

JOURNAL *of the*

MASSACHUSETTS DENTAL SOCIETY

Fall 2008

SPECIAL ISSUE

Addressing the
Oral Health Needs
of the Elderly

IMPERATIVE TO CARE

“It was once said that the moral test of a society is how that society treats those who are in the dawn of life, the children; those who are in the twilight of life, the elderly; and those who are in the shadows of life, the sick, the needy and the handicapped.”

—Hubert H. Humphrey
United States Senator (D-MN)
Former Vice President of the United States

“America enjoys the best health care in the world, but the best is no good if folks can’t afford it, access it, and doctors can’t provide it.”

—William H. Frist
Former United States Senator (R-TN)

THIS ISSUE OF THE JOURNAL FEATURES THE UNIQUE DENTAL AND CULTURAL NEEDS OF OUR older population and the challenges we as practitioners face in providing compassionate and quality care to them.

As you read this, a veteran of World War II, a Holocaust survivor, or one of his or her spouses is likely passing on. These are the people of a generation who came of age in the worst socioeconomic era in world history and, without questions or hesitation, faced down the most monstrous, inhumane, and diabolical war machine the world has seen. They returned home or chose the United States to be their new home and began lives wherein hard work was expected, families and communities were established, and nothing beyond what they had earned through their own imaginations and efforts was accepted.

They gave us the greatest age of technical, social, and educational advancement in history. They provided for their families and saw that their children would receive better educations and, undoubtedly, live better lives than they ever thought possible for themselves.

We, as the providers of oral health care, now are obliged to meet the unfulfilled needs of those who are emerging, those who are nearing twilight, and those who are in the shadows.

As a professional society, the Massachusetts Dental Society has for many years been a leader in protecting and providing access to care to those in need. We must never lose our focus and we must never forget that no matter how much we do, it isn’t enough.

We hope the information in this issue of the JOURNAL helps you provide increasingly superior clinical care to your older patients. We hope that your enhanced understanding of the unique needs of this special group of people—along with the ongoing pro bono gifts of your time, knowledge, and skills to children and other disadvantaged persons through the MDS Foundation Mobile Access to Care (MAC) Van or individually (and generally anonymously) in your office—helps you continue to be passionate about being compassionate.

We owe this to those who have gone before us, and to those who are to succeed us. ■



Richard D. Becker

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The JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY [USPS 284-680] is owned and published quarterly by the Massachusetts Dental Society, Two Willow Street, Suite 200, Southborough, MA 01745-1027. Subscription for nonmembers is \$15 a year in the United States. Periodicals postage paid at Southborough, MA, and additional mailing offices.

Postmaster: Send address changes to: JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY, Two Willow Street, Suite 200, Southborough, MA 01745.

Contributions: Please see page 63, contact the Communications Department, or visit www.massdental.org for author’s guidelines.

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Member Publication
American Association
of Dental Editors



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THE PROS AND CONS OF SELF-INSURING FOR LONG-TERM CARE

THINKING ABOUT THE POTENTIAL IMPACT OF LONG-TERM care often involves considering whether to buy long-term care (LTC) insurance or to self-insure. Sometimes your options are limited. For example, poor health or old age may make the cost of LTC insurance too expensive for you, or you may be denied coverage altogether. Medicaid may not be an alternative either if your income and assets exceed minimum qualification limits. In this case, self-insuring may be your only option. But if you are able to choose between LTC insurance and self-insuring, here are some issues to consider.

Why Might You Self-Insure?

There are reasons why people choose to self-insure rather than buy LTC insurance, presuming both options are available. Often, people will choose to self-insure because they think they have enough income and assets to pay for whatever long-term care they'll need, or they decide not to plan for long-term care because they think they'll never need it during their lives. However, there are both advantages and disadvantages to self-insuring.

Advantages to Self-Insuring

You have greater flexibility in how you use your financial resources. Even if you choose to allocate income or savings to potential long-term care costs by self-insuring, those assets will still be available to use for other purposes, such as retirement, business ventures, or education funding.

Long-term care insurance premiums may become too expensive. Often, people buy LTC insurance during their working years, but find that their income decreases in retirement or that policy premiums increase, making LTC insurance hard to pay for. If you own LTC insurance, or you're thinking about buying it, try to estimate what your income will be in retirement and whether you'll be able to afford the premiums, especially if they increase. If you think the premiums might be too costly, consider an alternative of setting up an LTC savings account into which you can contribute as much as you can afford. This account may not provide the funds that an LTC policy could, but it can help pay for LTC expenses if they occur, and you won't be financially strapped with premium payments you can't afford.

You have more control over your care. Many policies provide only limited benefits—often with additional restrictions and conditions—that may end up covering only a small percentage, or even none, of your long-term care costs. For example, a policy may provide limited benefits for in-home care, while using your

assets may give you more control over the type of care you get, where you receive the care, and who provides the care for you, without the restrictions or limits of some LTC insurance policies.

Disadvantages of Self-Insurance

If you end up never needing long-term care, then, in hindsight, self-insuring is almost always the right choice. But what if you do need long-term care? How long will you need that care and how much will it cost? These uncertainties lead to some of the disadvantages of self-insuring.

Long-term care expenses can deplete your assets and income, leaving little or nothing for your spouse and dependents. Paying for some of your care with LTC insurance may allow you to conserve more of your savings and income for your spouse or dependents.

You may need to depend on family members to provide your care. Some people gamble that they'll never incur long-term care expenses. If they're wrong, their options may be very limited. If they can't qualify for Medicaid, their assets and income may be enough to pay for a portion of the care, but not all of it. Consequently, they often rely on family to provide some, if not most, of their long-term care. Long-term care insurance may cover specific costs of skilled or custodial services and nursing home care, relieving your family of some of these caregiving responsibilities.

Self-insuring could increase your taxes. Depending on the type of assets you have, paying for long-term care from your savings could increase your income taxes. Withdrawals from certain retirement plans such as IRAs or 401(k)s are usually subject to ordinary income taxes, so taking sizable withdrawals from them to pay for long-term care expenses might increase your income taxes significantly. On the other hand, if your LTC insurance is tax qualified (as most policies are), then benefits paid from the policy for care are generally not subject to income taxes.

If you are considering LTC as part of your financial plan, contact EDFS. We can run a quantitative analysis to determine if you are able to self-insure. If you are not a candidate to self-insure, then EDFS can show you ways to make LTC affordable and maybe, in some cases, even deductible. Contact us today for a free LTC assessment. ■

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THE STATE OF MASSACHUSETTS HEALTH INSURANCE—FALL 2008

AS WE AWAIT THE RESULTS OF THE PRESIDENTIAL ELECTION and requisite health care and insurance agenda of the chosen candidate, where do we stand in Massachusetts in terms of the insurance landscape?

Are there any new carriers?

No new carriers of note have broken into the market in Massachusetts. The base carriers—Blue Cross Blue Shield, Fallon, Harvard Pilgrim, and Tufts—are all operating profitably, coming on the heels of double-digit increases for the past seven years. Early projections are pointing to high single-digit to low double-digit increases for 2009. The provisions of the recent Health Care Reform Act have availed many people of more plans, but the costs continue to rise.

Why do the health insurance plans continue to increase?

- **Medical inflation.** Flat in the mid-1990s, soaring ever since. The trend is back in the single digits, but it's still the major reason for premiums remaining high. Cost-control mechanisms for curbing medical inflation are a must.
- **Life expectancy.** People are living longer. That is a good thing. However, in living longer, they draw from the health care system longer and with more costs. With "Baby Boomers" now approaching the silver years, senior health and cost of care will be an ever-increasing issue.
- **Prescription drugs.** Costs for prescription drugs rose 18 to 21 percent over the past 10 years. However, with changes in the prescription plans and a more vigorous generic initiative, the trend has shrunk to single digits. This is a positive in the cost fight. Yet utilization still remains high.
- **Mandated benefits.** While many of the mandated benefits, such as not allowing any preexisting conditions for health maintenance organizations (HMOs) in Massachusetts, are wonderful for consumers, they are costly. This year alone, there were more than 40 proposed mandated benefits; but with each benefit, there are costs that are passed on to the consumer. The question is, can we afford to cover everything?
- **Consumer education.** Surprisingly, or maybe not surprisingly, many subscribers still utilize emergency rooms as their primary source of care. The costs of doing so are staggering and exceptionally inefficient. Treating that sore throat at an ER is two or three times more expensive than seeking treatment at an office visit, never mind the time wasted at an ER. The general public must be educated as to how and where to best utilize their care. With health savings accounts (HSAs) gaining more ground, inefficient and costly treatments will undoubtedly decrease as people have to pick up the expense.

What does this mean to the millions of people who are insured currently with carriers in Massachusetts?

HMOs, despite people's opinion of them, are an integral component of our health care delivery system. For many, the \$5 and \$10 co-pays are a thing of the past. They are being replaced by deductible-based plans and HSAs. "Consumer directed" is the new catchphrase, and it's here to stay.

As consumers, what can we do about the increasing cost of health insurance?

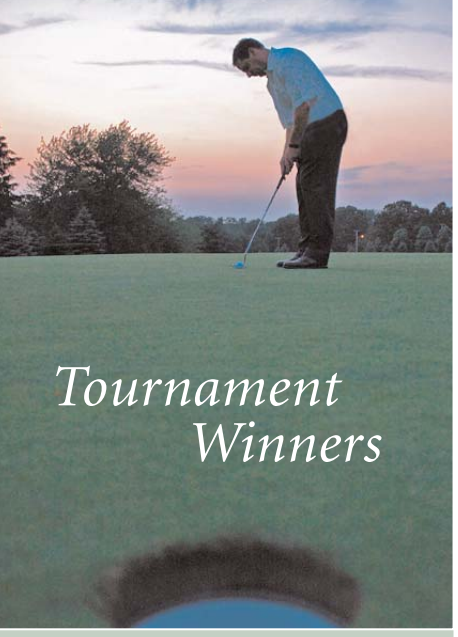
Thanks to health care reform, there are more options available than ever before. However, they all involve more consumer costs in terms of higher co-pays and deductibles. More than ever, education is crucial in selecting health insurance plans and strategies.

To combat the increases, you should evaluate the following:

1. What are your insurance plan co-pays? If you have a \$10 co-pay, it may be worth looking into a \$15, \$20, or higher co-pay. By implementing this change, businesses will see a savings in their monthly premiums.
2. Would your office be willing to take on a deductible? Currently, plans with \$500, \$1,000, and \$2,000 deductibles are available from all carriers. Some of the deductible-based plans allow for co-pays for office visits, but X-rays and other ancillary charges go against the deductible. Once the deductible is met, the coverage is 100 percent thereafter.
3. How about switching to a stricter HMO from a preferred provider organization (PPO) or point-of-service (POS) plan? Switching to a more restrictive HMO plan can save you 10 to 15 percent or more.
4. How about a health savings account? While it is a more consumer-directed strategy, it could reap fantastic long-term benefits.

Health insurance is a key employee retention and recruitment tool. While the costs may be high, simply terminating the health plan is really not an option because it will leave people uninsured and will jeopardize the office composition. The key is to utilize the premium in the most effective mode that fits the needs of you and your office.

The next president has many important items to address, including the economy, the Iraq war, the rising price of oil, and the health care issue, just to name a few. With health care being one of the top agenda items, expect change regardless of who steps into the Oval Office. ■



Tournament Winners

Best Ball of Four: 1st Place Gross
 Michael Anastasi, Dr. Michael Seidman,
 Dr. Daniel Varallo, and Gerry Walba

Best Ball of Four: 2nd Place Gross
 Dr. Donald Burgoyne, Dr. John Caravolas,
 James Parsons, and Dr. Efrain Ruiz

Best Ball of Four: 1st Place Net
 Greg Clark, Gary Cowan,
 Brian Macaluso, and Joe Mauro
 of the Boston Park Plaza Hotel

Best Ball of Four: 2nd Place Net
 Drs. Paul Murphy, Louis Rissin,
 Jeffrey Stone, and Doyle Williams

Best Ball of Four: 3rd Place Net
 Dr. Anthony Giamberardino, Dr. John
 Herzog, Dr. N. Peter Hjorth, and
 Michael Shulman

Scramble: 1st Place
 James Masterson of Align Tech, and
 Doug Statham, Christian Villaroel, and
 John Vitale of Keystone Dental

Scramble: 2nd Place
 Dr. Thomas Puschak,
 Dean Ribeiro of National Dentex,
 Cory Spencer of Axis Dental, and
 Mick Azzara of Captex



More than 130 people attended the MDS Foundation's 7th Annual Golf Tournament and Spa Day at Ledgemont Country Club in Seekonk on June 16, 2008, raising nearly \$50,000 for the Foundation. This year's outing once again included a Spa Day, where participants were pampered with massages, facials, pedicures, and manicures at the Elizabeth Arden Red Door Spa at the Biltmore Hotel. The spa event was an opportunity for non-golfers to become more involved with the Foundation's programs and participate in the dinner auction with the golfers after the tournament.

Golfers had opportunities to win prizes during the tournament's various contests. Owen Boyd from SolmeteX sunk a 20-foot putt to win the Putting Contest, sponsored by UBS Financial Services. Benco sponsored the Hole-in-One Contest, which featured a chance to win a 2008 Acura TL from First Acura of Seekonk. Kathy Kelly and Bill Skoglund of Boston Marriott Copley Place won the Longest Drive contests, while Michael Coletti of Sullivan-Schein, Lawrence J. Oliveira, DDS, Gene Greystone, DMD, and Michael Dinn, DMD, won the Closest to the Pin contests. Dr. Greystone's win included 50/50 donation with the MDS Foundation, sponsored by Patterson Dental. L. Michael Gouveia, DMD, won the Closest to the Line contest, sponsored by the Valley District Dental Society.

After the tournament, MDS Foundation Chair Richard LoGuercio, DDS, and MDS President Milton Glicksman, DMD, led the live and silent auctions, which began online a month before the event. Attendees were able to bid on Red Sox tickets, rounds of golf at exclusive clubs, Boston Bruins luxury box seats, hotel stays, sports memorabilia, and more. The Cape Cod and South Shore Districts' Golf Tournament generously donated several raffle items, including Ping, Callaway, and TaylorMade clubs, to spice up the raffle.

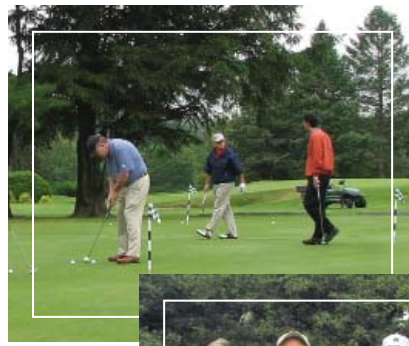
This year's tournament would not have been such a success without the help of the MDS Foundation Golf Committee and its chair, Michael Seidman, DDS. A special thank-you to the major sponsors of this event: Gentle Dental Associates and MDS Insurance Services, Inc. In addition, the following district dental societies generously contributed to the tournament:

- Berkshire, \$400
- Cape Cod, \$3,500
- East Middlesex, \$250
- Merrimack Valley, \$1,000
- Metropolitan, \$1,000
- Middlesex, \$500
- North Metropolitan, \$500
- North Shore, \$1,000
- South Shore, \$1,000
- Southeastern, \$2,000
- Valley, \$1,000
- Wachusett, \$1,000

All proceeds benefit the MDS Foundation, the charitable arm of the Massachusetts Dental Society. The MDS Foundation is dedicated to improving access to dental care for underprivileged children and adults, and enhancing educational opportunities for those who wish to pursue a dental career.

Earlier this year, the Foundation celebrated the Mobile Access to Care (MAC) Van program's first anniversary. The MAC Van provides free dental treatment to underserved children throughout Massachusetts and a referral system to help these children find a "dental home" once the Van leaves their area. In just 19 months, the MAC Van has treated 2,375 patients with services valued at more than \$552,000.

Please consider making a donation to the MDS Foundation at www.mdsfoundation.org/giving so we can continue to deliver care to underserved children.



Save the Date!
**MDS Foundation Casino Night
 and Texas Hold 'Em Tournament**
Thursday, January 29, 2009
5:00 p.m. - 7:30 p.m. during
the Big Apple Circus event at Yankee
 Dental Congress 34. Register at
www.yankeedental.com
 using code 900E



Dentistry and Quality of Life: An Interdependent Dynamic

PAULA K. FRIEDMAN, DDS, MSD, MPH

Dr. Friedman is professor and director of geriatrics and gerontology, as well as associate dean for administration at Boston University Goldman School of Dental Medicine.

“Our society must make it right and possible for old people not to fear the young or be deserted by them, for the test of a civilization is the way that it cares for its helpless members.”—Pearl S. Buck

The importance of good oral health for senior citizens has been an under-acknowledged area of public health for too long. The inextricable linkage of good oral health to good overall health is gaining wider professional and public recognition. That quality of life is related to good oral health reflects the oral cavity's contribution to appearance/esthetics, phonation/speech, and mastication/nutrition. Less often recognized are the additional functions that elders mention during oral health and cancer screening presentations in senior centers and Council on Aging educational programs.

When asked to describe why teeth are important, in addition to the above well-accepted functions, seniors include the following: aiding in self-defense (“When someone tried to mug me, I bit him!”), whistling, and playing many musical instruments that involve the oral aperture.

The implications of the dentition for quality-of-life issues are clear from the seniors' own descriptions and from ours. One 86-year-old participant at an oral health informational session in a Boston suburb described how, when she was flossing her teeth at age 80, she noticed that a few of them were crooked, and so she went to her grandson's orthodontist for a consultation. Wanting her teeth straightened, she wore braces for two years (until age 82), and now she is very proud of her esthetically pleasing smile. Do elders care about their appearance? You bet they do.

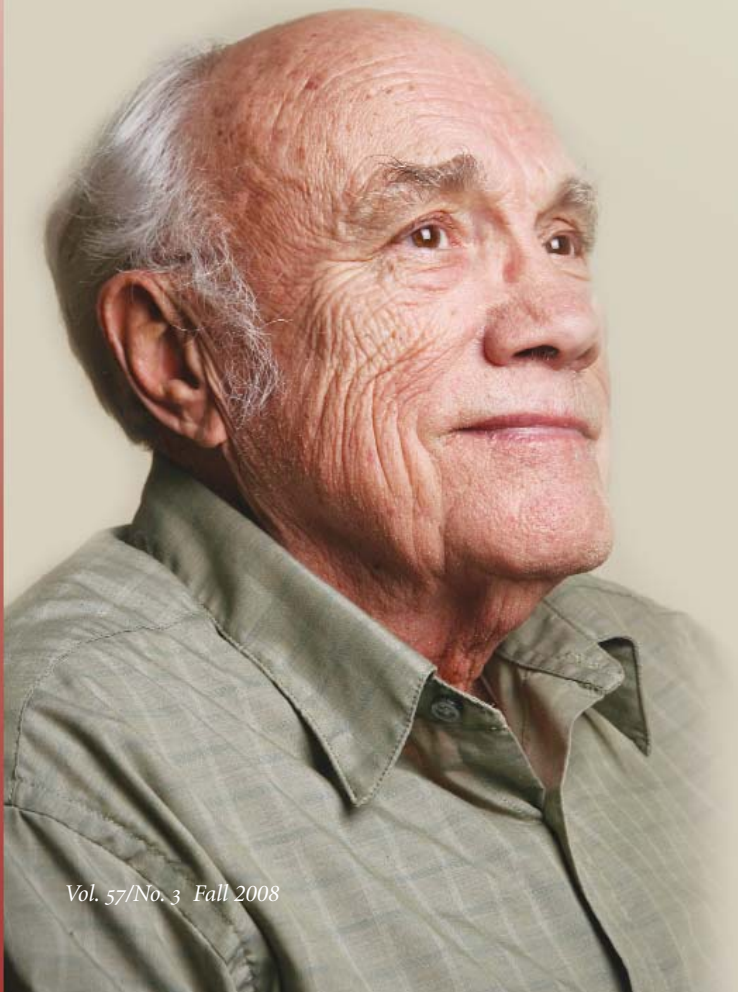
Describing our aging population and designing dental treatment for them is difficult to characterize because the elderly demographic is too expansive. We see examples of every dimension of the elderly continuum in our lives—among our families, friends, neighbors, and patients. For some elders, dental care is no different than that rendered to any other age cohort. For others, their dental care challenges demand that we as oral health providers be more creative and more attentive in delivering appropriate oral health care.

This special issue of the JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY includes nine articles from authors on a wide range of issues in geriatric/elder dental care. The articles address societal, educational, medical, and dental topics that support quality care for our senior citizens. They discuss long-term care sites, delivery of home care, coalition building, creation of access programs, clinical tips, education strategies for health professionals, and biomedical considerations with diabetes mellitus and xerostomia.

The Age Wave is upon us. It is the intent of this issue to provoke questions about how the dental profession can optimally address the growing oral health needs and demands of our aging population. ■

Editors' Note

This issue of the JOURNAL is dedicated to the most rapidly growing segment of our patient population: senior citizens. Under Dr. Paula Friedman's leadership, we have assembled a comprehensive series of articles that we hope will enhance your understanding and skills in dealing with this extraordinary group of people.





Training Health Professionals to Address the Oral Health Care of Older Adults

JANET A. YELLOWITZ, DMD, MPH

Dr. Yellowitz is director of geriatric dentistry at University of Maryland, Baltimore College of Dental Surgery.

Introduction

The U.S. Surgeon General's report on oral health identified the elderly as among the populations most vulnerable to poor dental care,¹ yet many general health professionals do not identify oral health as a component of general health. Although this issue is not isolated to practitioners treating older adults, this article will focus on general health professionals working with the elderly. The U.S. medical community, often described as ill-prepared to handle the expected surge in illness and conditions associated with growing old, is currently ill-prepared to identify oral conditions and diseases. Whether due to a lack of awareness of the signs and symptoms of oral disease, a misunderstanding of the connection between oral health and overall health, or the assumption that their patients are under the care of a dental professional, many general health professionals do not see themselves as responsible for their patients' oral health.

Given the associations between overall health and oral health, it is disconcerting that medical practitioners neglect the mouth. In keeping with a 2008 report from the Institute of Medicine,² the oral health competence of the general health workforce needs to be improved. One approach to improving access to oral health care is to optimize the skills, training, and practice behaviors of primary health care providers through education and training programs.

Background

Although the oral health of older adults has improved during the past 50 years,³ the barriers to care increase with age and many elders do not receive care on a routine basis.⁴ More of today's elderly are retaining their natural teeth, with fewer adults experiencing total tooth loss. As older adults retain teeth into their later years, they are at an increased risk for oral disease. The oral health of the elderly becomes more complicated as they become frail, homebound, or institutionalized, or when their access to oral health care is limited. This situation will become even more dramatic as the population of the elderly increases in size. Many older adults only seek care when in pain or discomfort, predisposing them to poor oral health. Health care professionals need to acknowledge their role in helping older patients, for whom having adequate access to medical and dental care can reduce morbidity and mortality, preserve function, and enhance overall quality of life.⁵

Older adults obtain care from physicians far more frequently than they do from dentists, and they rely on health care services far more often than other segments of the population. They often suffer from at least one chronic condition, take multiple medications, and are at risk for cognitive disabilities, which predisposes them to oral disease. It is therefore imperative that older adults receive routine oral health care, consistent with the 1994 U.S. Public Health Service recommendation that all adults receive an annual oral examination to promote good oral health.

Studies have reported an increasing number of associations between oral health and systemic conditions.⁶ Poor oral health can lead to life-threatening conditions such as malnutrition and dehydration,⁷ cardiovascular disease,⁸ and aspiration pneumonia.⁹ Without adequate knowledge and skills, physicians and other primary health care providers do not screen, are unable to recognize, and/or may misdiagnose oral conditions.¹⁰

Key limitations of access to oral health care for older adults include physical and cognitive abilities, financial resources, reimbursement issues, and availability of dentists, as well as the attitudes and practices of the individual and the health professional. Many older adults have a diminished awareness, capacity, or interest in obtaining oral health care. This decline is further complicated by their need to address age-related physiologic changes, systemic disease, dependence upon a caregiver, and/or a reduced capacity to pay for care.

Some older adults believe that routine oral health care is not necessary or that if you don't have pain (i.e., no perceived need), you don't have to see a dentist.¹¹ Postponing care until pain develops eliminates the opportunity to diagnose and treat disease in its early stages, and increases one's risk of developing a serious, disabling, and potentially disfiguring disease. Having no perceived need for care is one of the key barriers to access to care for older adults, and is one of the best predictors of utilization.¹²

There is a common misconception that oral health care is not as important as overall health care, particularly for older adults, as is apparent in the Medicare program. Unlike medical care

for older adults, the Medicare program does not reimburse for routine dental care, with the exception of a select few oral health services in very specific situations. Medicare will pay for dental services that are an integral part of either a covered procedure (e.g., reconstruction of the jaw following accidental injury) or for extractions done in preparation for radiation treatment for neoplastic diseases of the jaw. Medicare will also make payment for oral examinations, but not treatment, preceding kidney transplantation or heart valve replacement, under certain circumstances.¹³ This lack of oral health care coverage in the Medicare program compounds the many barriers to oral care for older adults.¹⁴

Educational Change

To date, many oral health care professionals have fallen short of improving the oral health of a community because they have not collaborated with other health professionals, resulting in reduced access to care. Without the inclusion of other health professionals, oral health may be viewed as not as important as or related to general health. This isolation is perpetuated by the limited oral health curricula in most health care professional schools and continuing education programs.

In order to improve the oral health care services for older adults, dialogue and collaboration across health disciplines is needed. Integrating oral assessments into the routine services of primary health care providers can improve the quality of care, as well as improve patients' access to care and awareness of oral health. Without adequate knowledge and skills, physicians and other primary health care providers do not recognize or can misdiagnose oral conditions.¹⁰ Yet most general health professional training and continuing education programs provide minimal, if any, training in oral health and geriatric health care. Oral health professionals need to share their knowledge and expertise with other health care providers, and not just their patients. Expanding the knowledge base of health professionals helps to convey the importance of oral health and its role in general health, while helping to increase access to oral health care.

Oral health training is critically needed for primary health providers—

physicians, physician assistants, nurse practitioners, and all levels of nursing personnel need to be competent to provide oral health assessments. These professionals are knowledgeable about human anatomy and physiology, signs of inflammation, infection and disease, pharmacology, adverse side effects of medications, and the association with general health. To ensure they are able to provide oral assessments for older adults, an adequate knowledge of the common signs and symptoms of oral diseases, disease risk factors, and physiological changes associated with aging is needed, as well as knowledge of local oral health resources.

Primary Health Care Providers

Since many older adults receive frequent care from general health care providers, there are likely to be numerous opportunities for general health care professionals to provide oral health assessments and promote good oral health care. However, most primary care providers have limited knowledge about assessing the oral health status of their patients¹⁵ and do not routinely inspect their patients to identify suspicious oral conditions.¹⁶ Health care providers report the following reasons for not assessing the oral cavity of their patients:

1. Their patients are being seen by dentists;
2. The oral cavity is not their responsibility; and
3. Dentists are responsible for oral health.¹⁷

During training, most primary health care providers receive little, if any, oral health instruction or guidelines for providing an oral assessment. Similar to other assessments, the primary objective of an oral assessment is to distinguish between health and disease. An oral assessment is a systematic oral screening examination that includes both visual assessment and palpation of the head and neck, including the perioral and intraoral hard and soft tissues. Oral assessments are noninvasive, do not require technical equipment, and only require a short time period (< 2 minutes).

Conversely, a comprehensive oral examination completed by a dental professional will include a detailed extraoral and intraoral assessment of the hard and soft tissues, radiographs, a medical

history review, and an assessment of daily oral care designed to provide the patient with a comprehensive treatment plan for care.

Medical History

Many primary health care providers recognize the connection between general and oral health, but do not utilize this information in their practice as an oral assessment is not a routine component of a physical assessment protocol. Similarly, many health history forms do not include vital issues related to oral health. Some health history forms ask for either the name of the patient's dentist or date of last visit; however, they do not address the date of the patient's last complete oral examination.

At a minimum, health professionals need to ensure that their patients receive an annual comprehensive oral examination. Primary health care providers are generally highly trusted and respected by their patients, and as such, it behooves them to clarify the need for an annual comprehensive examination by a dental professional.

Training Program

Training health care professionals about oral health care is not a new concept; however, many health professional training programs still have not adopted it. General health professionals need to be aware that an oral assessment is a natural extension of a general physical examination. In order for this to occur, specific didactic and clinical oral health care training is required. Identifying the oral health status of older adults requires substantial familiarity with oral health knowledge and assessment techniques. Didactic and clinical oral health training programs are needed in both professional training schools and continuing education programs.

In order for oral assessments to be integrated into general health care, professional training programs must adopt the concept and integrate oral health throughout their curricula. In addition, health history and examination forms need to be modified to ensure documentation of recent dental visits and signs and symptoms of dental disease. Clinical competency examinations can help to provide assurance of training, with continuing education programs to help meet

a professional's needs. Collaboration with oral health professionals will be critical to ensure training materials are kept current.

Training Program Guidelines

Significant information can be obtained through a systematic evaluation of the hard and soft tissues of the head and neck, and for some, systemic conditions can be identified before symptoms are apparent. By identifying infection, inflammation, disease, or trauma in its early stages, the patient has a better chance of having the condition managed before extensive care is needed. With minimal oral health training, general health care practitioners can better manage the overall health of their patients.

Oral health training materials are appropriate for all levels of health professional training needs. Key concepts of an oral health education program for general health care providers should include, but not be limited to, the following:

- Identify date of last complete oral examination.
- Discuss the need to have an annual or biannual comprehensive oral examination.
- Incorporate the oral assessment as a component of a routine physical assessment.
- Ensure thoroughness and improve efficiency with a planned, systematic approach.
- Offer a complete explanation to the patient as to what is being done and the reason for it.
- Review signs and symptoms of common oral conditions and diseases.
- Instruct the patient to report any oral changes he or she sees or feels.
- Refer unusual and suspicious findings, especially those present for two or more weeks.
- Inform the patient about the difference between an oral assessment and a comprehensive examination completed by a dental professional and why the latter is a critical part of the health regimen.

Pilot Training Programs

Oral health educational programs for physician assistants and nurse practitioners were recently piloted at the University

of Maryland Dental School, supported by the University of Maryland, Maryland Statewide Health Network through the Maryland Cigarette Restitution Funds.¹⁸ The goal of the research programs was to improve the access to oral health care for underserved community-dwelling adults. The curriculum presented included didactic and clinical training in oral health and oral health assessment. Program participants provided oral assessments to their patients throughout the length of the study.

A secondary goal of the programs was to assess the ability and success of health care providers to incorporate oral assessments into their routine practice. The programs extended over 9 to 12 months, and included three 3-hour training sessions. In one 9-month project with 13 physician assistants, five patients referred for follow-up were diagnosed with oral cancer. Without this program, it is uncertain when these lesions would have been diagnosed.

Although these findings are short-term and preliminary, the initial results reveal that this type of training program can be a tremendous asset for those trained and for those they serve. Until oral health is incorporated into training programs of general health professionals, the need for this type of program will continue as individuals are unable to obtain routine oral assessments. Educational change is needed in dental and health care professional training programs to better address oral health disparities among the elderly.

Summary

As a group, the elderly suffer disproportionately from oral disease and often do not access routine oral health care. Older adults are faced with numerous barriers to oral health care, ranging from their knowledge and attitudes about oral health to those of general and oral health professionals to financial concerns and health status. It is recommended that all adults obtain an annual comprehensive oral examination. In recognition of the Surgeon General's statement that health care professionals should be educated in the importance of oral health to overall health and well-being,¹ new programs need to be established.

Improving access to oral health requires the collaboration of primary

health care providers (physicians, physician assistants, nurse practitioners, and nurses) and oral health professionals. An integrated education program for primary health care providers can make a difference in the oral health status of older adults. To date, pilot projects have demonstrated that with minimal training, primary care professionals can and do include oral health assessments into their general practice protocols. However, there are no national initiatives to address this issue.

Oral and general health professionals must educate the elderly to recognize that preventive services are a lifelong commitment. Oral and general health programs must institute curricular changes to prepare future practitioners, and continuing education programs are needed for current practitioners. Major changes to professional education programs and public health policies are needed to address the oral health care of today's—and tomorrow's—elderly. ■

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Management of Elderly Diabetic Patients

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Classification of DM

Four classes of DM are currently described by the American Diabetes Association (ADA):¹

Type 1 Diabetes Mellitus

This type of diabetes is characterized by an absolute insulin deficiency, usually resulting from autoimmune destruction of insulin-secreting pancreatic beta-cells. Type 1 DM accounts for 5 to 10 percent of those with diabetes. Although the disease can occur at any age, it usually occurs during childhood and adolescence; hence it was previously called juvenile-onset DM or insulin-dependent DM (IDDM) due to the dependency on exogenous insulin during later stages of the disease.

Type 2 Diabetes Mellitus

This type of diabetes is characterized by resistance to insulin action in target tissue (relative insulin deficiency), and the actual insulin level can either be elevated or decreased. It is the most common form of DM and accounts for 90 to 95 percent of those with diabetes, and the risk of developing Type 2 DM increases with age, obesity, and lack of physical activity. People with hypertension, dyslipidemia, and prior gestational diabetes mellitus (GDM) are also more prone to this disease. Type 2 DM was formerly called adult-onset DM or noninsulin-dependent DM due to the fact that survival for many patients does not depend on administration of exogenous insulin. There is a strong genetic predisposition to Type 2 DM; it occurs more frequently in African American, Hispanic, Native American, Asian American, and Pacific Islander populations.³

Gestational Diabetes Mellitus (GDM)

The definition of this type of diabetes is any glucose intolerance that begins or is first recognized during pregnancy. Depending on the population, the prevalence may range from 1 to 14 percent of pregnancies, and complicates 4 percent of all pregnancies in the United States. Although glucose tolerance returns to normal in most cases, the risk of developing Type 2 DM increases in people with prior GDM.¹

Other Types of Diabetes

Other forms of DM are relatively rare, and may have different

etiologies. These include genetic defects of beta-cell function, insulin action, or other genetic syndromes. Diseases of the exocrine pancreas and endocrinopathies, such as Cushing's syndrome, hyperthyroidism, acromegaly, and tumors of endocrine glands, can lead to DM. Some viral infections have been associated with destruction of beta-cells. Many drugs, such as beta-adrenergic agonists (for asthma and some other pulmonary diseases), Dilantin (for seizures), and alpha-interferon (for treatment of various diseases such as hairy cell leukemia, hepatitis C, chronic hepatitis B, and genital warts), can impair insulin secretion or action.

Pre-diabetics

People with hyperglycemia that does not meet the criteria to be labeled diabetic, but is nonetheless too high to be considered normal, are currently considered by the American Dental Association to be "pre-diabetic."¹ Depending on whether the 75-g oral glucose tolerance test or the fasting plasma glucose test is used, subjects can be categorized as having impaired glucose tolerance (IGT) or impaired fasting glucose (IFG), respectively.³ The categories of test values are shown in Table 1.

Classic Signs and Symptoms

Hyperglycemia due to a defect in insulin secretion and/or action results in excess glucose excreted in the urine, causing frequent urination (polyuria) by osmotic diuresis; this loss of water results in thirst (polydipsia). Moreover, there is no uptake of glucose by cells, so they are continuously deprived of energy; therefore, people with DM are always hungry (polyphagia) and, ironically, weight loss is often observed.¹

Acute Complications

Patients with DM that is not recognized or well controlled may experience diabetic emergencies, including hypoglycemia, diabetic ketoacidosis (DKA), and hyperosmolar hyperglycemia nonketotic syndrome.⁴ Hypoglycemia, defined as a blood glucose level less than 70 mg/dl, is most common among insulin-treated Type 1 and Type 2 DM.³ DKA is most common in untreated or unrecognized Type 1 DM (absolute insulin deficiency), which occurs when fat stores in the body are converted to ketones in an attempt to compensate for the energy deprivation. On the other

Table 1. Categories of Diabetic State as Determined by Test Values

	Oral glucose tolerance test	Fasting plasma glucose
Normal	2-hr postload glucose <140 mg/dl	<100 mg/dl
Pre-diabetic	2-hr postload glucose 140–199 mg/dl (IGT)	100–125 mg/dl (IFG)
Provisional diagnosis of DM	2-hr postload glucose ≥200 mg/dl	≥126 mg/dl

Source: American Diabetes Association diagnosis and classification of diabetes mellitus.¹

hand, hyperosmolar hyperglycemia nonketotic syndrome is a rare acute condition in Type 2 DM (relative insulin deficiency) where hyperglycemia is observed without the presence of ketones.

Diabetic Emergencies in the Office

Acute complications of DM result from undiagnosed DM or poorly controlled blood glucose levels in patients with known DM. These complications include hypoglycemia, diabetic ketoacidosis, and hyperosmolar hyperglycemia nonketotic syndrome.⁴ Aside from the large number of people with undiagnosed DM, it has been suggested that many patients diagnosed with diabetes may not be under good glycemic control when presenting for dental treatment.⁵ Furthermore, the stress and length of dental treatment and surgery can complicate blood glucose levels through hormonal alterations. As the incidence of DM continues to rise at an epidemic level in our society, dentists may see diabetic emergencies. Therefore, it is important that dental professionals be familiar with the signs and symptoms

of these emergencies, and be able to treat appropriately and in a timely fashion. Signs and symptoms are summarized in Table 2.

Hypoglycemia

This is perhaps the most common and acute DM emergency seen in the dental office. Hypoglycemia is a side effect of medications that lower blood glucose in diabetic patients. It is defined as a plasma glucose level less than 70 mg/dl and is most often seen in Type 1 and Type 2 DM patients treated with exogenous insulin.³ Symptoms of hypoglycemia include initial hunger, followed by nervousness, perspiration, light-headedness, difficulty speaking, and finally confusion and loss of consciousness if untreated.⁶

Treatment of hypoglycemia entails the administration of quickly absorbed sources of glucose. This includes, but is not limited to, 2–3 tablets of glucose, ½ cup of fruit juice, ½ cup of regular (not diet) soft drink, or 1–2 teaspoons of sugar taken orally.⁶ If the patient cannot swallow or becomes unconscious, then

Table 2. Signs and Symptoms of Diabetic Emergencies

Hypoglycemia ⁶	Diabetic ketoacidosis ⁸	Hyperosmolar hyperglycemia nonketotic syndrome ¹⁰
Hunger	Polyuria	Severe dehydration
Nervousness	Polydipsia	Renal dysfunction
Perspiration	Polyphagia	Neurologic abnormalities
Light-headedness	Weakness	Polyuria
Difficulty speaking	Nausea	Polydipsia
Confusion	Vomiting	Hypotension
Loss of consciousness	Abdominal pain	Tachycardia
	Dehydration	Dry mucous membranes
	Hypotension	
	Tachycardia	
	Dry mucous membranes	

Diabetes mellitus (DM) is a group of metabolic diseases marked by abnormally high levels of blood glucose (hyperglycemia) resulting from defects in pancreatic beta-cell production of insulin, resistance to insulin action in target tissue, or both.¹ It is a chronic illness that could lead to damage of multiple systems, including the eyes, heart, kidneys, nerves, and blood vessels.¹ Moreover, nearly 73 percent of adults with DM experience hypertension, and almost one-third of those with DM have severe periodontal disease.² DM is a complex disease that requires continuing medical management, as well as patient self-care and awareness, in order to reduce or delay the risk of long-term complications.³

The prevalence of DM in the United States continues to rise, related to the rising rates of obesity⁴ and the aging population. Approximately 20.8 million people—7 percent of the U.S. population—are estimated to have diabetes.² In 2005, research revealed that more than one-fifth (20.9 percent) of people age 60 years or older are diabetic.² Given this significant proportion of DM in our population, and that people with DM are living longer due to improved medical management and awareness, dentists will continue to treat more patients with DM. It is therefore imperative that dentists remain informed about the dental management of diabetes, and both dentists and office staff should be well trained to efficiently and effectively deal with diabetic emergencies.

glucagons or glucose solutions should be injected intravenously.⁴ The sources of glucose for treatment and a glucometer—which can be found at local pharmacies—should be readily available in the dental office. After administering glucose, the first blood sugar level should then be measured with a glucometer. A second blood glucose measurement should be performed 15 minutes after treatment to see if blood glucose has reached 70 mg/dl. If not, then treatment should be repeated until blood glucose has reached the desired level.⁶

Since this is an emergency and requires prompt action, it is recommended that treatment be performed when hypoglycemia is first suspected, before the first measurement of blood glucose. (Although symptoms of hypoglycemia and hyperglycemia can be hard to distinguish at times, it should always be treated as hypoglycemia when in doubt, as the small amount of added glucose is unlikely to do major additional harm in an already hyperglycemic patient.)

To prevent hypoglycemic emergencies, prior to initiating treatment the dentist should measure the blood glucose level of the known diabetic patient with a glucometer. It would also be ideal to schedule diabetic patients for early in the morning, since endogenous cortisol, which elevates blood glucose, is higher in the morning.⁷ Diabetic patients should always be reminded to eat breakfast before the appointment. Insulin doses and types may need to be altered prior to and after dental procedures, and dental professionals should obtain a medical consultation regarding these patients.

Diabetic ketoacidosis (DKA)

DKA is a diabetic complication characterized by hyperglycemia, ketosis, and acidosis.⁸ Diabetic ketoacidosis is most common in untreated or unrecognized Type 1 DM, where blood ketone levels are elevated due to unregulated lipolysis during inadequate glucose utilization.⁵ Symptoms include polyuria, polydipsia, polyphagia, weakness, nausea, vomiting, and abdominal pain. Patients with DKA often present with signs of dehydration as well, including hypotension, tachycardia, and dry mucous membranes. Treatment of DKA includes intravenous insulin, replacement of fluid, and administering of potassium, phosphorus, and magnesium.⁹

Hyperosmolar Hyperglycemia Nonketotic Syndrome

Also called hyperosmolar nonacidotic DM, this syndrome is characterized by severe hyperglycemia, hyperosmolarity, and dehydration without considerable ketoacidosis. It occurs mostly in elderly patients with Type 2 DM. Often, these patients live alone or are neglected in nursing homes, and therefore their dehydration status may go unrecognized. Compared to DKA, hyperosmolar syndrome develops more insidiously and is often associated with severe dehydration, renal dysfunction, and neurologic abnormalities, including seizures and transient hemiparesis. Other symptoms include polyuria, polydipsia, hypotension, tachycardia, and, less commonly than with DKA, nausea, vomiting, and abdominal pain. Treatment includes replacement of fluid and electrolytes.¹⁰

Manifestations of Diabetes in the Oral Cavity

Diabetes affects multiple systems, including the oral cavity. Oral complications commonly found in diabetic patients include dry mouth, infection, impaired wound healing, oral candidiasis, periapical abscesses, and burning mouth syndrome.¹¹ Diabetics have a higher incidence of gingival inflammation than nondiabetics with similar plaque levels.¹² Most notably, severe periodontal disease affects about 30 percent of diabetic patients.² The connection between diabetic patients with poor glycemic control and periodontal disease is linked to a prolonged increase in advanced glycation end products in the bloodstream, which is associated with collagen breakdown in the periodontium.¹³

Similar to other systemic manifestations of DM, the key to preventing or delaying oral complications in patients with DM is good glycemic control. Diabetic patients with poorly controlled glycemic levels typically are more at risk for periodontal disease and experience more severe periodontal disease as compared to patients whose blood glucose level is well controlled.¹⁴ While DM causes many problems in the oral cavity, there is increasing evidence that oral infections, including periodontal disease, can increase insulin resistance and thus complicate treatment of diabetes.¹⁵ Moreover, studies support that removal of oral sites

of infection by extractions or periodontal treatment can result in an improvement of glycemic control in diabetic patients.¹⁶ It is therefore important to have good communication between dental practitioners and other health care providers in the management of diabetic patients.

Dental Management

In order to minimize emergencies during dental treatment and/or subsequent post-operative complications in diabetic patients, dental professionals must consider a number of patient management issues prior to initiation of any procedures.

Timing of Appointment

The appointment is usually best scheduled early in the morning because this is the time when glycemic level is better controlled. Patients should be instructed to eat a normal breakfast and take their routine diabetic medications. The duration of the appointment should be kept short and the time of the appointment should not coincide with the peak of insulin activity to avoid hypoglycemia. If glucose level is found to be borderline by the use of a glucometer in the office before the start of the appointment, the patient should be given a fast-acting source of glucose such as fruit juice or non-diet soda.

Assessing Glycemic Control

The level of glycemic control should be assessed by asking the patient if it is well controlled and how often the blood sugar is checked, since the level of glycemic control in the patient may require that the dental treatment plan be significantly altered. The dentist should have a glucometer in the office to check the blood glucose of known diabetic patients. Elective dental procedures should not be performed on patients with uncontrolled diabetes until the condition is improved and well stabilized. Also, blood glucose should not exceed 200 mg/dl prior to an invasive procedure because this increases the chance of DM-related complications such as delayed wound healing and infection, since leukocyte function is impaired at such a high glycemic level.⁴ However, if the glycemic level is well controlled, diabetic patients can be treated in the same manner as nondiabetic patients.¹⁵ For older patients, edentulism in well-controlled patients may be treated with invasive

procedures such as bone grafting and dental implants, and have a similar success rate as the normal population. Implant surgery has been looked upon as a relative contraindication related to the diabetic's blood sugar control, rather than an absolute contraindication.¹⁷

During and After Treatment

Stress due to dental procedures may elevate the cortisol and epinephrine levels in the patient, thus altering the blood glucose level, generally increasing it. Therefore, the dental team should try to make the experience as stress-free and relaxing as possible for the patient. The patient should be told to inform the dentist whenever he or she experiences signs and symptoms of insulin shock, such as hunger, weakness, light-headedness, and perspiration. For the poorly controlled diabetic patient, especially one with serious complications, prophylactic antibiotic therapy should be given for emergency surgical procedures due to the increased potential for postoperative infections.¹⁵ If it is anticipated that normal diet will be affected after the dental procedure, the dentist may consult the patient's physician regarding possible alterations in the usual oral medications and insulin, and consider appropriate liquid nutritional supplements (e.g., Ensure and Glucerna).

Acute dental or oral infections presented by diabetic patients pose a serious problem due to the potentially severe consequences if not treated promptly and adequately. Loss of diabetic control will oftentimes be caused by the oral infection, and the ability of the immune system to deal with this will be compromised.

As health professionals, dentists should also play a role in diabetic patient support by monitoring blood glucose levels in the dental office, reminding patients to have their regular physical examinations, and advocating a lifestyle modification that would include following an exercise and diet regimen. Patients with undiagnosed hyperglycemia who present with the cardinal signs of diabetes, such as polyuria, polydipsia, and polyphagia, should be referred to their physician for further assessment.

Oral Health and Other Systemic Diseases

It has been well established that uncontrolled diabetes is associated with oral

diseases; as noted earlier, more recent research shows that removal of oral sites of infection can result in improvement of glycemic control in diabetic patients.¹⁶ Increasing evidence suggests that periodontal disease may be a risk factor for other systemic diseases, particularly cardiovascular disease, adverse pregnancy outcomes, and pulmonary infections.¹⁸ It has been suggested that women with low bone density (osteoporosis) are at increased risk for tooth loss and periodontal disease.¹⁹ Moreover, recent research has found that elderly patients with periodontal disease are at an increased risk of experiencing a stroke.²⁰ Much interest has been focused on the link between periodontal disease and cardiovascular disease since cardiovascular disease is the leading cause of death worldwide. Based on a meta-analysis of the literature, it seems that the contribution of periodontal disease to the pathogenesis of cardiovascular disease is small but statistically significant.²¹

Conclusion

Diabetes mellitus is a group of degenerative diseases that have a large impact on oral health. Patients with DM have increased susceptibility to a multitude of oral problems, and increasing evidence is showing that good control of DM requires good oral health. Due to the increasing percentage of our elderly population affected with DM and also the growing number of people who remain undiagnosed, most dentists are treating more people who have diabetes, and therefore should be familiar with the treatment and standard of care of diabetes. Recognizing the interrelationships between oral health and systemic diseases, collaboration among dental and medical professionals may result in better oral and systemic health in the elderly. ■

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A Comprehensive Geriatric Dental Model in a Long-Term Care Facility

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The Hebrew Rehabilitation Center (HRC) is a long-term care specialty hospital located in the Roslindale neighborhood of Boston. It is a subdivision of the corporate parent Hebrew SeniorLife (HSL), which provides an integrated, seven-site system of senior health care, housing, research, and teaching that serves thousands of seniors in the Greater Boston area and beyond. This unique and comprehensive system is aimed at improving the quality of life and expanding choices for adults as they age. From the Institute for Aging Research, an internationally known leader in geriatric medical and social research, to innovative housing options, each component of this system has the mission to keep seniors living independently in the community as long as possible and, when necessary, to provide the best quality in long-term care.

History

The HRC first began seeing dental patients on-site in the mid-1950s. Through the early 1960s, dentists would rotate in on an irregular basis to perform emergency dental care for the residents who lived at the HRC. In 1963, Norton Fishman, DMD, was hired to set up an on-site dental clinic to serve all of the residents at the HRC. After returning from the Air Force and joining the faculty of his alma mater, the Harvard School of

Dental Medicine (HSDM), Dr. Fishman was asked by HSDM if he would take on the task of creating a comprehensive dental program for residents at the HRC. While Dr. Fishman already retained a faculty appointment at HSDM and a private practice in the Boston area, he began spending two days per week at the HRC and did so for 35 years until his retirement in 1998. His work at the facility laid the foundation and built the framework that allows the HRC to maintain its reputation as a leader in comprehensive geriatric dental health care.

Significant Changes

Over the last 10 years, the dental clinic at the HRC has undergone major changes with respect to staff, physical plant, academic affiliations, and, most importantly, the patient population. The slightly medically compromised patients of the past have been replaced with frail, severely medically compromised patients of the present. As for oral health, it is no surprise that patients today present to the clinic with more teeth than those from 10 years ago, and dental implants have started to appear with more regularity over the past few years; 10 years ago, no new residents presented with dental implants.

Another significant change is the rate of edentulous patients. From 1992 to 2002, the rate dropped just over 22 percent, from 57.7 percent to 35.5 percent (see Table 1). Technology has played a major role in the way we treat patients today. Earlier this spring, the HRC received a call from a family member in California concerned that one resident's upper two front teeth were cracked and that they should be made even. A family friend had taken a picture of the resident with a cell phone and sent it to the relative on the West Coast, resulting in an almost instantaneous referral to the dental clinic from 3,000 miles away.

Table 1. Edentulous Rate

Date of Revision	1992	1994	1996	1998	2000	2002
Number of Dentate Patients	279	362	409	430	436	437
Number of Edentulous Patients	381	337	294	274	259	240
Total Patients at the HRC	660	699	703	704	695	677
Percent Edentulous	57.7%	48.2%	41.8%	38.9%	37.3%	35.5%

Table 2. Percentage from Cognitive Performance Scale

Intact.....	5.4%
Borderline Intact.....	11.1%
Mild Impairment.....	18.5%
Moderate Impairment.....	33.3%
Moderate to Severe Impairment.....	7.1%
Severe Impairment.....	12.6%
Very Severe Impairment.....	12.1%

HRC Services

The HRC currently has 703 beds, including 50 for the Recuperative Services Unit (RSU), a subacute rehabilitation unit for patients recovering from a variety of medical and surgical conditions, and 43 for the Medical Acute Care Unit (MACU), an extended medical and rehabilitative care unit for patients with complex medical conditions or multiple acute or chronic illnesses. The mean lengths of stay for the RSU and MACU are relatively short at 18 days and 25 days, respectively. Due in part to the short duration of most patients' stays, these units have been contracted to provide urgent dental care only; all nonurgent procedures may be performed via private-pay transactions or referred to a clinician outside the HSL family for comprehensive dental care. The HRC also provides an Adult Day Health Program called Great Days for Seniors, serving seniors from the community. In addition to dentistry, the many other inpatient specialties offered include physical therapy, occupational therapy, speech pathology, radiology, psychiatry, podiatry, dermatology, gynecology, ophthalmology, and psychiatry; there are also clinics for audiology, memory disorders, and osteoporosis screenings.

The remaining 610 beds belong to the HRC, a specialty hospital licensed by the state. The individuals who reside at

the HRC are frail, medically compromised, and unable to perform routine daily activities in the home.¹ The ages of the residents range from 37 to 107, with a mean age of 87.07 years. In most long-term care facilities, there is a significant gender shift toward females; the HRC is no exception, with 76.3 percent of its residents being female. More than 80 percent of the patients in the hospital scored in the mild to very severe cognitive impairment range, and less than 6 percent have been documented to be cognitively intact (see Table 2). The mean length of stay at the HRC is 3.21 years.²

Dental Staffing

The dental clinic is a five-room clinic located on-site within the hospital. There are two operatories (one of which is equipped for radiographs) a staff office, dental laboratory, and waiting/front desk area. The staff consists of a dentist, an oral surgeon, two dental hygienists, and a dental assistant/dental administrator. The oral surgeon is an independent contractor; all other dental staff personnel are salaried employees of the hospital.

Dental Services

Patient appointments are generated by referral from the staff of the individual units in the HRC. All patients are seen for an initial evaluation within the first three weeks of admission to the HRC.

Recall visits are scheduled at four-month intervals for dentate patients and annually for all edentulous patients. Each year, the dental hygienists conduct approximately 1,600 patient visits that include scaling, prophylaxis, radiographs, fluoride treatments, annual exams, and oral hygiene instruction. The majority of the appointments for the dentist are for routine restorative (operative) and removable prosthetics. Less than 10 percent of visits are from urgent referrals, and less than half are true emergency visits. The staff oral surgeon performs extractions and minor surgical procedures on-site in the dental clinic. The oral surgeon and staff dentist combine for approximately 1,450 patient visits annually. Implants, endodontics, and fixed prosthetics are not covered at the HRC. When indicated, referrals are made to the appropriate specialty clinics in the local area; however, due to their health care status, less than 0.5 percent of HRC patients are referred for off-site treatment. Dental care, along with many of the other services at the HRC, is included in the patient's daily fee for care at the hospital.

Dentistry in a Long-Term Care Facility

The approach to clinical dentistry tends to be more conservative in a long-term care facility than that in private practice with a healthy independent elder. One always needs to keep in mind the reality that defines the patient's medical condition. The treatment options need to be definitive but do not need to last forever. The first time one sees a patient is often the best opportunity one has to deliver the best treatment possible. Following the initial set of appointments, there is a shift to prevention. The most frequent need for treatment in a long-term care facility is the recall visit for scaling, prophylaxis, and fluoride application.

Challenges

One challenge the HRC dental clinic faces is the social aspect of dealing with the patient who is cognitively impaired. Many times, we need to utilize family members or a designated representative to help determine which treatment plan will be implemented. Often, the conversation with a son or daughter is even more challenging than the one with the patient because when dealing with such an elderly population as that of the

HRC, many times the child is in his or her late 70s or early 80s. With a severely medically compromised patient population, we struggle more with settling on a treatment plan that is far from the ideal and is based on social issues rather than medical issues.

Keys to Success

The key to success in a long-term care facility is broken down into three steps. First, organize a strong dental team with a certified dental assistant, dental hygienist, dentist, and oral surgeon. Follow that up with a support staff that includes a physician, certified nursing assistant, nurse, social worker, and physical, occupational, and speech therapists. Second, take the time to make all of the members of the team aware of their roles and responsibilities with respect to oral health care. This should include initial in-service training for all new employees and continuous in-service training for all staff involved in patient care. Third, ensure that the medical administration supports your efforts and empowers the dental team to make the decisions that



Alan Berman, a resident of the Hebrew Rehabilitation Center who, at 78, is proud to share that he still has all 32 teeth remaining, poses with Dr. Joseph Calabrese (right) and dental assistant Jo-Ann Alleyne.

are in the patient's best interest. Whenever possible, make the administration aware of the impact that you have not only on your patient's oral health, but on his or her overall health as well.

A Rewarding Experience

It is unfortunate that many clinicians feel that there is no time for end-of-life

care. It could be argued that this is the time in a patient's life when you can have the greatest impact. The difference between a good quality of life and a poor quality of life can be easily altered by a thorough initial comprehensive oral exam and simple preventive measures. These two steps go a long way toward preventing problems that can result in serious medical disability.

When we compare the alternative of no on-site dental care, it is easy to see that the value of an on-site dental clinic is immeasurable, especially to the family members who wish to have only the best overall health care provided for their loved ones. ■

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Clinical Tips for Treating Elderly Patients

RUTH S. GOLDBLATT, DMD, FAGD, FASGD, DABSCD

Dr. Goldblatt is dental director at the Hebrew Home and Hospital in West Hartford, CT, and assistant clinical professor at the University of Connecticut School of Dental Medicine and associated research faculty at the University of Connecticut Center on Aging in Farmington, CT. She currently serves as secretary of the American Society for Geriatric Dentistry and as a member of the board of the Special Care Dental Association.

Administering dental care to an aging population often lends itself to interesting clinical issues that challenge us as providers. When faced with clinical dilemmas on a daily basis, you come to learn ingenious ways to solve them. Some things you pick up from colleagues, others you learn at meetings or study clubs, and some you even come up with on your own—tricks to get through the day that enable you to provide the best possible care in often difficult and less than ideal situations.

Demographics are changing, and older and more frail patients will become more and more common in everyday practice. The Centers for Disease Control and Prevention (CDC) references chronic diseases for older adults. Oral health is listed with cancer, diabetes, and cardiovascular disease, as well as many others.¹ Oral health for adults is finally becoming an area of great interest. The CDC reports that 25 percent of adults over age 65 are edentulous, tooth decay affects 90 percent of those over the age of 40, and periodontal disease impacts 5 to 11 percent of adults.² A goal of our profession should be to make sure we are prepared to diagnose and treat the aging population even as they become aware that they need us.

A common case may be the patient who presents with a piece of denture missing, either at the posterior near the hamular notch or by the anterior flange. One way to repair this without taking a pickup impression in alginate is to utilize hydroplastic material, such as TAK, that is generally used with stock or custom trays for border molding. I was introduced to this material, which can be bought in stick form, about 18 years ago by a fellow general practice resident who used it to border mold. Since then I have adapted its use to repair dentures. (See Figures 1–5.) This material can be melted in a flame or even in hot water. As it heats up, it changes from opaque to clear, which

allows you to better judge its consistency. Place it over the missing flange and then border mold with it. Once you are satisfied with the borders, you can then place it in cold water to set it, which will cause it to become opaque again. The material can be remelted until you are satisfied with the end result. I have found that it works satisfactorily to repair dentures. You have to be careful not to pull at the material too much, as it will separate from the denture, but it is still easy to get good results and the impression is much easier for some patients to tolerate. Once you have your impression, you can send it to the dental lab and they will send you back a denture that has little-to-no post-insertion chair time follow-up.

In the clinical photos in this article, the hydroplastic material was used to extend the posterior seal in an immediate denture. (See Figure 6.) This was made for a very frail patient who had a hard time with alginate impressions, and I wasn't able to get a good posterior seal. Once the denture had been fabricated and was in use, I was able to bring the patient back into the office to



Figure 1. TAK, a hydroplastic material, in stick form.



Figure 2. TAK being melted over flame. Water in the cup is used to temperize so as not to burn the patient.



Figure 3. Melted TAK on the flange of denture.



Figure 4. Building up the denture border.

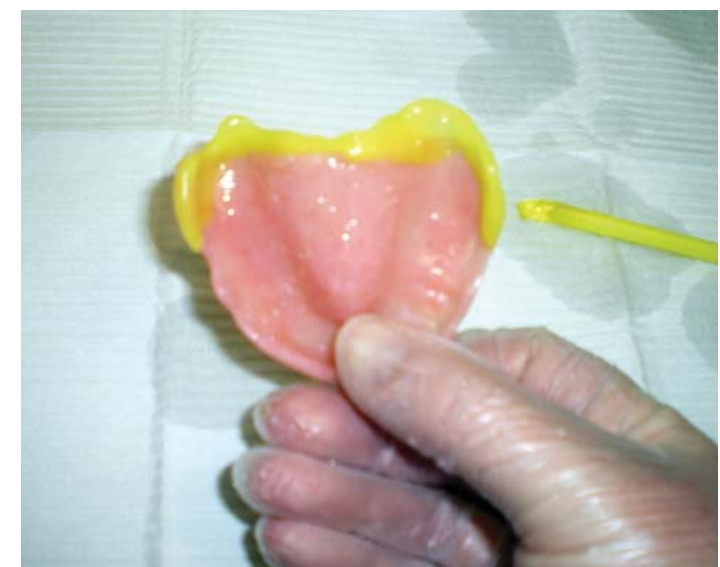


Figure 5. Posterior seal built up with TAK. Wash impression is not shown.

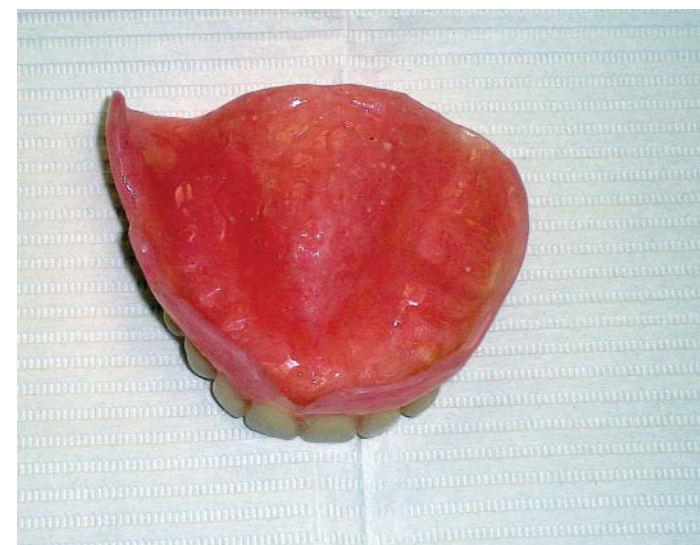


Figure 6. Denture before repair.



Figure 7. Denture after repair and reline.



Figure 8. Toothette being used to apply pressure-indicating paste.



Figure 9. PIP applied to denture base with toothette after insertion in patient's mouth shows areas of pressure.

add material to the posterior seal and then take a wash impression inside the denture. It was then relined. (See Figure 7.) You do not have to take a wash impression if your clinical situation doesn't require it. For example, replacing a smaller piece of flange would not require a wash impression.

Figures 8 and 9 demonstrate the use of pressure-indicating paste (PIP) inside the denture or partial to check for pressure spots. Over the years, I have found that using a toothette is an easy, efficient, and inexpensive way to apply PIP to a denture or partial. For all intents and purposes, a toothette is a small sponge mounted on a lollipop stick. It is often mistakenly used in place of a toothbrush in the long-term-care setting, but it comes in handy in a clinical setting when checking for pressure spots on dentures. Instead of brushing the paste on, simply dab it on, much as you would if you were applying stencil paint. It leaves a nice even coat and the pressure spots are easy to see.

Another extremely important issue for geriatric patients is how well they can perform their own oral hygiene. We need to

find ways to make or modify oral hygiene devices so that they are inexpensive and replaceable. For example, a report released by the CDC states that nearly one in five U.S. adults, or 46 million people, has arthritis, the nation's most common cause of disability. The prevalence of osteoarthritis has increased to 27 million people, up from the previous estimate of 21 million.³ The effect arthritis can have on a patient's dexterity while performing oral hygiene, or on basic hand strength in general, needs to be considered, especially in regard to the placing and removal of dentures.

The patient's cardiovascular status is another issue to consider when evaluating his or her oral hygiene. According to the American Heart Association, 895,000 Americans who were discharged from short-term hospital stays in 2005 had the first diagnosis listed as stroke. In the same year, 70 percent of those were age 65 and older.⁴ What this means is that you will have patients who are stroke survivors, and some will have much more recovery than others, including use of their hands. Each patient needs to be evaluated individually. One thing to remember is that these are people who will be in your office day in and day out. What better way to deliver appropriate care than by personalizing your patient's oral hygiene routine?

Customizing Oral Hygiene Tools

Adapting oral hygiene aids can be easy and inexpensive. One way to customize your patient's oral hygiene tools is to use tubing that can be purchased at a medical supply house. The tubing is available in various diameters and can be purchased at lengths that can be cut to fit. Figure 10 shows toothbrushes, rubber tips, and even floss handles that have been adapted by using tubing. Another way to adapt longer-handled oral hygiene devices is to use a tennis ball. Take a utility knife, cut an X in the ball in two places, and then feed the handle through the ball to stabilize it. (See Figure 11.) You can also use a similar technique with a bicycle handle. Of course, it is necessary to reevaluate the patient's skills and to see if the modifications were beneficial in decreasing plaque, increasing the efficiency for the patient, and adding to comfort and possible independence.

One last way to make your office more accommodating to older patients is to obtain a cuspidor from your local supply house. Many older folks like to be able to rinse and spit on their own and prefer not to use a saliva ejector. These are inexpensive to purchase and slide right into the HVE tubing. (See Figure 12.)

You'll be pleasantly surprised at how much the patients appreciate these small touches. It will take all of us sharing our clinical tips and tricks to help us negotiate the upcoming onslaught of patients who will be entering our offices and putting their trust in our hands. ■

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Figure 10. Oral hygiene adaptations using tubing.

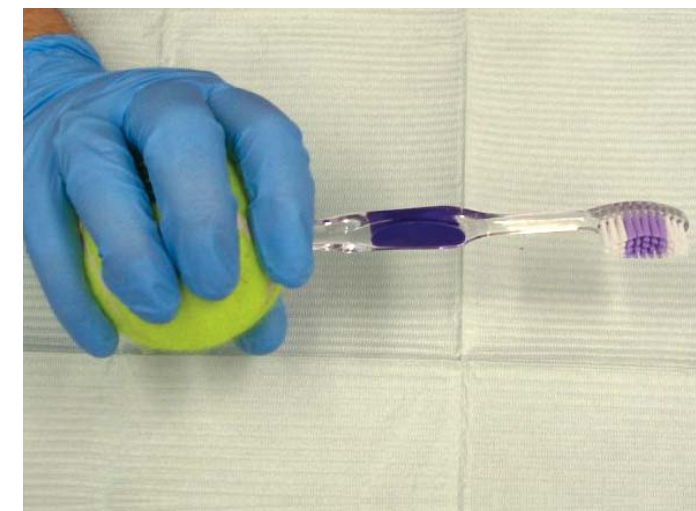


Figure 11. Modifications to a toothbrush with a tennis ball.



Figure 12. A cuspidor slides right into the HVE tubing.

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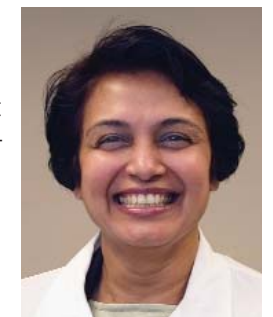
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Practical Solutions for Geriatric Dental Care

KEVIN T. HENDLER, DDS, FASGD, DABSCD

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A healthy mouth positively influences a person's overall well-being, but as the population ages with more teeth remaining, it is sometimes a challenge to maintain oral health. Gone are the days when getting older meant losing all of one's teeth and getting a complete set of dentures. The field of geriatric dentistry once implied making dentures and dealing with problems related to dentures. But times are changing, and so are attitudes about the importance of good dental health. Adults in the United States are keeping their teeth longer and the number of edentulous individuals is decreasing.¹ Dentate older adults often require more involved dental care.

However, the best that dentistry has to offer is not always indicated for some older patients. There may be medical or financial concerns that dictate treatment plans. Sometimes the patient will state that he or she is too old for treatment and just wants the tooth to be patched or glued back. There is often more than one solution for a problem, and it is important that the patient agree with the proposed treatment in order for it to be successful.

This article will present several common dental problems seen in older adults and discuss some alternative solutions that will restore esthetics and function. With all patients it is preferable to offer every treatment option so that they understand the problem and are invested in their care. It is also important that

other family members or caretakers are present during these discussions, especially if there is any question of cognitive impairment. Unfortunately, many older patients make decisions based on their age and decline treatment because they "do not know how much longer [they] will be around." It is a good strategy to agree with them, but add that they should be comfortable for however long that may be. Many people are living well into their 90s and even past 100, so if they decide not to have treatment when they are 70, they will have to put up with the problem for a long time.

Crown Off

The first case is a very common occurrence. The patient presents with the crown and core in his or her hand and a root remaining in the mouth. (See Figure 1.) There are several ways to replace the missing tooth, and the first question is, can the crown just be recemented? Is there enough tooth structure remaining to retain the crown? Usually, when the core is inside the crown, and the coronal portion of the root is barely exposed above the gingiva, the initial reaction is no. This leads to the next question: Is there enough root remaining to restore the tooth with a post and a crown, or would an implant or fixed bridge be better? However, the first question should really be, does the patient or family want the tooth replaced? If the answer to this question is no, then the problem of replacing the tooth is solved. The decision not to replace the tooth is often made for individuals in late stages of disease where the family is concerned more about comfort and minimal treatment than esthetics. In this case the question becomes whether or not to extract the remaining root.

If the patient or family would like to replace the tooth, then the various treatment options should be discussed with all parties.

A simple and predictable solution would be to add the tooth to an existing partial denture. However, if the patient does not already have a partial denture and is not interested in getting one, treatment options may include a post and crown, a fixed bridge, or an implant. But these may not be acceptable to the patient. Faced with the dilemma of the patient wanting the tooth back in the mouth but not wanting a new crown, bridge, or implant, can the tooth be reattached? The answer is "sometimes." Reattaching a crown to a root stump depends on several factors, including the condition of the remaining root and how well the crown seats on this root.

The first step is to verify that there is no apical pathology or sign of infection present and no pulpal exposure after any decay is excavated. The pulp recedes in older adults and it is possible to have asymptomatic, severely broken-down teeth. The next step is to evaluate if the crown is stable on the root by trying the crown on the remaining tooth. If the tooth did not fracture apical to the margin and most of the margin remains, rebonding the crown is often possible. The procedure for reattaching an existing crown to a root stump involves providing retention to hold a core and the crown in place. If the tooth was endodontically treated, then retention can be provided by a prefabricated post; if not, pin retention can be used to retain the core and crown. A post or pins are placed and then the crown is reattached with a self-cured core build-up material. When using pins, it is important to try the crown on after each pin is placed to make sure that it will not interfere with seating. The same is true when using a prefabricated post. Test the post and then the crown before cementing anything in place. Any interference to complete seating should be eliminated prior to rebonding the crown.

Self-cured composite core material can be used to reattach the crown to the root. The tooth and crown should be treated according to the manufacturers' directions for the material that is being used. After the pins have been placed, fill the crown with core build-up material and seat the crown, making sure that it completely seats. (See Figure 2.) Clean excess material from around the margins before it sets. In areas where the margin may have been compromised, the excess



Figure 1. Fractured crown and core.



Figure 2. Pins in place.



Figure 3. Crown rebonded.



Figure 4. Extensive root caries.

material can be trimmed with a bur and polished after it sets. If marginal defects remain after the crown has been bonded back in place, they can be restored with conventional restorative techniques. When a post is used, cement the post and seat the crown at the same time. With proper case selection and treatment, this can provide many years of service; however, the patient should be informed that the procedure is an attempt to save the tooth and the prognosis may be guarded. (See Figure 3.)

Root Caries

Root caries is a huge problem in older adults. Gingival recession can lead to exposed root surfaces, which is often seen in older patients. Older individuals are also more likely to be on medications that can dry the mouth. Poor oral hygiene, increased sugar consumption, and the exposed root surfaces from gingival recession, combined with xerostomia, can result in extensive root caries that are often difficult to treat.² Root decay can advance rapidly, sometimes wrapping around the tooth. (See Figure 4.) A crown may be the treatment of choice but may not be possible. Patients with extensive root decay may also have severe gingival inflammation secondary to poor oral hygiene, and if lack of patient coopera-

tion exists, isolation of the tooth for a bonded restoration may be impossible. Amalgam is a great material to use when others may fail; however, it is difficult to pack amalgam when the preparation extends from mesial to distal. Without something to pack against, the filling material just falls out of the other side.

One solution is to prepare half of the tooth, condense the amalgam, and then remove the remaining decay, prepare the other side, and complete the restoration. This can be time consuming and if the decay is extensive, there may not be enough tooth structure remaining to condense against. Another solution is to adapt a matrix, which can be used to hold the restoration in place while it is being condensed. A Tofflemire matrix is normally used when restoring interproximal surfaces on posterior teeth with access to the preparation from the occlusal surface. However, if the preparation does not involve the occlusal surface, placing the band around the tooth would leave no place to pack the restorative material. Placing a hole in the band provides access to the preparation and allows the restorative material to be condensed into the mesial and distal portions.

If the preparation extends from mesial to distal across the facial surface, then the retainer for the matrix is placed

on the lingual or palatal side so the hole in the band is over the facial part of the preparation. (See Figure 5.) If the decay extends around the lingual, place the retainer on the facial and fill from the lingual or palatal side. It is important to place interproximal wedges to hold the matrix band tight against the tooth and to make the hole in the band large enough so the restorative material can be inserted and adequately condensed. After the preparation has been completely filled, trim the excess from around the hole in the band, remove the retainer, and then remove the band. Complete any additional contouring after the band is removed to finish the restoration. (See Figure 6.)

Natural Tooth Bridge

Sometimes the decay around the root is too extensive to restore the tooth or there is apical pathology associated with the root and not enough alveolar bone or remaining root structure to justify saving the tooth. (See Figure 7.) This often occurs with mandibular incisors, where an extraction may create esthetic concerns. As mentioned previously, adding the tooth to an existing removable partial denture is a great option to replace a missing tooth. If the partial denture can be modified, a simple impression is usually all that is needed to make the repair.

If there is no existing denture, and there are no plans for one in the future, and if there are concerns about leaving the space, then a natural tooth bridge can often solve the problem. This procedure involves using the natural tooth as the pontic. This is usually successful as long as there are no excessive occlusal forces such as bruxing or clenching. There are different ways to accomplish this but the end result is the same: The coronal aspect of the tooth becomes the pontic that is bonded between two natural teeth.

The first approach involves bonding the tooth to the adjacent teeth and then removing the root. (See Figures 8 and 9.) This approach works well when there has been alveolar bone loss and there is room to get the root out with the pontic already in place. If the tooth still has good alveolar bone support, it may be easier to first extract the tooth, section the root, and then rebond the coronal portion of the tooth back in place. An acrylic splint is helpful in maintaining the position of the tooth and holding it in



Figure 5. Modified matrix.



Figure 6. Teeth restored.



Figure 7. Hopeless tooth.



Figure 8. Crown splinted and root sectioned.



Figure 9. Root removed.



Figure 10. Natural tooth bridge.

place while it is bonded. This is easily fabricated with some acrylic directly in the mouth or on a model. The splint is adapted to the facial or lingual surfaces so there will be access on the opposite side to bond the pontic in place. Once the pontic is secured, the splint can be removed and the bonding completed. Adequately fill the contact areas with composite to ensure that the pontic will be secure. After the pontic is in place, recontour the facial surfaces so they look like teeth and reduce any occlusal contacts on the pontic. The final step is to polish the restoration. As the extraction site heals, it is possible to add composite to the pontic to reduce the space between the pontic and the soft tissue. (See Figure 10.)

Conclusion

Maintaining teeth into old age is the goal of dentistry. Older adults who can no longer adequately care for their teeth may

not be candidates for “ideal” dentistry. However, restoring esthetics and function may still be important in maintaining their quality of life. It is important to explain all treatment options to the patient and family members, if necessary, and to choose an appropriate treatment to solve the patient’s chief complaint. A dentist treating older adults with special needs must be able to develop simple solutions to solve complex problems. ■

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Dr. Stephen Stone treats a patient at one of the Elder Dental Program clinics.

The Neponset Valley Community Health Coalition: An Elder Dental Program

**STEPHEN STONE, DMD, MS
MARK STONE, DMD, MScD
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Dr. Stephen Stone is a periodontist with a practice in Norwood, Dr. Mark Stone is a pediatric dentist with a practice in Norwood, and Ms. Perry is program manager of the Elder Dental Program.

Editor's Note: The following is an example of how a local dental group can set up a program to improve access to care for the elderly.

The Neponset Valley Community Health Coalition was established in 1997 to advocate and provide access to care for the underserved residents of the 22 towns served by Caritas Norwood Hospital. Members of the Coalition were drawn from government agencies, health care and social service agencies, private companies and citizens, and individual health care providers, including dentists. The target population to be served included the elderly. Generally, seniors are underserved for oral health care due to several reasons: lack of money (many live on a fixed income), dental insurance, and/or mobility; fear; and embarrassment about the conditions of their mouths. Some elders stop seeking dental treatment when their provider retires.

In fall 1999, the Coalition invited dentists in the community to meet to discuss the oral health needs of this underserved population and how those needs could be addressed. These initial discussions led to the formation of a dental committee, which was originally composed of Stephen Stone, DMD, MS, and Mark Stone, DMD, MScD, as well as representatives from the local elder services agency HESSCO, Caritas Norwood Hospital, and the Norwood and Walpole Departments of Public Health. The first senior dental clinic was held in Walpole in April 2002.

The senior dental clinic, which provided general dental examinations and oral cancer screenings, was made possible through donations from the Norwood and Walpole Departments of Public Health, and the Walpole Chamber of Commerce. In addition to dental practitioners, treatment was provided by volunteers from the Mount Ida College Dental Hygiene Program, Massasoit Community College Dental Assisting Program, Tufts University School of Dental Medicine Department of Oral Pathology, and Oral Cancer Consortium. In 2003, the Drs. Stone successfully spoke at several dental meetings to solicit other doctors to join the program.

That first clinic opened the eyes of all participants as to how great the need was to provide oral health care to underserved seniors in the area. The program has since been expanded to include twice-yearly dental clinics, which are held in the spring and fall. It was decided to hold the clinics at these times of the year because seniors will not typically venture out in inclement weather, and also because the students who would be assisting had to have enough education to be of help.

In the beginning, as with most programs of this nature, it was a challenge getting the word out that the dental clinic existed and was accepting patients. In order to promote the elder program, the committee worked with the local Council on Aging, Visiting Nurses Association, town nurses, and elder services companies to spread the word to seniors in the region. Additionally, the committee sent out press releases to local newspapers and cable television stations to help promote awareness of these clinics.

Working with HESSCO, the committee was able to get funding from the Oral Health Foundation for a planning grant and helped determine the best method for providing treatment through this program. The group investigated the feasibility of a number of scenarios, including setting up temporary treatment clinics in local Council of Aging offices or using a mobile treatment van. Ultimately, the group determined that the most cost-effective, convenient, and simple method was to have volunteer dentists treat the senior patients right in their own offices. This worked well for the dentists, because they did not have to close their offices to travel to off-site clinic locations and were able to determine the number of patients they saw, as well as for the senior patients, because they felt more confident and comfortable about receiving care in a professional dental setting.

Once the model was developed, the committee partnered with the Norfolk Adult Day Health Center of Norwood, which enabled the hiring of a program manager to oversee the program. The program manager screens patients as to need and eligibility, and works with vol-



Dr. Michael A. Kahn, Tufts oral pathologist, performs an oral cancer screening on a patient at a clinic in Wrentham.

unteer dentists and their staffs to schedule patients for treatment in the dentists' offices. Fees are determined on a sliding scale, based on the patient's income. Each patient is informed ahead of time as to how much the appointment will cost and that payment is expected at the time of treatment.

The program manager screens each patient for eligibility and then sets an initial appointment with a participating dentist in the patient's local area. The program includes general dentists and specialists, so a number of treatment services are available, including prophylaxis, restorations, endodontic therapy, and extractions. Minor repairs to dental appliances can be accommodated, but anything requiring major work is sent out to a lab, which increases the cost. A patient requiring new dentures, partials, or crowns is referred to the dental school clinics in Boston.

As the concept of the clinics developed over the past few years, it was decided to expand treatment beyond dental examinations and oral cancer screenings to include oral hygiene instruction, nutritional advice, and denture cleaning and evaluation. To date, 12 screening clinics have produced the following statistics:

- 199 active participants of 373 total seniors in the program
- 20.2 percent of the patients presented with acute discomfort

- 31.9 percent had untreated decay
- 46.6 percent had progressive periodontitis
- 8.3 percent presented with lesions requiring biopsy
- 55 percent had no dentist of record
- 82.6 percent had no dental insurance
- Average annual income of patients was \$12,180 (one-third had income under the federal poverty level of \$10,212)
- Average age of patients was 75
- 253 of the participants were women, and 120 were men
- 49 dentists currently participate in the program

The success of the Elder Dental Program can be attributed to a number of factors, not the least of which is the number of dentists who volunteer their services. The support of a dedicated program manager overseeing the program helps ensure that the elders and elder care providers are aware of the program, and that there are options for elders to get much-needed oral care. The program manager oversees the screening process—to assure that the patients who are helped are truly in need—and also manages the flow of patients so that no one dentist is overwhelmed with an unmanageable patient load.

The need for additional access to care is evident. With the involvement of community advocates as well as professional volunteers, programs like the Elder Dental Program can become invaluable resources for those who need help. ■



Dr. Mark Stone (right) performs an oral health screening on an elderly patient.



Xerostomia: The “Invisible” Oral Health Condition

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Abstract

Xerostomia, or dry mouth, is perhaps one of the most underappreciated, underdiagnosed, and undermanaged oral health conditions. Recognition of a xerostomic condition is important because it can significantly affect the overall quality of life and contribute to diminishing oral health in a number of ways. This article will provide an overview of the etiology of xerostomia, the sequelae of the condition, and suggestions for pharmacological and nonpharmacological management of the condition to improve a patient's quality of life.

Etiology

Xerostomia is a subjective perception of dry mouth.^{1,2} Studies have evaluated analogue scale questionnaires as subjective assessments of salivary dysfunction and to provide some basis for comparison of individual patient status over time.^{3,4}

While not a disease itself, xerostomia is symptomatic of many underlying conditions and is often associated with diseases such as diabetes, autoimmune conditions, Parkinson's disease, status post cardiovascular accident/stroke, radiation therapy to the head and neck, chemotherapy, and Sjögren's syndrome. Although often associated with aging, evidence to support aging as an independent variable causative agent for diminished salivary flow is lacking.⁵⁻¹⁰ Polypharmacy has been clearly linked to the onset of xerostomia, and the number of pharmaceutical agents that have been identified as possible etiological agents is estimated to exceed 500 prescription and over-the-counter (OTC) drugs. Included in the spectrum of medications that may cause xerostomia are antihypertensives, anticholinergics, diuretics, antidepressants, antipsychotics, laxatives, antihistamines, and

dopamines. Other agents that contribute to xerostomia are caffeine, alcohol, tobacco, and carbonated beverages. Additionally, dry mouth can be caused by factors such as emotional stress, anxiety disorders, salivary gland disease, endocrine disorders, AIDS, and hormonal changes during menopause.¹¹ Snoring or breathing with an open mouth can contribute to xerostomia as well.

Sequelae

Before discussing the adverse sequelae of the absence of adequate saliva, it is useful to summarize the salutary effects of saliva. Saliva's functions in helping to maintain homeostasis in the oral ecosystem are numerous. Saliva is the first digestive enzyme in the gastrointestinal tract, playing a critical role in the initial breakdown of complex carbohydrates with the enzyme salivary amylase. A lubricant, saliva aids in forming a moistened bolus of food during chewing in preparation for swallowing. Saliva cleanses the oral cavity, provides buffering capacity for acids present from exogenous sources (such as foods and beverages) and those created by the microflora in plaque, and facilitates transmission of taste impulses. It also lubricates mucous membranes, protects tissue from minor trauma and ulceration, and serves as a critical luting agent in the retention of removable prostheses. Additionally, saliva aids in the remineralization of teeth through its calcium ion content. Some investigators believe that saliva may mitigate the deleterious effects of some carcinogens, viruses (including HIV and herpes simplex), toxins, and irritants.¹²⁻¹⁶

Alternately, the adverse sequelae that occur in the absence of adequate saliva follow logically. Patients who do not have sufficient saliva are at risk for root caries and opportunistic infections—especially fungal infections such as those caused by *Candida albicans*. Patients also are at risk for decreased resistance to loss of tooth structure due to attrition, abrasion, and erosion.

The monograph *Oral Health in Cancer Therapy*¹⁷ lists the following plethora of adverse sequelae to loss of salivary function:

- Difficulty with tasting, chewing, and swallowing
- Esophageal dysfunction, including chronic esophagitis
- Nutritional compromises
- Higher frequency of intolerance to medications
- Increased incidence of glossitis, candidiasis, angular cheilitis, halitosis, and bacterial sialadenitis
- Loss of oral buffering capacity
- Increased susceptibility to mucosal injury
- Inability to wear dental prostheses
- Markedly increased susceptibility to dental caries

Clearly, all of the above have the potential to significantly impact the quality of life of the individual. Other sequelae may include burning mouth/burning tongue syndrome.

Clinical Management of Xerostomia

There are three primary strategies for managing xerostomia: environmental, topical, and systemic.

Environmental management strategies include taking frequent small sips of water (preferably fluoridated water—bottled water does not usually contain 1 ppm fluoride, the accepted therapeutic level—community water supplies vary by community); seeing the dentist regularly and maintaining excellent oral hygiene; avoiding drafts from fans or air conditioners and the dryness of radiators; using a humidifier at night; and



Figure 1. Sequelae of a xerostomic mouth in a dentate patient. Note the cervical decay, plaque accumulation, and gingival recession. (Photo courtesy of Dr. Paul Farsai, Boston University Goldman School of Dental Medicine.)



Figure 2. Implant placement in a xerostomic environment. (Photo courtesy of Dr. Paul Farsai, Boston University Goldman School of Dental Medicine.)



Figure 3. Desiccated tongue, hypertrophy of papillae. (Photo courtesy of Dr. Michael Kahn, Tufts University School of Dental Medicine.)

avoiding alcohol, caffeine, and tobacco. For those individuals who snore, applying adhesive strips to the nose to open the nasal passages might provide some temporary relief. Some authors caution against the use of alcohol-containing mouthwashes, while others¹⁸ found no clinically meaningful differences between alcohol- and nonalcohol-containing mouthwashes in subjective sensations of dry mouth. Also included in environmental measures are sucking on sugar-free mints, candy, and lozenges, and chewing sugar-free gum, especially those containing xylitol, which inhibits the growth of the *Streptococci mutans* that cause tooth decay.

Topical management of xerostomia includes the use of a number of commercially available lubricants/salivary substitutes—rinses, sprays, and gels. Some products are available OTC, while others are available only through dentists. Each product has unique qualities, and patient acceptance and/or preference will determine which is the most appropriate moisturizing vehicle for the individual. Patients will often have to try several products before they find one that works for them. The products require frequent application, so the vehicle of delivery (rinse, spray, or gel) will be a factor in patient preference as well as product efficacy. Topically acting prescription products for treating xerostomia are also now available in lozenge and liquid form.¹⁹

The use of topical fluorides, including fluoride rinses and varnishes, is also an important and useful adjuvant in the management of xerostomic patients. If a patient requires a direct restoration, especially for cervical caries, glass ionomer restorations are recommended because of their fluoride-releasing properties.

Xerostomia Resources

Additional resources are available through the following American Dental Association Web sites:

- Oral Changes with Age: www.ada.org/public/topics/oral_changes_faq.asp
- Dealing with Dry Mouth: www.ada.org/prof/resources/pubs/jada/patient/patient_50.pdf
- Dry Mouth FAQs: www.ada.org/public/topics/dry_mouth.asp
- There is also a brochure on dry mouth available through the ADA catalog.

Systemic management includes the use of prescription sialagogues—parasympathomimetic, muscarinic-cholinergic agonists such as pilocarpine, or a cholinergic agonist that binds muscarinic receptors such as cevimeline. In order for systemic agents to work, there must be some residual functioning salivary gland. The sialagogues stimulate saliva production, but it may take up to three months for patients to experience the maximum benefit. Caution must be taken in prescribing this classification of drug in patients with known cardiovascular disease, controlled asthma, angina pectoris, chronic bronchitis, chronic obstructive pulmonary disease, history of myocardial infarction, nephrolithiasis, or cholelithiasis. Caution should be advised when driving at night or performing hazardous activities in reduced lighting while taking this medication. Both pilocarpine and cevimeline have similar contraindications that include gall bladder disease, narrow-angle glaucoma, acute iritis, uncontrolled asthma, known sensitivity to the drug, and renal colic.¹⁷ It is generally advisable to consult with the patient's physician before prescribing these drugs.

Conclusion

Xerostomia affects quality of life in many ways. It makes speech difficult. It makes swallowing difficult. It makes eating some foods difficult. Retention of removable prostheses may become impossible. Xerostomic patients are at risk for caries, attrition, erosion, mucosal irritation, and infections from viral and fungal agents.

Dentists are encouraged to query patients about their perception of adequate moisture in their mouths, especially those patients on multiple medications and postmenopausal women. Including a question about experiencing dry mouth on the medical history form—such as “Do you feel that your mouth is often dry?”—is highly recommended. There are a number of strategies—environmental, topical, and systemic—available to address the needs of patients who suffer from xerostomia.

Awareness by dentists and allied dental personnel to this “invisible” oral condition, and the offering of strategies to patients who suffer from it, may create significant enhancements to the quality of life for many. ■

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Taking Dentistry to the Geriatric Patient: A Home Visit Model

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Abstract

Frail, medically complex elders comprise an increasing dentally underserved population. The “demographic imperative” clearly shows that the number of elders is growing—from a current estimate of 40 million to a projection of 87 million in 2050.¹ Oral health is a critical component of overall health and is increasingly recognized as critical to quality of life. This article describes a program to deliver oral health care services to homebound elders in the Greater Boston area through the collaboration of the geriatric dentistry and geriatric medicine fellowship programs at Boston University. The article reports on data collected between 2005 and 2007 on the demographics, needs, and services provided to a sample of 195 patients visited in their homes. Also identified are the types of third-party coverage reported for the patients and the implications for source of payment for dental services for the elderly in the future.

Introduction

There are many new advances in medicine. For example, the cholesterol-lowering drug Lipitor® is referred to as a wonder drug. How do these medical advances impact dentistry? Contemporary medicine keeps us alive longer. Our geriatric population is growing every year. In the 1900s, 3.1 million people achieved the age of 65 years or older; in 2000, that number increased to 34.7 million.² The U.S. Census projections of the population of those greater than 65 is 40.2 million in 2010, 54.6 million in 2020, 71.5 million in 2030, 80 million in 2040, and 86.7 million in 2050.¹ We refer to this sea change in numbers as the “demographic imperative” in aging.

Oral Health and Aging

Oral health has been defined as a comfortable and functional dentition that allows individuals to continue in their desired social role.³ It is very important to recognize that as patients get older and are at risk for losing a significant other, they become more and more dependent, both socially and functionally, on the community they live in. However, a patient without teeth will probably avoid social settings and is less likely to interact with the community. Why is it that our geriatric population today still has a relatively high level of full or partial edentulism? Older adults maintain patterns of oral care established early in life.⁴ Fortunately, attitudes toward preventive dentistry have changed over the years. There is a much higher awareness of what is necessary to maintain oral health for a lifetime.

Older adults can be categorized into three groups:⁵

1. Functionally independent older adults
2. Frail older adults
3. Functionally dependent older adults

Seventy percent of this population falls into the functionally independent older adults category—those who are able to visit the dental office.⁵ The big question is how to address the dental needs of the remaining 30 percent. How do they receive dental care? Are they also not in need of dental treatments and visits? Why are dentists and dental hygienists, as members of the dental team, not more accessible to these patients? Private dental practitioners are generally hesitant to provide home-based dental care to these groups of frail and functionally dependent patients.⁶ One reason may be that, due to high dental office overhead expenses, practitioners are reluctant to spend time away from the main dental practice. Another reason may be problems related to management of medically compromised older patients.⁶

Description of Dentistry Consult Service

The Boston University Goldman School of Dental Medicine (BUGSDM) Geriatric Program provides home-based oral health services to the elderly. Too often, dentistry in elderly patients is overlooked. However, dentistry plays an instrumental role in the

overall health of the individuals and their quality of life by providing them with the ability to properly eat, speak, and function in daily activities. The BUGSDM Geriatric Program's focus is on the medically compromised or medically complex patient. The patient's dental needs are addressed in collaboration with medical staff.

All referrals to the BUGSDM Geriatric Program come from the Boston Medical Center Geriatric Medicine department. After physicians evaluate the patients, a consultation with a dentist is scheduled for those patients with dental problems or needs. Before seeing the patient, the dentist is provided with the patient's medical history, list of medications, and any other important health-related information. The dentist also receives a dental clearance form indicating if the patient requires premedication prior to treatment or if there are any contraindications to dental care, including the use of local anesthetic or positioning issues.

The dentist then arranges to visit the patient's private home with a portable dental bag, which contains all the necessary equipment to assess patients, and universal precautions are taken. The basic armamentarium includes disposable mirrors, explorers with periodontal probes, bird beak pliers, a Dremel tool with attachments, pressure-indicating paste (PIP), and Sorensen paste, alginate, trays, fluoride varnish, and toothpaste and mouthrinse samples for xerostomic patients.

Although a patient's home is not a typical dental office setting, it provides an important opportunity to assess the patient's oral condition. In the comfort of their home, elderly patients tend to be much more open and relaxed. A comprehensive clinical oral exam (extraoral and intraoral) is completed after an initial discussion with the patient. There are major differences, however, between a conventional dental exam in an operatory with radiographs and a home dental exam. Radiographs are not taken in the home, but most of the patients' oral health problems are not due to lack of radiographs; rather, they are due to poor oral hygiene, broken or ill-fitting dentures, and broken or loose teeth.

Most of these elderly patients do not go to dental offices because they have such a difficult time traveling. Home visits are not for everyone, and they do not

solve all dental issues, but by going to the home, BUGSDM Geriatric Program dentists can screen patients and determine who can be treated in the home setting and who needs to be referred to a dental office for follow-up treatment. At the very least, the number of visits to a private dental office for a geriatric patient is minimized.

Occasionally, it may be necessary to reschedule a patient who has come to the office because he or she needed medical clearance or it was determined after the patient was in the chair that he or she needed to be premedicated. With most patients, it is an inconvenience to reschedule an appointment, but in the case of a geriatric patient, it may be an enormous barrier to care. In most cases, BUGSDM Geriatric Program dentists visit the patient in the home first to assess the problem, which may be just a denture adjustment, reline, rebase, or repair. All of these procedures can be done fairly easily in the comfort of the patient's home. Some patients may be diagnosed with gingival recession that is causing cold sensitivity. In a case such as this, the efficacy of a home visit is clear.

For example, the BUGSDM Geriatric Program received a consult to see an 88-year-old female whose chief complaint was pain when she ate. The visiting dentist provided an application of fluoride varnish, and the quality of her life improved significantly, as she was now able to eat without pain. Many times, the dental issues that the elderly have can be taken care of at home. Does that frail

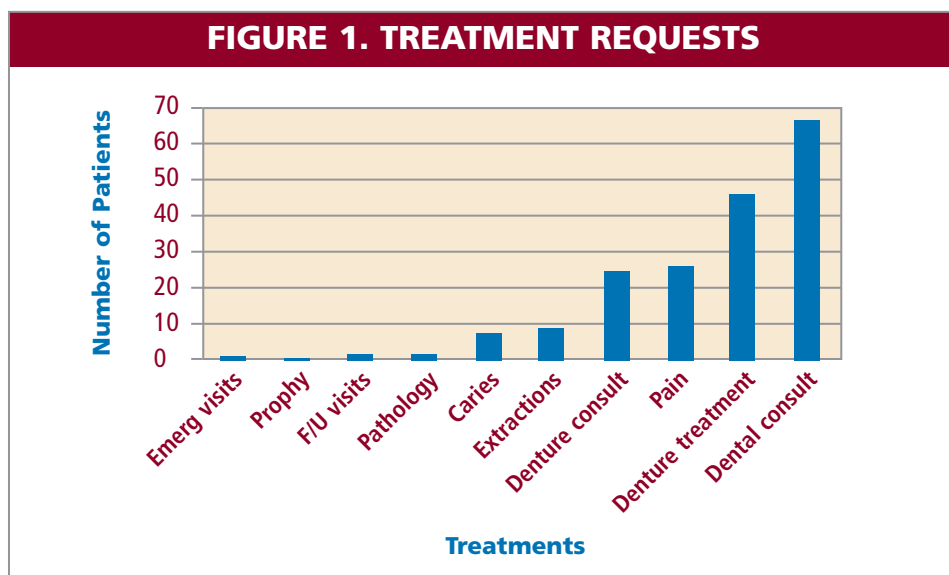
patient really need to come to your dental office for a simple sore spot?

There certainly are times when our limitations are reached. Patients may need extractions, fillings, or other treatments that can't be provided easily in the home. But at the least, they have been diagnosed. If a patient requires an extraction, he or she is referred to an oral surgeon. The patient's complete file is sent to the oral surgeon, to avoid rescheduling due to lack of information. If the patient requires restorative treatment, he or she can be seen in the BUGSDM Geriatric Program office. Transportation arrangements can be facilitated through the City of Boston Senior Shuttle or a private chair car company.

Results

Data was collected from dental home visits conducted during 2005–2007. A total of 195 patients were seen, with a total of 260 visits. Most dental needs were taken care of with one visit; however, some required multiple visits. The patient population reveals an average age of 80.95 with a standard deviation of 9.03. The ages range from 53 to 101 years. Gender breakdown includes 140 females (74 percent) and 55 males (26 percent). The age distribution is similar to the 3-to-1 ratio of women to men often cited for those age 85 and over.

Figure 1 shows reasons for dental referrals from the primary care physicians at Boston Medical Center. Dental consults and denture consults were the most frequently cited reasons for the



consult request. Figure 2 depicts the actual treatment rendered or recommended by the dentist during the first home visit. The most frequent patient needs were extractions, followed by dentures. It is important to note that only about 10 percent of patients needed to be referred to a private dental office for additional treatment. Figure 3 presents the breakdown of insurance held by the patients. By definition, all patients over the age of 65 should have Medicare, which does not provide any dental coverage. Less than 10 percent of patients reported having Medicaid (MassHealth), which does cover limited adult dental services. Therefore, approximately 90 percent of this homebound population incurred some or all of the costs for their dental care.

Discussion and Conclusions

Aging patients often face many barriers to obtaining dental care. Fear, cost, transportation, lack of perceived need, disabilities, and ageism by the patient, family, and even dentists are cited among the difficulties that patients may face. Therefore, the dental needs of elderly patients—especially nonambulatory patients—are often overlooked and/or not addressed. BUGSDM has conducted a home visit consult service in conjunction with the Boston University School of Medicine since 1992. (In 1998, the program was recognized by the American Dental Association with its ADA Geriatric Oral Health Award.) Of the 195 patients seen in their homes, the clear finding was that most of these patients required basic, primary care treatment that could

easily be delivered in the home. Denture adjustments, denture relines, selective scaling and root planing, application of fluoride varnish, and prescribing antibiotics comprise the majority of dental services rendered.

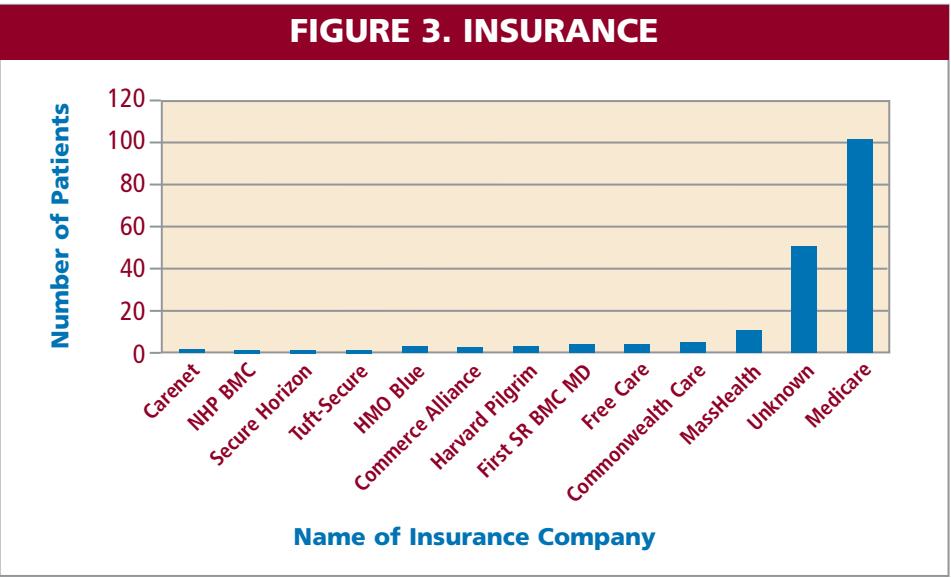
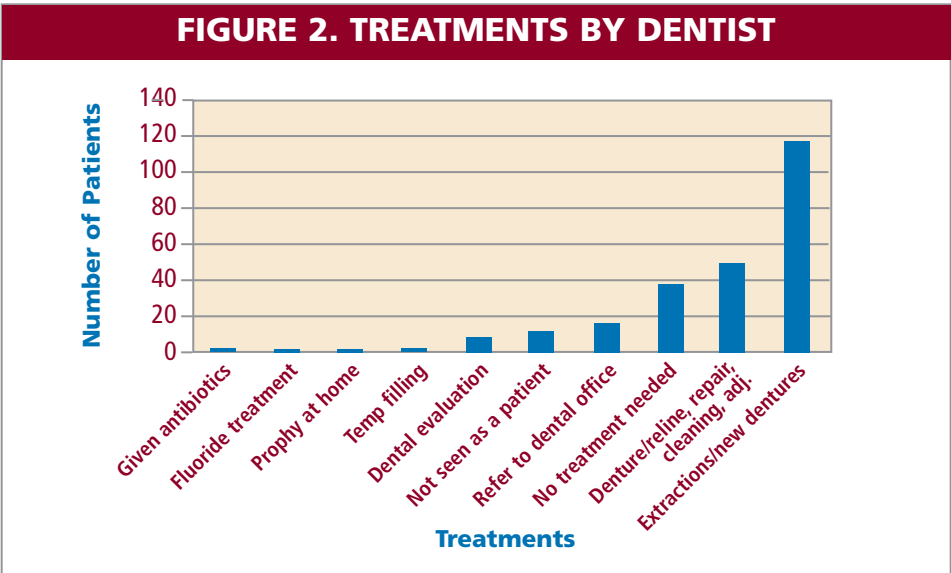
The impact on the patients' quality of life from these services is significant. It is important to recognize that if the services delivered through this program were not available, these patients most likely would have received no dental care. For many, if not most, it had been years since their last examination. The prevalence of xerostomia and concomitant root caries/sensitivity was impressive. Patients had not previously received an oral cancer screening, which the BUGSDM Geriatric Program provides.

It has been reported that the most ubiquitous disease of aging is loneliness.⁷ Perhaps equally importantly, these home visits provide a social contact for isolated, lonely seniors, many of whom live alone.

The BUGSDM Geriatric Program model is one that can be adapted by practicing dentists throughout the Commonwealth to benefit a special population of senior citizens. The involvement of allied dental personnel, under the general supervision of a clinically active, licensed dentist, is encouraged, as is legislation to extend general supervision to elderly care settings, including patients' homes. It is imperative that this segment of the population not be overlooked when it comes to access to oral health care. ■

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Interview with Michelle Curtin

CHARLES B. MILLSTEIN, DMD

Dr. Millstein is the historian of the Massachusetts Dental Society and an endodontist with a practice in Cambridge.

Interviewer's Note

On January 30, 2008, at a reception in the Seaport Hotel in Boston, Michelle Curtin, senior assistant executive director of meeting planning and education programs, was honored for her contributions to the Massachusetts Dental Society (MDS) and the Yankee Dental Congress (YDC). Michelle began her MDS employment with YDC 3 and retired 30 years later, right after YDC 33. The following is the transcript of an interview recorded at MDS headquarters one week prior to the reception.

Q: Michelle, please tell us about your background and how it led you to become the executive planner of this meeting.

A: Well, my background was in premed. I was a zoology major with a chemistry minor at the Connecticut College for Women. When I graduated, I was hired by Harvard Medical School, where I ran a biochemistry lab for four years before my first child was born. After my children were born, I became a community service volunteer and was on the Board of Managers for the Junior League of Boston, which is a social service organization of about 2,000 women. I ran their educational programs and training. I was trained to be a facilitator, and when you have to train your peers, you certainly get to know the subject. So, I was trained in leadership and organizational development.

I also did a lot of work with women and how they could translate their passions into a career. I decided that I should follow my own advice, and so I went out and found myself a paying job, with the Massachusetts Dental Society. I had also run a national meeting for the Junior League of Boston, so I knew something about large meetings. A friend of mine had interviewed with Bill McKenna [William H. McKenna, DDS, the former MDS trustee and officer who was instrumental in the creation of YDC] for the position, decided to not take the job, and suggested me. Bill called and asked me to come in for an interview. I was hired by a group of the old officers of the MDS—Drs. Ralph Tarullo,

Bill Baker, Iggy Fiorenza—to help them plan a program and create the Yankee Dental Congress. My first YDC chair was Dick Myles of the Middlesex District, and he was a great help to me. He was a past MDS president who knew a great deal about the profession. That's what I needed to learn when I first came.

Q: Tell us about Bill McKenna. What did he expect from you?

A: Bill was my neighbor. He was also my children's orthodontist, and he was one of the hardest-working volunteers for the MDS. He loved organized dentistry and the First District. When I met him, he was going to be the First District Trustee of the American Dental Association. I think he saw Yankee Dental Congress as an opportunity to unite the First District of New England. It would make us more powerful and more effective in what we could do for our patients.

Q: And his legacy?

A: His legacy? He really was very interested in volunteerism for the profession. He loved it and felt that everybody in the MDS should give back. I think that one of the things that he did was to encourage people to volunteer, and he was successful in attracting a tremendous number of members for YDC. Many members first became involved in volunteerism at the MDS through YDC. [Editors' Note: Last year, the JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY renamed its annual recognition of MDS volunteers, which it features in the Winter issue, the William McKenna Volunteer Heroes.] Nick Dello Russo has worked at Yankee Dental Congress for 30 years. Andrea Richman also stepped in, and she did the dental auxiliaries and scientific programs. She [became] the first woman president in Massachusetts Dental Society history. Kathy O'Loughlin, who was very involved with Yankee, became the president of Delta Dental [of Massachusetts].

Q: Trace the evolution of Yankee from Wellesley to Natick to Southborough.

A: I have divided my time here into three decades. I call the first decade the "Wellesley Experience." We had about 1,000 square feet, five offices, a steno pool, and a big boardroom. Those were the formative years of Yankee. It was a very small meeting at that time and about 6,000 people attended. We had only three staff members for the first 10

years, and we really had to count on those volunteers to make YDC successful. And we did it. We divided the meeting into five areas: exhibits, scientific program, marketing, registration, and special events.

Special events have become our hallmark. By marketing big names, we created a special weekend and were able to “weatherproof” the meeting—January in New England often brings a lot of snow, and we have gotten a lot of snow over the years. So what we did was to book hotels that people wanted to come and stay at, and we had three nights of entertainment. We would hire big names as our opening speakers. We also hired well-known entertainers such as Harry Belafonte, Tony Bennett, and Mel Torme. We got a little modern with the Doobie Brothers, but our favorites have always been comedians such as Bill Cosby, Jerry Seinfeld, Jay Leno, and Robin Williams, who was our biggest hit. They have drawn our largest crowds. We really tried to make this a weatherproofed meeting and a winter weekend so that people wanted to come back, year after year. And they have.

During the second decade, the “Growth Years,” which were also the Natick years, we brought the dental hygiene, dental assisting, and office personnel programs into Yankee. That brought tremendous growth for us. Now we get about 18,000 people from the dental offices who come and get their yearly education.

So, we really ran two committees: two scientific programs [one for dentists and one for auxiliaries]. The office in Natick had two floors of about 1,800 square feet, which we outgrew. In those days, we did all of our programs for the meeting in-house; we hired college kids every Christmas who sent out all the registration materials. They did all the course ticketing.

The last decade, at Southborough, I call the “Celebration Years.” While in Southborough, we had our 25th anniversary and our 30th anniversary. And I am having my retirement after 30 years. I think that we’ve tried to refine the quality of the meeting. We are using the best hotels in the Back Bay and have great busing. We’ve hired some outside firms, so that members can make one call, register, and make a hotel reservation. We’re trying to make a quality experience for the attendee. We have also started to refine the meeting according to profitability. We tried to make it more profitable by offering more courses and events so that everybody could come and enjoy—and the MDS could also make more money.

Q: From a historical perspective, you worked with a number of different executive directors of the MDS. Please comment on your experiences with each one.

A: It worked quite well. I think that most of them really liked the way I did my job and reported to them. Bud Maitland was a dentist, and his background was lobbying. He really knew the state house and the regulatory and government agencies in Boston. Matt Boylan was an assistant executive director from the Michigan Dental Association. His great

expertise was organization, and he really built up the MDS. He was issue-oriented and insurance-oriented, and one of his great legacies is EDIC [Eastern Dentists Insurance Company]. Jim Bramson put us on the market in the national spotlight. He came from the ADA, and he was excellent with staff and dental issues. He felt very strongly that the MDS should have a presence, and a nice building for people to visit, take courses, and enjoy meetings. The building in Southborough was Jim’s dream and he almost built it himself. When Jim left, we wondered if, as a parting gift, he would want a picture of the building or a picture of the MDS staff. And the whole staff said, “He’d much rather have a picture of the building!”

Our present executive director is Bob Boose, who has been with us for six years. Bob coined the word “Yankee” as a verb, not just a noun. He is a great visionary who has helped the Society with its image, and created a charitable foundation with a mobile dental van [the MDS Foundation Mobile Access to Care Van] that gives free care to the children of Massachusetts. Now he is guiding YDC into the Boston Convention & Exhibition Center [BCEC].

Q: Regarding leadership and organizational skills, how do you motivate the people who work with you?

A: Early on in my career, I was a trainer in leadership and organization development, and that helped me immensely. When I first started, Bill McKenna encouraged me to go to all of the dental meetings and to the American Society of Association Executives. They have a meeting planning program, and I really have taken more courses in meeting planning and organizational development than you could imagine. But I have always enjoyed sharing my knowledge. I love working with people, and my greatest joy is seeing the staff become individuals. They almost become smarter than I am with their individual expertise. I’ve coached and worked with them in the trenches, and I think that’s the best way to teach people.

Vendors were very important to us, and when we first started we had 100 booths. We obtained the vendor list from the Conference on Dental Meetings. They were very generous in sharing who their exhibitors were and we mailed to everybody. We went to visit people. We went to all of the dental shows, and they used to say, “Yankee who?” And now they know us. It’s a much better way to sell. As for hotels—if you have a meeting in Boston in January, you really are very popular. Not too many associations want to have meetings at that time, so we got very good rates. I worked with hotels to give our attendees the best service because we always said they could drive home at night. The hotels have really cooperated with us. We ask our volunteers for dedication and hard work, but also to have fun and to grow in new directions. Many dentists are very scientifically oriented, and meeting planning was a whole new area for them. The volunteers have enjoyed working for Yankee because they’ve learned a whole new area of expertise, made new friends, and become involved with the MDS and their profession.



The late Dr. William McKenna, left, with Michelle Curtin at YDC 31 in 2006, one of their last Yankees together. Dr. McKenna, who passed away in March 2007, hired Michelle in 1978 to help grow Yankee.

Q: What was it like when the Hynes Convention Center had no roof?

A: Well, that was an experience. The Hynes shut down between YDC 13 and YDC 14. We had exhibits in the Sheraton garage, and after two years, we were not very happy with this situation. They had promised us they were going to be open for YDC 15. Our meeting started January 17, and we were the first people into the Hynes. As we arrived, they had no front door and no roof. Now, if you're having a meeting in January and you have no roof, you are a little nervous about the meeting. We never got the roof, but we did get the front door. We opened, and we were on Channels 4, 5, and 7 every night because they couldn't wait to find out what was going to go wrong next. But, actually, people loved it. We had a wonderful crowd, and it was successful. I really feel as though I can't believe I did it. Pat Scavotto was my chair that year, and he was very supportive and could understand the trials and tribulations of a convention center opening.

Q: What has Yankee done for the MDS?

A: I think that Yankee has done a lot for MDS members. Over the past 10 years, we have conducted membership surveys, and 85 percent of our members consider it the most valuable service that the MDS provides. I think that the education has been something that people have enjoyed because they can bring their staff to an event that they can look forward to, and they can have fun. They love Yankee and feel as though they're part of it. We get a lot of advice from all of our members on what to do at Yankee, which is wonderful. The MDS has grown into a multimillion-dollar operation, of which five-eighths of the budget is Yankee, and I think YDC's profitability has allowed all of the areas of the MDS to grow and to attract quality staffing. I think we offer the best education in the country. More scouts from the other dental meetings come to our meeting, so I think our mission is to provide the best and most innovative programs for the New England dentist, and I hope that we have achieved that. The same people keep coming back year after year.

Q: And the CEUs?

A: When I first started 30 years ago, there were probably only about 10 states that required continuing education units [CEUs] for dentists, and now, about 40 states mandate it. But when the Board of Registration in Dentistry put that requirement in for the dentists of Massachusetts, we doubled our attendance. It was a wonderful marketing tool for us. Both dentists and hygienists could get all of their CEUs for the two years in one meeting at a reasonable price.

Q: How does YDC compare to the Chicago or New York meetings?

A: We're the fifth-largest dental meeting in the country, but I think that we are probably considered to have the best scientific program. Chicago has a very good scientific program also. [Former YDC Chair] Don Stackhouse really



YDC organizers, including former MDS executive director Matt Boylan (third from right) and Michelle Curtin (second from right) don hard hats to check out the Hynes Convention Center mid-renovation.

loved the Chicago dental meeting, and he brought back with him the manual of operations; we have created a similar committee structure to the Chicago meeting, and it has worked very well for us.

Q: Was YDC the first large private organization conference in Boston?

A: For the last four or five years in the *Boston Business Journal*, Yankee has topped the list every year as the largest private meeting in Boston.

Q: What are some of the awards you've won?

A: I have been honored by the profession, and received the Distinguished Service Award from the International College of Dentists. I received the Outstanding Contribution Award from the Pierre Fauchard Society. Also, the Boston Convention Bureau gave me a Distinguished Service Award. I was the Meeting Planner of the Year for the Meeting Planners International. That was a big award in my profession. [Michelle also received an Honorary Fellowship from the American College of Dentists in October during the ADA Annual Session in San Antonio, Texas.] I really enjoyed all of those honors, and I'm thrilled about the retirement reception that the MDS is giving me next week at YDC 33.

Q: As you look back from your first meeting, YDC 3, to your last meeting, YDC 33, a span of 30 years, how can you compare them?

A: I always say that numbers are fun to look back at. We had 100 booths at that first meeting, and we have 1,000 booths for YDC 33. Our attendance was 6,000, and we have 30,000 for YDC 33. We had 28,000 last year [YDC 32]. We had about 75 courses in the first year, and we've had upwards of 600 at our highest. We're down to approximately 500 this year because of the capacity of the new convention center. We probably had about 20 volunteers that first year, and now we have 900. The staff has grown at the MDS. We have a staff of about 17 people working on all aspects of the meeting—the program, exhibits, and marketing—and, hopefully, all of these people will make the meeting even bigger and better when I leave. ■

Addendum

For more information on the founding of Yankee Dental Congress, please refer to "Reflections on Yankee" in the Winter 2000 *JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY* (Vol. 48/No. 4, pp. 9–12). For more information on Yankee volunteers, please see "You Don't Need a Scorecard to Recognize These Yankee Players," by Steven Mirsky, on pp. 19–26 of the same issue. For a historical perspective of Yankee in its 21st year, please see "From David Frost to C. Everett Koop: Yankee Dental Congress Marks Its Coming of Age," by Charles Millstein, in the Winter 1996 *JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY* (Vol. 44/No. 4, pp. 46–51).

A Clinico-Pathologic Correlation

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Case Presentation

An 88-year-old male patient presented to the oral and maxillofacial surgery department at Tufts University School of Dental Medicine complaining of ulcerative lesions on the upper and lower lips that were associated with bleeding when he brushed his teeth (see Figures 1 and 2). No history of pain was associated with the lesions. The patient gave a history of similar lesions of lesser severity one year previously that resolved spontaneously.

On examination, the upper and lower lips were ulcerated, and a sclerotic slough was noticed. In addition, there was generalized gingival inflammation with spontaneous bleeding. The buccal mucosae, tongue, floor of the mouth, palatal tissues, and pharynx did not show any abnormality. The patient's medical history revealed that he was suffering from celiac disease, hypertension, and hypercholesterolemia.

Laboratory examination was performed and showed an elevated erythrocyte sedimentation rate (ESR), increased levels of gamma globulin fraction, and protein levels with a specific increase in alpha albumin and other nonspecific, low-molecular-weight protein. IgG levels were significantly increased. Urine protein electrophoresis was normal and without evidence of Bence-Jones protein. Molecular studies noted the presence of a clonal B-cell population.

Differential Diagnosis

- Non-Hodgkin's lymphoma
- Lymphocytic leukemia
- Multiple myeloma
- Waldenstrom's macroglobulinemia
- Von Willebrand disease
- Pemphigus
- Extramedullary plasmacytoma

Histopathologic Examination

An incisional biopsy was performed and a histopathologic examination of the H&E-stained specimen showed epithelial ulcerations with underlying inflammatory response, including neutrophils, plasma cells, and lymphocytes. An extensive plasma cell infiltrate with invasion of fat was noted in deeper areas of the specimen (see Figures 3–5). Immunohistochemical examination showed many cells positive for CD45, many T-cells positive for CD3, and only a few B-cells positive for CD20. Many plasma cells were positive for CD138, IgG, Mum-1, and Bob-1. The majority of plasma cells were positive for Kappa light chains, while few were positive for Lambda light chains, IgM, and IgA. Approximately 15 to 20 percent of the neoplastic cells were positive with the proliferation marker Ki-67.

Diagnosis

The diagnosis was extramedullary plasmacytoma (EMP) of the upper and lower lips without nodal involvement. Following the American Joint Committee of Cancer (AJCC) staging system, the tumor was staged as T1N0M0.

Discussion

Plasmacytoma belongs to a family of dyscrasias, all of which share a common histologic profile: the abnormal proliferation of plasma cells. These tumors are characterized by a clonal population of the mature secretory form of B-cell lymphocytes, known as plasma cells, which are responsible for humoral immunity. As if under constant antigenic stimulation, these



Figure 1. The patient presented with a linear, shallow ulceration and pseudomembrane formation on the maxillary labial mucosa.

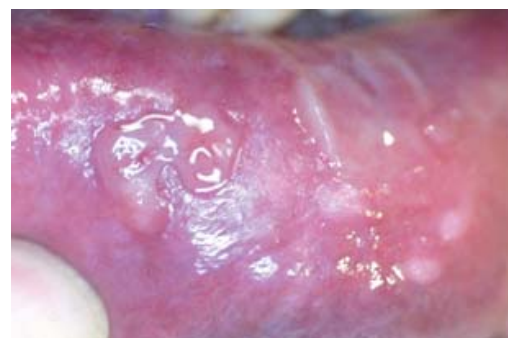


Figure 2. The mandibular labial mucosa shows serpinginous ulcerations covered by yellow-white pseudomembranes and formation of several discrete white pustules.

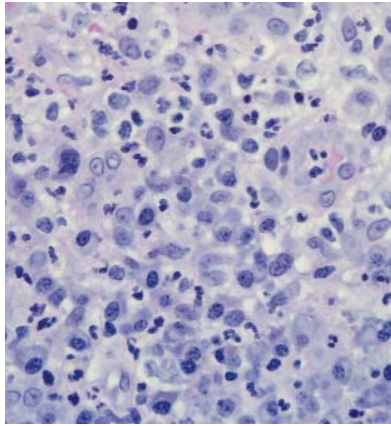


Figure 3. High-power photomicrograph shows a monomorphic population of mature plasma cells admixed with polymorphonuclear leukocytes and tissue histiocytes.

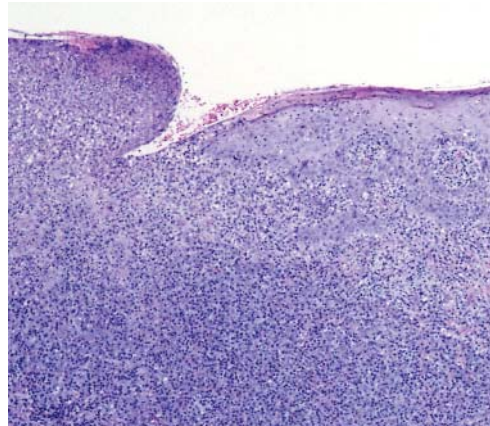


Figure 4. Low-power photomicrograph shows an ulcerated parakeratinized stratified squamous epithelium. The fibrovascular connective tissue stroma is effaced by sheets of small, round "blue cells."

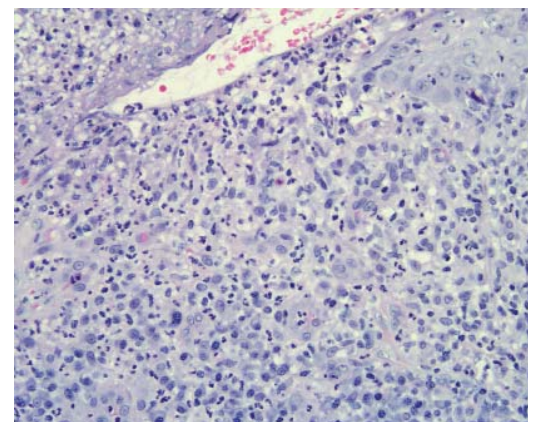


Figure 5. Medium-power photomicrograph shows the edge of the ulcerated stratified squamous epithelium, surfaced by a coagulated fibrin meshwork containing entrapped leukocytes. The expected granulation tissue of the ulcer bed is replaced by a monomorphic infiltrate of plasma cells.

plasma cells secrete a homogeneous immunoglobulin protein specific to their clonal neoplastic proliferation. This M protein is a monoclonal immunoglobulin composed of one heavy chain (most often IgG) and one light chain (A or K). Immunohistochemical detection of the M protein is critical in the determination of recurrence and dissemination of the disease. The production of the M protein characterizes these monoclonal gammopathies, known collectively as plasma cell dyscrasias. However, rare nonsecretory forms of plasmacytoma have been documented.

Most cases of solitary EMP occur in the mucosa of the upper respiratory tract, but EMP constitutes less than 1 percent of head-and-neck tumors. The most common locations are the nasal cavity, paranasal sinuses, and nasopharynx, with approximately 67 to 75 percent of the cases situated in the nasal cavity location.¹ The remaining 25 to 33 percent of cases occur in the tonsils, oropharynx, and larynx. A small minority of cases involve the tongue, uvula, floor of the mouth, and gingiva.² Nonrespiratory EMP constitutes about 10 percent of cases, which are confined primarily to the gastrointestinal tract and spleen, but have been discovered in such unusual sites as the pleura, kidney, breasts, testes, ovaries, and thyroid.³⁻⁵

EMP afflicts more men than women, with ratios ranging from 3-to-1 to 4-to-1. Ninety percent of EMP cases occur in Caucasian patients.⁶ Seventy percent of afflicted patients are between the ages of 50 and 70, and 99 percent are older than age 40. One study found that only nine of 272 patients studied were younger than age 20.⁴ Unusual cases, such as a 5-year-old stricken with EMP of the posterior pharyngeal wall and a 1-year-old with EMP of the bronchus, have been reported.⁷

The rarity of the disease, its concealed submucosal location, lack of distinctive features, and nonspecific presenting symptoms combine to generate a low index of suspicion and often delay the diagnosis of plasmacytoma.⁸

Oral manifestations of EMP have been reported as the initial presenting sign of the disease, including toothache, tooth mobility and migration, jaw/facial pain, mucosal ulceration, soft-tissue swelling, paresthesia due to nerve compression, and gingival bleeding/hemorrhage.⁹⁻¹² Proliferating plasma cells in

the bone marrow can interfere with normal platelet production and induce thrombocytopenia in patients with multiple myeloma (MM), thereby increasing the risk of intraoral bleeding. Rarely, elevated levels of monoclonal immunoglobulin can directly act as a thrombin inhibitor, as well as interfere with the actions of von Willebrand factor, inducing an acquired von Willebrand disease.¹¹

Acute presentation of EMP is rare and is likely a sign of acute hemorrhage within the tumor or bacterial infection.^{7,13} Despite the marked vascularity of plasmacytomas, bleeding is rarely a presenting symptom of head-and-neck lesions and occurs most often in the nose, paranasal sinuses, and nasopharynx, where the tumors can become bulky and friable.¹⁴ Adenopathy may be the first indication of disease in some cases, but it does not appear to influence prognosis.^{6,15} Overall, regional nodes are infiltrated in 8 to 30 percent of patients,^{3,7,16} which most often indicates metastasis rather than primary disease.

There are no pathognomic macroscopic characteristics that are indicators of EMP. EMP ranges in appearance from a smooth, polypoid structure with a narrow base to broad sessile lesions with wide areas of attachment.³ Polypoid appearance can be correlated with a more benign behavior, whereas the softer and more friable lesions follow a more malignant course.¹⁵ In addition to varieties of size and shape, the color of EMP in the head and neck also varies. Shades from pale yellow-gray to deep red are ascribed to the degree of vascularization of the capillary network perfusing the lesion. Despite the myriad appearances, gross findings of smooth, nonulcerated, submucosal, pedunculated, or slightly raised swellings should raise suspicion of the presence of a hematologic tumor. However, only a biopsy can confirm diagnosis. Care must be taken to acquire an adequate biopsy specimen, because the mucosa may be thickened from a reactive mononuclear inflammatory infiltrate that may exist between the tumor and the mucosa.¹

Diagnostic procedures should be carried out in two steps. The first step is extensive imaging utilizing plain films, computed tomography (CT), and magnetic resonance imaging (MRI)¹⁷ for systematic examination of the skeleton (cranium, cervical spine, thoracic spine, pelvis, etc.). The second diagnostic step consists

of laboratory examinations, including: ESR; a complete blood count and blood smear; electrolytes (including Ca²⁺) and enzyme determination; serum and urine protein electrophoresis; quantitative serum immunoglobulin (Ig) determination; immunoelectrophoresis and/or immunofixation studies in serum and in urine; and serum beta-2-microglobulin levels. In EMP, chemical laboratory findings are normal, except for the quantitative Ig determination. At the time of diagnosis of EMP, a monoclonal gammopathy is present in approximately 25 percent of cases of EMP and disappears after successful treatment of the tumor.¹⁸

The diagnosis of EMP is based on the morphologic and immunophenotypical finding of a localized collection of monoclonal plasma cells in the absence of plasma cell proliferation elsewhere, especially in the bone marrow, and without the presence of malignant lymphoma. EMP must be particularly distinguished from low-grade B-cell non-Hodgkin's lymphoma, which also may show plasmacytic differentiation, for example, as is seen in lymphoplasmacytic lymphoma. Similar features also can be seen in follicular lymphoma, monocytoid B-cell lymphoma, and extranodal marginal zone lymphoma (low-grade lymphoma of the mucosa-associated lymphoid tissue [MALT] type), which often occur in the same locations as EMP.¹⁷ Other than morphologic criteria, including centrocyte-like cells, reactive follicles, or the presence of lymphoepithelial lesions, immunostaining for perinuclear or cytoplasmic Ig expression (IgM rather than IgA or IgG), kappa or lambda light-chain restriction, or the lack of B-lymphocyte antigens (such as CD20) is helpful in differentiating MALT lymphoma from EMP.

Monoclonal immunoproliferative disorders involving the head and neck include MM, Waldenstrom macroglobulinemia, and acute and chronic lymphocytic leukemia. Close histological examination is necessary to exclude EMP from the extensive differential diagnosis of plasma-cell-infiltrated tumors. Unique to EMP is the complete substitution of normal tissue by broad sheets of plasma cells and the subsequent loss of the native cellular background. Microscopically, these plasma cells are set in a sparse, delicate, reticular stroma that is enriched with numerous blood vessels.⁷ However, the extensive monomorphic appearance may be vitiated by areas of necrosis and secondary infection at the periphery of the tumor margins.

Management

The treatment of EMP of the head and neck is controversial. Most reports have small numbers of patients, so it is difficult to produce a study with statistically significant results.¹⁶ One study of 219 cases reviewed from 14 published reports concluded that no treatment prevailed as superior.¹ Surgery and radiation appear to be equally effective, with similar recurrence rates regardless of treatment.^{1,7}

Our patient was treated with a high dose of radiation alone. On periodic follow-up examination for three consecutive years, the patient did not show any evidence of recurrence.

Conclusion

Considerable evidence suggests that extramedullary plasmacytoma of the head and neck can be cured or controlled with local therapy. When resection of the primary tumor and regional lymphatic tumor can be accomplished with minimal morbidity, surgery alone is an excellent approach. Radiotherapy in doses of

4,000 to 5,000 cGy per treatment is an alternative to surgery in patients with advanced disease or in patients who have EMP in sites where resection of normal tissue is undesirable. ■

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Incidental Finding on Dental Radiographs: Benign Fibro-osseous Lesions of the Jaws



Figure 1. Panoramic radiograph of Case 1 patient.

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Fibro-osseous lesions represent conditions in which normal bone is replaced with fibrous tissue containing abnormal bone or cementum. Many of these lesions present as incidental findings in routine dental radiographs. These lesions may be associated with tooth roots, but there are instances when they present independently in the maxilla or mandible.

Case 1

A 17-year-old male patient came for a routine dental visit and the panoramic radiograph (see Figure 1) showed a midline corticated circular radiopacity not associated with mandibular anterior teeth. The differential diagnosis included benign fibro-osseous lesion-like focal cemental dysplasia, cemento-ossifying fibroma. A cone beam computed tomography (CBCT) scan of the mandible was obtained for buccolingual evaluation. The CBCT scan showed well-defined, corticated homogeneous radiopacity in the midline of the mandible, apical to tooth #24

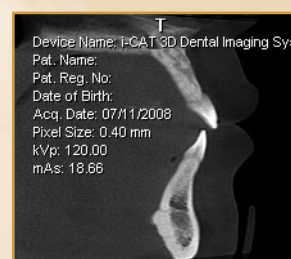


Figure 2. CBCT cross-sectional image in midline mandible.

but not associated with it. The finding measured 5 x 6.8 x 6.9 mm in dimension (see Figure 2).

On the CBCT scan, another well-defined corticated periapical radiopacity, this one associated with teeth #27 and #28, and measuring 11 x 12 x 9 mm, was also identified (see Figure 3). There was no evidence of thinning or expansion of the mandible or root resorption. The CBCT scan confirmed differential diagnosis of benign fibro-osseous lesion, and radiographic follow-up with a CBCT scan at an 8- to 10-month interval was recommended.

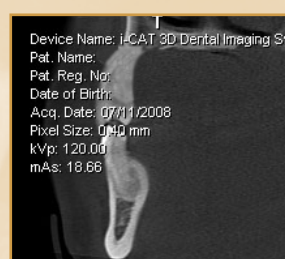


Figure 3. CBCT cross-sectional image in #27-28 area.

Case 2

Panoramic and periapical radiographs in a 14-year-old patient were obtained for routine dental care. A well-defined radiopacity surrounding the apical half of the root of tooth #21 was observed (see Figure 4). The CBCT scan of the mandible was obtained for further evaluation. On the CBCT scan, a target-like lesion measured approximately 9.1 x 12.6 x 8.5 mm in its greatest dimensions (see Figure 5). There was evidence of thinning of the buccal and lingual mandibular cortices. Differential diagnosis included benign fibro-osseous lesion-like cemento-oma and cementifying fibroma. CBCT radiographic follow-up at 3- to 4-month intervals was recommended to rule out any change in the size of the lesion.

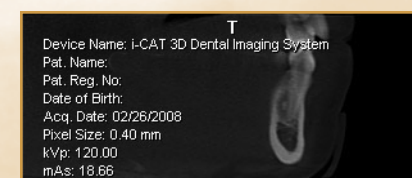


Figure 5. CBCT cross-sectional image in #21 area.



Figure 4. Panoramic radiograph of Case 2 patient.



Figure 6. Panoramic radiograph of Case 3 patient.

Case 3

A panoramic radiograph was obtained in a 31-year-old female patient as part of routine dental care (see Figure 6). A target-like lesion was observed in the left mandible in the edentulous #17 area; tooth #17 had been extracted five years previously. Another radiolucent lesion was observed apical to #26. A CBCT scan was obtained for further evaluation. The scan showed a mixed-density, target-like lesion with corticated borders measuring 9.6 x 6.6 mm in widest dimension in the edentulous #17



Figure 7. CBCT cross-sectional image in #17 area.



Figure 8. CBCT cross-sectional image in #26 area.



Figure 9. CBCT cropped panoramic image.

region (see Figure 7). The inferior border of this lesion was in close proximity to the superior border of the inferior alveolar canal, especially on the distal aspect where the distance between the lesion and the inferior alveolar nerve (IAN) canal was 1.6 mm. There was evidence of slight expansion and thinning of the buccal cortex of the mandible. A well-defined corticated target-like, mixed-density lesion attached to the apex of #26 was discovered (see Figures 8 and 9). This lesion measured 4.37 x 5.32 mm in its widest dimension and showed evidence of slight thinning of both buccal and lingual mandibular cortices. Differential diagnosis included benign fibro-osseous lesion-like periapical cemento-osseous dysplasia. It was also recommended to record pulp vitality of tooth #26.

Conclusion

Fibro-osseous lesions as mentioned in the above cases are not generally associated with any clinical signs or symptoms. They are mostly observed as incidental findings in dental radiographs. As a dentist, it is important to diagnose and differentiate between aggressive conditions like cemento-ossifying fibroma and cementoblastoma, and nonaggressive conditions like benign fibro-osseous dysplasia and cemento-osseous dysplasia. The more aggressive conditions require surgical intervention while the nonaggressive ones should be monitored radiographically. During the instances when lesions are present in close proximity to the roots, the pulp vitality test is an important tool, as pulp vitality response is unaltered by a benign fibro-osseous lesion. ■



PATHOLOGY SNAPSHOT

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GINGIVAL CYST

THE GINGIVAL CYST REPRESENTS AN infrequently encountered developmental odontogenic lesion most typically presenting in patients in the fifth to sixth decades of life. Thought by some to arise from residua of dental lamina (rests of Serres) persisting in the gingival tissues following odontogenesis,¹ the gingival cyst commonly arises in the region of the mandibular incisor, canine, and first premolar,²⁻⁴ and may represent the soft-tissue counterpart of the lateral periodontal cyst.¹

Clinically, the gingival cyst typically presents as an asymptomatic swelling of the buccal gingiva, the fluid-filled lumen of which may impart a bluish hue not infrequently mistaken for a mucocele. While the gingival cyst is contained entirely within soft tissue, anecdotal reports of pressure-resorptive defects involving the underlying alveolar bone are noted in the literature, sometimes rendering the radiographic distinction between the gingival cyst and lateral periodontal cyst difficult.³

Although the gingival cyst is typically a solitary unicystic lesion, reports of multilocular (botryoid) variants^{4,5} and of



Figure 1. Gingival cyst. Fluid-filled swelling on the facial gingiva. (Image courtesy of Dr. Bruce Goldman.)

lesions either presenting in a bilateral distribution or occurring together with the intrabony lateral periodontal cyst have been described.^{6,7} Treatment for the gingival cyst is simple surgical excision with submission of lesional tissue for histopathologic evaluation; the lesion is unlikely to recur. ■

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DENTAL EDUCATION

MELISSA CARMAN, MANAGING EDITOR

Highlighting key events taking place in dental education in Massachusetts.

Boston University

THE BOSTON UNIVERSITY GOLDMAN SCHOOL OF DENTAL Medicine (BUGSDM) believes strongly in the importance of cultivating the future of dentistry. On June 10, BUGSDM welcomed the third-grade class from Blackstone Elementary School in Boston to be “dentists for a day.” Ninety-five students donned white coats and masks, worked on dummy patients in BUGSDM’s Simulation Learning Center, and listened to presentations on proper nutrition, tooth structure, and the dental profession during the daylong event.

“The goal is for these young students to learn that a career in dentistry or the health sciences is something they can achieve,” says Kathy Lituri, BUGSDM’s oral health program coordinator and organizer of the event. “[This] also helps students get in the habit of taking care of their oral health early, so they are less likely to have problems as they get older.”

BUGSDM visits Blackstone Elementary School annually as part of Smart Smiles, a school-based oral health initiative to provide free oral health education, screenings, and dental sealants to thousands of children in Boston Public Schools.



Dr. Harold Turner and Mrs. Rhoda Frankl accept Distinguished Service Awards during Disability Awareness Night at Fenway Park.

Harold Turner and the late Dean Spencer N. Frankl were honored with the EP Maxwell J. Schleifer Distinguished Service Award on June 7 in a ceremony during Disability Awareness Night at Fenway Park. Drs. Turner and Frankl were recognized for their tireless efforts to train dentists in the treatment of patients

with special needs of all ages. Dr. Turner, a retired faculty member, credits Dean Frankl for the success of the program. Joseph M. Valenzano Jr., president and CEO of EP Global Communications, nominated Drs. Turner and Frankl for this award. “The disability and special needs community owes a debt of gratitude to Drs. Turner and Frankl,” said Mr. Valenzano in a press release. “Both are true champions of people with special needs and pioneers in the field of special care dentistry.”

Along with Dr. Turner, Mrs. Rhoda Frankl accepted the award in memory of the late Dean Frankl.

Judith Jones, DDS, MPH, DScD, professor and chair of the Department of General Dentistry at BUGSDM, recently received an award from the National Institutes of Health for a research project studying the impact of oral health on the quality of daily life. The \$900,000 Mid-Career Investigator Award in Patient Oriented Research was awarded to Dr. Jones for the

project titled “Oral Health-Related Quality of Life in Children and Their Families.” As part of the five-year award, Dr. Jones will conduct the research while mentoring junior faculty at BUGSDM, along with students at the Boston University Schools of Medicine and Public Health.

Harvard University

THIS PAST SPRING, THE HARVARD SCHOOL OF DENTAL MEDICINE (HSDM) was honored with one of the inaugural William J. Gies Awards for Vision, Innovation, and Achievement from the American Dental Education Association (ADEA). HSDM received the award for Outstanding Vision–Academic Dental Institution. This award recognizes contributions to and the support of global oral health and education initiatives.

The award, which was presented at a dinner held in conjunction with the 85th ADEA Annual Session, is named after William J. Gies, who, after visiting the existing dental schools in 1926, published the *Gies Report, Dental Education in the United States and Canada*. The ADEA is the leading national organization for dental education.

Tufts University

IN MAY, THE TUFTS UNIVERSITY SCHOOL OF DENTAL MEDICINE (TUSDM) “broke sky” on an extensive vertical expansion project that will add five floors and 95,000 square feet to its building located at One Kneeland Street in Boston. The construction, which will take place over the next 18 months, will expand TUSDM’s patient clinics, classrooms, and offices, as well as continuing education and research facilities. Using state-of-the-art green building standards, the new floors have been designed to feature many windows and make the most of natural light.



TUSDM, led by Dean Lonnie Norris (right), “breaks sky” on a building expansion.

More than 550 TUSDM alumni and friends attended Homecoming and Reunion Weekend 2008, which was held the weekend of May 2. Former MDS Trustee David Harte, DMD, and Robert Hunter, DMD, were presented with Alumni Association Awards during the annual Tufts University Dental Alumni Association Luncheon, and Lee Ann Gant, associate director of records and student services, was presented with the 2008 staff award, all for outstanding service and dedication to Tufts University, the School of Dental Medicine, and the dental profession. At a leadership reception dinner, TUSDM Dean Lonnie Norris, DMD, MPH, was awarded the Tufts University Provost’s Medal for exemplifying many of the values that Tufts seeks to instill in its students—leadership, humanitarianism, and passion. ■

BOOK REVIEWS



NORMAN BECKER, DDS, EDITOR EMERITUS

CLINICAL PERIODONTOLOGY AND IMPLANT DENTISTRY—FIFTH EDITION

JAN LINDHE, NIKLAUS P. LANG, THORKILD KARRING (EDITORS)

Blackwell Munksgaard



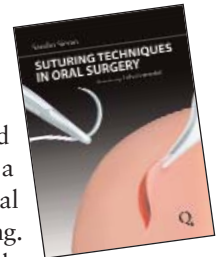
Volume 1 of this set is devoted to basic concepts, while Volume 2 deals with the clinical concepts while integrating these basic aspects. The editors summarize the division neatly in this sentence: “The decision to make the split a purely physical one, and not an intellectual one, reflects the realization that over the past decade, implant dentistry has become a basic part of periodontology. The integrated structure of this latest edition of the textbook mirrors this merger.”

The chapters are well organized and comprehensive. Both volumes provide detailed and comprehensive chapters featuring topics of interest to general dentists and postdoctoral students alike, as well as clinical periodontists. The set should be considered a valuable reference source.

SUTURING TECHNIQUES IN ORAL SURGERY

SANDRO SIERVO, WITH ILLUSTRATIONS BY LUISA LORENZINI

Quintessenza Edizioni



I am sorry that this book was not around when I was perfecting my suturing skills on a frankfurter. Proper suturing is of fundamental importance to esthetics as well as proper healing.

The author and collaborators cover the basics of the cellular and molecular healing of surgical wounds, along with the technical aspects of suturing. Topics discussed include suture needles, types of suture materials, and proper techniques for holding, gripping, and utilizing instruments. The clinical aspects of sutures are described in depth and are well illustrated through drawings and photographs of case histories.

This is an easily read and comprehensive book, which makes for a good introduction to understanding and using sutures. ■



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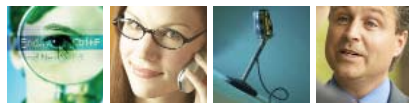
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VIEWPOINT

MYRON ALLUKIAN JR., DDS, MPH

Dr. Allukian was the dental director for the City of Boston for 34 years and is a past president of the American Public Health Association. He is now a consultant for the Massachusetts League of Community Health Centers and Lutheran Medical Center. He can be reached at myalluk@aol.com.

WHO IS HELPING SENIORS IMPROVE THEIR ORAL HEALTH? WHAT IS OUR RESPONSIBILITY?

AS A DENTIST WHO IS BOARD certified in dental public health, my entire career has been spent working to promote prevention and access. As my father lived to 10 days short of 102 years of age, and my mother, who recently passed away, lived to one month short of 99 years with all her teeth save one, I would like to share my unique viewpoint of the elderly and their oral health needs.

The “baby boomer generation” will create the largest number of people 65 years and over in the history of our country. Senior citizens today are more sophisticated, live longer, are on more medications, and survive a complexity of health problems better than ever before—and they have better oral health. Seniors are also more concerned about their appearance and quality of life. For many seniors, eating is one of their few pleasures in life. More seniors are retaining their teeth much longer than ever before, thanks to community water fluoridation, fluorides, and better dental technology.

How is the dental profession going to respond to the unmet health needs of the elderly? In 2007, 12.6 percent of the U.S. population was 65 and over, as compared to 13.3 percent in Massachusetts.¹ By 2030, this will increase to 19.7 percent, or 71.5 million people, for the United States, versus 20.9 percent for Massachusetts, or 1.5 million people, which is one out of every five residents.¹ (See Figure 1.) Life expectancy at birth is now 80.7 years for U.S. females and 75.4 years² for males. Among the fastest-growing segments of seniors in the United States are those who are 85 years and over, going from 1.4 million in 1970, to 4.3 million in 2000, to 9.6 million by 2030.³

Although seniors are only 12 percent of the population, they use about:

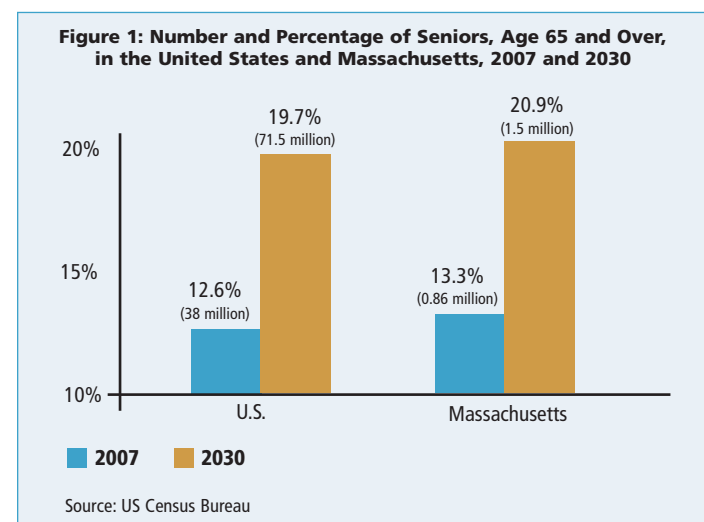
- 26 percent of all physician office visits;
- 35 percent of all hospital stays;
- 34 percent of all prescriptions;
- 38 percent of all emergency medical response calls; and
- 90 percent of all extended-care facility (nursing home) use.⁴



In Massachusetts, more than 76 percent of the elderly receive health care services paid by Medicare⁵; however, there is no Medicare coverage for basic dental services.

The 2000 Special Legislative Commission’s Report, *The Oral Health Crisis in Massachusetts*, raised everyone’s accountability, and the public and private sectors began a variety of oral health initiatives, with a primary focus on children. In addition, a 2005 federal court

order against the MassHealth Dental Program put a greater focus on improving the children’s dental program. Unfortunately, little attention was paid to adults and the elderly, in spite of their great dental needs. Although it is important to make children a high priority for prevention and treatment, better oral health is not effectively reinforced in the home if the parents and grandparents are dental cripples, or are not able to obtain dental care for themselves. A dentist may provide care to a child two to four times a year, but the child’s parents are role models every day, and most parents become grandparents.



In 2002, the Adult MassHealth Dental Program was essentially eliminated. It was restored in 2006 with no significant improvements in the fee schedule. There are approximately 597,000 adults in the MassHealth program, and of the 151,660 members over the age of 60, only about 27.4 percent (41,651) utilized the dental program in fiscal year 2007,⁶ compared to 72 percent of all Massachusetts seniors over age 65 who saw a dentist.⁷

What Are the Dental Needs of Seniors?

- 52 percent of elders examined in elder housing facilities needed dental care, and 15 percent needed urgent care⁸
- 42 percent had urgent needs during the last year and were unable to obtain care⁸
- 39 percent did not seek care because they were unable to afford it⁸
- 60 percent of those in elder housing had untreated dental caries⁹
- 87 percent of homebound seniors had untreated dental caries¹⁰
- More than 70 percent of the homebound had their last dental visit more than three years ago and 38 percent had soft-tissue lesions¹⁰

Senior citizens who live in extended-care facilities (nursing homes) and who are homebound probably have the greatest oral health needs among the elderly.¹¹ In Massachusetts in 2006, approximately 89.4 percent (45,069) of the 50,416 extended-care beds in 453 facilities were filled at any one point in time.¹² Of those, 66 percent were MassHealth members and 49 percent had dementia.¹³ In our state, there are also approximately 10,585 assisted-living and residential-care beds in 171 facilities.¹³ Another 9.9 percent of all Medicaid recipients receive home health services.¹³

About 5.4 percent of the elderly population in the United States are in an extended-care facility at any one time, and it is estimated that 66 percent of the U.S. population over 65 will need some form of long-term care at some point in their lifetime.⁴ Oral hygiene care and preventive services—both professionally and by caretakers—are very difficult to obtain for those in extended-care facilities, and this significantly contributes to making such care one of their greatest needs. It is also difficult to find a dentist who is willing to make a home visit or to see a patient in a nursing home or extended-care facility, and even more difficult in rural areas. This is a serious gap in the dental care delivery system.

Recommendations

1. Dentistry needs to take the lead. The entire spectrum of dental professionals, along with other providers, extended-care facilities and organizations, foundations, insurance companies, local and state government, and senior citizen groups, need to work together with an interdisciplinary approach to respond to these unmet needs.

2. Model programs must be developed. Model demonstration programs need to be developed for extended-care, assisted-living, and elder housing facilities, as well as for senior daycare centers and homebound patients in different parts of the state—

especially rural areas. Practicing dentists, student dentists, dental hygienists, and dental assistants need to learn to be comfortable using portable dental equipment to treat these patients in alternate delivery sites. This has been done in the past for dental students and needs to be looked at again.¹⁴

3. Dental regulations must be complied with. All long-term care facilities should comply with the regulations that require an oral examination, 24-hour emergency dental care, and the initiation of necessary prevention, education, and dental treatment in a timely fashion.

4. Fluoridation must be promoted. All Massachusetts communities should become fluoridated. Fluoridation is the foundation for better oral health, as it helps prevent tooth decay for everyone, from children through seniors. Prevention is better than cure. Fluoridation has been shown to help prevent root caries in the elderly.¹⁵ ■

Acknowledgement

The author acknowledges the assistance of Biyi Ogunjimi, BDS, MPH, in the preparation of this article.

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