dental examination. Overall, the next of kin or guardian decision-makers accepted treatment for 64.2 percent of the residents. Resident characteristics that increased the likelihood of accepting an oral examination included being female, being ambulatory, having natural remaining teeth, and having a higher level of education. Other factors that influenced the decision were next-of-kin characteristics: perceived need, age, and relationship of resident to next of kin (relative vs. nonrelative). Little difference in rate of acceptance was found based on resident age.⁵⁵

Family and caregiver's attitudes may be even more powerful in limiting access to care. Dolan and Atchison⁵⁶ report that nursing home administrators pointed to lack of interest by the resident and lack of interest by the resident's family as barriers to care. In addition, consulting dentists to nursing homes identified apathy of nursing home administrators and staff as significant barriers.⁵⁶ Gordon, Berkey, and Call⁵⁷ found a very substantial discrepancy between Colorado hospice patients and administrators

regarding their perceptions of the importance of oral health. Of hospice patients, 86 percent reported that maintaining or improving their oral health status was either "important" or "very important" to them, whereas only 18 percent of administrators believed this to be true.⁵⁷

Knowledge about dental health care is, however, increasing over time. Dr. Michael Helgeson, a geriatric dentist, emphasizes that the population of people age 65 and older is a very diverse group with a wide range of needs and expectations:⁴⁶ "The people born between 1900 and 1910 are dramatically different from the people born between 1920 and 1930 in terms of the health care they have received and their lifetime access to dental services.

Each age cohort is very, very different." As the number of aging Americans continues to rise, dentists will be working with more elderly patients in their everyday practice and will be seeing greater numbers of older patients who bring high expectations for quality dental care. In the last 15 years alone, dentists specializing in care for older individuals have seen shifts in attitudes toward prevention of oral disease. They note that increasing numbers of patients are retaining their natural teeth, and there is a higher level of dental health knowledge emerging among older patients and their families.

Helgeson⁴⁶ cites his experience working with frail elderly adults living in nursing homes served by Apple Tree Dental in Minneapolis/St. Paul. When the nonprofit mobile dental program opened in 1986, 61 percent of the nursing home residents treated had no teeth. Ten years later, the percentage of residents with no teeth had dropped to only 40 percent. He notes that more and more elderly patients are retaining their natural teeth. Furthermore, patient expectations are changing as well.

"When Apple Tree began in 1986, it was very rare to have either a patient or the son or daughter of a patient question a treatment plan that called for extracting teeth. Rarely, if ever, would the patient or the family ask if the teeth could be saved. The prevailing attitude was that teeth were dispensable. During the 15 years since that time, we are dealing with people who have completely different personal histories with dentistry. They are much more familiar with saving and repairing their teeth. The idea of going without any teeth at all is much more unacceptable now than it was 15 or 20 years ago."

Lack of Effective Patient Self-Care or Caregiver Assistance with Oral Care

Over half of those persons 75 years and over report limitations caused by chronic conditions.¹ Self-care, in general, and oral health care in particular, can be adversely affected by these chronic conditions. Prevalent visual, manual, or shoulder and

arm impairments can make effective cleaning of the teeth and mouth difficult. Increasing needs for help in other areas of life may overshadow a declining oral health situation.

Either the older adult or their caregivers must become aware that daily oral care is not being done effectively. Problem recognition may be slowed by a number of factors. The older adult may be unable or unwilling to admit that an additional level of self-care (and independence) is being lost. The caregiver, particularly if they are a spouse or other family member, may be so burdened with other needed care that oral concerns are not recognized. If health services are being brought into the home, oral health issues may not be recognized or addressed by the home health worker.

In the nursing home, nurse's aides provide oral hygiene services. These individuals, who are minimally trained (75 hours or less), provide up to 90 percent of hands-on care that residents receive. It has been reported that the majority of residents require some or complete assistance with oral care. Nearly 75 percent of nurse's aides indicate that behavior and physical difficulties prevented adequate oral hygiene from being provided.⁵⁸ A Connecticut study explored the beliefs, attitudes, and knowledge of nurse's aides regarding oral health care for nursing home residents compared to other body care services that the aides performed such as bathing, toileting, and dressing. Mouth care was seen as a disliked task both by the aides and, in the aides' opinion, by the residents despite being perceived as a significant benefit to the residents.⁵⁹ Kambhu and Levy⁶⁰ noted that poor hygiene levels correlated with uncooperative residents (82 percent), nurse's aides who lacked a perceived need for good oral hygiene care (68 percent), and a perceived lack of time (49 percent).

Lacking the ability to provide oral self-care, the frail elderly depend on someone with the necessary willingness and skill to provide or assist with that care on a consistent basis, either daily or every other day at a minimum. Judging by the extensive oral health needs of the homebound and institutionalized elderly, that key component of oral health maintenance is missing.

APPROACHES TO IMPROVING THEIR ORAL HEALTH AND ACCESS TO DENTAL CARE

What Can Be Done to Improve Their Oral Health?

Improved oral health will lead to improved quality of life through increased personal dignity, improved nutrition, better appearance, greater cleanliness, and greater comfort or relief from pain. But meeting the oral health needs of frail elderly adults requires new approaches to dental treatment planning that take into account the special needs of the elderly.

Berg, Garcia, and Berkey⁶¹ have described a process called "spectrum of care treatment planning." This model emphasizes essential steps in clinical decision making for both patient and dentist. The process begins with an interview of the patient to determine his/her concerns and perceived needs. This process addresses four domains of subjective and objective needs: function, symptoms, pathology, and esthetics. Eliciting this information may require considerable geriatric skills. Older patients are less likely than younger patients to report symptom complaints, and often they are completely unaware of pathology that would create dramatic symptoms in younger

patients. In one study of older adults, more than half of 20 potentially serious medical symptoms were never reported to a health professional.⁶² These data contrast with a popular misconception that the elderly are prone to exaggerate their health care complaints.

The next step in treatment planning is the objective assessment of the patient by the dentist. Because elderly patients have generally lost significant numbers of teeth, assessment of function can be difficult. Many older adults have complicated patterns of missing teeth together with fixed and removable prosthodontic devices (full and partial dentures). The effectiveness of the few remaining teeth on the patient's ability to chew and to speak must be assessed carefully, and the alternative treatment options explored fully. In older adults, this planning process is generally much more involved than in younger individuals.

A thorough medical history must be integrated with the dentist's oral health findings while dental treatment options are developed. In addition, the dentist must assess the patient's ability to tolerate the potential stress of treatment. The ability of an older adult to tolerate stress is highly individualized, so it is important for the dentist to be comfortable with geriatric medicine and the need to consult with the physician and others when necessary. In addition, the dentist must evaluate the patient's functional capability and resources for maintaining oral health. According to Berg, Garcia, and Berkey,⁶¹ "The functional capability of the patient to maintain restorations, prostheses, and periodontal health successfully is a critical element in treatment planning, as are the financial resources the patient and/or family are able to dedicate to treatment." If the patient is functionally impaired and unable to carry out brushing and flossing, then the family and caregivers' ability to help with daily oral care must be assessed. Other risk factors that could cause treatment failures need to be assessed, including the history of recent decay and periodontal disease, presence of xerostomia (dry mouth), the presence of failing older restorations, drifting or tipped teeth, bruxism (teeth grinding habit), alveolar bone loss (shrinkage of the ridges following tooth extraction), loss of host resistance due to medical problems, and a variety of factors effecting the patient's manual dexterity.

Once the medical and dental information has been collected and processed, the dentist must begin to formulate treatment options that are often extensive. In geriatric treatment planning, the focus should be on identifying levels of care and seeking a level of care that is optimal for the patient, given all the factors that have been assessed. Levels of care range all the way from "none" to "very extensive." In planning care for older adults, it is not appropriate to equate an optimal level with the "highest level technically possible." Instead, the goal of geriatric treatment planning is to seek the highest level of care that is appropriate and necessary to maintain the individual patient's oral and general health.

The final step in treatment planning is reviewing the treatment options with patient and/or their caregiver. Although the dentist generally recommends the highest appropriate level of care with the best long-term prognosis, it is important to offer reasonable alternatives along with their costs and risks. The principles of informed consent and patient autonomy must be clearly understood by the dentist, and agreement must be reached before treatment is started. Because the course of

Table 3-3 The senior friendly dental office.

To ensure ease of access:

- No stairs (ramp or elevator)
 - Adequate, safe parking
-

For ease of being seated and standing again, reception furniture should be:

- Not low to the floor
 - Firm
 - With arms
-

To reduce risk of falls, flooring should be:

- Consistent throughout the office
 - No deep pile carpeting
 - No throw rugs or clutter on the floor (watch hoses and cords)
 - No slippery areas/surfaces
-

Lighting to reduce age-related vision

- Adequate lighting without glare
 - Consistent level of lighting throughout the office
 - Avoid small print
 - Use contrasting paper and ink colors for written materials
-

To adjust to age-related hearing loss:

- Stand closer to the patient
 - Enhance visual and auditory clues
 - Remove mask
 - Maintain face-to-face, eye level, eye contact
 - Touch appropriately
 - Drop pitch, speak distinctly
 - May increase volume but do not yell
 - Minimize background noise
 - Use quiet locations for interaction
 - Turn off any music
 - Turn off dental equipment whenever possible
-

Other communication enhancements:

- Use titles and surnames unless asked specifically to use first name
 - Provide written instructions to reinforce verbal
 - Communicate with caregivers as appropriate
 - Do not communicate with caregivers at the expense of speaking with the patient
-

Source: Erickson L. The senior-friendly office. *Gen Dent* 2000;48(5):562. Reprinted with permission of the Academy of General Dentistry.⁶³

treatment is often complex, it is recommended that a written treatment plan be reviewed and signed by patients or their representatives.

Dr. Kenneth Shay, Director for Geriatrics and Extended Care for the Department of Veterans Affairs⁴⁶ explains that when treating elderly patients, dentists encounter “clinical challenges that are not necessarily unique to the elderly but are encountered with unique frequency and often with unique presentations. In addition, dental care can be complicated by medical, functional, behavioral and situational factors that are associated with aging. It means treating those same familiar

dental procedures in unfamiliar settings or on patients who have medical or functional difficulties. You may have to use different techniques to accomplish the same ends.”

Getting Patients to Dentists or Dentists to Patients

Many frail older adults can be seen at a dental office, provided that they are mobile and the office is accessible and senior-friendly. More severe functionally dependent elderly persons benefit from receiving on-site, mobile care.

The Senior-Friendly Dental Office

While most dental offices are suitable for children and adults, some modifications are needed in order to accommodate the frail elderly adult. Elderly patients almost always have one or more chronic medical conditions, so it is especially important to review the medical history each time the patient visits the office. Information should also be collected about types of medical conditions and medications, as well as recording contact information for the patient’s physician. According to Dr. Linda Niessen, Clinical Professor at Baylor College of Dentistry:⁴⁶ “In dentistry we are surgeons. We see disease: we cut it out. We will always be surgeons. But a practice that is treating an older population will increasingly take on more oral health medicine components. It will be increasingly important for us to gather a complete medical history on the patient and know if they have heart problems that may require systemic antibiotics or if the person has had a hip replacement, or stroke. It’s important to know that the ulcers in the patient’s mouth may be a result of their arthritis medication. The medical management of the patient will increase.”

Erickson⁶³ has developed the following list of essentials for the “senior-friendly office” shown in Table 3-3. Some of the recommendations refer to the physical office setup, and others suggest about ways of interacting with seniors to show respect and to facilitate communication.

On-site Delivery Systems

Functionally dependent older adults are often best served by bringing dental services to them, rather than transporting them to the dental office. Pictured in Figure 3-4 is an example of a mobile dental office that can be set up within a nursing home.

The provision of on-site care has many unique aspects besides mobile dental equipment. According to Helgeson and Smith,⁶⁴ mobile and on-site dental care delivery systems are not simply traditional private dental practices located in nursing homes. They are interdisciplinary team efforts designed to systematically address the oral health needs of nursing home residents. The provision of dental care involves not only dental staff, but also nursing staff, primary care physicians, patient representatives, and third-party payers who each have important roles to play. In addition, on-site delivery systems must assist in establishing preventive programs, provide education for nursing staff, and participate actively in the medical-dental management of medically compromised patients.

The traditional fee-for-service funding model for dental care has provided excellent access to care for patients and population groups who are able to pay for needed care. Unfortunately, the connection between ability to pay and the availability of dental care creates financial barriers for nursing home residents. Because on-site delivery systems have

Figure 3-4 The Apple Tree Mobile Dental Office



Mobile Equipment delivered during the evening



Complete mobile dental office operational on-site

contractual responsibilities for meeting the oral health care needs of an institution, they take on a uniquely public health character, functioning as dental care access programs. Nursing homes and Medicaid programs that pay for services demand nondiscriminatory care and cost-accountability. All these factors point to the need for new, nonprofit delivery systems with interdisciplinary organizational structures.

New legal agreements are needed to clarify dental and nursing staff responsibilities and assure regulatory compliance. New methods of communicating, care planning, record keeping, and scheduling are needed for on-site teams to function smoothly. To maintain and improve quality, new team management structures, levels of accountability, and management information systems are essential.

On-site providers must provide documentation that meets the needs of the nursing home and can be incorporated into the medical record. The use of terminology appropriate to the training of nursing staff will facilitate communication and follow-up care. Interpretation of dental records and typical follow-up orders should be included in the training of nursing personnel.

Just as with any dental practice, effective scheduling is essential. Mobile care schedulers must first determine a monthly schedule of site visits to each of the facilities served. Visits must be scheduled with sufficient frequency to keep facilities up-to-date while effectively utilizing the time of dental personnel. Schedulers must track the number of new patients, patients undergoing treatment, dental emergencies, and those due for recall. Each site visit must be coordinated through the facility's dental liaison. As the number of sites served by the mobile practice grows, the complexity of this task is magnified. Large facilities may need weekly visits, while small ones may need a combination of on-site visits and off-site referrals to assure that resources are used cost-effectively.

Nondental personnel in the long-term care setting are critical in identifying their residents' oral health needs and connecting them to dental personnel who can address those needs. Nursing homes that receive federal reimbursement are

required by OBRA 1987 regulations to demonstrate that they can "actively provide or obtain dental care for their residents." They are required to:

1. Assist residents to obtain routine/emergency dental care.
2. Provide/obtain dental services by hiring staff or contracting with a dentist.
3. Assist/arrange for appointments and transportation to a dental office.
4. Refer a resident with lost or damaged dentures to a dentist promptly.⁴⁸

Making these more than "paper requirements" requires that non dental personnel, particularly the nursing staff, can identify problems to refer and facilitate care as necessary. An important function that can be performed by a non dental nursing home employee is that of "Dental Liaison." The Apple Tree Dental (ATD) model illustrates the key roles this individual plays in facilitating dental care. The Dental Liaison fulfills the following responsibilities:

1. Training nursing staff and intake workers on protocols and procedures for routine and emergency care, and assuring that all residents are referred for routine care.
2. Serving as the dental communication link, routing reports of dental problems to the dental team and conveying information from the dental team back to the facility.
3. Assuring that the dental team receives charts, health status, and nursing assessment information and other assistance needed to provide care.
4. Assuring the availability of the work area, and making arrangements to have it cleaned before and after on-site clinic days.
5. Assuring that nursing staff and residents are informed in advance of appointments.
6. Providing regular feedback for quality improvement.

In this system, nurses play several key roles, such as providing health status updates when necessary, and relaying dental concerns to the dental liaison. Following on-site visits,

nursing staff are responsible for carrying out postoperative orders and for modifying daily oral care plans as directed. Nurses must also be involved in medical-dental consultations and in the coordination and administration of medications needed to provide dental care. Finally, nurses may need to assist with communication, mental status assessment, resident transfers, and behavior management to enable every resident to obtain needed care.⁶⁴

The contributions of the interdisciplinary care planning team are valuable adjuncts in the provision of appropriate oral health care to the functionally dependent adult. Physical therapists can evaluate existing function. Occupational therapists can make recommendations regarding the resident's oral self-care ability. Social workers can provide insights into family interactions and any discharge potential. Nurses and physicians can provide critical information about the resident's medical condition and nursing interventions.

Just as dental personnel should refer unknown or inadequately controlled medical problems like diabetes and hypertension, so nondental personnel should refer patients when oral disease is detected. They can advocate for the importance of oral health care to general health, stress that oral disease can exacerbate other health problems, and dispel the misconception that oral disease and tooth loss are unavoidable parts of aging.

Expanding Dental Insurance Coverage through Government Programs (Medicare, Medicaid)

Because oral health problems are increasingly linked to general health pathologies, there is clearly a need to consider inclusion of dental benefits under Medicare, the federal program that has largely made access to health care a reality for American retirees. In fact, despite the inclusion of dental benefits at the inception of Medicare, it now covers virtually no oral health services. For some, preventive dental care may be obtained through purchase of "Medi-gap" policies, but for many this is an unaffordable option.

While much energy has been spent reforming Medicaid dental programs, most of the attention has been focused on improving dental access for children. Because the oral health needs of the elderly are vastly different than those for children, there is a great need to develop policies relevant for the oral health needs of the frail elderly, such as cost-reimbursement models for providers serving this population. Current national trends indicate a growing number of elderly living longer and retaining larger numbers of their natural teeth. Together, these phenomena indicate an increasing need for dental care into old age.

- Dental insurance coverage needs to extend past retirement into old age. It is well known that people with coverage tend to utilize more preventive services than those without. Dental insurance needs to address the reality that dental diseases increase as patients progress from functional independence to become frail and functionally dependent.
- To prevent the rapid onset of dental problems that occurs prior to the need for home health or nursing home services, Medicare should be expanded to cover dental services. Alternately, Medi-gap and private-sector retiree policies should include dental coverage.
- For the frail elderly who are poor, Medicaid needs to be

expanded to cover dental services for adults in all states. Covered services need to include house call fees, gross oral cleanings, behavior management, and other services needed by frail elderly patients.

- Medicaid programs should be patterned more like private insurance.
- Medicaid reimbursements should be raised to levels closer to usual and customary levels. The American Dental Association (ADA) recommends reimbursement at the 75th percentile.
- Medicaid program administration should be simplified to reduce administrative costs, treatment delays, and provider disincentives to participation.
- Medicaid programs should be permitted to contract for special access programs on a cost-reimbursement model or modified capitation model.
- Medicaid programs should not discriminate on the basis of the age of a recipient, but rather provide benefits that are "appropriate and necessary to maintain the health of recipients."

Necessary Training and Experience for Caregivers as well as Primary Health Care Providers in Nursing, Dentistry, and Medicine

An overarching theme that must be considered in each aspect of training at all levels is that both didactic and hands-on experience is needed. Further, the training experience must be long enough and of appropriate intensity that trainees feel comfortable providing the care. An excellent method for getting the disciplines to work together is to have them train together, in both didactic as well as clinical settings. Interdisciplinary training in the learning environment fosters interdisciplinary collaboration in the workplace.

Caregivers (Home Health Aides, Nurse's Aides, Family Members)

The most critical training needs for caregivers are that they:

- Know the importance of daily oral hygiene care to maintaining oral health
- Can use basic oral hygiene devices (toothbrush and floss) to clean someone else's teeth
- Can provide oral hygiene services while practicing effective infection control
- Know when professional dental help is needed.

Primary Health Care Providers (Nurses and Physicians)

Undergraduate medical and nursing training should incorporate:

- Oral medicine for identification of common oral diseases including periodontal disease, caries, oral cancer, and various soft tissue abnormalities
- Oral pharmacology for familiarization with the adverse oral side effects of commonly used chemotherapeutic agent prescribed for chronic diseases of the elderly
- Clinical training in head and neck examination with a strong intraoral component
- Guidelines for dental referral
- Oral consequences of systemic disease and systemic consequences of oral disease including recent research findings linking oral disease to heart disease, exacerbation

of lung disease, and incidence of aspiration pneumonia.

In addition, continuing education in nursing and medicine should incorporate all of the same training noted above for undergraduate medical and nursing students plus provide clinical training for nurses to do the oral component of the Minimum Data Set assessment.

ORAL HEALTH CARE PROVIDERS

Undergraduate Training

Although most dental schools have some undergraduate didactic training in geriatrics, most have limited clinical training, particularly in providing care to the functionally dependent elderly. Over the past 27 years, the University of Iowa has developed a model program of didactic and clinical training for their dental undergraduates. The adoption of this model by other schools of dentistry would vastly improve the level of experience and confidence of graduating dentists. The components of the Iowa program include:

- Required didactic course for junior dental students during spring semester
- Required 5-week clinical program (Special Care Program) for senior students split between the school-based and nursing home-based clinics.²⁷

Graduate and Residency Training

The University of Minnesota has been providing graduate-level training in geriatric dentistry since 1981 in a program called Oral Health Services for Older Adults. One of the strengths of Minnesota's program is that it has established clinical training sites in environments that provide the full spectrum of aged individuals, from the relatively well elderly to the functionally dependent nursing home patient. Currently, the program offers two tracks: a 1-year advanced clinical training program and a 2-year didactic and clinical program that results in an M.S. degree. This program has served as a leadership-training program for the country. Previous graduates currently hold positions in several dental schools, within the Veteran's Administration, and in the private sector.

Continuing Education for Dental Professionals

Opportunities exist for intensive training at various U.S. locations. An example of one such program is a 5-day course, "Miniresidency in Nursing Home Care for the Dental Team" directed by University of Minnesota School of Dentistry faculty. This program draws on the expertise of individuals delivering dental care, both fixed and portable, in several long-term care settings. The program is designed specifically to teach dentists, dental hygienists, and dental assistants how to deliver care more effectively in nursing homes. Several other long-standing training programs exist. Additional information about these offerings can be obtained from Special Care Dentistry (formerly the Federation of Special Care Organizations in Dentistry) at (312)440-2660 or www.scdonline.org.

Recommendations for Title VII and VIII Programs

One of the undeniable facts about living is that every day we are getting older. And, as the baby boom generation in

America ages, more of us are on the gray side of the picture. In 30 years, the U.S. Census Bureau projects that one out of every five Americans will be 65 or older. The population age 85 and older is currently the fastest growing segment of the elderly. When we look ahead 50 years from now, we can expect that over 20 million people in this country will be 85 or older. The size of this group is especially important for the future of our health care system because it includes most of the frail elderly, people who tend to have lower income, poorer health, and require more health care services. This population group has extensive oral disease, medical problems that complicate their oral care, and unique dental treatment challenges.

What can health policy makers do to assure that there are enough trained health professionals for America's future? Based on the dental needs of frail elderly adults discussed the authors of this paper recommend the following:

Work to Change Perceptions Regarding Oral Health and Disease So that Oral Health Becomes an Accepted Component of General Health

- Include oral health services in all health promotion, disease prevention, and care delivery programs. Develop training programs for nondental health professionals to emphasize how they can and should work to enhance oral health.

Accelerate the Building of the Science and Evidence Base and Apply Science Effectively to Improve Oral Health

- Survey dental needs among older adults living in a variety of settings, including senior housing, board and care homes, assisted living facilities, nursing homes, and other long-term care facilities.

Build an Effective Oral Health Infrastructure that Meets the Needs of All Americans

- Develop community-based dental care delivery systems at regional and state levels to reduce gaps in prevention and care for low-income older adults, nursing home residents, and elderly people with disabilities.

Remove Known Barriers between People and Oral Health Services

- Increase the number of dental professionals who are trained to provide mobile, on-site dental care for frail elderly adults and other groups with special dental access needs.
- Provide oral health benefits in all public health programs, especially those for elderly adults.

Use Public-Private Partnerships to Improve the Oral Health of Those Who Still Suffer Disproportionately from Oral Diseases

- Increase the number of dental, medical, and nursing programs with active partnerships or cooperative working agreements with public and private community-based

organizations that serve people with special access needs, such as frail elderly adults.

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