CDA

JOURNAL OF THE CALIFORNIA DENTAL ASSOCIATION VOL.27 NO.9

September 1999

Alzheimer Patients

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ELDER CARE

Teran J. Gall, DDS

OF THE CALIFORNIA DENTAL ASSOCIATION
Journal
CDA Journal
Volume 27, Number 9
SEPTEMBER 1999

DEPARTMENTS

FEATURES

CDA JOURNAL, VOL 27, Nº9

Reflections on the 'New' Environment

Jack F. Conley, DDS

For much of the 20th century, dentistry was looked upon as a cottage industry. The 1990s have seen considerable change to that image, and recent developments suggest that dentistry, not unlike its relatives in the health care arena, has been undergoing considerable transformation as the 21st century appears on the horizon.

While recent surveys of dental practice will show that the majority of dentists still function in solo practice settings, increasing numbers of dentists are functioning as employees or in multidentist modes of practice. Managed care and other contract plans and dental management service organizations are among the forces that have been reshaping the dental practice environment that at one time was labeled "private" dental practice. Solo practitioners who have valued their autonomy and privacy often agonize over the changes in the practice environment that have been stimulated by regulatory agencies and third parties. At the same time, a criticism frequently leveled at private practice is that is has resulted in isolation for many practitioners.

A positive force in the reduction of the isolation has been the increased access to information and communication resources. The individual practitioner can have immediate access to new information and an additional method of patient communication through the Internet. ADA Online and CDA Online offer invaluable information resources for dentists, as do other health care information-oriented web sites designed for dentists. At the same time, web sites that are accessible to the general public challenge the independent practitioner to stay current with information resources that educate the dental consumer at levels never before possible. While we have not had access to data showing the utilization level by dentists of the new technologies, there is a suspicion here that dentist interest in using online resources (as a group) may lag behind that of other groups of small business owners. From several sources, we know that many physicians use e-mail to communicate with patients on a daily basis. With time, we expect dentists to increase their reliance on Internet resources, which will further distance practitioners from the negatives attributable to the isolation of the solo practice environment.

Two recent events may have significance as we consider what further changes might affect the dental environment in the first decade of the 21st century. We refer to the American Medical Association's decision to form a national collective bargaining unit and the American Dental Association's support of a proposed Quality Health Care Coalition Act (HR 1304), which was introduced this spring.

The differences between medicine and dentistry have been frequently documented, although the environmental factors influencing health care in general tend to be similar in the two professions. In the instance of the recent

AMA action, the increasing numbers of patient care physicians who now serve as institutional employees (slightly more than one quarter) was a major factor influencing the decision. While the dental environment has not yet changed as significantly as the medical environment (there is less HMO activity and fewer employees in dentistry), there has been a frustration in dentistry for many years with the intrusions from outside that might be more readily addressed and eased if dentists were to have greater freedom to discuss and negotiate fees. Without the pressures brought forth by a large employee population in dentistry, it would appear that our profession will not be considering a collective bargaining unit any time soon, which leads us directly to the other recent activity of note.

The American Dental Association was supporting HR 1304 as of mid-July. This bill, which was introduced by California Rep. Tom Campbell, would relax antitrust laws and allow self-employed health professionals to negotiate contracts collectively with health plans. While some association members are undoubtedly critical of support for such an activity because they view it as a further erosion of professionalism, the ADA believes that successful legislation could reverse current antitrust laws that have been unfairly preventing health care providers from discussing fee information when negotiating with health plans. The threat of antitrust violation has compromised the efforts of professionals to achieve better plans that benefit patients.

The ADA House has taken positions of support for antitrust reform for more than two decades. In June of this year, the state of Texas implemented the first state law granting health professionals the right to jointly negotiate fees and terms of health plan contracts. These activities illustrate the ever-changing nature of the environment for professional practice. While threatening to some, the increasing notion that professionals can and must work more closely together to bring about the desired level of care is nonetheless a positive, progressive step. In the past and present, the threat of antitrust violation and a practice concept that has nurtured isolation have probably minimized the influence that the organized professions have had on health care decisions.

A few months ago, we were reminded of a reality that we often take for granted. This reality was that the 20th century has seen some truly remarkable advancements. A vehicle that emphasized that point to us was a film tracing man's first efforts to fly, starting with the Wright Brothers in the first few years of this century. By the mid-1980s, we had seen development of the highly advanced Stealth B2 bomber and ventures into space that could not have been imagined in 1900. The aforementioned information technology explosion and the dentistry-specific technologies of recent years have brought similar exceptional possibilities for change to the dental profession. The changes in the dental environment in the 1980s and '90s have clearly moved the profession out of the cottage industry environment in which it existed in 1900 and the better part of this century. And, as we look into the future, the possibilities for professional networking and communication are largely untapped and infinite. The new generation of dentists brings a higher level of computer literacy that will lead in a few short years to a new curiosity and, thus, to a higher level of utilization of information technology in dentistry than has been possible heretofore.

Add to all of these extraordinary advancements the potential for future legislative change and technological advancement, and the independent dental practitioner of the future will no longer face the isolation that often occurred in the "old" environment for dental practice that is familiar to many practitioners who are still active today.

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Engineers on the Research Train

By David G. Jones

A new research program in Northern California may break new ground in improving tissue repair and maintenance of tissue integrity.

One of six studies funded by the National Institute of Dental and Craniofacial Research, the project is designed to help develop greater understanding of how to engineer better tissue repair. Researchers hope to use what is learned to improve people's oral, dental, and maxillofacial health.

The California study, funded at $1.5 million for each year of the five-year research program, is being managed by the University of California, San Francisco, School of Dentistry.

Caroline Damsky, PhD, is a professor of stomatology at the UCSF dental school. She is also director of the Comprehensive Oral Health Research Center of Discovery.

"The idea is to speed the path from the research bench to the chairside," Damsky says. "NIDCR asked us to choose a theme for our research and approach it from the perspectives of basic and clinical research, treatment, prevention, and community outreach. We chose tissue repair and maintenance of tissue integrity -- including 12 projects in all -- from basic research to behavioral science, all related to the theme. Our goal is to enhance oral/craniofacial tissue repair and to prevent deterioration of these tissues."

Ann Sandberg, PhD, is chief of NIDCR's Neoplastic Diseases branch and has shepherded 22 grant applications through the receipt, review, and award process.

"We're looking to try to understand mechanisms of oral and craniofacial diseases and disorders, and identify mechanisms to either intervene or prevent them," Sandberg says. "All of the projects we fund are geared to finding the answers and applying them so they can be applied to mainstream oral, dental, and craniofacial medicine. The goal certainly would be to improve the oral, dental, and craniofacial health of the nation."

"Each of the six research centers selected nationwide has to have an institutional sponsor, so as the host institution, the majority of individuals participating in the research are faculty of the dental school or UCSF," says dental school Dean Charles N. Bertolami, DDS. "And we're also using a lot of their expertise in these research areas."

The research is being performed by a team of 35 -- including principal investigators, co-investigators, graduate students, postdoctoral fellows, and hygienists -- all working on a dozen fronts simultaneously.

"On the prevention side, for example, we're looking at improved risk-assessment and prevention for early childhood caries, and certain types of TMD," Damsky says. "From the clinical research side, we're investigating fracture repair and improving restoration of damaged or missing tissues resulting from trauma or congenital anomaly. And we also want to gain a better understanding of oral maxillofacial issues."

One example of the research set to begin is a project on early childhood caries prevention, managed by Associate Center Director Jane Weintraub, DDS, MPH.

"We're trying to find out ways to prevent early childhood caries and, in particular, to test the efficacy of fluoride varnish in preventing early childhood caries," says Weintraub, who is also currently interim co-chair of the Department of Dental Public Health and Hygiene, and chair of the Division of Oral Epidemiology. "We'll do a randomized clinical trial on very young children, 6 to 36 months old, and follow them for two years, and at two different sites specializing in populations especially vulnerable to early childhood caries."

The early childhood caries project is an example of how it and the other 11 center projects fit into the center's overall theme.

"Our overall theme is enhancing tissue integrity," Weintraub says, "so here we're talking about applying the varnish to try to prevent disease to preserve the enamel. We'll also look at biological and chemical salivary markers as well as behavioral and demographic factors to see if they are predictors of caries."

Bertolami says that when the NIDCR in the past supported research programs, it was enough to make a proposal, receive the funding, do the work, and publish the results.

"That's no longer the case, because we're now held to a higher standard," he says. "Rather than hoping that someday someone will pick it up and find a practical application, the outcome is expected to translate into practical benefit."

Damsky, like Bertolami, wants to see the data from basic research lead to more translational and clinical research.

"We hope that risk assessment projects will lead to more effective screening for oral and dental disease, and that the prevention and education projects will lead to a reduction in destructive behaviors that affect tissue integrity," she says.

Bertolami says that the center approach better organizes the research to accelerate the transition from the bench to the chairside.

"What I see the centers doing is organizing the process in a way that makes it more likely that discovery can be developed and applied sooner than in the case of a more informal or less organized fashion that has usually been the case in the past," he says.

Steven G. Detsch, DDS, CDA's chair of the Council on Dental Research and Developments, is excited about what the study could portend for the practice of dentistry and oral health.

"The types of research being done on tissue repair and regeneration could revolutionize the practice of dentistry as we know it," he says.

A Dose of Information Is Good Fluoride Prescription

With all the talk and activity in the state regarding the benefits of fluoridation, dental professionals may need a refresher on when and in what dosage fluoride supplements should be prescribed for children.

Before prescribing supplemental fluoride, the dentist will need to know several things about the child's current fluoride intake. A thorough history can provide that information, and the dentist should query several areas. Is the child drinking bottled water and, if so, is it fluoridated? Is the child taking prescribed supplemental vitamins from his or her pediatrician and, if so, are they supplemented with fluoride? Does the child live in a fluoridated community and, if so, is he or she drinking tap water or is his or her formula prepared with fluoridated water? Does the child live in a suboptimally fluoridated community and, if so, what is the fluoridation level of the child's drinking water? The local water district is the authority responsible for carrying out fluoridation and therefore should know the fluoride ion level in its water. Well water can be tested for fluoride by the county health department.

Once the level is known, a dentist can use the accompanying chart from the ADA Council on Access, Prevention and Interprofessional Relations to determine the appropriate amount to prescribe. The National Academy of Sciences through its National Research Council, the U.S. Public Health Service, and the Institute of Medicine's Dietary Intake Reference manual all recognize that there are numerous sources of fluoride intake in food materials as well. Having taken that into consideration, the following chart will provide you with the recommended supplementation guide for children age birth to 16 years.

Spend some time talking with your patients about the proven dental health benefits of fluoride. Reinforce the concept of supervised brushing with fluoridated toothpastes for toddlers up to age 4. Educating your patients and their parents will help clear the misconceptions that are being thrown around by a small, poorly informed group of nay-sayers about the purported harmful effects of properly prescribed fluoride supplements and optimally fluoridated drinking water.

Give a Hand to the Basics

It's the most basic infection control measure in the health professional's arsenal, but that probably makes hand washing one of the easiest to overlook.

Hands have long been recognized as one of the most important carriers of microorganisms in the spread of disease, but proper hand washing techniques can significantly reduce this risk, according to the Organization for Safety & Asepsis Procedures publication Focus, No. 3, 1998.

OSAP offers the following reminders on properly washing hands:

- Wash hands before and after donning gloves.
- Consider skin sensitivities and allergies when selecting a hand washing agent.
- Use a thorough surgical scrub at the beginning of the clinic day.
- For subsequent washing, lather for about 15 seconds.
- Don't wear jewelry, and keep nails short.
- Clean under nails.
- Direct particular attention to the thumb and fingertips.
- Rinse with cool to lukewarm water.
- Use disposable paper towels to dry hands.
- Use the towel to turn off the faucet.
- Dry hands completely before donning gloves.
- Maintain epithelial integrity. Dry, chapped hands can make a person more susceptible to infection.

The center's research program studies include:

Bone remodeling and repair
Tissue engineering
Structural properties of dentin
Periodontal bone loss
Childhood caries
Prevention of the destructive effects of smoking
Better evaluation of treatment outcomes for cleft lip and palate
Increased understanding of the etiology of certain TMD
Health care provider education on the prevention of domestic violence

Lead Linked to Increased Caries

Environmental lead exposure is associated with an increased prevalence of dental caries in the U.S. population, especially among poor and disadvantaged children, according to a study in the June 23/30 issue of the Journal of the American Medical Association.

Mark E. Moss, DDS, PhD, of the University of Rochester School of Medicine and Dentistry in Rochester, N.Y., and colleagues studied 24,901 people age 2 and older who participated in the Third National Health and Nutrition Examination Survey to examine the relationship

between blood lead levels and dental caries.

The researchers report that the blood lead level was significantly associated with the number of affected surfaces (decayed, missing, or filled) for both deciduous teeth and permanent teeth in all age groups, even after adjusting for sociodemographic characteristics, diet, and dental care. Among children aged 5 to 17 years, a 0.24-µmol/L (5-µg/dL) change in blood lead level was associated with an 80 percent elevated risk of tooth decay. The researchers estimate that for the general population, 13.5 percent of the tooth decay among 5- to 17-year-olds is attributable to high levels of lead exposure and 9.6 percent of the tooth decay is attributable to moderate levels of lead exposure.

The researchers note that a recent study showed that family income level was particularly linked with the proportion of children having decayed teeth.

"The results of the present analyses suggest that environmental lead exposure may explain, at least in part, the disproportionately high rate of dental caries among disadvantaged children and adolescents," the authors write.

But this study suggests that the association between poverty and tooth decay is only partially explained by lead exposure. The authors add that they cannot demonstrate conclusively that environmental lead exposure is causally linked to dental caries on the basis of observational data alone.

Study Shows Discrepancy in Level of HMO Care

Investor-owned health maintenance organization plans had lower rates for all 14 quality-of-care indicators studied when compared with not-for-profit HMO plans, according to an article in the July 14 issue of the Journal of the American Medical Association.

David U. Himmelstein, MD, from Cambridge Hospital/Harvard Medical School in Cambridge, Mass., and colleagues reported on quality-of-care data from the National Committee for Quality Assurance's Quality Compass 1997, which included the Health Plan Employer Data and Information Set and HMO accreditation surveys. These data reflect 1996 plan characteristics and performance for 329 HMO plans (248 investor-owned and 81 not-for-profit) in 45 states, representing 56 percent of the HMO enrollment in the United States. The authors examined all 14 of the NCQA's "Effectiveness of Care" variables and found that investor-owned HMO plans had lower rates for all 14 indicators. The largest differences in quality-of-care rates were in two indicators for patients with serious medical illnesses, namely treatment following hospitalization for myocardial infarction and diabetes mellitus.

The cost per HMO member per month averaged $128 in investor-based owned plans as opposed to $127.50 in not-for-profit plans, according to the authors. The percentage of revenues spent on medical and hospital services averaged 80.6 percent in investor-owned plans and 86.9 percent in not-for-profit plans.

"Hence, spending on profit and administrative overhead was about 48 percent higher in investor-owned plans (19.4 percent versus 13.1 percent for non-profit plans)," according to the authors.

The data showed that investor-owned HMOs reported lower rates than not-for-profit HMOs for all 14 quality-of-care indicators. Among them were:

- Beta-blocker use by patients discharged from the hospital after myocardial infarction with no evidence of contraindications to beta-blocker agents: 59.2 percent of members in investor-owned HMOs and 70.6

Teaming Up Works

While no two dental practices are exactly alike, they can all benefit from following team-building principles as suggested by Sandy Roth, dental communications consultant and guest columnist in Focus on Ohio Dentistry, April 1999.

Roth writes that some predictors of success are easily overlooked because they seem too small to be of interest. However, it is difficult to be successful if these areas are disregarded, Roth writes. These areas of teamwork include:

No secrets. Everyone should know what is going on at all times with the practice, including long-term plans and performance expectations.

No whining. Each team member must accept his or her role in every interaction and participate in solving problems.

No politics. Everyone is entitled to the same level of respect and opportunity. The days of playing one group against another are gone.

No surprises. The staff should be involved in budgeting, production goals, and cost controls.

No distractions. Personal problems and issues should be left at the door, and heart-to-heart discussions should be saved until after clinical hours.

No confusion. The whole staff should be familiar with equipment operations, financial procedures and anything else important to the practice. Internal processes should be documented and training frequently reinforced.

No waste. Everyone must be careful with the business's resources, including time. Little things add up.

percent of members in not-for-profit HMOs.

- Of patients with diabetes who are receiving insulin or an oral hypoglycemic agent: 35.1 percent of members in investor-owned HMOs had annual eye exams and 47.9 percent of members in not-for-profit HMOs had annual eye exams.
- Overall immunization completion rate for 2-year-olds (includes diphtheria pertussis tetanus, oral poliovirus, mumps measles rubella, Haemophilus influenza type B and hepatitis B immunizations): 63.9 percent of members in investor-owned HMOs and 72.3 percent of members in not-for-profit HMOs.
- Mammography performed within two years for women aged 52- through 69-years-old: 69.4 percent of members in investor-owned HMOs and 75.1 percent of members in not-for-profit HMOs.
- First trimester prenatal care rate: 83.1 percent of members in investor-owned HMOs and 88.5 percent of members in not-for-profit HMOs.

Misery Times 2: Money Worries, Dental Caries

High levels of financial stress and poor coping abilities increase twofold the likelihood of developing periodontal disease, according to a study in the July 1999 issue of the Journal of Periodontology.

After accounting for other risk factors -- such as age, gender, smoking, poor dental care and diabetes -- those who reported high levels of financial strain and poor coping behaviors had higher levels of attachment loss and alveolar bone loss than those with low levels of financial strain.

"Financial strain is a long-term, constant pressure," said Dr. Robert Genco, chair of the Oral Biology Department at the State University of New York at Buffalo and behavioral scientist Dr. Lisa Tedesco, of the University of Michigan. "Our studies indicate that this ever-present stress and a lack of adequate coping skills could lead to altered habits, such as reduced oral hygiene or teeth grinding, as well as salivary changes and a weakening of the body's ability to fight infection."

However, people who dealt with their financial strain in an active and practical way (problem-focused) rather than with avoidance techniques (emotion-focused) had no more risk of severe periodontal disease than those without money problems.

Venerable Customer Shows Satisfaction with UOP -- $1 million

The estate of Nada Konrad recently donated $1 million to the University of the Pacific School of Dentistry.

Konrad met her future husband when she was his patient at the College of Physicians and Surgeons (now UOP) in the 1920s. In the 1990s, she returned to the school as a patient in the dental clinic.

"She had the financial means to go to any dentist in the city," said Dr. Ronald Borer, associate dean for Clinical Services. "Nada chose to come back to the 'dental college' (as she referred to it) because she loved the idea of being cared for by a student dentist."

Konrad made the donation in the name of her late husband and son. Earnings from the Dr. and Mrs. Arthur C. Konrad and Mr. Vernon R. Liewald Scholarship Endowment will fund scholarships for dental school students.

Nada Konrad died in 1995 at the age of 92. Her bequest was given to the school in May 1999 after the death of her only living relative, her twin sister Vada.

Honors

Judith R. Babcock, director of Dental Affairs for the California Dental Association, has been honored with the 1999 Allied Service Award from the Northern California Section of the Pierre Fauchard Academy. She is the first recipient of the award.

Web Watch

Pages of interest to dentistry.

http://www.ncbi.nlm.nih.gov/PubMed/

Free searches of Medline.

http://www.cdc.gov/

The web site for the Centers for Disease Control and Prevention. A search for "dental" will bring up hundreds of documents, including infection control guidelines.

http://www.dir.ca.gov/DIR/OS&H/occupational_safety.html

Dietary Fluoride Supplement Schedule 1994

Approved by the American Dental Association, American Academy of Pediatrics, American Academy of Pediatric Dentistry.

Age	Fluoride ion level in drinking water*		
	<0.3 ppm	0.3-0.6 ppm	>0.6 ppm
Birth – 6 months	None	None	None
6 months – 3 years	0.25 mg/day**	None	None
3 – 6 years	0.50 mg/day	0.25 mg/day	None
6-16 years	1.0 mg/day	0.50 mg/day	None

* 1.0 part per million (ppm) = 1 mg/l

** 2.2 mg sodium fluoride contains 1 mg fluoride ion.

Reprinted with permission from American Dental Association, Council on Access Prevention and Interprofessional Relations. Caries diagnosis and risk assessment: a review of preventive strategies and management. J Am Dent Assoc 126(Suppl), 1995.

Cal/OSHA's site. Clicking on "Publications" will lead to the Bloodborne Pathogens Regulatory Update.

http://www.nidr.nih.gov/

Web site for the National Institute of Dental and Craniofacial Research.

http://www.toothfairy.org/

Basic consumer information on dental hygiene, plus an e-mail link so kids can write to the Tooth Fairy.

A listing here does not constitute endorsement by the California Dental Association. As is the case with all web sites, content is subject to frequent change.

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Geriatric Dentistry: Is It a Hope or a Challenge?

By Barnet M. Levy, AB, DDS, MS

AUTHOR

Barnet M. Levy, AB, DDS, MS, is a special lecturer in geriatric dentistry at Columbia University School of Dental and Oral Surgery and the University of Medicine and Dentistry of New Jersey. He is also professor of pathology emeritus at the University of Texas at Houston Dental Branch

In 1967, as a response to the demographic changes indicating an aging population, Dr. A. Elfenbaum, along with such leaders and "gerodontists" as Saul Kamen and Sidney Epstein, founded the American Society of Geriatric Dentistry. At the time, there seemed to be some interest in the emerging field of geriatric dentistry; but some 32 years and several journals later, interest appears to be fading. In this short essay, how the demographic transformation of our population might impact the health, especially the oral health, of our people will be briefly discussed. On the way, a few myths about older people will need to be dispelled.

To consider all people over the age of 65 years as a homogenous group called "the elderly" is about useful as grouping birds and butterflies because they both have wings. Yet, we have gone even a step further. We now have subgroups labeled the new old, old, old old, and oldest old. Labeling groups this way has damaging consequences for individuals and society. It misleads many older people into premature withdrawal from prime-time life. People who are or were actively contributing to society durin g their later years – such as Pablo Picasso, George Burns, Pablo Casals, Anton Rubinstein, Count Basie, Jascha Heifetz, Grandma Moses, Michelangelo, George Bernard Shaw, Eubie Blake, Alberta Hunter, and Lena Horne – and millions of frail, fragile, terminally ill elderly people do not make a class. All "old" people are not alike.

Myth – old means poor. All elderly American women are not bag ladies

roaming the street. All elderly men are not retired, in wheelchairs, and playing checkers in rest homes. Twenty percent of American households are headed by people older than 65. They own 40 percent of the nation's personal assets. One of three people older than 65 own his or her own home, most of them without a mortgage. This does not mean that all old people are rich. Many are sick and poor. The point is, those older than 65 do not form a special economic class.

So, how big a group is this?

In 1900, there were 10 to 17 million people older than 65 on our planet. That was less than 1 percent of the world's population. By 1992, there were 362 million people in that age group, or 6.2 percent of the population; and by 2050, the number is estimated to expand to at least 2.5 billion, or 20 percent of the population. That's the global view.

Nationally, in 1994, 33.2 million, or 12.7 percent, of the U.S. population was older than 65. It is estimated that the number of people older than 65 will almost triple by the year 2005; and those older than 80, the fastest growing segment of the U.S. population, will show a 200 percent increase.

It is also estimated that "elders" will make up about 80 percent of a dentist's practice.[1,2] Their treatment will not be limited to full dentures. As leaders in the field of health care, what do we offer governmental and societal planners as options to the tripling of our elderly population? Do we advise them to triple the number of nursing homes? Educate three times as many nurses? Three times as many dentists? Three times as many physicians? There must be better options.

We have failed to recognize the environmental aspect to healthy aging. The health of our population, especially the elderly, is intimately related to their physical, psychosocial, and socioeconomic environments. Health, especially in the elderly, is a reaction to the environment, just as disease is a reaction to injury.

Periodontitis is a good example of the interaction of the internal environment with the external environment and how the disease might differ with age. Periodontitis is, in all probability, an immune reaction to bacterial injury. Many, but not all, investigators have shown that the immune system in elderly animals, including man, is depressed or markedly changed. The thymic arm of the immune system is especially reduced. Some 13 years ago, I asked the question, "Is periodontitis a disease of the aged?"[3] Today I might view it differently and ask: "Is periodontitis in the aged the same as periodontitis in the young?"

In the mid 1980s, both Page[4] and I[3] pleaded for more data on periodontitis of the aged. There is still a pressing need for careful studies of the disease in various age groups and in individuals of varying ethnic background. To repeat[3] "The challenge to dentistry and dental science is in the development of investigative teams anxious to work together on the oral biology of aging and the aged." The challenge is still there. Can we meet it?

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CDA JOURNAL, VOL 27, Nº9

The Future of Dental Care for the Elderly Population

Ronald L. Ettinger, BDS, MDS, DDSc, and Roseann Mulligan, DDS, MS

ABSTRACT The U.S. population is aging, and they are maintaining many of their natural teeth. Studies have shown that if older people have teeth, they tend to utilize dental services to a similar extent as younger cohorts. Geriatric dental care is the diagnosis, treatment, and prevention of dental and oral diseases for all older adults. A functional categorization of the aging population is more useful in dentistry than a chronological one, and 70 percent of this population, or 23.2 million people, is able to visit a dentist in his or her office. The oral health care of older adults has become more challenging because they will no longer accept extraction and dentures as a solution to complex restorative needs. This paper discusses these issues and looks at the future of geriatric dental care.

AUTHORS

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Roseann Mulligan, DDS, MS, is professor and chair of the Department of Dental Medicine and Public Health at the University of Southern California School of Dentistry.

Too often, dentists misunderstand the breadth and depth of geriatric dental care to the extent that some colleagues in private practice commonly say, "I have no interest in going to a nursing home, so I don't have an interest in geriatric dentistry."

The Elderly Population

The 20th century has been witness to dramatic changes with regard to the health, disease, longevity, and mortality of the U.S. population. We are becoming an aging society. In 1900, 4 percent of the population (3.1 million people) was 65 or older; and by 1998 that number had grown to 12.7 percent (34.3 million), a more than tenfold increase.1 Although the number and percentage of adults older than 65 is growing, it is important to remember that heterogeneity is probably greater among people 65 and older than among people of any other age grouping.[2] The vicissitudes of life cause people to become different from each other; yet all too often people 65 and older are considered one homogeneous group when program planning or data analysis are being designed.

Elderly people are a complex combination and expression of their individual genetic predispositions, lifestyles, socialization, and environments, all of which affect their health beliefs and, consequently, their health behavior. To understand an individual patient's attitudes, the dentist must evaluate the cultural, psychological, educational, social, economic, dietary, and chronologically specific cohort experiences that may have

influenced that patient's life. Similarly, oral status is affected by these same factors and is the sum of an individual's life experiences with dental care, as well as with caries, periodontal disease, and iatrogenic disease. Oral status also reflects a history of the person's behavioral attitudes and expectations for his or her own oral health. The skills, attitudes, and philosophies of the various dentists that people have seen will also affect their oral status.3 The oral health care of older adults is called geriatric dentistry and includes but is not limited to the diagnosis, treatment, and prevention of caries and periodontal disease as well as oral mucosal diseases; head and neck pain; salivary dysfunction; disorders of removable prostheses; and impaired chewing, tasting and swallowing.

In the not so recent past, the elderly made up a relatively small proportion of the population; the majority of these people were edentulous and utilized dental care infrequently and then only when previous unmet needs could no longer be ignored.[4,5] However, there is now ample evidence to show that new elderly dental consumers have emerged who are better educated, are more politically aware, and have some remaining teeth. The most recent national data (1995-97) indicates that 26.7 percent of people 75 or older are edentulous, whereas the younger elderly (65 to 74) have an edentulism rate of 22.9 percent.6 In California, these rates are even better with 18.4 percent of those 75 or older being edentulous and 14.9 percent of those 65 to 74 being without teeth.[6] As dental patients, these people have a wider range of needs and expectations than younger patients and are demanding a greater variety of services.[7] It is no longer appropriate to equate geriatric dental care with denture care because it also includes complex restorative procedures, esthetic dentistry, and implants.

Until recently, the elderly have been defined as a cohort of people 65 years or older. However, a chronological definition of the aging population is not particularly useful in dentistry. Rather, a functional definition, based upon an older individual's ability to seek services, seems more appropriate. The aging population can be functionally categorized into three distinct groups.[8]

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

The majority of older adults (95 percent) live in the community; of these, it is estimated that about 5 percent are homebound and another approximately 17 percent have a major limitation in mobilization because of a chronic condition. This still leaves about 70 percent of the population 65 or older who are living in the community and able to go to a dental office.[9] Caring for these people is also geriatric dentistry. Nationwide, this translates into 70 percent of 32.2 million people or 23.2 million elderly who need dental services. California, the most populous state, has more than 3.5 million people 65 or older,10 many of whom are likely to need dental services.

Use of Dental Services

There is an increasing number of dentate older adults seeking dental care. In recent years, the number of dental visits by this population and the cost of care they require has increased. Data from a national health study11 during 1985-86 indicated that 58.5 percent of employed adults age 18 to 64 had visited a dentist within the past 12 months, while 54.5 percent of dentate adults 65 or older had visited a dentist in the same period. However, only 13 percent of edentulous adults 65 or older had such a visit. The majority (62.2 percent), of these edentulous older adults had not used the services of a dentist for at least three years. Therefore, older people with some natural teeth were using dental services in a manner similar to employed adults during 1985 and 1986. It seems that the differences in utilization of dental health services that have usually been attributed to aging are instead related to the absence of a natural dentition. It has also been shown that the value older adults place on dental care seems to influence utilization more than any other factor, including ability to pay for care.[12,13] A demonstration program in Minnesota[14] designed for low-income adults living independently with an 80-20 cost sharing, found that 67.4 percent utilized the service within a two-year period. All services except removable prosthodontics showed decreased utilization with increasing age. Another study15 examined dental service utilization by independently living adults in private practice and showed that older adults sought dental services at rates greater than those expected by their representative percentage. It was also reported that "patient visits by older adults generated, on average, as much or more income than did visits by individuals from any other age grouping."[16]

The United States, like a number of other aging industrialized societies, can be characterized by the fact that it has a decreased caries rate in children and an increasing coronal and root caries rate in the aging population. Incidence data (Tables 1 and 2) shows that people 65 and older have more caries than children under 14 years of age living in a nonfluoridated area.[17-23] As might be expected, the percentage of teeth with decayed or filled root surfaces increases with each decade of adulthood, affecting more than half of all teeth present by the age of 75.[24] Dentists cannot afford to ignore older adults by not

TABLE 1

Coronal Caries Incidence

	Years of Study	Age of Subjects	Incidence Rate (%)	Mean Net Increment (DFS)	
Bohannan et al. (1985)[17]	4 years	6-10		0.41	(fluoridated)
	6-10			0.57	(unfluoridated)
	10-14			0.59	(fluoridated)
	10-14			1.06	(unfluoridated)
Hand et al. (1988)[16]	3 years	65+	64.9%	2.4	
Drake et al. (1997)[19]	3 years	65+	59.0%	2.1	
Hawkins et al. (1997)20	3 years	65+	53.2%	1.5	

TABLE 2

Root Surface Caries Incidence

	Years of Study	Age of Subjects	Incidence Rate (%)	Mean Net Increment (DFS)	
Ripa et al. (1987)[21]	3 years	45-65	32.0%	0.28	
Hand et al. (1988)[18]	3 years	65+	43.0%	0.36	
Lawrence et al. (1995)[22]	3 years	65+ White	39.0%	0.80	
		65+ Black	29.0%	0.55	
Locker (1966)[23]	3 years	65-74	26.4%	0.59	
		75+	47.8%	0.91	

practicing geriatric dentistry.

As more older people age and keep more natural teeth, the complexity of their treatment will increase.[25] Thus, their treatment will depend directly upon their self-perceived need for care and their financial ability to pay for that care, rather than a need detected during an oral examination.[26] A 1994 study27 of New England elders 70 and older found an 85 percent prevalence of periodontal pocketing with a mean of 5.3 teeth involved and 95 percent prevalence of moderate to severe loss of attachment with a mean of 6.7 teeth involved. Yet, more than 75 percent of these same elders stated that their oral health was good or excellent, and 65 percent did not perceive that they had a need for care. Once an individual seeks care, the treatment offered will depend upon the dentist's training and his or her attitude toward the replacement of missing teeth, the extraction or maintenance of teeth with a poor prognosis, and the retreatment of teeth that have previously been heavily restored. A key component of the risk benefit assessment a dentist practicing geriatric dentistry should make is, what level of treatment is possible, and will the older patient have the ability to maintain oral hygiene independently or with help. Many older adults have never been taught how to adequately clean their dentition. Also, older adults often do not understand that the primary function of tooth brushing is to reduce plaque levels in the mouth. Many others have not had their mouths professionally cleaned or, if they have, only infrequently.[5]

Many older people are likely to have chronic diseases – e.g., arthritis, diabetes, cardiovascular disease – at increasing rates with increasing age and as a result be on an ever-expanding variety of medications. These chronic conditions can affect a person's quality of life, especially their ability to eat, speak, taste, and swallow; but they can also cause significant pain and discomfort. For instance, diabetics can experience severe periodontal disease, delayed wound healing, and susceptibility to candidiasis. Apart from the influence of the diseases, many systemic drugs can frequently cause adverse effects to the oral mucosa, such as hyposalivation. The patient may also experience xerostomia, bleeding disorders of the tissues, lichenoid reactions, tissue overgrowth, and/or hypersensitivity reactions.[28-31]

No overview about geriatric care can be complete without the inclusion of the effect of cancer on this population. In the United States, the estimated incidence for oral and pharyngeal cancer for 1998 was predicted to be approximately 30,750 new cases and 8,440 deaths.[32] The majority of these people are in the 55- to 74-year-old age group. Approximately 11 percent of all oral and pharyngeal cancers that occur in the United States are diagnosed in California patients.[33] Therefore, an annual oral examination of the soft and hard tissues must be incorporated as a routine preventive measure for all elderly people.

Summary

It is clear that the aging population is growing and that these older adults have more teeth and more oral problems that will make treatment increasingly difficult and complex. Dentists need to continue to look for better ways of handling the

disease presentations they find in this population. The following information is for practitioners, researchers, legislators and academics to consider as they continue to care for the expanding population of elderly patients in the United States.[34]

1. The influence of chronic systemic diseases such as cardiovascular disease, diabetes, and rheumatoid arthritis and their treatment on oral health and dental treatment has become more significant and will further complicate dental treatment decision making.

2. The dental health care system is moving toward managed care; and since prevention is cheaper than treatment, the skills to diagnose and treat caries and periodontal disease and other oral conditions (e.g., cancer, xerostomia) early will need to be developed and implemented.

3. Douglass and Furino[35] have predicted that the number of edentulous people will not decline, although their percentage in the population will. Nevertheless, these edentulous people will be older than the dentate community, have lower educational and socioeconomic backgrounds, and will have been edentulous longer and therefore be difficult to treat. General dentists may need extra training in diagnostic and technical skills to treat these individuals.

4. Periodontal disease will remain a problem for older adults. However, the "at risk" person cannot as yet be identified and more reliable predictive diagnostic tests are needed.

5. More natural teeth are being retained, and many of these teeth have large restorations that are at risk of fracture or recurrent decay. Restorative dentists will need to develop innovative and cost-effective ways of restoring teeth for older adults other than crowning the teeth.

6. Implants and fixed prosthodontics may be the treatment of choice in many situations. Clearly, the cost of care for these treatments must be dramatically reduced or the edentulous space will either not be restored or be restored with a removable prosthesis.

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CDA JOURNAL, VOL 27, Nº9

Doing the Right Thing: Resolving Ethical Issues in Geriatric Dental Care

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ABSTRACT This article reviews key ethical concerns facing dental professionals caring for older adults and offers guidelines for resolving them. Approaches to securing informed consent for treatment and assessing decision making capacity are discussed. Next, the question of deciding among several treatment options when patient preferences are unknown is considered. Finally, guidelines are offered on restraint use for older adults with behavioral problems.

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The "graying of America" is bringing more and more older patients into dental offices and more and more dental providers out into the community to reach those unable to access traditional dental practices. Along with the many challenges dental professionals will face in caring for this rapidly growing segment of the population, they will increasingly confront a number of difficult moral choices now more common in the health care of older adults. These ethical and legal issues have been recognized by physicians and other health care providers for some time.[1-4] Their relevance to the practice of dentistry is also a matter of growing concern.[5-7]

When providing care for older adults, significant chronic illnesses and functional impairments are more prevalent, raising challenging questions about the appropriate intensity of care and choice of treatment when several options exist. The same chronic illnesses and impairments, especially those affecting cognitive function, also frequently provoke questions about the capacity of the patient to make treatment decisions and how to secure adequate informed consent. Dental providers caring for older adults may also face more behavior management issues due to adult-onset neurological problems such as dementia and stroke, which then lead to questions about the appropriate role of restraints in providing dental care.

This article reviews some key ethical concerns facing dental professionals caring for older adults and offers guidelines for resolving them. Approaches to securing informed consent for treatment and assessing decision making capacity are discussed. Next, the question of deciding among several treatment options when patient preferences are unknown is considered. Finally, guidelines are offered on restraint use for older adults with behavioral problems.

CDA JOURNAL, VOL 27, Nº9

TABLE 1

Roles of Patients and Clinicians in the Consent Process Based on Competence and Decision Making Capabity

Patient Status	Examples	Patient Role	Clinician Role
1. Competent with decision making capacity	Most adults	Guides all decisions.	Involves patient in all decisions.
2. Competent with no or questionable decision making capacity.	Adults with late-onset mental impairment (e.g., dementias)	Guides decisions to extent permitted by diminished capacity.	Involves patient to extent possible; is sensitive to possible fluctuating capacity, Involves surrogates, family, other loved ones. Solicits physician input if needed. Plans elective care according to patient values via "substituted judgment." In serious emergencies, provides care in a best interest of patient if other input unavailable. Solicits input from ethics committee, then the courts if serious lack of consensus exists over treatment.
3. Incompetent	Adults with moderate to severe mental retardation, psychiatric disorders.	Participates in care to extent possible.	Acknowledges patient. Involves those patients for whom there is potential for return to independence (e.g., transient psychiatric disturbance). Authorizes all treatment decisions with legal guardian. In serious emergencies, provides care in best interest of patient if guardian is unavailable.

Securing Informed Consent

The process of informed consent is the primary mechanism for protecting patient autonomy in treatment decisions.[6] Informed consent is a process that educates the patient about the nature of a particular health problem, treatment options, risks and benefits of those options (including costs and prognosis), and the consequences of not receiving treatment. It is important to note that informed consent involves a discussion that takes place between a patient and his or her health care provider. Informed consent forms that are now available can be helpful to guide such consent discussions but cannot replace them.

To secure informed consent, the patient must be informed, must have a free choice, and must be capable of making a decision.[8] While these elements may not be difficult to address for most older adults who are relatively healthy, significant problems will arise for certain individuals with conditions frequently associated with advancing age. Common medical or mental problems – such as dementia, stroke, psychiatric disorders, or sensory impairment – can affect thought, perception, and communication, limiting the patient's capacity to understand or act upon choices. Some older individuals may also be inappropriately denied an opportunity to make choices because they are erroneously presumed to be incapable. For example, patients with Parkinson's disease or aphasia from a stroke may be excluded from health care decisions because their appearances or manners of communication create erroneous impressions of intellectual impairment. Dental professionals caring for older adults should be mindful of these potential limitations on patients' freedom to choose and must always try to involve patients in decision making to the greatest extent possible.

When a patient is unable to act independently, it does not mean that there is no need for informed consent but that its implementation must be different.[9] To execute the consent process effectively for impaired patients, two concepts must be clearly understood – "competence" and "decision making capacity." Competence is a legal designation that is determined exclusively within the legal system, while decision making capacity is a clinical concept assessed within the health care system.[10] In geriatric care, the high prevalence of conditions potentially affecting the capacity to make decisions requires a careful approach to securing consent that accounts for both legal competence and decision making capacity.

Table 1 summarizes the role of patients, guardians, proxies, and clinicians under varying conditions of legal competence and decision making capacity.

Competent Patients With Decision making Capacity

In obtaining consent for treatment, the first point to remember is that most older adults are both capable of making independent decisions about their care and legally competent to do so (**Table 1**, Box 1). In such cases, the patient should guide all treatment decisions. Occasionally, disabled or elderly patients are inappropriately "labeled" as incapable of making decisions. It is usually best to begin with the assumption that the patient is able to make decisions about care and look for evidence to the contrary, rather than the other way around.

Legally Competent Patients With Impaired Decision Making Capacity

Among the most challenging situations faced by practitioners caring for older adults are those in which a patient's decision making capacity seems impaired due to an acquired mental problem, but the patient has not been legally declared incompetent (**Table 1**, Box 2).[11] This can be especially troubling when the patient is refusing or resisting care. Refusals

of care, resistance, and combativeness could be either manifestations of mental impairment or expressions of an authentic desire to refuse treatment. Although they may appear irrational, they do not constitute proof of impaired decision making.[12] Even when there is evidence of mental impairment that has affected memory, judgment, and reasoning, such deficits are not always absolute and some patient involvement in treatment decisions may be possible and should be encouraged.[13] Unfortunately, however, it is still not unusual to witness discussions in which a health provider ignores an impaired patient who is present, while explaining treatment options and seeking approval from others who also may be in attendance.[14]

When decision making seems impaired but the patient has retained legal competence, it is important for the clinician to establish how surrogate decisions should be made and who should serve as a proxy decision maker. It is generally necessary to involve family or other concerned parties in the consent process when a patient's decision making capacity is in doubt.[15,16] Advance directives and durable powers of attorney are increasingly common and can specify a surrogate decision maker.[17] Most states have statutes or court decisions that empower family members to make decisions on behalf of impaired patients leaving no advance directives.[18] Such statutes may also specify the sequence in which family members should be solicited for input (e.g., spouse, children, siblings), so practitioners should become familiar with any applicable laws or legal precedents in their states (**Table 2**). Consultation with the patient's primary care physician can also be important to obtain information about the patient's decision making capacity and to learn how other health care decisions have been or will be made.

TABLE 2

Who Should Decide?
The patient: If competent and capable of making the decision.
A guardian or health care proxy: If the patient is incompetent or unable to make decisions and has an advance directive.
The succession of individuals under state law, if law or legal precedent exists: If the patient is unable to make decisions and no proxy has been identified (e.g., spouse, children, siblings).
The person in the closest loving relationship: If other guidelines cannot be applied.

When there is severe conflict or indecision among health professionals and surrogates over appropriate treatment of an impaired individual despite substantial efforts to achieve consensus, two options should be considered. First, in nursing homes, hospitals, or other institutional settings, an ethics committee may be available to assist in deliberations and help promote a resolution.[19] Second, if all other avenues have been exhausted, the matter can be brought to the legal system for a decision, although the need for this approach should be extremely rare.

Legally Incompetent Patients

Patients whose decision making capacity is significantly impaired and who have been formally declared by the courts as unable to manage their own affairs are designated as "incompetent" and have a guardian appointed for them. Examples may include individuals with moderate-to-severe psychiatric disorders, with mental retardation, or in persistent vegetative states. As indicated in **Table 1**, Box 3, when a patient has been declared legally incompetent, the dental provider must ultimately obtain authorization for treatment from the patient's legal guardian. One exception to this guideline, however, is the immediate need for care due to a serious emergency. Fortunately, situations in which the need for treatment is urgent and a guardian cannot be contacted first are rare in dentistry. Yet when such an occasion does arise, all states recognize that it is reasonable for health professionals to act in the best interest of the patient.[15]

Assessing Capacity to Consent for Treatment

Since informed consent is critically dependent on the patient's capacity to consent to treatment, discerning whether a given patient possesses this ability takes on special importance. While legal standards vary from jurisdiction to jurisdiction, there is general agreement that a patient is considered capable of making a treatment decision if he or she can:

- Understand relevant information;
- Appreciate the situation and its consequences;
- Manipulate information rationally; and
- Communicate choices.20

Clinicians usually assess these skills intuitively before accepting patients' treatment decisions; and, unless the patient displays behavior to the contrary, he or she is usually presumed capable of deciding about treatment. In dealing with the older adult population in which cognitive impairment is more prevalent and often variable in nature, it can be useful to employ a more structured approach for assessment of decision making capacity.

Table 3 (see printed copy of *Journal*) summarizes the four elements of the capacity to consent to treatment and suggests some assessment questions that have been adapted from Appelbaum and Grisso.[7,20] For the dentist, these questions are meant only for the purpose of screening for problems in decision making and as a signal that the patient may

need assistance in the consent process. Evidence of impaired decision making capacity should prompt discussions with family, caregivers, the physician, or others who know the patient. Evidence of a new onset of decisional incapacity suggests the need for a medical consultation to verify whether a problem exists and facilitate future care planning. While implementing this entire structured assessment may not be practical nor necessary in every treatment situation, it may still be wise to ask at least a few appropriate questions of most patients, impaired or not, to verify decisions about treatment and detect decision making problems. However, when the impact of the patient's decision about treatment will be substantial (e.g., on comfort, function, appearance, or finances) the more concern there should be about the patient's capacity to make an informed decision, and the more thoroughly practitioners should screen for problems in decision making. Dental professionals should also bear in mind that recent research now indicates that word fluency appears to be a key predictor of the capacity of a patient to formulate rational reasons for a health care decisions.[21]

It is important to remember that even if a patient displays some limitation in decision making capacity, not all treatment-related decisions may be out of reach since cognitive impairment may not affect all areas of intellectual function uniformly. For example, an individual who no longer can manage finances may still be able to indicate whether he or she would prefer to save a tooth or have it extracted, although assistance may be necessary to make financial arrangements. When attempting to involve cognitively impaired patients in treatment decisions, it is usually necessary to allow extra time for the patient to fully comprehend treatment information. When memory is impaired, frequent reminders will likely be needed for the patient to recall the issues at hand. The presence of a caregiver is often beneficial so that they can repeat and reinforce the information given. Confirmation of treatment decisions after a period of time can also be helpful to ensure authenticity, although it is again dependent on memory.

Choosing Among Treatment Options

In guiding patients through decisions about what dental care is most appropriate for them, practitioners customarily consider factors such as patients' stated preferences, medical status, and financial resources. However, matters become more complicated if the patient's preferences are unclear or unknown due to problems in cognition, communication, or other disabilities more frequently encountered in the older adult population. At such times, questions frequently arise about the appropriate intensity of care and choice of treatment when several options exist. Because of concern in recent years about ensuring that treatment decisions are as patient-centered as possible in such situations, there has been great interest in promoting strategies that maximally protect patient autonomy. In this regard, two alternative care standards are frequently mentioned – the "substituted judgment standard" and the "best interest standard." Knowing when to apply which of these standards is important for dental professionals.

The Best Interests Standard

The best interests standard calls for decisions about treatment that reflect what other reasonable people would do under similar circumstances.[9] The values standard that is used in this case is not the patient's own but that of others facing the same situation. The best interests standard has traditionally guided the thinking of health professionals for many years but creates the risk of paternalistic decisions as well as decisions that do not account well for differences in individual circumstances as well as in patient goals and values about health care. Therefore, in recent years, the best interest standard has given way to more patient-centered approaches. Clearly, however, there are times when it is still reasonable to approach care using the best interests standard, such as when pressing dental problems arise (e.g., acute pain or infection), and patient decision making is impaired. However, it is still rarely justifiable in dentistry to initiate any treatment without some attempt to solicit input from others who have an interest in the patient's welfare when the patient themselves cannot express a preference about care.

Substituted Judgment Standard

The substituted judgment standard dictates that decisions be made in accordance with what the patient would have decided if he or she could have expressed it directly. This approach fosters decisions that reflect individual patient choice and has gained favor in recent years as society has moved toward greater emphasis on patient self-determination.[9] The focus is on clarifying the patient's goals and values about oral health care and making decisions consistent with them. Therefore, when elective dental treatment is under consideration or there are several treatment options and patient preferences are unclear, those involved in decision making should attempt to make decisions based on what the patient would have chosen.

To establish this, input from the patient's family; others in close, loving relationships with the patient; and informal and formal caregivers is helpful to understand patient goals and values

concerning dental care.[22] Frequently, such information can be gathered from previous dental records and current oral findings. For example, a history of regular preventive dental visits, extensive restorations, and prosthodontics all suggest that the patient placed a high value on oral health and suggest that future dental care decisions should be consistent with those values. On the other hand, a history of only emergency care, evidence of multiple missing teeth without replacement, and minimal preventive care suggests that the person was unwilling or unable to devote resources to dental care, which in turn might dictate a more basic approach to treatment planning. Of course, good clinical judgment must always be factored into such decisions. For example, even if a patient previously chose sophisticated crown and bridge procedures to maintain his or her dentition, the onset of advanced dementia would likely preclude such an approach and suggest simpler forms of therapy. It is also possible that the patient who previously selected the simplest treatment approaches because of monetary concerns might choose more sophisticated therapy if financial support for care somehow became available.

Using Restraints

In the world of geriatric health care, restraint use has become a matter of major concern in recent years because of its implications for patient autonomy, dignity, and well-being. "Physical restraints" include tying a patient down with any of a variety of devices, including either soft or leather straps around the wrists or ankles, as well as sheets or belts wrapped around the chest or waist. Holding a patient down by hand also constitutes physical restraint, and it could be argued that some mouth props used in dental treatment are also a form of physical restraint, since they limit a patient's ability to voluntarily close the mouth. A "chemical restraint" is any medication that subdues behavior, including sedatives (oral, intramuscular, or intravenous), neuroleptics (e.g., haloperidol, thioridazine), nitrous oxide analgesia, and general anesthesia. The high frequency of behavioral problems in older adults with late-onset neurological diseases frequently leads to questions about when and how to appropriately manage patients who are uncooperative during therapeutic or personal hygiene procedures, including dental interventions.

In 1987, an ad hoc committee of the Academy of Dentistry for the Handicapped published guidelines for the use of restraints to provide dental care for handicapped individuals.[23] This committee concluded that the definition of restraint differed from state to state. It recommended that restraints only be used when absolutely necessary, that the least restrictive form of restraint be used, and that restraints not be employed as punishment or for the convenience of the staff. The use of restraint was deemed acceptable dental practice when appropriately used for the behavior control of patients with developmentally disabling conditions. Clear documentation of restraint use was stressed, as were guidelines that physical restraints should cause no physical injury, and that informed consent should be obtained in accordance with state guidelines.

It is important to note that the committee's recommendations were largely concerned with the management of developmentally disabled individuals using physical restraints. However, resistance (e.g., pulling away, closing the mouth) and combativeness (striking out) may also be frequently encountered in older adults with acquired neurological disorders such as Alzheimer's disease, Parkinson's disease, or stroke – conditions that can unpredictably affect memory, perception, judgment, and reasoning. Inability to cooperate for dental treatment can also occur in adults with severe psychiatric disorders, as well as a variety of neuromuscular disturbances such as cerebral palsy, multiple sclerosis, and tardive dyskinesia.

In geriatrics, physical restraints are frowned upon due to the large body of literature detailing the hazards of their use in older individuals.[24,25] Older adults may have fragile skin, bones, and blood vessels that can be easily traumatized by physical restraints. The stress associated with the use of physical restraints may exacerbate other underlying chronic medical problems, such as cardiovascular disease. Further, physical restraints may induce psychological trauma, and the resultant agitation may render their use counterproductive.[26]

Restraint Guidelines

Using the Academy of Dentistry for the Handicapped ad hoc committee's recommendations as a starting point, updated guidelines have now been developed (**Table 4**, see printed copy of *Journal*).[7] In addition to the original guidelines developed by the academy, Guideline 5 stresses the need to consider the likely outcome of the dental treatment for which the restraint will be used. Restraint use should be reserved for those situations in which the patient is likely to gain some substantial benefit, such as restoration of lost oral comfort or function. Guidelines 6 and 7 address the need for informed consent, both for the planned dental treatment and for the use of restraint. Restraint use for dental treatment would not normally be expected by an average, reasonable person, so it is not encompassed within any implied consent for dental care and must

be addressed separately in the consent process.[27]

Guideline 8 emphasizes that the choice of restraint be selected based on the proposed dental treatment without blind reliance on orders developed for other situations. For example, there may be a tendency to request the administration of neuroleptics (e.g., haloperidol), originally ordered for psychotic episodes, as premedication before dental treatment simply because those orders already exist and seem more convenient to employ. However, if patient anxiety during treatment is the real issue, then a short-acting benzodiazepine such as lorazepam or oxazepam might be a better choice. Behavior management techniques for dental care should take into account any other currently employed strategies for that individual but should not be solely limited to those strategies if others might be more effective.

Guideline 9 stresses the need for training in the appropriate use of any restraint. While more stringent state dental licensure requirements have reinforced this concept where nitrous oxide analgesia, conscious sedation, and general anesthesia are concerned, practitioners may not realize the need for training in the use of other types of restraints, especially physical restraints. Other professionals, such as institutional nursing staff members, are trained and regularly updated in the proper use of such devices. No less should be expected from any dental personnel using them. Finally, Guideline 10 addresses the need for clear documentation. A number of state institutional guidelines,[23] as well as federal nursing home regulations,[28] mandate that a reason for restraint use be specified, along with the type and duration of use. It is reasonable to expect that this same information be made part of the dental treatment record when such behavior management approaches have been used in conjunction with dental care.

Summary

Dental professionals encounter a number of challenging moral dilemmas when caring for older adults, especially those with chronic illnesses and functional impairments. In securing consent for treatment, practitioners must consider both legal competence and decision making capacity and adopt roles appropriate to the patient's individual circumstances. If legal competence has been retained but decision making seems impaired, practitioners must involve others in the process of determining appropriate care. The capacity to consent for treatment can be assessed by asking some simple questions designed to evaluate the patient's ability to understand relevant information, appreciate their situation and its consequences, manipulate information rationally, and communicate choices. When faced with a choice of several treatment options and patient preferences are unclear or unknown, the principle of substituted judgment should be employed whenever possible to promote care in keeping with the patient's goals and values. To maximize patient safety and dignity, guidelines are provided for the use of restraints to provide dental care for individuals with significant behavior problems.

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CDA JOURNAL, VOL 27, Nº9

Oral Health Care for Homebound and Institutional Elderly

Michael Strayer, DDS, MS

ABSTRACT The provision of oral health care to homebound and institutionalized patients presents enormous challenges as well as several advantages for the dental professional. This article discusses the rapid growth of this segment of the population, the barriers to their receiving dental care, and the objectives for provision of that care.

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To gain insight into the challenges associated with the delivery of oral health care to homebound and nursing home residents, one must have an understanding of the complex issues and problems associated with these unique aging populations. The most rapid population growth is occurring among the oldest age cohort, older than 75. It is expected that by the turn of the century more than 50 percent of the elderly will fall within that age group.1 Berk and colleagues have reported nearly 30 percent of this age group have chronic health problems that limit daily activities.[2]

As these physical, cognitive, and functional limitations accumulate with age, an increasing number of adults becomes either homebound or institutionalized. The extent of the cognitive or functional limitations are measured by level of assistance needed with activities of daily living (ADL) or instrumental activities of daily living (IADL). ADL are bathing, eating, dressing, toileting, and transferring. IADL are the ability to use the phone, shop, prepare food, clean house, wash laundry, access transportation, take medications, and handle personal finances. It is estimated that nearly 10 percent of community-dwelling elderly experience at least one ADL or IADL limitation. The extent of functional dependency is based on the level of assistance needed to perform these activities and the number of activities for which assistance is needed. The community-dwelling elderly often described as the functional dependent are

older, dependent in physical function, cognitively impaired, incontinent, economically disadvantaged, users of home services, and less likely to be living along. For the purpose of this discussion, these functionally dependent elderly who never or almost never get out of their houses or buildings except for emergencies due to limitations in their ADLs will be defined as the homebound.[3]

Within the noninstitutionalized adult population older than 65, 11 percent have difficulty with at least one ADL, another 4 percent have two to three ADL difficulties and more than 2 percent have four or more ADL difficulties.[4] The proportions of individuals requiring assistance with ADLs changes dramatically among individuals who perceive themselves as homebound. In a population of self-reported homebound individuals, 45 percent reported needing assistance with one to two ADLs with another 38 percent needing assistance with three to five ADLs.[5]

Not surprisingly, these ADL limitations in the homebound are comparable to the ADL limitations experienced by 90 percent of nursing home residents. Among this institutionalized population, 33 percent need assistance with three or more ADLs, another 33 percent need assistance with four or more ADLs, and nearly one in 10 needs assistance with all five ADLs.[6]

Long-term care, whether in the home or institution, is big business. Non-institutionalized long-term care and services, or home health care, has increased by 20 percent per year since 1991.[7,8] Home health care accounted for 14 percent of all Medicare Part A expenditures in 1994.[9] Nursing home care is a $70 billion industry in the United States, representing 12 percent of U.S. chronic health care dollars, with more than 60 percent paid by Medicare/Medicaid and 33 percent paid out of pocket.10 In 1995, 1.4 million individuals in the United States older than 65 (4 percent) were in nursing homes.[11]

As previously discussed, there are similarities between the homebound and the nursing home populations in terms of functional dependency. However, the attitudes of caregivers and patients distinguish the homebound from the institutionalized patient. The homebound adults and their caregivers prefer noninstitutionalized approaches to care that utilize home-based services.[12] To avoid institutionalization, the homebound make more frequent use of home-based services – which can include home health aides, homemaker services, visiting nurses, physical therapy, and home-delivered meals. These services are viewed as the preferred and low-cost alternative to nursing home care.[13] The average home health client is a woman age 70 with 1.7 ADL impairments.[7,8] The average nursing home resident is an 82-year-old woman, requiring assistance with more than four ADLs and experiencing some degree of cognitive impairment.[14]

Differences in Oral Health Status

The increased emphasis on preventive dentistry toward the end of World War II has resulted in older adults retaining natural dentition into old age and experiencing increasing rates of dental disease.[15-17] With more elderly choosing to remain in their own homes with the assistance of home-based services, little is known about the oral health needs of these homebound elderly or their access to oral health care. In nursing home populations, this increased retention of natural teeth has led to a well-documented increase in the prevalence of caries and periodontal disease.[18-20]

The provision of oral health care to homebound and institutionalized patients presents enormous challenges for the dental profession. These challenges range from having adequately trained personnel, availability of appropriate dental equipment, financing of oral health care, and the health status of the patient. Several significant changes are occurring that ensure that this challenge will continue. Each succeeding elderly cohort is living longer in place in the community while those that enter a nursing home have greater levels of functional and cognitive impairment. While preventive dental service utilization has risen significantly for young cohorts during the past two decades, the use by older cohorts has increased only slightly. Older people continue to be the lowest utilizers of oral health care services, with 63 percent not having seen a dentist in the past year and 33 percent not having obtained care in the past five years.[21,22] However, those elderly who do seek regular dental care average more than 3.26 visits per person per year, the highest average number of visits per person of any age group.[23]

Differences in oral health status and treatment needs among homebound and nursing home patients have not been well-documented. One study found that the mean age, mean number of teeth present, and gender did not differ significantly between homebound and nursing home patients. However, more than 38 percent of nursing home patients were completely edentulous compared with just 24 percent among the homebound. A significant difference was method of payment, with more than two-thirds of the nursing home patients paying for oral health care services with Medicaid while 78 percent of the homebound paid for services out of pocket. Treatment needs among these

populations did not vary greatly. Nearly 60 percent of both groups had operative needs, 25 percent had prosthodontic needs, and 50 percent had surgery needs. The major treatment difference was in the periodontal/preventive category. More than 76 percent of the nursing home patients needed periodontal treatment while fewer than 60 percent of the homebound needed preventive services.[24]

These treatment differences could be attributed to the nursing home patients' having gone a longer period with limited access to routine oral health services. However, this argument does not explain the similar trends in the other treatment categories. Additionally, these treatment-need comparisons do not necessarily reflect differences in severity of condition or length of time that these conditions have existed.[24]

As discussed earlier, measures of functional status can indicate homebound or nursing home status. The extent of functional-status decline is viewed as a barrier to receiving oral health care services. Among elderly living in the community, those described as homebound were receiving a greater number of home services and greater level of assistance with ADLs and transportation.[5] Among elderly receiving home services, the majority reported their oral health was "fair" or "poor," nearly 80 percent reported a perceived dental need, while 26 percent reported having been to the dentist within the past two years, and 40 percent reporting having not been to the dentist in more than 10 years.[25]

Barriers to Oral Health Care

There are several barriers to oral health care delivery for homebound and nursing home residents. However, the relationship between subjective oral health needs and barriers to receiving oral health care among the functionally dependent and homebound elderly are not well-documented. Previously identified barriers to receiving oral health care among the elderly include functional status, medical status, transportation difficulties, financing oral health care, previous patterns of dental utilization, knowledge and use of available oral health care services, perceived oral health status, education and attitudes of health care providers, elderly consumer attitudes, caregiver and family attitudes, and availability of necessary dental equipment.[26-30]

For elderly consumers, oral health care financing option are limited. Dental insurance associated with employment generally does not extend into retirement. The majority of oral health care services for the elderly is paid out-of-pocket (79 percent) with just 10 percent covered by private insurance.[31] The current Medicare and Medicaid health care delivery system for the elderly has improved access to care and assisted with the improvement in general health enjoyed by the elderly. However, these two social welfare programs were developed in the 1960s when the edentulous rate in the elderly was significantly higher and fewer elderly sought routine non-emergent dental care. Subsequently, Medicare has no provisions for preventive oral health care services or routine dental procedures. Individual states have the option of including oral health care services in their Medicaid package, but just 2 percent of total Medicaid dollars are directed to oral health care.[31]

Health care providers such as physicians, nurses, and nurses aides are most likely to have regular contact with homebound and nursing home residents. For physicians and nurses, training to recognize oral problems, oral lesions, or oral sequella of chronic systems conditions and the medications to treat these conditions are limited.[32] However, these health care practitioners are primarily responsible for completing the minimum data set for each resident in the nursing home facility. Any nursing home accepting Medicare of Medicaid reimbursement is required to complete an MDS assessment upon admission and at least yearly thereafter and develop a plan of care for the resident.[33] Two sections of the MDS specifically deal with oral condition. Section M (oral/dental status) of the MDS is usually completed by a nurse and Section L (oral/nutritional status) is regularly completed by a dietitian.

The use of nondental personnel to complete the MDS or initial nursing home care oral examination can lead to much variability in the identification of oral health problems. The literature indicates that more-experienced nurses were able to identify broken or carious teeth nearly 85 percent of the time among nursing home residents. However, soft tissue lesions were less readily identified regardless of the nurse's experience level.[34] Consequently, there can be a high level of misidentification of oral health problems.

Of equal concern is the tremendous burden of care placed on nurse's aides. Nurse's aides are responsible for up to 90 percent of nursing home resident daily care. 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 patient behavior and physical difficulties prevented adequate oral hygiene from being provided.[35] However, these nurse's aides receive the least amount of training, are the lowest paid staff, and have the highest rate of turnover in the nursing home.

Dentists, as do many health care

workers, hold negative attitudes toward elderly patients. These attitudes are generally based on personal experiences and result from limited knowledge about the aging process and more specifically about oral manifestations of aging.[30,36] While dental education has made strides toward the inclusion of geriatric content in the curriculum and some schools offer extracurricular experiences, relatively few dentists have received the level of training that makes them comfortable in providing oral health care services outside the traditional office situation.[32]

Developing ways to incorporate nursing home or homebound dentistry into private practice presents financial, scheduling, and logistical challenges. Development of an alternative dental practice to treat this population could range from providing simple denture adjustments using an electric handpiece to transporting portable dental equipment or developing an on-site dental suite within a nursing home. Portable dental equipment can cost from $5,000 to $20,000, can be transported in a car or van, and can include slow and high speed handpieces, suction, air compressors, and three-way syringes.[37]

Several advantages have been associated with these alternative or nontraditional practice settings. These advantages include the personal satisfaction derived from providing oral health care to neglected patients with significant physical and cognitive impairments, the potential for patient referrals to a traditional office from patients' families and facility staff, the professional challenge derived from treating the diverse oral health needs of a medically challenging population, and practice freedom in the form of flexible hours and scheduling.[37]

The provision of oral health care services to nursing home or homebound patients requires the development of treatment objectives that meet the needs of this population. Several objectives for the delivery of oral health care services in long-term care settings have been developed by the American Society for Geriatric Dentistry. These guidelines are equally applicable to the delivery of oral health care to the homebound as well. The first objective answers the question as to why oral health care should be provided to long-term care patients. This objective states that oral health care should be provided to prevent disease, maintain chewing and speaking ability, and preserve comfort, hygiene and dignity.

The second objective discusses how the oral health care should be provided. This objective states that both the standard of oral health care and access to oral health care should be equal to that in the community. This objective implies that the oral health care must be setting-neutral and should be determined by patient needs and not limited by the training of the provider or technological capabilities or policies of the setting in which these services are provided.

The third objective addresses the question of patient rights in long-term care settings. This objective states that residents or their representatives should have the right to freely choose whether to receive oral health care, who will provide their care, and what specific oral health services will be provided. The final objective deals with the issue of oral neglect found among the functionally dependent chronically ill elderly, regardless of the setting. This objective states that all caregivers should advocate against the neglect of oral health problems suffered by the vulnerable adults who cannot advocate for themselves.[38]

It is clear that the number of adults needing long-term care, whether provided in institutions or in the home, will continue to grow as the nation's population ages. The recent growth in the home health care industry has resulted in more than 1.45 million people receiving home care services. However, less than 1.5 percent of these individuals reported having received any oral hygiene services or dental treatment.[39] For the institutionalized population, a recent survey noted that 60 percent of nursing homes did not have the services of dentists or had them only on call or available for off-site visits.[40]

Summary

The need for greater accessibility to oral health care services for adults with long-term health care needs has been demonstrated. The role of prevention coupled with greater access to oral health care at earlier ages has resulted in older adults retaining more of their natural teeth. This places the elderly at greater risk for caries and periodontal disease as their functional capability declines and they are less able to maintain good oral hygiene. For these older adults with cognitive and/or functional limitations, prevention goals that focus on limiting further tooth loss and decay are often secondary to coexisting medical conditions and medications consumed.41

The complex medical, social, and oral health needs of these adults present a tremendous challenge to the dental profession. The ability of the profession to provide access to oral health care for these long-term care patients will ensure a better quality of life, free from pain and infection, with improved function for these deserving patients.

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CDA JOURNAL, VOL 27, Nº9

Alzheimer's Disease and Cognitively Impaired Elderly: Providing Dental Care

Robert G. Henry, DMD, MPH

ABSTRACT With the number of adults reaching older ages, the number of Americans who develop Alzheimer's disease and other neurological impairments will also increase. The dental management of these patients requires a great deal of understanding and patience coupled with background knowledge of the disease and proficiency in providing behavior modification techniques. This paper discusses five major areas that dental practitioners should consider prior to caring for patients with Alzheimer's disease or other neurological impairments.

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On Nov. 4, 1906, Alois Alzheimer gave a presentation to a group of psychiatrists in Tubingen, Germany. In his lecture, he described for the first time a form of dementia that subsequently became known as Alzheimer's disease. The subject of Dr. Alzheimer's lecture was Auguste D., a 51-year-old woman from Frankfurt, Germany, who had been admitted to the Frankfurt hospital on Nov. 25, 1901. On examination, Dr. Alzheimer found a striking cluster of symptoms that included reduced comprehension and memory, aphasia, disorientation, unpredictable behavior, paranoia, auditory hallucinations, and pronounced psychosocial impairment. Dr. Alzheimer continued to follow Auguste D.'s case until her death on April 8, 1906. At autopsy, he studied the neuropathological features of her illness and found that the brain showed numerous plaques, neurofibrillary tangles, and arteriosclerotic changes.[1]

More than 90 years have passed since Dr. Alzheimer shared his findings. Since that time, millions of people have been diagnosed with similar symptoms and given a diagnosis that is now feared more than any other in older adults: Alzheimer's disease. Because Alzheimer's disease affects the ability of a person to remember, think, and reason clearly, it is devastating not only to the person diagnosed with the condition, but also to the family that must deal with the implications of taking care of someone who can no longer take care of him- or herself.

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Today, in the United States, it is hard to find a family that does not either directly or indirectly know of someone with Alzheimer's disease. Dentists should be aware of the growing number of older patients with cognitive impairments such as Alzheimer's disease. By understanding how these conditions can be managed, dental professionals can help make a positive impact on not only the oral health of their Alzheimer patients, but also the quality of their patients' families lives.

Definitions and Prevalence

The cause of Alzheimer's disease is not known, although risk factors include being of an advanced age (85 or older),[2] having trisomy 21,[3] having a previous history of severe head trauma,[4] or a having a first-degree relative with the disorder.[5] A diagnosis of probable Alzheimer's disease[2] is made in adults age 40 to 90 years old when the patients have neurologic deficiencies in two or more areas that have progressively worsened, without disturbance in consciousness and without other medical problems that could explain the cognitive changes. A diagnosis of definite Alzheimer's disease[2] can only be made post-mortem, when the neuropathologic findings (which Dr. Alzheimer carefully noted in his case report) of neurofibrillary tangles and neuritic plaques are found in abundance in the cerebral cortex.[6] There are no laboratory tests available that can positively diagnose Alzheimer's disease. The physician must rely upon clinical signs and symptoms to exclude other types of dementias, which may be reversible or treatable.

Dementia is a permanent or progressive decline in several dimensions of intellectual function that interferes substantially with activities of daily living.[7] More than 70 disorders can cause dementia, including depression, drug toxicity, metabolic disorders, and central nervous system infections. Alzheimer's disease is, however, the most common cause by far. The actual prevalence of Alzheimer's disease is difficult to determine, but in a community-based study by Evans and colleagues in East Boston, Mass., 10.3 percent of the people age 65 and older met the criteria of probable Alzheimer's disease.[3] The prevalence of the disease increased with the age of the group: 3 percent for people age 65 to 74; 18.7 percent for ages 75 to 84; and 47.2 percent for those age 85 and older. If these results are representative of other communities in the United States, they suggest that there are about 4 million Americans with Alzheimer's disease. If the incidence of the disease continues at the present growth rate of older Americans, there will be 9 to 10 million people with Alzheimer's disease by the year 2030. It is also one of the leading causes of death for elderly individuals.

Clinical Progression: Symptoms and Signs

The most frequent and characteristic early symptom of Alzheimer's disease is the gradual onset of short-term memory loss, such as difficulty remembering names, recent events, and conversations; misplacing items; missing appointments; and repeating questions or answers during conversation. Because these mild memory difficulties are often present in older adults in the absence of disease, many of them worry that they are developing Alzheimer's disease. This age-associated memory impairment is generally believed to be part of normal forgetfulness. Where pathologic changes apparent in Alzheimer's disease begin is still unclear, but they tend to be based on a person's ability to function in society.

The progression of symptoms and signs in Alzheimer's disease varies among individuals; but, to help categorize treatment strategies, the clinical course is usually divided into three stages.8 In addition to memory loss, someone in the early stage may be unable to tell what day it is, the time of day, or where they are. Patients may display less sparkle in personality and appear emotionless or less energetic or willing to begin something. In this stage, patients are likely to make errors in judgment, such as making a mistake when driving or getting lost when going to or from familiar places (the home of a relative, a store, or a doctor's office). Finally, patients in this stage may not be able to think of certain words to use when speaking, have difficulty learning new things, and become easily angered.

The middle, or moderate, stage is characterized by continued progressive cognitive losses and may advance from the early stage in as little as a few months or as long as a few years. Patients develop rapid and widespread memory losses and become slower in movement or in speech or unable to communicate. They may hoard common items, such as napkins or pencils, and lose the ability to care for themselves (can no longer dress, bath, cook, or eat on their own). During this stage, patients become increasingly interested in themselves and less interested or sensitive to other people's feelings. In many cases, patients pace continuously during waking hours and may wander off if not supervised. Many Alzheimer patients also develop perceptional problems, such as being unable to recognize their own face in a mirror or images on television, and may display personality changes such as becoming physically violent or displaying verbal outbursts over minor daily situations.

In the severe, or late, stage, patients

TABLE 1

Symptoms of Dental Pain in Non-Alzheimer vs. Alzheimer Patient

Non-Alzheimer patient (normal patient)	Alzheimer Patient
Momentary sensitivity to hot and cold foods	Sudden worsening of behavior
Sensitivity to hot or cold foods after dental treatment.	Moaning or shouting for no apparent reason
Sharp pain when biting down on food	Refusal to do certain things
Lingering pain after eating hot or cold foods	Increased restlessness
Constant and severe pain and pressure, swelling of gum and sensitivity to touch	
Dull ache and pressure in upper teeth and jaw	
Chronic pain in head, neck or ear	

RG Henry, Symptoms of Dental Pain in Non-AD versus AD patient

have great difficulty understanding instructions or simple language. They completely lose the ability to remember and speak, uttering only meaningless phrases or repeating words or phrases over and over again. Typically, they are reluctant to go anywhere "different," such as leaving home or the nursing facility, and they may be unable to recognize even family members or close friends. Most patients are unable to respond appropriately to questions and constantly repeat phrases or invent words or often will respond with the first thing that comes to their minds. In this last stage, patients need total care with activities of daily living such as dressing, bathing, eating, and using the bathroom and commonly have behavior problems such as aggressiveness or anxiousness. Typically the progress of Alzheimer's disease is gradual, and some patients' conditions plateau for a time, but the end stage is coma and death.

Oral Findings

A number of studies[9,10] validate clinicians' observations that Alzheimer patients have poor oral hygiene and increased prevalence of dental and periodontal disease. This is mainly believed to be a result of the individual's inability to perform routine and effective oral hygiene procedures. Other studies[11,12] highlight the importance of salivary function and demonstrate that patients with Alzheimer's disease may be at increased risk for salivary gland dysfunction, which further increases the risk for dental diseases. It is important that the patient receive assistance with oral care from either a caregiver (spouse, sibling, or children) or nursing professional as the disease progresses from the early to the late stage.

Medical Treatment

There is no single drug available for treating the complete range of problems seen in Alzheimer's disease. However, the drug donepezil hydrochloride (Aricept, approved in 1997), offers the best therapy available to slow progressive memory loss. The rationale for the use of Aricept stems from the clinical finding of decreased brain neurotransmitters (primarily acetylcholine) in Alzheimer patients' brains. Aricept and its predecessor, Cognex (Tacrine), approved in 1993, work by increasing the amount of acetylcholine in the brain. Cognex can cause liver damage, and Aricept can cause an irregular heartbeat, especially in patients with heart conditions. Although, neither drug reverses the pathogenesis of Alzheimer's disease, both may delay progression for up to six to 12 months for patients in the early or moderate stages.[13]

In addition to drugs that help acetylcholine-producing cells survive longer and slow or prevent Alzheimer's disease, researchers are systematically investigating numerous other drugs and/or compounds that may be helpful. There are 19 pharmacologic agents in various testing phases; manufacturers are searching for medications that may be helpful in treating Alzheimer patients.[14] Research is centered around the following agents, which may be helpful in preventing the onset of Alzheimer's disease or treating the symptoms at higher doses: Vitamin E, ginkgo biloba, prednisone, estrogen replacement therapy, and aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs).[13]

Dental Management

The dental management is similar for patients with Alzheimer's disease and those who have other neurological impairments. Although a number of treatment planning issues could be considered, the following five areas are critical in patients with Alzheimer's disease or neurological impairments:

- Presence or absence of pain;
- dental condition;
- Stage of disease;
- Caregiver's concerns; and
- Dentist capabilities.

A brief description of each of these areas will follow with the specific recommendations for the practitioner.

Presence or Absence of Pain

All dentists have a good working knowledge of the symptoms commonly present in dental pain. In patients with Alzheimer's disease or other neurological impairments, the ability to communicate pain or the absence of acute signs will often be the norm. For example, it is

FIGURE 1
Folstein Mini-Mental Status Examination*

Orientation

_____ What is the (year-1) (season-1) (date-1) (day-1) (month-1)? *(5 points possible)*

_____ Where are we? (state-1) (county-1) (city-1) (hospital or clinic-1) (floor-1)? *(5 points possible)*

Registration

Name three objects: 1 second to say each. Ask the patient for all three after you have said them.

_____ Give 1 point for each correct answer. *(3 points)*

Repeat until all three are learned. Count trials and record number_____

Attention and Calculation

_____ Serial sevens backward from 100 *(stop after five answers)*.

Alternatively, spell WORLD backward. *(5 points)*

Recall

_____ Ask for the three objects repeated above. One point for each correct answer. *(3points)*

Language and Praxis

_____ Show a pencil and a watch and ask subject to name them. *(2 points)*

_____ Ask the patient to repeat the following: "No ifs, ands, or buts." *(1 point)*

_____ floor." (3 points)

_____ Read and obey the following: "Close your eyes." *(1 point)*

_____ Write a sentence. *(1 point)*

_____ Copy this design (interlocking pentagons). *(1 point)*

_____ Total score *(30 points possible)*

A score of from 25 to 30 on the Mini-Mental State examination is considered normal in older adults. A score from 18 to 24 reflects mild impairment. A score of less than 18 reflects moderate to severe impairment.

*Folstein M, Folstein S, McHugh P. "Mini-mental state": A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 12: 189-98, 1975.

common for dental symptoms of pain in patients in the moderate or late stages of Alzheimer's disease to be manifested only by a sudden worsening of behavior; moaning or shouting, refusal to do certain things; or increased restlessness (**Table 1**).

Clinicians who are attempting to determine if there is a treatable cause must use the history of the patients' baseline behavior as an even more important indicator of the patient's possible source of pain. The caregiver (spouse, child, nurse, etc.), whether in the home or nursing facility, is the best person from whom to obtain this history.

If pain of a dental origin in the Alzheimer patient is diagnosed, aggressive treatment to eliminate this pain should take precedence. If pain of a dental origin cannot be diagnosed through a clinical exam alone, a careful workup including dental radiographs should be performed to rule out a possible dental source.

Presenting Dental Condition

Using standard criteria such as the number of teeth remaining, oral debris present, level of oral hygiene, broken or carious teeth, periodontal status (gingival redness, bleeding on probing, mobility of teeth), and previous degree of restorative dentistry provided, a patient can be categorized as having good, fair, or poor dental health. Treatment plans determined for patients who have poor oral health will be much different from those with a fully restored dentition. The presenting dental condition is probably the best indication of a patient's past motivation and desire for continued dental treatment. For example, a patient who had seen a periodontist for 20 years in the moderate stage of Alzheimer's disease would likely continue to maintain her teeth if he or she were able to communicate his or her desires to the dentist.

Stage of Disease

Although presenting dental condition is important, it must not be used alone in determining the extent of dental treatment or whether dental care should be aggressive or postponed. The stage of Alzheimer's disease (early, moderate, or late) is also an important consideration. Because Alzheimer's disease is progressive, patients will eventually lose their ability to provide for their own oral care. In the later stages, dental treatment should focus more on maintenance and less on restorative/rehabilitative care. A case in point can be seen from the previous example. Although a patient may have maintained his or her teeth for more than 20 years, if he or she is in the moderate to late stages of Alzheimer's disease and the presenting dental condition is now severe periodontal disease, extracting the remaining teeth may be the best treatment option.

TABLE 2

Recommendations for Providing Dental/Oral Care for Patients with Alzheimer's Disease

Overall recommendations	Medications patients are taking may cause salivary gland dysfunction, hypotensive episodes, and may adversely interact with epinephrine.
	Caregivers must be trained to assist with daily oral hygiene.
	Aggressive prevention programs including topical fluorides must be initiated.
	More frequent recall appointments should be made.
	Short-acting anxiolytic benzodiazepines (e.g., diazepam, lorazepam, oxazepam) administered before dental treatments may be helpful.
Early stage recommendations	Treatment plans should be designed anticipating oral decline.
	Most routine dental care can be provided with only minor modifications.
	Potential sources of pain, pathology, or sites of acute infection should be eliminated and restored to function as soon as possible.
Moderate stage recommendations	Uncooperative behavior should be expected.
	Short appointments may be less stressful for the patient and clinician.
	A thorough extraoral, intraoral, and radiologic examination may not be possible: The caregiver is necessary to provide symptomatic or objective information.
	Caregivers should be advised that daily oral hygiene will be their responsibility.
	Treatment plans should be designed with maintenance in mind, not complete rehabilitation (e.g., reline rather than remake dentures).
Late stage recommendations	Complex and time-consuming dental treatment should be avoided
	IV sedation or general anesthesia should be considered for necessary dental care.
	Treatment should focus on removing unrestorable teeth and maintaining the dentition by frequent recalls and good oral hygiene.

*From Henry R, Neurological Disorders. In, Ship J, Mohammad A, eds, Clinicians Guide to Oral Health in Geriatric Patients. American Association of Oral Medicine, Baltimore, Winter, 1999.

There are many different mental status tests that can be used to place Alzheimer patients into early, moderate, or late stages. The most widely used is the Folstein Mini-Mental Status Exam[15] (**Figure 1**). With 10 items and a maximum possible score of 30 points, a person would be considered mildly impaired (early stage Alzheimer's disease) with a score of 18 to 24. If the score is less than 18, this would reflect moderate to severe impairment (moderate to severe Alzheimer's disease).

Basic guidelines for providing dental care can be linked to a person's stage of impairment (or Alzheimer's disease) and can be seen in **Table 2**.[16] The recommendations in this table underscore the importance of good maintenance, frequent recalls, and the role of a caregiver.

Caregiver Concerns

Anyone who provides care to an impaired person, such as an Alzheimer patient, can be called a caregiver. In most cases, the spouse of the affected person serves in this role, although anyone can serve as a caregiver (daughter, son, family member, neighbor, nurse, home health worker, or friend). This person serves as the primary decision maker for patients in the moderate to late stage of Alzheimer's disease and is usually the single most important factor in determining if dental treatment will be sought or in deciding the extent of care.

Initially, caregivers have minimal involvement in dental care. As the disease progresses, however, their roles becomes increasingly important -- ranging from being the legal authority for obtaining an informed consent for treatment, to giving the medical and dental history, participating in the treatment plan, and being the key to a successful home care preventive dentistry program.[17] Dentists need to be aware of the importance of the primary caregiver and train him or her to care for the patient's mouth in the early stage with the expectation of eventually assuming this role completely as the person with Alzheimer's disease loses this ability.

Dentists should also understand the importance in obtaining consent from the caregiver prior to providing dental care. As their disease progresses, Alzheimer patients are no longer capable of giving their own consent for treatment. When this happens, the caregiver may chose to obtain legal decision making power, called guardianship. This process may take one to six months to complete, and not all caregivers go through this process. When caregivers are the legal guardians, no dental treatment should be given without first obtaining written consent from the legal guardian. For those Alzheimer patients who do not yet have legal guardians, it is prudent to discuss treatment options with the primary caregiver present. In all cases, clear communication about dental treatment options and extent of dental care should occur between the dentist and primary caregiver prior to the delivery of care.

Another role caregivers may play is in the actual delivery of dental care. In

TABLE 3
Oral Sedation Recommendations for Dementia Patients

Patient is already taking anxiolytic/ antiagitation medicine	Dental treatment should be scheduled to coincide with the regularly scheduled drug (q.d., b.i.d., t.i.d.). If the scheduled drug is p.r.n., the dentist should try using it before dental treatment. The physician should be consulted about increasing the dosage of scheduled drug prior to dental procedure.
Patient is not taking anxiolytic/ antiagitation medication.	A short acting benzodiazepine (such as Lorazepam, Triazolam, or Temazepam) is recommended for mild-moderate dementia patients. See standard drug reference for administration and dosage information.

From Henry R, Neurological disorders. In, Ship J, Mohammad A, eds, Clinicians Guide to Oral Health in Geriatric Patients. American Association of Oral Medicine, Baltimore, Winter, 1999.

most cases, caregivers are encouraged to accompany Alzheimer patients into the treatment operatory and sit next to the patient during treatment. Most caregivers tend to alleviate patient stress and anxiety and provide a distraction for the patients, as well as to hold their hand(s) if needed.

A final benefit of having the caregiver present is to witness the dental need of the patient as well as the treatment provided. With this approach, the caregiver becomes a member of the dental treatment team and an advocate of continued dental care for the patient.

Dentist's Capabilities

There are essential equipment items and some special products that can make the treatment of Alzheimer's disease and neurologically impaired patients easier. In addition, advanced training in sedation techniques, and/or obtaining hospital training and privileges, may be needed to treat the very difficult or late-stage Alzheimer patient.

Extraoral mouth props such as the molt prop (Hu-Freidy) and a pair of lead gloves and an extra lead apron are essential equipment items that not all dentists have but which are needed when providing dental care to these type of patients. The extraoral mouth prop maintains the oral opening and helps to control head position. Dental professionals should be very careful not to place their fingers in the mouth of an Alzheimer patient, and extraoral mouth props will eliminate the need to do so.

Although panoramic films are not contraindicated, they may be impossible to obtain because of the limited amount of cooperation the Alzheimer patient has in holding his or her head still during the time of exposure. Another technique, using an extra lead apron and a pair of lead gloves worn by the operator, can be used while holding X-rays in the Alzheimer patients' mouths during radiographic exposures. Using this technique, single exposure bite-wing and periapical films can be made.

A number of specially adapted products are available for patients with disabilities, and two are particularly useful in neurologically impaired or Alzheimer patients. For caregivers, a foam mouth prop called the Open-wide Plus (Specialized Care Co., Edison, N.J.), is designed for caregivers to use to keep the mouth open during oral hygiene. The prop has a unique design of high-density foam that is safe and comfortable for the patient. It is disposable, although one mouth prop can last for 50 to 100 uses, is dishwasher safe, and is inexpensive.

A specialized toothbrush, called the Collis Curve (Collis Curve, Inc., Minneapolis, Minn.) has been designed with three rows of bristles that, when placed correctly, can clean the lingual, facial, and occlusal surfaces at the same time. The technique required with this brush is a simplified scrub motion, and most caregivers find this brush simpler to use than either conventional or electric brushes.

Other conventional products may be helpful for the caregiver in maintaining oral hygiene. For cleaning between the teeth, an interproximal cleaner such as a proxybrush (Butler, Crest, Colgate) may be easier to use by caregivers than floss or even floss-holding devices since proxybrushes do not require fingers to be placed intraorally.

For most practitioners, oral sedation will be the preferred method to manage the anxiety or uncontrolled, undesirable behaviors seen in Alzheimer patients. Dentists should use oral sedatives only after reviewing the patient's medication and medical history or in consultation with the patient's physician. This will allow the dentist to determine the best sedative and most appropriate agent for each patient. Dentists need to remember that oral sedatives can be unpredictable, and what works for one person may not work for another. Given this shortcoming, **Table 3** summarizes the oral sedation recommendations for neurologically impaired or Alzheimer patients.[16] Monitoring, training, and licensure all will impact the utilization of oral sedation in clinical practice.

Intravenous conscious sedation may be the best alternative available to treat uncooperative Alzheimer or neurologically impaired patients in the moderate to late stages if trained personnel and monitoring equipment are available. Advantages include the most rapid onset of action, ability to titrate the drug to effect, predictable blood levels, shorter duration of effects, and immediate access to treat complications.[18] The disadvantages are

obvious in that venipuncture is necessary, venipuncture complications can occur, more intensive monitoring is required, reversal of intravenous agents is not instantaneous, and more expensive malpractice insurance may be required. In addition, complications associated with intravenous sedation can also occur, such as respiratory depression, cardiac rhythm disturbances, and possible nausea or gastrointestinal disturbances.

For some Alzheimer patients, deeper sedation may be required. For these patients, dental treatment can be accomplished in the dental office under intravenous sedation utilizing trained anesthesiologists or by utilizing general anesthesia in the operating room in a hospital. Another alternative may include the use of surgical centers or ambulatory care facilities where deep sedation or general anesthesia may be administered. In these settings, Alzheimer patients who cannot be controlled using one of the previous techniques may be seen. In every setting, privileges to see patients must be granted to the dentist who is providing the treatment and is based on previous training, education, and experience.

Summary

With the number of adults reaching older ages, the number of Americans who develop Alzheimer's disease and other neurological impairments will also increase. The dental management of these patients requires a great deal of understanding and patience coupled with background knowledge of the disease and proficiency in providing behavior modification techniques. This paper discusses five major areas that dental practitioners should consider prior to caring for patients with Alzheimer's disease or other neurological impairments.

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CDA JOURNAL, VOL 27, Nº9

Providing Oral Cancer Examinations for Older Adults

Janet A. Yellowitz, DMD, MPH

ABSTRACT Although cancer is not a part of the aging process, malignant neoplasms occur primarily in older adults. As the size of the elderly population increases, there will be many more older adults at risk for oral cancer. Many older adults do not seek dental care because they do not think they need it; and, therefore, they do not receive routine oral examinations. Dental practitioners need to encourage older patients to seek dental care so they can receive oral cancer examinations.

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Each year, close to 30,000 new cases of oral cancer are detected in the United States.[1] As a result of this disease, nearly 9,000 deaths occur, one every hour. Most oral cancers (90 percent) are squamous cell carcinomas, begin as surface lesions, and have a highly variable presentation during their early stages. There is hardly an oral lesion that at one stage or another does not assume the same overt appearance as oral squamous cell carcinoma -- hence the concept of oral cancer as "the great mimicker."[2] Detecting an oral lesion is primarily dependent upon the clinician having a high level of suspicion and providing a comprehensive oral cancer examination. For the purpose of this article, oral cancer will refer to oral squamous cell carcinoma.

Although cancer is not a part of the aging process, malignant neoplasms occur primarily in older adults. Fifty-five percent of all cancers and 67 percent of cancer deaths3 occur in people age 65 and older. Older adults not only have a greater risk of developing cancer but are more frequently diagnosed with cancer in an advanced stage. Likewise, most oral cancers are diagnosed in a late stage, after having metastasized to the lymph nodes.

Similarly to other cancers, oral cancer is found disproportionately more often in older adults than in any other age segment. The average age at which oral cancer is diagnosed is 63, with the majority of those lesions found in those 40 years and older. The National Cancer Institutes' Surveillance, Epidemiology

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and End Results program found that close to half of all oral cancer cases were found in the 65-and-older age group.[4] In another study of close to 1,000 oral cancer cases, 42 percent were in people 65 and older; 60 percent of those cases were in people age 65 to 74 and 40 percent in those 75 and older.[5] For the total population, the incidence of oral cancer averages about 11 cases per 100,000, peaking at 49 cases per 100,000 people age 70 to 74.[6] The incidence rate is 30 percent higher for blacks than for whites, peaking at ages 55 to 64. Assuming these rates remain stable, as the size of the elderly population increases, there will be many more older adults at risk for oral cancer.

Today, the average life expectancy is at an all-time high. On average, females born today will live 79 years and males 73 years. Those age 65 today can anticipate an additional 17.6 years of life (19 for females and 15.8 for males). Between the years 2010 and 2030, when the baby-boom generation reaches 65, the older population will dramatically expand. By 2030, there will be about 70 million older people, more than twice the number in 1997.

Currently, about one-third of oral cancers are diagnosed in an early, localized stage. The five-year survival rate for those with regional involvement is 42 percent and, for those with distant metastasis, 17 percent.[4] Despite advances in therapy, little improvement in survival rates for oral cancer has been seen during the past several decades.

Risk Factors

The primary risk factors for oral cancer are tobacco use, alcohol use (current and previous), and sunlight exposure (lip cancers). Tobacco and alcohol use have been implicated in close to 75 percent of all oral cancers in the United States.[7] Together, smoking and alcohol have a multiplicative effect on the development of oral lesions.[7] The time-dose relationship of carcinogens found in tobacco and tobacco smoke is an important factor in causing oral cancer. Cigar and pipe smoking are likely to provide a greater risk than cigarette smoking, and smokeless tobaccos have been implicated in the development of cancer of the gingival and buccal mucosa. In addition, individuals having a prior oral cancer are at highest risk for developing a second lesion.

There is also growing evidence identifying the human papilloma virus and Candida albicans in the development of oral carcinoma. Although denture irritation was once thought to be a cause, it is not a risk factor for oral cancer. From a positive perspective, diets with adequate amounts of iron and vitamins A, C, and E appear to have a protective role.[8,9]

Although the majority of squamous cell carcinomas are associated with tobacco and/or alcohol use, not all patients with an oral cancer fit this pattern. In a recent five-year review of oral cancer patients treated in a metropolitan hospital, 20 percent reported no history of tobacco use, and 21 percent reported no history of alcohol use.[10]

One's risk of being diagnosed with an advanced oral cancer increases as one's utilization of dental services decreases. Oral cancer is often found in those least likely to seek routine oral care (Table 1).

Although most dental practices have policies to recall patients routinely, these policies apply primarily to dentate patients. In general, edentulous patients do not receive routine or preventive dental care. Often, patients wearing a complete set of dentures for many years have not seen a dentist since the dentures were delivered. Many older adults do not seek dental care because they do not think they need it. Hence, many edentulous elders do not receive routine oral examinations.

TABLE 1
Population at High Risk for Oral Cancer

60+ years of age
History of tobacco use
History of alcohol use
Low level of education
Occupation of lower socioeconomic category
Retired or not covered by dental insurance
Edentulous or having many nonreplaced missing teeth
Does not use preventive health measures

Early Lesions

Early oral cancers have numerous and variable clinical appearances. Early lesions can appear as subtle, asymptomatic red, red-and-white speckled, or white areas with subtle textural changes. Early lesions can appear as an area of induration or ulceration; can appear as a result of physical, chemical, or thermal trauma; or may resemble lichen planus.

Although oral cancer can occur anywhere in the mouth, most often it is found in cancer-prone sites – the ventral and lateral borders of the tongue, anterior floor of the mouth, and soft palate complex.

Oral Mucosa of Older Adults

The oral mucosa of older adults is often described as atrophic, thin, pale, and friable, with a decrease in capillary blood flow. Although many of these characteristics are found in an older population, these changes are

TABLE 2

The Components of an Oral Cancer Examination and Their Recommended Sequence.

Starting extraorally:

1. Examine the face, head, and neck (include eyes, lips, and ears).
2. Palpate the pre- and post-auricular lymph nodes.
3. Palpate the occipital lymph nodes (at base of skull).
4. Palpate the superficial cervical lymph nodes (along sternocleidomastoid muscle).
5. Palpate the deep cervical lymph nodes (deep to the sternocleidomastoid muscle).
6. Palpate the supraclavicular lymph nodes.*
7. Palpate the thyroid gland.*
8. Evaluate the function of the temporomandibular joint.

Intraorally:

9. Palpate the lips.
10. Palpate the labial and alveolar mucosa and gingiva.
11. Examine the buccal mucosa.
12. Palpate and milk the parotid gland.
13. Examine the hard and soft palate and alveolar ridges.
14. Examine the oropharynx.
15. Palpate the submental and submandibular glands.
16. Palpate the tongue** and floor of the mouth.

* Palpation of the supraclavicular lymph nodes and thyroid gland can help to the extent of invasiveness of lesions, however the connection to the oral cavity is less direct than with other nodes and glands.

** To examine the posterior part of the tongue, grasp extended tongue with gauze, distract the tongue to each side to view the opposite, exposed areas. To optimally view the floor of the mouth, gently dry tissues and apply light external pressure.

not universal. Age-related changes of the oral mucosa have not been well-documented or have little scientific data to support their claims. Many of the changes associated with aging were a likely result of systemic disease, poor nutrition, or medications. Aging of the oral mucosa is perhaps best described as a "postmaturational deteriorative change that, with time, leads to an increased vulnerability to challenges."[11]

The rate of biological aging differs both within an individual and among individuals, presenting great variability in one's tissues, including the oral mucosa. In general, muscle mass is less dense and varicosities are more frequently found in older adults. Differentiating a soft tissue change as being a result of the environment or due to intrinsic aging is often not possible. Without clear criteria, distinguishing between age-related changes and potentially malignant changes is more difficult in older adults than in younger ones and requires the clinician to have a higher degree of suspiciousness when completing an oral cancer examination.

Practitioner Challenges

Two conditions increase the difficulty of diagnosing early lesions, the stage at which the patient has the best prognosis. First, the tissue changes common to early lesions are subtle; and, second, patients with early lesions rarely present with symptoms. Once the patient because symptomatic, most lesions are easily diagnosed.

Delay in Diagnosis

Oral cancer has been referred to as the "forgotten diease"[12] and has frequently been a low priority of both health care providers and the public.[13] Delays in diagnosis have been attributed to the attitudes of both clinicians and patients. Many health care professionals underestimate the utility of screening exams for older adults and underestimate their life expectancy. Likewise, older adults tend to be unaware of the risk of oral cancer and their need to have routine oral examinations. For example, more than one-third of oral cancer patients in a recent study reported not seeking professional advice for more than three months after becoming aware of a lesion.[14] Similarly, Prout found that oral cancer patients averaged 11 visits with medical care providers during the two years prior to their diagnosis.[15] These findings suggest that:

- Patients delay seeking care after being aware of an oral change.
- Patients do not obtain routine oral cancer examinations.
- Patients seek the care of physicians, not dental professionals, for assessment of soft tissue changes.
- Dentists are best-suited to identify oral changes.

Yet, dentists often do not detect oral lesions in their early stages due to their

opinions, practices, and lack of knowledge related to oral cancer.[16-18] In a recent national survey of general dentists, the vast majority reported their knowledge of oral cancer to be current, yet one-third of the dentists do not perform an oral cancer examination during a patient's initial visit, and 41 percent do not provide this examination to patients during their recall visits.19 In addition, two-thirds of the dentists reported not palpating their patients' lymph nodes, which is one of the key components of an oral cancer examination. Patients treated in dental practices that do not provide comprehensive oral examinations are at an increased risk of not having an oral lesion diagnosed while it is in an early stage.

Comprehensive oral examinations are not routinely provided to all patients. Without definitive criteria to identify those most likely to have an oral carcinoma, annual oral cancer examinations are recommended for all patients. To help ensure that the components of an oral cancer examination are included in one's examination protocol, the oral cancer examination should be delineated as a separate service. Having the oral cancer examination itemized separately may encourage practitioners to provide it.

The Oral Cancer Examination

A comprehensive oral cancer examination includes the following:

- A review of the patient's medical and dental history. Well-prepared medical and dental histories provide information pertinent to the etiology of oral changes and aid in the identification of conditions that may increase the risk of disease.[20]
- Visual assessment of the head, neck, and oral cavity. Visualization of the mucosal surfaces with good illumination is vital in detecting early changes, which usually have little mass and minimal depth.[4] Slight drying of mucosal surfaces aids in the recognition of changes.
- Manual palpation of regional cervical lymph nodes.[21] Palpation is particularly significant when a primary lesion is not readily visible. Palpation can occur bimanually or bilaterally. The presence of a metastatic lymph node in the neck can draw attention to a potential primary site.[22]

The condition of a patient's cervical lymph nodes provides one of the most important prognostic factors in a patient with oral cancer.[21] Palpable nodes are the primary sign of current or past lymph node disease and may indicate the presence of an infectious, immune, or neoplastic disease. Normal lymph nodes are not palpable on routine examination, however, small, mobile, discrete, nontender nodes are frequently found in healthy people.[23] In general, tender, soft, enlarged, and freely movable nodes suggest acute infection. When unexplained, enlarged or tender nodes call for a re-examination and assessment. Hard, nontender and fixed nodes suggest a chronic infection or malignancy.

Sequence of Examination

To ensure that no area is overlooked, the clinician needs to establish a systematic routine for the oral examination. The order of the examination is a matter of individual choice to best suit one's work style. Utilizing an orderly, step-by-step protocol helps to increase efficiency and conserve time.

Table 2 identifies the components of an oral cancer examination and a recommended sequence.

Following a review of the patient's medical and dental history, ask the patient if he or she is experiencing discomfort in any areas of the mouth or neck. To reduce patient anxiety and concern about the examination and to inform the patient of the activity, explain the steps and reasons for the examination. At a minimum, patients need to be made aware of the need to bring to their dentists' attention any "lumps" and "bumps" or painful areas in their mouth, especially any change present for two weeks or longer.

Identification and Initial Management of Findings

Changes in tissue color, symmetry, texture, size, and contour need to be viewed with a higher degree of suspicion and thoroughly evaluated to rule out malignancy. Any change detected must be described in detail, providing exact location, size, color, texture, and other significant characteristics. When possible, photographic documentation is useful for follow-up comparisons.

When a lesion is detected, probable sources of irritation should be removed; and, when present, the use of alcohol or tobacco should be curtailed. Re-evaluation of the area is needed 10 days to two weeks following the initial assessment. Traumatic lesions and areas of chronic irritation usually resolve or markedly improve within that period. Any nonhealing mucosal lesion present for 14 days should be considered suspicious for oral cancer.

When a lesion persists longer than 14 days, a diagnostic workup is required. This workup includes, but is not limited to, the use of diagnostic aids such as toluidine blue staining, cytology brushes, biopsy, and/or referral to an oral surgeon or oncology specialist. In

addition, the patient needs to be made aware of the practitioner's concern and the need for immediate care.

Summary

An oral cancer examination needs to be a part of the routine (at a minimum annually) oral evaluation of all patients. As "physicians of the mouth" dentists are trained to detect changes in the oral cavity, including an asymptomatic early carcinoma. The recognition of early oral lesions requires that clinicians maintain a high index of suspiciousness of all soft tissue changes.

Providing a thorough physical examination of the head, neck, and oral cavity is essential for all dentists and any clinician involved in detecting, diagnosing, and treating oral disease. The examination assesses for manifestations of disease and presence or absence of palpable lymph nodes, and provides information critical for the development of appropriate differential diagnoses. Oral cancer must be included in the differential diagnosis for ill-defined, variable-appearing lesions found in older adults. With prompt action, a clinician can save lives and reduce the morbidity associated with oral cancer.

Currently, the most effective way to manage oral cancer is through early diagnosis followed by adequate treatment. If dental professionals increase their efforts to identify early lesions and increase patient awareness so that they reduce their risk behaviors, the morbidity of oral cancer will decline. However, it will take many years before real reductions in the number of cancer cases begin to occur. As more people move into the age groups of high risk for oral cancer, it is likely that the occurrence of oral cancer will increase.

Thus, for older Americans, oral cancer remains a serious concern requiring constant professional attention.

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CDA JOURNAL, VOL 27, Nº9

Customers for Life: Marketing Oral Health Care to Older Adults

Linda C. Niessen, DMD, MPH

ABSTRACT Respect for and awareness of the needs of older patients from dental office staff will help such patients feel welcome in a practice. Marketing to older patients is built upon this foundation. In addition, there are other strategies for internal and external marketing aimed at older people. This article addresses the concept of turning aging patients into "customers for life."

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"I started thinking about our company from the customer's point of view. What I realized is that most people didn't like doing business with car dealers. They looked forward to seeing us about as much as they did going to the dentist." – Carl Sewell

With that introduction to his book, Customers for Life, Carl Sewell described how he incorporated a customer service focus into his car dealership. The marketing and the customers followed.

People of all ages appreciate excellent customer service. Attention to patients' needs is the foundation for any marketing approach. Experts describe two types of marketing: external, which is designed to bring new customers to a practice, and internal, which is designed to improve relationships with patients already in a practice. This article discusses concepts for creating "customers for life" of older dental patients.

Marshall McLuhan wrote "Perception is reality." Compared with Asia, Africa, and Europe, America is perceived as a young country. Its symbols reflect youth, energy, and activity. The culture does not value old age to the same extent as do Eastern cultures. As a result, U.S. attitudes toward aging may not always be positive, inadvertently sending the wrong message to older patients. The dental practice that can successfully meet the needs of older adults may reap unanticipated benefits.

Changing Expectations: From Life Expectancies to Oral Health

Chances are the average dentist already has older patients in his or her practice. Since patients stay with a practice as they age, a dentist will generally inherit a certain number of older patients when he or she purchases a practice from a retiring dentist. But even dentists who open a practice in a newly developed area will have

TABLE 1
Remaining Life Expectations: U.S. Adults, 50 and Older

Age in 1990	Total	White		Black	
		Male	Female	Male	Female
50	29.2	27.0	31.7	22.8	28.3
55	24.9	22.8	27.2	19.3	24.3
60	20.9	18.9	23.0	16.2	20.6
65	17.3	15.4	19.0	13.4	17.1
70	14.0	12.3	15.3	10.8	13.9
75	10.9	9.5	12.0	8.7	11.1
80	8.3	7.1	8.9	6.7	8.5
85+	6.0	5.2	6.4	5.0	6.3

Source: U.S. Bureau of the Census. Statistical Abstract of the United States. 1996. (116th edition) Washington, D.C., 1996.

baby boomer patients who are well on their way to becoming older adults.

Half of all women in the United States who reach age 50 in 1999 will live to be 80.[1] **Table 1** lists remaining the life expectancies for African American and Caucasian adults age 50 to 85 years.

As people are living longer, their attitudes about health and oral health are changing. In fact, during a 30-year period, America's older adults have changed from a generation that was predominately edentulous to a generation having an average of 20 teeth per person.[2] Just as the American myths and stereotypes about older people – that they are sedentary, inactive, etc. – are changing rapidly as baby boomers reach 50, the expectations about their oral health will continue to evolve. Baby boomers, the cohort of Americans born from 1946 to 1964, currently numbers 76 million. An estimated 25 percent have a college education, and they are poised to inherit $12 trillion from their World War II-era parents. The baby boomers are the first group of Americans to benefit from widespread water fluoridation and toothpaste with fluoride. As a result, they are reaching age 50 with a virtually intact natural dentition. Along with general health and wellness, their goals include straight white natural teeth.

Rowe and Kahn, in their book, Successful Aging, describe the results of a 15-year interdisciplinary research endeavor to identify predictors of successful aging.[3] Their findings are exploding the myths of aging. "Choosing" parents well is not the best predictor of successful aging; rather, lifestyle choices more than genes determine how well people age. As a result, the new concepts, materials, products, and technologies available to prevent oral diseases, restore diseased teeth, and maintain oral health are of great interest to aging Americans. Studies that link oral health with overall health, like the recent research linking periodontal disease to cardiovascular disease, will find an interested audience as older adults make healthy lifestyle choices that include their approach to oral health care.

Welcome to the Practice

A practice's first impression is as important as the first impression a dentist makes with any individual. Awareness of the needs of older patients is a key to making a good impression. How age-friendly is the dental office staff? Has the dentist ever held a staff meeting to discuss the staff's attitudes toward aging, illness, and disability? Are older adults graciously welcomed to the practice during their initial phone conversation? Does the office staff fit the patient into the dentist's scheduling needs, or is the patient invited to provide a time that is most convenient for him or her? Office staff should not assume retirees have a lot of free time. Many older adults may not know the actual life expectancies in **Table 1**, but they do know that they don't have as many years left at age 70 as they did at 50. They don't want to miss a tennis game or volunteer assignment because of a dental appointment.

A dental office reception area should be welcoming to people of all ages. There should be a variety of age-appropriate reading material. Patients with hip or knee replacements or generalized osteoarthritis have an easier time getting out of hard-back chairs. Area rugs can be hazardous for canes or walkers and make navigating a wheelchair more difficult. The reception area should have sufficient room to accommodate a wheelchair. The less disruption a patient in a wheelchair feels he or she causes the office staff, the more welcome he or she will feel in the practice.

Internal Marketing

Although adults are living longer and healthier lives, they are also managing multiple chronic diseases. On average, adults older than 65 see their physicians more than four times as often (5.5 office visits per person) as they see their dentist (1.2 visits).[4] Arthritis, cardiovascular disease, diabetes, psychiatric illnesses, and cancer are among the most common chronic diseases seen in older adults.[5] These medical conditions may result in dependency in adults older than 80, causing them to spend some time in a nursing home.

Additional time by the dental team will be needed to review a medical history with significant positive findings. Older adults may be taking multiple

medications to treat chronic diseases. The medical history must include a review of prescription medications and over-the-counter drugs, vitamins, supplements, and herbal remedies. Patients often don't perceive these over-the-counter items as medicine and, therefore, don't think to tell the dental team about their use of them. Yet, these products can interact with other medications patients are taking or that a dentist may prescribe.

The principles of diagnosis and treatment planning remain consistent throughout a patient's life. An extensive interview, thorough medical and dental history, and comprehensive examination are essentials in the development of a treatment plan that meets a patient's needs. Older adults remain interested in the latest advances in oral health care and, having finished providing for their children's oral health, are ready to invest in their own. Just as with younger patients, older adults' decisions to accept a treatment plan may be related more to their belief or interest in improving their overall health, increasing self-esteem, or adding self-confidence than to just purchasing an implant-supported prosthesis or anterior veneers.

Baby boomers and older adults are looking for methods to stay healthier longer. For many adults, oral health care is an important element in the formula for health and wellness. As a result, preventive dental measures are as important for older adults as they are for children. A dentist who includes a preventive component to the treatment plan implicitly tells an older adult that the dentist cares about that patient's future.

A risk assessment approach will help the patient identify the factors that increase his or her risk for oral diseases.[6] Patients may be unaware that the medications they take can decrease salivary flow and thus increase their risk of root caries. Diabetes may increase a patient's risk of periodontal disease, and people who use inhalants for asthma or steroids for their rheumatoid arthritis will have an increased risk for oral candidiasis infections. Patients with dementia who cannot remember how to use a toothbrush or those who have suffered a stroke and lost the use of their dominant hand are at increased risk for plaque-related oral diseases. New oral health products to assist patients in maintaining oral health abound. Tobacco cessation at any age remains one of the best methods to improve an individual's oral and overall health. The dental team can assist patients who are ready to quit.

External Marketing

Traditional external marketing includes activities such as advertising, patient newsletters, and direct mail. E-commerce is taking shape, and more patients are searching the World Wide Web for oral health information. Community activities such as health fairs, PTA meetings, and civic club participation have served to increase dental professionals' visibility in their communities. A dentist should consider extending his or her visibility to assisted living centers, adult day care centers, or senior citizen centers.

Answering an adult son or daughter's request to perform a dental consult on his or her parent in a nursing home is a form of marketing. While performing that nursing home consult will take additional time in a dentist's busy life, that dentist and dental team will be viewed as caring, committed professionals when they answer that request. And once in the nursing home, a dental professional has the opportunity to educate the health care staff, physicians, nurses, nurse's aides, and occupational therapists on the importance of oral health throughout life.

Conclusion

The aging of America offers new opportunities for marketing the value of oral health care and a dental practice. External marketing opportunities may find dental professionals in senior centers, assisted living facilities, or nursing homes. Internal marketing may result in improved customer service and patient satisfaction for all patients, including older adults.

Oral health was designed to last a lifetime. Future cohorts of older adults, particularly the baby boomers, will reach older adulthood with their natural dentition intact. Their view of aging will be one of health and wellness, and oral health care will become an increasingly important component.

With improved techniques, concepts, and home care products, oral health need not decline with aging or illness. As experts and leaders in the field of dental science, dentists have a responsibility to share their knowledge and expertise to improve the oral health of the public.

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CDA JOURNAL, VOL 27, Nº9

Warning: Reading This Can Give You Eye Strain

Robert E. Horseman, DDS

Inasmuch as I have been warning my patients for over 50 years about the hazards encountered while wielding a stiff-bristled toothbrush in an inappropriate manner -- you could put your eye out, I caution them -- I feel relieved to be excluded as a litigant so far in the current brouhaha now on the court docket. Not so lucky are the ADA, Colgate and various other deep-pocket defendants.

In brief, a gentleman complaining in a peevish threnody says he discovered that after a few decades of conscientiously brushing his teeth as he had been advised to do by the entire dental community, his reward was cervical abrasion. You can imagine his consternation! Here he was, doing the Right Thing, and what does he get -- Class V devastation. Fortunately, he kept his wits about him and -- in the great American tradition embodied in the cry "Sue the Bastards!" -- was able to persuade a member of the bar, with nothing more pressing to do, to plead his case. In this instance, one of the "Illegitimates" is the American Dental Association, which neglected to affix a warning label alongside the Seal of Acceptance on the toothbrush stating that it was a dangerous device capable of destroying that which it was touted to save. This oversight on the ADA's part is regrettable. Reports that warning labels on tobacco products have resulted in a 10 percent increase in cigarette consumption by teenagers should have alerted the association to the wisdom of placing hazard warnings on brushes to attract the very population segment it wanted to addict.

Colgate, taking a cue from the National Rifle Association, has taken the stand that "Toothbrushes don't destroy teeth, people do." Lacking the lobbying clout the NRA enjoys, Colgate may be in for some rocky tobogganing here, particularly when their warning-free toothbrush is coupled to their cleansing paste that contains approximately 65 assorted chemicals plus a mild abrasive.

That leaves the plaintiff's dentist and, by extension, the remaining 100,000 of us who haven't been subpoenaed yet. There is no denying that courtroom drama has captured the attention of the American people, even many of those whose IQ exceeds 100 and thus have other fish to fry. A one-act production we'd give a pretty farthing to witness would go something like this:

The case of Ignatz vs. the American Dental Association et al. has attracted worldwide attention to the extent that the venue has been moved to Madison Square Garden. It has taken eight months to impanel a jury from the pool consisting of most of the adult population of New York not already in Attica. Peremptory challenges by opposing attorneys

were exhausted early on, eliminating candidates who could be considered biased because of having one or more teeth of their own.

At curtain rise, the judge, played by Judy Sheindlin, enters to cries of "Oyez! Oyez! Oyez!" chanted by bailiffs Moe, Curly and Shemp. Judge Judy graciously suggests the spectators "SIDDOWN!" as she smoothes her black Versace robe with the fashionable three-quarter puff sleeves and the Peter Pan collar done in KitchenAid arctic white. Judge Judy, whose reputation for suffering fools gladly has been sorely tested in the past trimester, pats her hair, rearranging an errant strand.

Focusing her benign gaze on the prosecutor's table, she says, "Will the plaintiff and his counsel approach the bench?" It is not a question. Ignatz and Perfidy, his lawyer, do so, whereupon Judge Judy, grasping her gavel with the overlapping grip as taught to her by Arnold Palmer, delivers to each of their foreheads a resounding BONK! that can be plainly heard in the peanut galleries. "Case dismissed," she intones, her mouth unexpectedly taking on the semblance of a steel trap and indicating her disdain for a chicken-hearted social system that forbids euthanasia for people who file frivolous suits of this nature. She directs the pair to endure 200 hours of watching a Sesame Street video on toothbrushing starring Elmo.

As the real case sashays fuzzily into its penultimate phase, we are making certain changes in our office. This is the result of the plethora of litigious nutcases in this country swarming about in a mating frenzy with their LLD counterparts. The manufacturers of the office front door, for example, have given us a warning sign stating that the door has been known to produce painful contusions if entered with the forehead preceding the feet by more than six inches. Woven into the carpet at the entrance is a large hazard sign with instructions for lifting the feet carefully while traversing it. There is a waiver of liability directed at patients who habitually drag their feet rushing in to avail themselves of our services.

Manufacturers of the myriad products we use in the operatory have been quick to appreciate Colgate's plight and are cooperating in issuing warning labels. The label for the handpiece alone is so comprehensive that it has to be unfurled and dangled before the patient's eyes, making it difficult to reach the upper second molars.

Rather than risk a class-action suit by patients who have been ocularly assaulted by an operatory light inadvertently flashed in their field of vision, several dental light companies have folded up shop. In our rooms, we have resolved this hazard by using as an intraoral light a pair of fireflies in a small vial tethered to a doubled length of floss attached to the bracket table. They have been trained to flash out of sync for more or less steady illumination, albeit an unknown Kelvin rating.

We now have what is considered a "restricted practice." We have eschewed diagnoses and recommendations; these can be easily misconstrued, constituting a financial hazard we can ill afford. Any restorative treatments involving the use of instruments or materials with the potential for harm, even though they all have warning labels, have been abandoned temporarily until some precedent in the courts has been established.

The only labels that appear to be working in our favor are those we have placed at the front desk. These warn of the dire consequences of stiffing us on our bill, being habitually late, or failing to give six months notice if they are considering skipping their recall appointment or having their tongues pierced.