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CALIFORNIA DENTAL ASSOCIATION

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So Chocolate Is Not a Remedy?

Kerry K. Carney, DDS, CDE

Nothing seems as true on the face of it as data that support a previously held belief. That is confirmation bias in a nutshell. We tend to attribute greater importance to and have more faith in facts that support our opinion. Conversely, facts that call into question or contradict our beliefs may be deemed inconsequential or simply untrue (read: fake).

That is why I like to read about the health benefits of dark chocolate. It is so reassuring to read that my daily 1- to 2-ounce dose of dark chocolate is helping me live a healthier, happier life.

It is easy to Google sources that presume to assure the public that the data supporting chocolate's nutritional benefits are reliable and trustworthy. But with just a little digging, and just a little scientific skepticism, these benefits start to look more like unfounded, poorly tested claims.

The retail food industry in the U.S. totaled $5.75 trillion in 2017.[1] Weight-loss programs were responsible for a little more than $68 billion in the same year. With that kind of money at stake, it is no wonder that nutrition, diet and marketing can become inextricably conflated.

The New York Times recently chronicled the decline and disgrace of a former rising star of nutrition studies, Brian Wansink, PhD, of Cornell University. His story typifies the ongoing problems with food and nutrition research today.

Dr. Wansink became a media darling, writing best-selling books, publishing numerous studies and being the go-to interview for health and diet. He served in "a top nutrition policy role at the Department of Agriculture under George W. Bush, where he helped shape the government's influential dietary guidelines."[2]

With just a little digging, and just a little scientific skepticism, these benefits start to look more like unfounded, poorly tested claims.

His early research dealt with how people make decisions about what and how much they eat. He found that the size of the plate influenced the amount of food that was consumed. He published more and more and at some point his articles began to attract highly critical attention. His detractors pointed out the deficiencies in the academic rigor of his research. They argued "that an alarming number of food studies are misleading, unscientific or manipulated to draw dubious conclusions."[2] Specifically, Dr. Wansink and his co-authors were accused of data dredging.

Data dredging is the opposite of the scientific method. Where the scientific method is based on the principles of observation, hypothesis construction, experimental testing of a null hypothesis and conclusion, data dredging involves casting a wide net over a field of observations and speculating causal relationships based on associations that may be the result of random chance.

For example, Dr. Wansink would ask his associates to mine existing data for associations that might produce controversial or interesting articles that would get a lot of attention. This technique is not uncommon in food studies. According to the *Times*, "nutrition epidemiology is notorious for this … it is one reason contradictory nutrition headlines seem to be the norm: One week coffee, cheese and red wine are found to be protective against heart disease and cancer, and the next week a new crop of studies pronounce that they cause it."[2]

Rigorous, random controlled trials are difficult to perform even in a laboratory. Nutrition epidemiology is usually based on notoriously unreliable subject recall and recording. In addition, there are many other factors, like "exercise, socioeconomic status, sleep, genetics and environment,"[2] that may influence health and obscure the cause and effect associations of diet.

"You can analyze observational studies in very different ways and depending on what your belief is — and there are very strong nutrition beliefs out there — you can get some very dramatic patterns."[2]

In order to reduce the practice of data dredging, some authorities have suggested the following guidelines for nutrition studies:

- Register study protocols beforehand.
- Share raw data to increase transparency.
- Focus on large randomized controlled trials to produce stronger statistical evidence.
- Refrain from reworking large observational data sets into multiple research papers to avoid magnifying weak results.[2]

Though Dr. Wansink has had to retract at least seven papers, his critics are quick to point out that the research problems that he epitomizes are not unique to nutrition studies. Retraction Watch, a website that keeps track of such things, contrasted Dr. Wansink with an anesthesiologist on their list who had 183 retracted papers to his discredit.

It is easy to get people to write about nutrition and diet but it is very difficult to get the articles through peer review. Good peer review is what divides a scientific journal from a magazine. We depend on the expertise and professionalism of our reviewers to keep the *Journal* on the right side of that divide. We are grateful for the time they volunteer to keep their colleagues up to date.

So, chocolate is probably not much of a remedy for anything, but surely the walk to the kitchen to retrieve another piece of chocolate at least increases physical activity by some small amount. Can that be anything but good? There must be some data to support that. ■

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The *Journal* welcomes letters

We reserve the right to edit all communications. Letters should discuss an item published in the Journal *within the last two months or matters of general interest to our readership. Letters must be no more than 500 words and cite no more than five references. No illustrations will be accepted. Letters should be submitted at editorialmanager.com/jcaldentassoc. By sending the letter, the author certifies that neither the letter nor one with substantially similar content under the writer's authorship has been published or is being considered for publication elsewhere, and the author acknowledges and agrees that the letter and all rights with regard to the letter become the property of* CDA.

CDA JOURNAL, VOL 47, N°4

Getting Rights Right

David W. Chambers, EdM, MBA, PhD

The nub:

1. Lay state representatives grant licenses; organized dentistry grants membership.

2. Legal and moral rights are different and cannot be substituted for each other.

3. The moral can influence the legal but not substitute for it (and vice versa).

David W. Chambers, EdM, MBA, PhD, is a professor of dental education at the University of the Pacific, Arthur A. Dugoni School of Dentistry in San Francisco and the editor of the American College of Dentists.

Somebody told me years ago that just because somebody has a right to do something does not mean it is right for him or her to do it. We are free to do many stupid things. A dentist who believes his or her colleague is practicing below the standard of care has a right to notify some party within organized dentistry to say so. (The ADA code of professional conduct says a dentist in such a position MUST do so. As far as I know, no dentist has ever been removed from organizational membership for failing to do so. The California Dental Association Code of Ethics does not contain this provision.)

The difference between having a right and doing what is right comes down to the ground on which one makes a stand.

Licensure: Dentists practice on a license to provide commercial services to the public in a safe and nondiscriminatory fashion. State attorneys general manage licenses consistent with statutes and regulations voted by legislatures and enforce these through investigatory mechanisms and state dental boards (or state comprehensive health professional boards).

Professional membership: Two-thirds of dentists belong to organized dentistry. This is a voluntary membership that includes a promise to abide by a code of professional conduct. Typically, the code contains behavior concerning relationships among professionals who are not part of licensure and a clause saying that all members must also abide by civil laws and licensure requirements in the appropriate jurisdictions.

There are separate standards, investigation and informants and penalties for licensure and for voluntary membership. In some states, judicial councils, or some such body, will function in parallel with state licensure enforcement but each has a separate standing. One can remove a practitioner's license; the other can remove a practitioner's membership in the voluntary organization. The recent U.S. Supreme Court decision regarding the role of the state dental board in North Carolina explicitly recognized the ADA code. It praised the association for calling for high standards and specifically stated that the code had no legal status with respect to licensure.

There is a moral side to the issue as well. There, one stands on what is right (ethically appropriate). Sometimes, the best thing to do is sit down with a colleague whose behavior is damaging patients and the profession. The ultimate authority in this case is the ethical convictions of two moral agents. (It is unfair and unwise to go into these matters assuming one is ethical and the other is not.) The collective wisdom of the profession on how to practice is a powerful resource, even though it lacks legal standing. But there is a danger there. Trial in the court of public opinion or rumor discipline is immoral and may even be legally actionable. ■

Survey: Parents Still Believe Opioids Are Best Pain Reliever for Kids

A nationwide survey commissioned by the American Society of Anesthesiologists (ASA) found that parents remain conflicted about opioids despite recent reports that 90 percent of addictions start in the teen years. A report on the survey was published on the ASA website in January 2019.

"While most parents said they were concerned about side effects and risks such as addiction, improper or recreational use and overdose, they still thought opioids work best to manage pain," said ASA President Linda J. Mason, MD, FASA.

The 17-question survey was conducted online between Nov. 25 and Dec. 2, 2018, among 1,007 parents of children aged 13 to 24. If their children were ever prescribed opioids, parents were asked to think of their child with the most recent prescription when answering the questions. If their children were never prescribed opioids, parents were asked to answer for their oldest child.

Of the parents surveyed, one-third of whose children had been prescribed opioids, more than half expressed concern that their child may be at risk for opioid addiction. However, nearly two-thirds of the parents expressed the belief that opioids were more effective at managing their child's pain after surgery or a broken bone than nonprescription medication or other alternatives.

And while 83 percent of parents surveyed said they were prepared to safely manage their child's opioid use if prescribed, the facts don't quite bear out, according to the survey. Opioid-related deaths among children and adolescents nearly tripled between 1999 and 2016, driven mostly by prescription opioids, suggesting there is a need for improved awareness on opioid alternatives, safe storage and proper disposal, talking to children about risks, and the benefits of naloxone, an emergency medication that reverses the effects of an opioid overdose.

Find more survey results in the newsroom at asahq.org.

Drug Combining Rises to Dangerous Level

The number of Americans taking a dangerous combination of opioids and benzodiazepines increased by 250 percent over a 15-year period and the number of patients taking both benzodiazepines and so-called Z-drugs, which act similarly to benzodiazepines, increased by 850 percent, according to a new study published in the journal *Sleep*.

The research by Nicholas Vozoris, MHSc, MD, an associate scientist at the Li Ka Shing Knowledge Institute of St. Michael's Hospital in Toronto and a sleep medicine specialist, relies on data from eight National Health and Nutrition Examination Survey cycles between 1999 and 2014. It found the prevalence of benzodiazepine and opioid co-usage in the U.S. in 2014 was 1.36 percent, while the prevalence of benzodiazepine and Z-drug co-usage was 0.47 percent.

These drug-use patterns are associated with increased risks for serious adverse outcomes including breathing problems and death.

"While the proportions may seem small, these percentages at a population-level correspond to millions of people and the growth of these numbers is alarming," said Dr. Vozoris. "The FDA has gone as far as to issue its strongest form of safety warning about this suboptimal prescribing practice and mixing of opioids and benzodiazepines."

The 1.36 percent prevalence of benzodiazepine and opioid co-usage translated to about 4.3 million people, while the 0.47 percent prevalence of benzodiazepine and Z-drug co-usage amounted to about 1.5 million people.

Commonly prescribed benzodiazepines include alprazolam, clonazepam and lorazepam while Z-drugs include zaleplon, zolpidem and zopiclone. Dr. Vozoris has seen a lot of confusion about benzodiazepines and Z-drugs among both patients and other medical professionals.

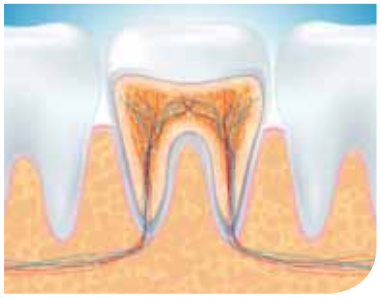
"There are doctors and members of the public often not realizing that Z-drugs are very similar in action to benzodiazepine drugs," he said.

Read more of this study in *Sleep* (2019); doi.org/10.1093/sleep/zsy264.

Researchers Regenerate Dental Tissue From Stem Cells

Collaborative research between the Maurice H. Kornberg School of Dentistry and the College of Engineering at Temple University uses stem cells to regrow the pulp-dentin complex that makes up the center of a tooth. The research was recently published in the journal *Tissue Engineering*.

Seeking a better treatment than the inert substance typically used in root canals, Maobin Yang, DDS, MS, associate professor of endodontology and director of the regenerative health research laboratory at Kornberg,



researched the use of stem cells to simultaneously regenerate the pulp tissue (including blood vessels and nerves) and dentin tissue that comprise the inside of a tooth.

But in generating the tissue using stem cells, he found that the components had no spatial control when they were put into the canal; therefore, the components didn't know where to grow the pulp and dentin. Dr. Yang, with the help of Peter Lelkes, PhD, professor and department chair of bioengineering at Temple, developed a bioengineered two-sided scaffolding to guide the tissue growth.

"The beauty of the system is that we have shown in vitro that we can engineer a two-sided scaffold and can guide the stem cells to differentiate into both pulp cells and dentin, producing odontoblasts that will eventually repair the root canal," Dr. Lelkes said. "We — our smart scaffold — can do this differentially with great efficacy."

The next step for the researchers is to test the tissue growth technique in animal models.

"I believe in the next 10 years, or even sooner, when patients come to the endodontist for a root canal treatment, we will be able to provide an alternative, equivalent or even better treatment modality, which is to regrow the nerves and the blood vessels and to grow new pulp back into your tooth, instead of using inert material," Dr. Yang said. "With investments and with lots of research, I believe that we will get there soon."

Read more of this study in *Tissue Engineering* (2019); doi.org/10.1089/ten.tea.2018.0041.

Study Unveils New Evidence on the Cause of Alzheimer's Disease

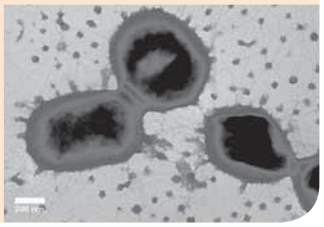
A prominent bacteria found in chronic periodontitis has been identified in the brains of patients with Alzheimer's disease, providing strong evidence connecting *P. gingivalis* to the development of Alzheimer's, according to a study published in the journal *Science Advances*.

In a model done on mice, oral *P. gingivalis* led to increased production of amyloid beta, a component of amyloid plaques commonly associated with Alzheimer's disease. The team also found the organism's toxic enzymes, or gingipains, in the neurons of patients with the disease. Gingipains are secreted and transported to outer bacterial membrane surfaces and have been shown to mediate the toxicity of *P. gingivalis* in a variety of cells.

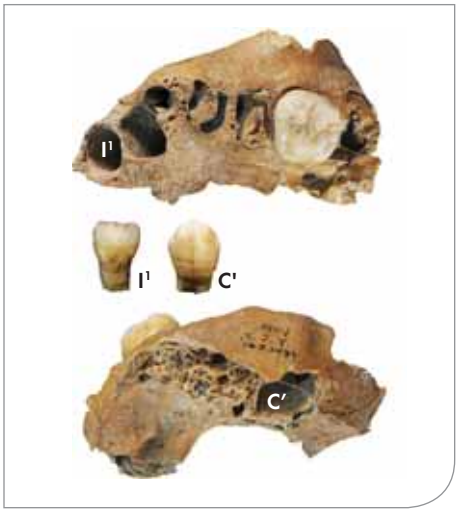
In attempts to block the neurotoxicity, researchers designed and synthesized small-molecule inhibitors targeting gingipains. In preclinical experiments, researchers demonstrated that gingipain inhibition reduced the bacterial load of an established *P. gingivalis* brain infection, blocked amyloid beta production, reduced neuroinflammation and rescued neurons in the hippocampus – the part of the brain that mediates memory and frequently deteriorates in the early stages of Alzheimer's disease.

Jan Potempa, PhD, a researcher in the University of Louisville School of Dentistry's department of oral immunology and infectious diseases, was part of the team of international scientists led by Cortexyme Inc., a privately held, clinical-stage pharmaceutical company.

"An even more notable aspect of this study is demonstration of the potential for a class of molecule therapies targeting major virulence factors to change the trajectory of Alzheimer's disease, which seems to be epidemiologically and clinically associated with periodontitis," Dr. Potempa said.



Learn more about this study in *Science Advances* (2019); doi:10.1126/sciadv.aau3333.



Dental remains of the Xujiayao juvenile, original Xujiayao fossil. I^1 and C′ were removed from their sockets and appear as isolated teeth. Photographed by S.X. from Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences.

Dental Growth of Ancient Ancestors Similar to Modern Humans

A recent study on the dental remains of an ancient fossil has revealed similarities to those of modern humans. Published in *Science Advances*, the study was the first systematic assessment of dental growth in an East Asian archaic hominin. Researchers found the study results surprising because many of the other features of the fossil, known as the Xujiayao juvenile, a child 6 ½ years old who lived at least 104,000 years ago in northern China, are not modern, such as the shape and thickness of the skull and the large size of the teeth.

"The researchers were surprised to find that in most ways, this child's dental development was very similar to what you would find in a child today," said Debbie Guatelli-Steinberg, PhD, co-author of the study and a professor of anthropology at The Ohio State University.

Compared to our primate cousins, modern humans and their teeth take a long time to form and develop. The dental remains of the Xujiayao juvenile suggest that these archaic humans had a slow life history like modern humans, with a prolonged period of childhood dependency, according to the study.

Another aspect similar to modern humans was the perikymata — the incremental growth lines that appear on the surface of the tooth.

"We found that the way these perikymata were distributed on the Xujiayao juvenile teeth was close to what we see in modern humans and not to Neanderthals," said Dr. Guatelli-Steinberg. "Because growth lines in teeth retain a record of dental development, teeth provide some of the best data anthropologists have about the growth and development of our ancient ancestors."

Researchers were able to find at least one differentiation between the fossil and modern humans — the rate of growth in the roots of the teeth. The juvenile showed relatively fast growth, compared to a slower growth in modern humans.

Read more about this study in *Science Daily* (2019); doi:10.1126/sciadv.aau0930.

Research Develops New Extra-Strong Translucent Glass Ceramic

Researchers at Ångström Laboratory at Uppsala University in Sweden have developed glass ceramics that are three times stronger than the ceramics currently in use. The study was published in the journal *Nano Letters* in late 2018.

The new ceramic is translucent while other ceramics are white, and the combination of color and durability has proven to be particularly successful for dentists to use to repair teeth.

"The dilemma in dentistry today is that existing strong materials are white in color (a white that does not look natural) and materials that are translucent are not as strong," said Wei Xia, PhD, an associate professor at Uppsala who heads the research team. "Our ceramics are three times stronger and also translucent. This means that you can customize the color of the tooth to match the patient's other teeth, resulting in a natural appearance. The material is intended for use in dental repairs, for broken teeth and for bridges and crowns."

The research team hopes that the new material will provide patients with better oral health and make dental care less expensive in the long run because patients will not need to visit their dentist as often. The plan is to use the glass ceramics in areas that need strong and translucent material, such as various types of implants.

"This study deepens our fundamental understanding of the microstructure-mechanical strength relationship, which could guide the design and manufacture of other high-strength, translucent glass ceramics," the authors stated.

Learn more about this study in *Nano Letters* (2018); doi:10.1021/acs.nanolett.8b03220.

Opioid Overdose Crisis Predicted To Worsen by 2025

A study from investigators at the Massachusetts General Hospital (MGH) Institute for Technology Assessment projects that the opioid overdose epidemic in the U.S. is likely to increase in the coming years and that measures based on restricting access to prescription opioids will have a minimal impact in reducing overdose deaths.

In their report published in *JAMA Network Open*, the research team noted that the changing nature of the epidemic, which is now driven by the use of illicit opioids like heroin and fentanyl, has reduced the potential impact of programs targeting prescription opioids.

The team used data from sources such as the National Survey on Drug Use and Health and the Centers for Disease Control and Prevention to develop the Opioid Policy Model to reflect the trajectory of the opioid epidemic in the U.S. from 2002 to 2015. They then used that model to make projections for probable outcomes from 2016 to 2025.

Under a status quo scenario in which no further reduction in the misuse of prescription opioids occurs in coming years, the model projects that the annual number of opioid overdose deaths will increase from 33,100 in 2015 to 81,700 in 2025, a 147 percent increase. The model also predicts that during those years, approximately 700,000 people will die from an opioid overdose, with 80 percent of those deaths from illicit drugs like heroin and fentanyl. The researchers also estimate that by 2025 half of all new opioid users will begin with illicit rather than prescription drugs. In all scenarios tested, interventions directed toward reducing misuse of prescription opioids were projected to decrease overdose deaths by only 3–5 percent.

"This study demonstrates that initiatives focused on the prescription opioid supply are insufficient to bend the curve of opioid overdose deaths in the short and medium term," said co-author Marc Larochelle, MD, MPH, of the Grayken Center for Addiction at Boston Medical Center. "We need policy, public health and health care delivery efforts to amplify harm reduction efforts and access to evidence-based treatment."

Read more of this study in *Jama Network Open* (2019); doi:10.1001/jamanetworkopen.2018.7621.

Orthodontics Not Proven To Prevent Oral Decay

A recent study is challenging the belief that orthodontic treatment can prevent future tooth decay. The study, conducted by Esma J. Doğramaci, BDS, MSc, and co-author David Brennan, PhD, both from the University of Adelaide in Australia, was published in the journal *Community Dentistry and Oral Epidemiology* in January 2019.

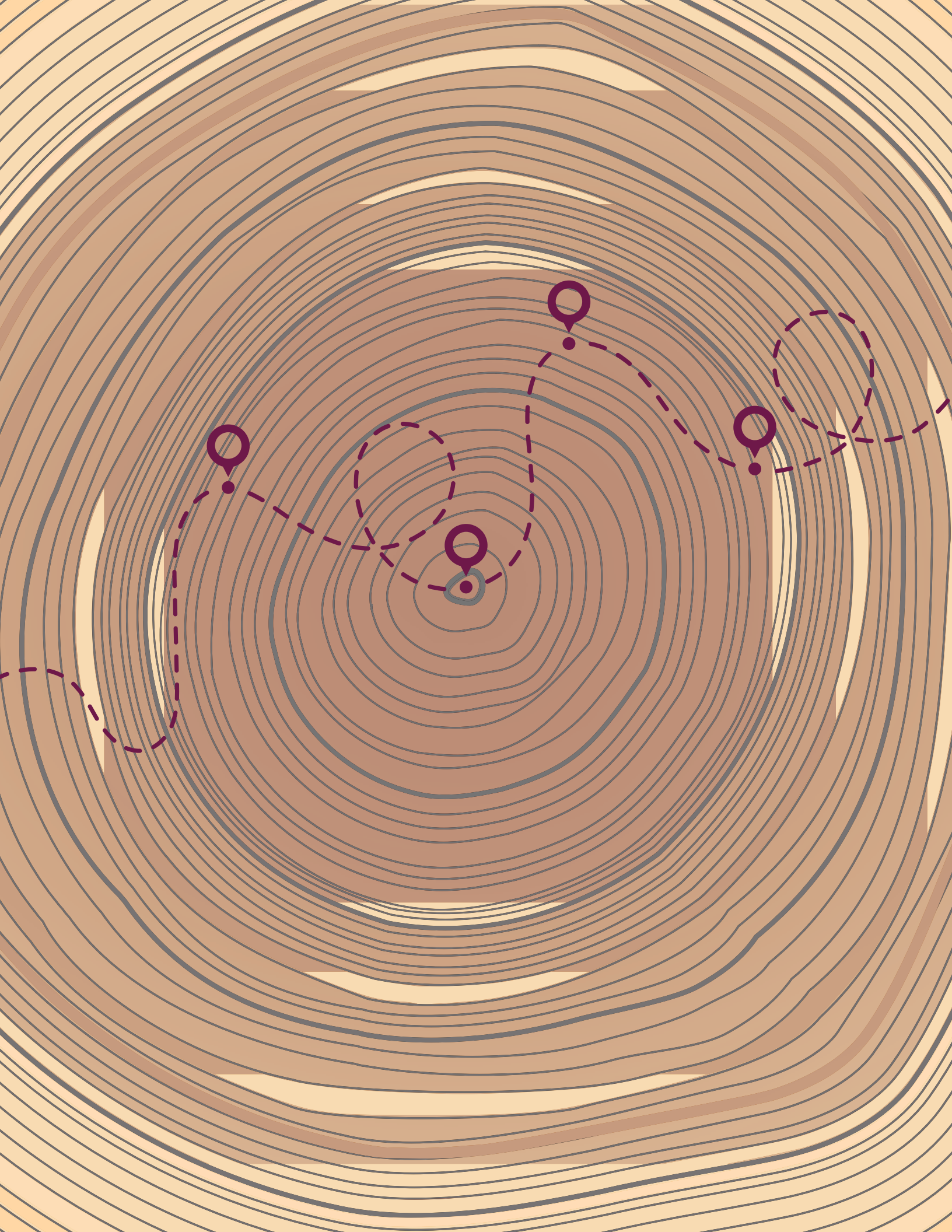
For the study, researchers assessed the long-term dental health of 448 30-year-olds from South Australia. The subjects had previously taken part in an oral epidemiology study when they were 13 years old and were subsequently traced through the Australian electoral roll and invited to participate in a cross-sectional study investigating long-term dental health outcomes.

Participants who accepted the invitation completed a questionnaire that collected information on sociodemographic characteristics, dental health behaviors and receipt of orthodontic treatment. Following completion of the questionnaire, researchers performed clinical examinations of the participants and recorded their number of decayed, missing or filled teeth.

More than a third of the participants had received orthodontic treatment by age 30, and on examination, researchers found that those participants did not have better dental health than those who had not received orthodontic treatment, according to the study.

"There is a misconception among patients that orthodontic treatment prevents tooth decay, but this is not the case," said Dr. Doğramaci, a lecturer in orthodontics at the University of Adelaide. "Evidence from the research clearly shows that people cannot avoid regularly brushing their teeth, good oral hygiene and regular dental check-ups to prevent decay later in life."

Learn more about this study in *Community Dentistry and Oral Epidemiology* (2019); doi.org/10.1111/cdoe.12446.



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Older Adults: The Long and Winding Road To Address Their Needs

Elisa M. Chávez, DDS

GUEST EDITOR

Elisa M. Chávez, DDS, is an associate professor in the department of diagnostic sciences at the University of the Pacific, Arthur A. Dugoni School of Dentistry in San Francisco. She graduated from the University of California, San Francisco, School of Dentistry and earned her certificate in geriatric dentistry from the University of Michigan, Ann Arbor. Dr. Chávez has practiced in private, community health, long-term care and hospital settings. She developed and directs an extramural student rotation at On Lok Lifeways, a Program for All-Inclusive Care for Elders (PACE). As a recent fellow and current scholar with The Santa Fe Group, she is an advocate for the oral health needs of seniors nationwide.

Conflict of Interest Disclosure: None reported.

GUEST EDITOR'S NOTE

This issue of the *Journal* contains several references to resources developed by Oral Health America (OHA), a national organization that has contributed significantly over the last several decades to improving the oral health of people of all ages. In early 2019, OHA ceased active operation and stated that it was seeking to transition programs and projects to other organizations. We are hopeful that the resources cited in this issue will not be lost to readers, but rather will be available again under the leadership of other oral health advocacy organizations.

Our colleagues in geriatric dentistry and public health have been telling us for at least the last 30 years that a crisis in oral health care for seniors was imminent in the face of inaction and that the repercussions would be great. Much of what you are about to read, about the importance of addressing issues in oral health care for seniors, is not new, but the causes of disparities and the current and projected needs are compounded by time that has been lost to apathy on a broad scale

This is an urgent moment in health care and dentistry because our population has been aging without reliable resources to receive the oral health care needed to maintain oral health over a lifetime. There are greater expectations for oral health as people age and yet knowledge is still limited about how deeply oral and systemic health are intertwined and the implications for successful aging. Without appropriate intervention, future populations are in line to lose all the gains we have made in prevention on their behalf as younger individuals.

The baby boomers, the first generation to benefit from water fluoridation, who have so far maintained more of their dentition than any generation before them, now face significant oral diseases and challenges to maintaining their oral health. While rates of edentulism have decreased over generations, the risks to oral health and resultant oral health needs have increased for seniors overall and disparities in access to care have widened considerably in some populations and socioeconomic groups. People are living longer with chronic diseases that directly and indirectly impact their oral health and ability to receive dental care. At the same time, aging adults have both diminishing financial resources and access to dental insurance after retirement. Now that the so-called "silver tsunami" has reached the shore, we must consider and implement broad-reaching and innovative ways to approach the challenges older adults face in maintaining their oral health and accessing adequate oral health care.

A scene in a movie got me thinking about not just the future of oral health care for older adults, but our future as a profession. The lead female character in the movie, a professor of economics, schooled a student on game theory. She explained that he lost a game of poker to her because he played not to lose and she had played to win. So I wondered, how will our profession play our hand? Will we play not to lose and, if so, what would that mean: accepting an elective health care status; continuing to accept reimbursement based solely on procedures; maintaining our private practices that, while meticulously and successfully self-managed, are physically, financially, ideologically and technologically isolated from the rest of health care? Or will we play to win and, if so, what could that mean: full engagement as an integral part of interdisciplinary health care teams; focus on risk assessment and prevention; ongoing assessment and subsequent action to improve outcomes in dentistry *and medicine* as the legacy of our participation in the changing paradigms in health care?

Geriatrics requires a team approach to ensure appropriate and comprehensive care for patients with complex medical and dental needs. Routinely caring for these populations as a part of the team presents a rich opportunity in dentistry to explore best practices, gain valuable knowledge and remove the barriers that have long separated medicine and dentistry. But patients and providers need appropriate information and resources if we are to bring down the barriers that have prevented this integration. Ahead in this issue, you will find three models of direct patient care that have sought to overcome some of those barriers; a conceptual framework for a broad public health approach to improve oral health among older adults; recommendations for what we will need to do in dental education to prepare current and future practitioners to practice as part of a larger health care team to care for older adults with a broad spectrum of independence and dependence; and a discussion of the need for a dental benefit in Medicare to remove disparities in oral health care for older adults and create opportunities for our profession to more fully engage with our partners in medicine — in California and across the country.

Many thanks to my colleagues who have shared their time, vision, enthusiasm, lessons learned and a few road maps to bring this edition of the *Journal* to fruition and to help our profession catch up and keep pace with the needs of a complex and diverse population of older adults. ■

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On Lok PACE Integrates Oral Health Care as Part of Comprehensive Health Care for Seniors

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ABSTRACT This article demonstrates how the Program of All-Inclusive Care for the Elderly (PACE) model, as exemplified by On Lok PACE, integrates dentistry with an interdisciplinary adult day health center to provide medically necessary dental coverage for skilled-nursing eligible older adults living in the community. This comprehensive, federally funded, cost-effective model targets multiple barriers to oral health care, ensuring participants have access to regular preventive dental services, which reduces oral and other health complications.

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Meet your patient, Mrs. Y, an 89-year-old partially edentulous monolingual Cantonese-speaking woman with dementia. She lives with her daughter in San Francisco and lacks decision-making capacity.

On a Friday afternoon, her distressed daughter calls Mrs. Y's primary care medical facility after clinic hours to report profuse bleeding inside of her mother's mouth. Her medications include Coumadin and Prolia and she has a medical history of coronary artery disease, diabetes, osteoporosis and a prosthetic valve replacement. Mrs. Y's terrified daughter reports that she has no idea how this bleed started and is asking if her distressed and confused mother should go to the emergency room (ER).

The dentist was not in at the time, but the on-call registered nurse (RN) was able to triage the situation and speak with the on-call medical doctor (MD). The on-call MD reviewed Mrs. Y's medical records, which included her dental notes, to determine the next steps of action. Mrs. Y was then recommended not to use her dentures for the time being, to use salt-water rinses and to apply pressure to the bleed site; she was also downgraded to a soft diet until she could be seen by her regular dentist. With the application of these recommendations and the reassurance that her mother would be seen by clinic staff within 24 hours, the daughter was able to control Mrs. Y's bleed and their anxieties were relieved. They also had the option of having a home-visiting RN further assess for the development of an abscess or

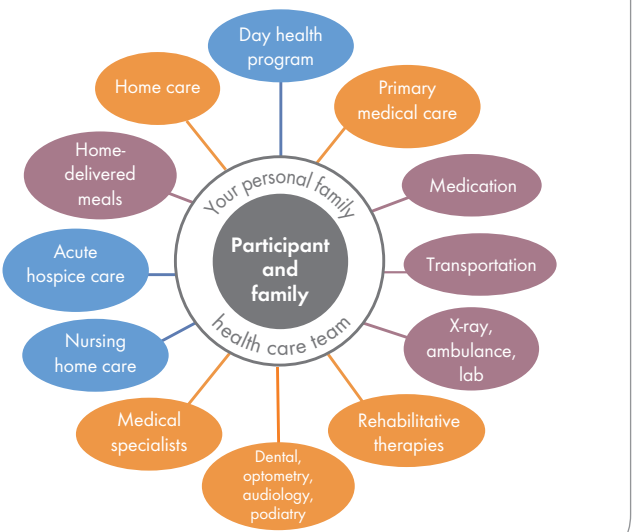

FIGURE 1. The PACE health care team model (On Lok, 2018).

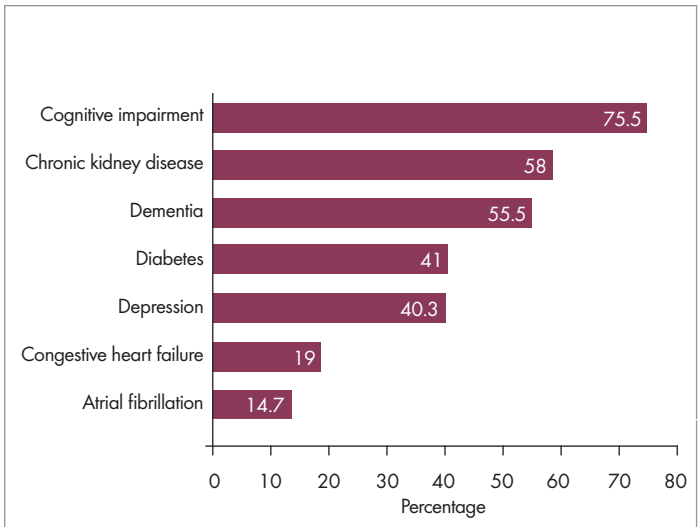

FIGURE 2. On Lok's top chronic conditions 2017 and On Lok quality assessment data (On Lok, peer reviews and quality reports data Q2 2016–Q2 2018).

infection. However, because the bleed was stopped by instructions given over the phone, Mrs. Y was coordinated for a visit to the Saturday medical clinic by the facility's transportation services and was assessed directly by the medical team the following morning. By the time Mrs. Y's regular dentist saw her on the following Monday, the bleeding had stopped and she was spared an unnecessary ER visit.

On Lok Program of All-Inclusive Care for the Elderly

Many older adults have been in a scenario similar to the one above, but with very different outcomes because of limitations in physical resources or medical data available to the health care or dental team at the time. The availability of on-call triaging staff, readily accessible dental and medical records, home-visiting RNs, weekend clinics and transportation are often nonexistent or inaccessible to many seniors. However, these resources are readily available for patients like Mrs. Y and her providers because she is enrolled with On Lok PACE, the original model program for what is now the Program of All-Inclusive Care for the Elderly (PACE).

On Lok, Cantonese for "peaceful, happy home," is based in the San Francisco Bay Area and is the original PACE program. Established in 1971 by a public health dentist, William Gee, DDS, and a social worker, Marie-Louise Ansak, On Lok's program model was designed as an alternative to nursing home care that would provide a comprehensive, interdisciplinary, community-based care system for older adults, which included oral health.[1] By 1983, On Lok secured pooled capitated funding through Medicare and Medicaid waivers.[1] To determine the feasibility and sustainability of the On Lok PACE model, the Robert Wood Johnson Foundation along with the Health Care Financing Administration funded the expansion and replication of six new PACE programs based on the On Lok PACE model in 1986.[2] These six PACE programs were also funded by pooled capitation dollars from Medicare and Medicaid.[2] Due to the success of these early programs, the Balanced Budget Act of 1997 gave PACE programs permanent provider status under Medicare and gave states the ability to include PACE as a Medicaid benefit.[3] Today, there are 255 PACE programs across 31 states in the U.S., all of which are securely funded by a waiver program with the Centers for Medicare and Medicaid Services (CMS).[4]

As illustrated in Mrs. Y's case, which will be further explored in this paper, the PACE model operates through an extensive interdisciplinary team (IDT) to provide optimal comprehensive health care to participants. This team includes primary care providers (MDs/nurse practitioners), dentists, RNs, pharmacists, social workers (SW), registered dietitians (RD), physical therapists (PT), occupational therapists (OT), activities therapists (AT), home-care workers (HCW), day health center workers, transportation staff as well as off-site contracted specialists such as endodontists, oral surgeons, etc. (**FIGURE 1**).The services provided through PACE's IDT model of care are aimed at limiting functional loss, promoting physical and mental health as well as engagement and socialization. Helping the participants establish and maintain oral health is an important element in achieving these broader goals.

Who Qualifies for PACE Services?

To be eligible for PACE services, a participant must be aged 55 or older, certified by the state to need a nursing home level of care, yet be able to live safely in the community and reside within a PACE service area. Nearly half of California PACE participants have dementia and nearly all need assistance with some activities of daily living (ADL), such as toileting, grooming, feeding and moving. PACE programs serve a diverse and vulnerable population of older adults in the community, many of whom also have low incomes. In 2017, more than 70 percent of PACE participants throughout California were eligible for both Medicaid and Medicare.[3] At On Lok PACE in 2017, more than 60 percent of participants were Asian, followed by Hispanic at 15 percent, Caucasian at 11 percent and African-American at 3 percent. The average age of participants was 84, and 97 percent of participants had an income of less than $1,200 per month while 58 percent had an income of less than $400 per month.

The top chronic conditions seen in On Lok PACE participants include chronic kidney disease, dementia, diabetes and congestive heart failure (**FIGURE 2**). Additionally, 75 percent of On Lok PACE participants also have cognitive impairment. Due to these high rates of chronic conditions and impaired cognition, PACE participants have both high risk for oral health complications and an equally high need for consistent oral health services.[5–7] In 2015, an estimated one-third of the participants were edentulous and many had limited or no dental care for many years prior to joining the program.[8]

The Impact of Oral Health on Overall Health in Older Adults

For older adults, complex medical conditions are often the primary focus of care and overshadow oral health needs. Nonetheless, oral health is still an integral part of overall health.[9,10] Dental disease worsens with increased medical complexities, cognitive decline and functional decline, all of which are commonly seen in the aging population.[6] Risk factors of diabetes and cardiovascular diseases have been linked with worsened oral health, while poor oral health is linked to dental pain, poor nutritional status, dehydration and increased chronic and acute infection rates.[11,12] Poor oral health can also be socially isolating, impeding one's ability to speak and communicate, which can impact one's self-esteem and quality of life.[13,14] Through many studies, it has been established that good overall health requires good oral health and vice versa.[15]

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Overcoming Barriers to Oral Health in Older Adults and Reducing Emergency Room (ER) Utilization for Dental Care

For older adults, cost, physical access to routine oral health care and challenges in navigating the health care and dental systems are some of the biggest barriers to routine and nonemergent medical and dental care.[16,17] The California Department of Public Health Oral Health Program's (COHP) 2028 goals are focused on decreasing repeat ER utilization for dental problems and improving the options for nursing home and other institutionalized adults to receive dental services.[18] ERs may seem to be a convenient way to access dental care and address dental pain, however, many individuals, including low-income older adults, are unaware that ERs are not appropriate places to seek care for preventable dental conditions.[19,20] Preventable dental conditions are defined as nontraumatic dental conditions (NTDC), such as issues from tooth decay and periodontal disease, which can be addressed with routine preventive dental care.[21] On the national level, in 2012 the treatment of preventable dental conditions in ERs throughout the U.S. cost the health care system $1.6 billion dollars with an average cost of $749 per visit.[22] It should be noted that those aged 65 and older accounted for about 4.5 percent of costs of NTDCs. It is also important to note that this 65-year-old age category is anticipated to grow in the next several decades.

ER utilization for NTDCs is especially important to note for Medicaid users, as seen from 2009–2014 when Medi-Cal, California's Medicaid program, along with several other states cut comprehensive adult dental coverage resulting in an increase of approximately 1,800 additional dental-related ER visits in California per year. This increased ER utilization for NTDCs was seen across all adult age groups and cost the health care system an additional 68 percent in dental ER visits ($1.25 million) per year.[23]

According to the CDC, 70.9 percent of California residents aged 65 or older visited a dentist in the past year, but the percentage proportionally decreased with lower-income status.[24] In 2015, 79 percent of those earning more than $75,000 per year visited the dentist within the past year, as compared with only 50 percent of older adults with annual salaries up to $50,000.[25]

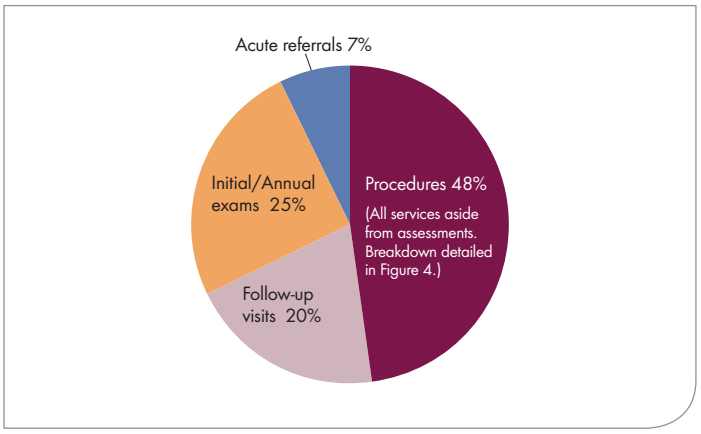

FIGURE 3. 2015 overall dental visit types at On Lok PACE. (Ten percent sample of all visits.)

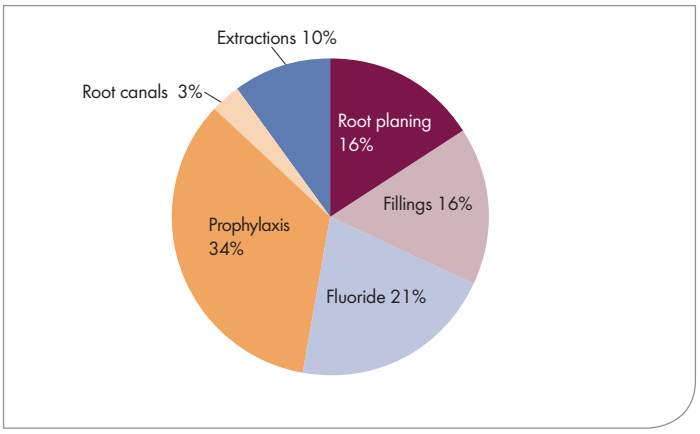

FIGURE 4. Sample of 2015 dental procedures. (Data from 10 percent sample of visit types, excluding examinations, X-rays and prosthodontics.)

Additionally, data from the National Hospital Ambulatory Medical Care Survey, a branch of the Centers for Disease Control and Prevention's National Hospital Care Survey, confirm that minority populations, such as African-Americans, Hispanics and Native Americans, and those with lower socioeconomic status have the highest rates of ER utilization for NTDCs.[26] These data highlight the racial and socioeconomic disparities in oral health care among older adults. PACE is able to address these disparities in access to oral health care and deliver comprehensive dental care to a diverse population of underserved, frail, older adults. Unfortunately, these data also highlight that many seniors who enroll in PACE have likely already experienced years of dental neglect because of barriers to resources.

Dental Care Utilization and Delivery at On Lok PACE

Scope of Dental Services Covered by On Lok PACE

Dental services provided at On Lok PACE include all dental procedures and outside referrals to dental specialties deemed medically necessary by dental providers in collaboration with IDT members. The broad scope of services provided by On Lok PACE is all part of monthly capitated payments by CMS.[27] In contrast, while adult dental benefits through the Medi-Cal Dental Program (Denti-Cal) in California have been recently expanded, there are still many limitations to the benefits provided. And, importantly, because they come through Medicaid and not Medicare, the benefits are not guaranteed.[28] Not all states provide an adult dental benefit through Medicaid and the level of benefits are variable from state to state.[29] With fluctuations in the economy leading to cuts to dental coverage, maintaining consistent dental care on Medicaid funding alone is unpredictable for many patients. However, even if a patient is in a state without comprehensive dental coverage through Medicaid, they would still be guaranteed comprehensive dental services if they are enrolled in a PACE program.[27]

On Lok PACE's Dental Service Utilization

In 2015, an analysis of visit types over one year at On Lok demonstrates that a large portion of procedures were for nonurgent preventive dental care such as prophylaxis and fluoride (**FIGURES 3** and **4**). As this is a small sample size, this is a rough estimate for the rest of On Lok PACE's visits.[8]

In 2017, data from our combined dental and medical visits showed that 89 percent of all visits were routine, 8 percent were urgent and only 3 percent were emergent. To note, urgent dental visits can also entail a broad spectrum of visits that includes dental sores or requests to resume dental care. These data illustrate that with a high emphasis on preventive and restorative care and the means to have frequent follow up, dental visits at On Lok have high rates of preventive and planned interventions with a relatively low percentage of dental visits for true acute or emergent issues.

Cost of On Lok PACE Dental Care

On Lok PACE's dentists are not paid on a fee-for-service basis, but instead function as salaried members of the IDT or are hired as contract providers at an hourly rate. There are no production-based incentives that encourage overutilization. Preauthorization is not required for dental services, giving providers the freedom and flexibility to provide the most appropriate services without the usual constraints of Medicare and Medicaid reimbursements.[28] On Lok PACE also contracts with off-site private dentists and dental specialists such as endodontists, oral surgeons and periodontists. Although On Lok PACE generally pays at Medicare and Medicaid rates when applicable, On Lok PACE is not limited to those rates. This may provide an incentive for some private providers to participate who would not otherwise contract at the usual Medicaid rates.

Participants with Medicare and Medicaid have coverage of all PACE/On Lok PACE-related costs, including dental care with no premium or

copayments.[28] However, those who have Medicare only are charged a flat monthly fee for all services in the program based on their income bracket and the county where the PACE program is located.[30] As all services are covered either through Medicare and Medicaid or a monthly fee, there are no complicated dental benefit rules for participants to decipher. As for out-of-pocket costs, participants are only required to pay for the completion of treatments begun at other dental offices prior to the time of enrollment or those not deemed medically necessary by the IDT. In 2015, the average cost for direct dental care (including the cost of the provider, the supplies, the services and staff directly involved in providing care) per On Lok participant per month was $26.16, a much lower cost than the out-of-pocket costs for insured Americans at approximately $700 annually without extensive work (or about $58 per month).[8,31]

How Does the On Lok PACE Model Overcome Other Barriers to Dental Care?

Protocols, Standards and Physical Access to Dental Care

Upon enrollment to a PACE program, participants receive initial medical, nursing, social work, physical therapy, home safety and dietary assessments. After having medical conditions addressed and support systems to assure access to care established, such as home care and transportation, participants then undergo initial dental assessments within three months of joining the program followed by annual dental evaluations and all other IDT disciplines. As an extra safety net, during their respective routine quarterly and biannual evaluations, the IDT may identify outstanding dental needs. As seen in many cases similar to Mrs. Y's, nondental providers can often be the first to discover a patient's dental issues. This ensures that the participant's care needs are assessed and addressed frequently, which allows for early identification, management and frequent follow-up of both dental and medical problems.

Physical access to dental care is facilitated by the availability of such team members as home-care workers, van drivers, van escorts and clinic aids, all of whom are instrumental in getting patients to the dentist/PACE center. For appointments outside of the PACE center, the schedulers and social workers coordinate the appointments and arrange the physical assistance and transportation so participants need not worry about navigating complex health care paperwork and appointment systems. In the mornings, home-care workers help participants get ready for their day, including assistance with oral care if needed. Van drivers pick participants up from their homes and, if necessary, PACE van escorts and clinic aids help participants with walking or otherwise navigating their physical surroundings. On- and off-site interpreters are available to remove language barriers that may exist between participants and providers.

As seen in many cases similar to Mrs. Y's, nondental providers can often be the first to discover a patient's dental issues.

Ease of Provider Communication and Collaboration Through Co-Location

As part of the on-site health care team, On Lok PACE dentists have unique resources available to them that further optimize On Lok PACE's ability to provide efficient and comprehensive dental care. Although all PACE programs are structured to encourage interdisciplinary team collaboration based on the On Lok PACE model, not all PACE programs have on-site dentists and many contract with private dentists and send patients off-site for care. Co-Location of On Lok PACE dentists with the rest of the IDT makes communication convenient as well as flexible. Dentists are more aware of health care issues that may alter dental management and are able to quickly adapt to changes in a participant's medical status. Dental providers can easily consult with the IDT and make decisions on-site regarding a participant's ability and capacity to tolerate and benefit from various treatment and procedures. Furthermore, patients are saved from lengthy delays while providers wait for pre-authorizations from remote sources to initiate more complex procedures such as root canals, complicated extractions or fabrication of new dentures.

Co-Location of On Lok PACE dentists with IDT members also creates familiarity. On Lok PACE dentists and medical providers can easily walk over to each other's offices and discuss patient care needs face to face. This cuts down on the lag time waiting on emails or missed phone calls. Face-to-face communication between providers also decreases the chances of miscommunication. Urgent questions about care can be immediately answered or clarified and documented. This ease and clarity in communication also leads to faster responses to requests for consultation and better communication about and compliance related to follow-up needs.

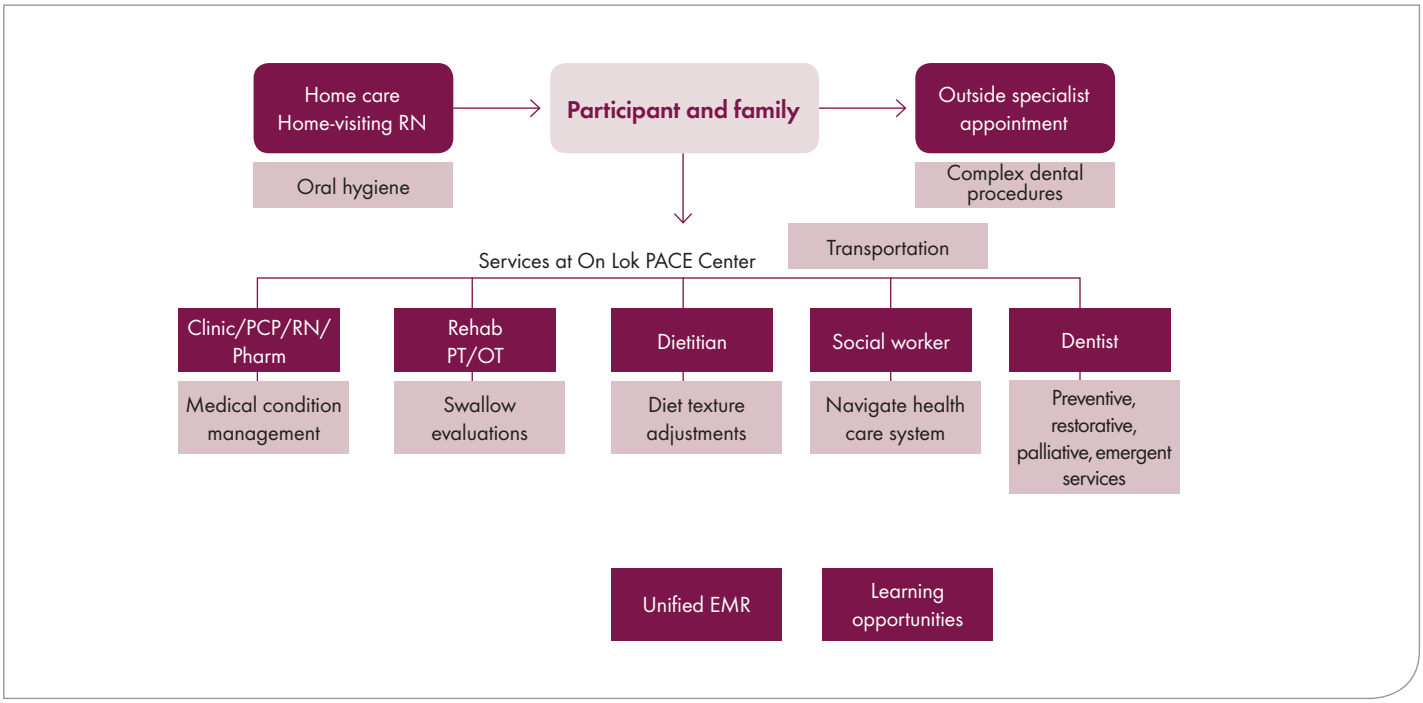

FIGURE 5. On Lok services delivering dental care.

Unified Electronic Health Record Across Disciplines

On Lok PACE provides cross-discipline access to an integrated electronic health records (EHR) system. NextGen is the EHR system used by On Lok PACE, and it has been customized to be known as "PaceLink," which allows all IDT members, including medical, dental, rehab, home-care teams, etc., to chart within one system. Most important, a unified EHR allows for ease of access to pertinent data giving a complete picture of a patient's health status and care needs. On Lok's dentists are easily able to review participants' past and present medical/rehab/social work/etc. notes, medications list, ADLs, diet restrictions, in-home nursing support and surrogate decision-maker contact information — all of which are crucial when developing dental care plans for older adults with complex medical and dental needs.[6,32] Conversely, other On Lok providers can easily access prior dental notes and diagnoses as needed for their respective care plans.

Short Wait Times/Quick Access to Oral Health Care

Per California's Timely Access Regulation, § 1300.67.2.2., current wait times for urgent health care issues must be within 48–96 hours and 10–15 business days for nonurgent issues.[33,34] Across On Lok's PACE centers, only one urgent and one emergent referral were ordered during the second quarter of 2018; in both cases, participants were seen by the appropriate providers within one day of the referral orders. Participants are able to be seen at On Lok PACE the same or next day because of efficient triage and referral protocols combined with the staff and physical support as noted above. And, because participants are required to have a scheduled day health center attendance, the on-site On Lok PACE dental team can provide routine dental services well within the required timely access law requirements.

Interprofessional Education Opportunities

Working on an interdisciplinary health care team results in reciprocal learning across disciplines. An On Lok dentist learns about the medical management of the patient, while the medical team learns about the patient's dental health and oral care management (**FIGURE 5**). Because nurses and primary care providers are often the front line in assessing and managing oral health concerns prior to referring to dentistry, it is especially important for medical staff to have a strong basis of dental knowledge. Conversely, dentists can also be the first to identify such chronic conditions as bleeding disorders and oral cancers. Shared knowledge within the medical team is crucial for ongoing management of a patient's overall health and a source of continuous learning for the providers.[35] Many providers from On Lok PACE have specialty training in geriatrics and

hold faculty appointments at local universities, allowing them to teach dental, medical and nursing students on-site. The On Lok centers are a unique and critical interdisciplinary environment for training future providers in team-based patient care.

How On Lok PACE Impacted Mrs. Y's Dental and Overall Health Care

Mrs. Y, whom we met at the beginning of this article, joined On Lok PACE in 2016 and attends an On Lok PACE day health center three days a week. On attendance days, she receives comprehensive dental care along with socialization, meal services, physical rehabilitation, medical care, transportation services and home-care services. Since joining, she has had more than 20 dental visits in two years, including biannual dental cleanings, fluoride treatments, nonurgent preventive dental procedures and other treatments such as extractions, fillings and adjustments of her partial dentures. Now that her oral health is stabilized, she continues to receive preventive care, such as regular cleanings and fluoride, with the frequency based on her risk of oral disease such as caries. All of these dental services have been provided at no out-of-pocket costs to her. As Mrs. Y lacks decision-making capacity, On Lok PACE dentists have been able to work closely with her surrogate decision-maker and the IDT to provide these dental services along with regular updates and oral care education for her caregivers.

Looking Ahead

Currently, the 255 PACE centers throughout the U.S. service a little more than 45,000 participants; however, according to CMS data, there are 8.3 million people who are "dually eligible" for both Medicaid and Medicare and may potentially benefit from the PACE model of care.[4,36] Recently, the National PACE Association launched the PACE 2.0 initiative that aims to expand PACE services to more dual-eligible seniors, ambitiously aiming to enroll 100,000 seniors by 2021.[36] And there are many more older adults who do not qualify for Medicaid but do not have adequate resources to meet their health and oral health care needs.[16,17,23] On Lok PACE and other PACE programs embody a uniquely cost-effective and efficient model of comprehensive health care that integrates oral health care with the rest of medical care. Many of On Lok's participants have come from underserved populations and have had limited preventive health care and dental care prior to enrollment. As seen in ER utilization data referenced earlier, an episodic approach to dental care is often the default mindset. The interdisciplinary health care team works through a coordinated and comprehensive approach to not only treat active disease in the mouth, but also to seamlessly reinstate regular preventive oral health care to optimize overall health and function. On Lok PACE's comprehensive model of care targets multiple barriers to dental care to ensure its participants have access to necessary restorative and preventive dental services that can meet the needs of a diverse and complex population of older adults. ■

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The Gary and Mary West Senior Dental Center: Whole-Person Care by Community-Based Service Integration

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ABSTRACT The Gary and Mary West Senior Dental Center (SDC) launched in 2016 pioneering a new model of accessible and affordable dental care for vulnerable seniors. The unique SDC is co-located within a thriving senior wellness center in downtown San Diego. This article summarizes the SDC origin, new whole-person community-based integrated care model, results from the first year of operations, lessons learned and considerations for how other dental providers can better care for seniors.

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Despite significant advances in oral health care, dental disease remains one of the most prevalent and neglected chronic health conditions in America. The problem is even more severe among low-income or impoverished seniors who often lack access to care. Among those who are living independently in the community, access to dental care and optimal oral health is often less essential than access to other necessities like food, a roof over their head or, in many cases, access to a cellphone. When fixed incomes force 41 percent of American seniors to choose between rent and nutrition each day, it is little wonder that our nation's food pantries and meal programs are inundated with individuals whose "golden years" find them desperate to meet basic needs.[1] For the seven in 10 seniors without dental insurance, oral health care gets short shrift

as they struggle with needs that seem more immediate.[2] Unfortunately, ignoring or postponing dental care has negative health and psychosocial consequences for seniors and strains the health system as a whole.[3] With 10,000 Americans turning 65 every day, this problem is big, growing and touches all of us.[4]

The urgent need for dental care was identified at Serving Seniors' Gary and Mary West Senior Wellness Center (SWC) where it was noted that many clients were unable to eat the meals provided due to missing teeth and/or oral discomfort and pain. While oral health is often and mistakenly compartmentalized from the rest of the body, it is inextricably linked to overall health and quality of life.[5] In a 2014 survey conducted among a convenience sample of 314 seniors at the SWC (unpublished SWC report), 43 percent of participants reported having pain in at least one tooth, 35 percent reported difficulty chewing, 22 percent reported issues with bad breath and dry mouth and 21 percent reported bleeding gums. Over half (58 percent) stated they had not seen a dentist in more than a year and, in many cases, more than five or 10 years. Seniors identified the top three barriers to care as high cost, transportation and lack of providers accepting the Medicaid dental benefit (commonly called Denti-Cal in California). Additionally, Medicare does not provide dental benefits for routine care and the majority of Medicare Advantage plans cover less than 5 percent of dental costs.[6]

The Gary and Mary West Senior Dental Center (SDC) was launched in June 2016 to address these barriers to care, bringing oral health care to the second floor of the bustling wellness center that serves meals and provides supportive services to more than 500 low-income seniors on any given day. By accepting the Medicaid dental benefit and using a sliding-fee scale, seniors can access affordable oral health care services in a dental home that is co-located in a familiar, accessible and trusted setting, creating an innovative, coordinated, community-based system of care for older adults. Through clinical treatment and teaching, broad assessment with metrics-based referral and integration across multiple organizations, the SDC has been able to "reconnect" the mouth with the rest of the body and raise the status of this vital barometer of health.

This paper summarizes program development and results from the SDC's first year of operations, lessons learned and considerations for how other dental practitioners and allied health providers can better care for seniors.

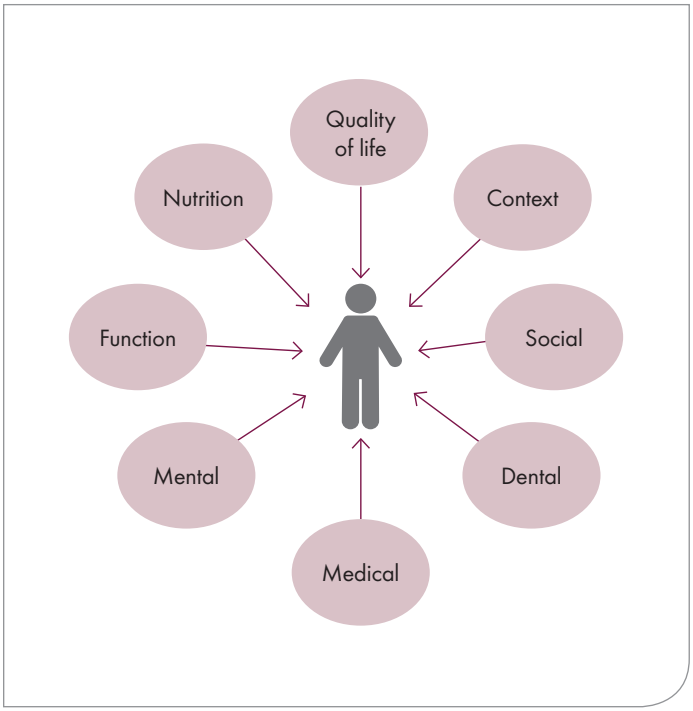

FIGURE 1A. Whole-person assessment.

FIGURES 1. Workflow: A patient-centered model of care based on whole-person assessment and service integration by metrics-based triage and referral.

Methods

Setting

The SDC is co-located with Serving Seniors at the SWC in an urban setting in downtown San Diego. Both are nonprofit, community-based organizations with aligned missions to serve vulnerable older adults. The SWC provides a range of services including meals, physical activity and social, legal, mental health and care-coordination services to low-income older adults.

Workflow

The SDC's and SWC's approach to whole-person care is reflected throughout both centers' practices and protocols. Definitions of "whole-person care" may vary.[7] Whole-person care can be defined as the "coordination of health, behavioral health and social services in a patient-centered manner with the goals of improved health outcomes and more efficient and effective use of resources" (dhcs.ca.gov). Complex needs and priorities are integrated into a person-centered workflow that connects oral health care and education, wellness and social services and external medical and dental care (**FIGURE 1A**). External services include primary or acute medical care and pro-bono specialty dental care (dentallifeline.org) for patients whose needs are too complex for the

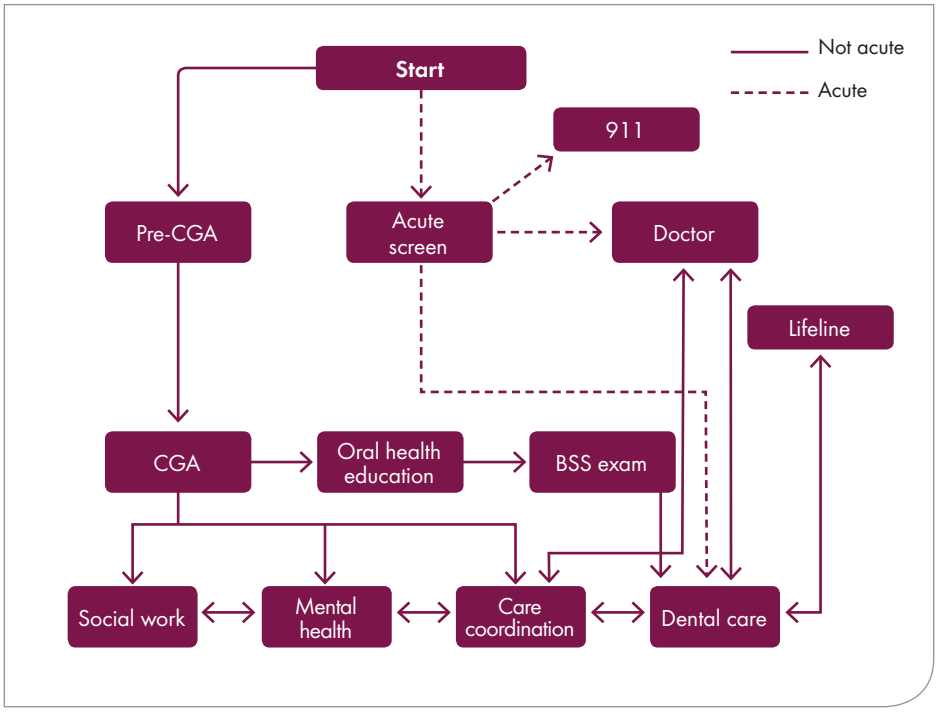

FIGURE 1B. Metrics-based triage.

SDC (**FIGURE 1B**). These modalities are coordinated and the patient referred using a new, real-time, digital comprehensive geriatric assessment (CGA) that allows metrics-based triage of dental, medical, mental health and social services (**APPENDIX**, see online at cda.org/SDC).

Patients seeking care are first assessed for acute dental, medical or mental health needs (e.g., severe dental infection, active medical conditions such as hypertensive emergency, myocardial infarction, hyperglycemia or acute psychiatric illness). Non-acute patients are given preparatory materials (pre-CGA) then screened using the CGA. Based on the results, a care coordination team refers to dental and/or other services including social work and mental health. Non-acute medical needs are coordinated with off-site primary care providers via care-coordination referral, as medical care is not provided at the SWC. All non-acute patients undergo a one-hour, group oral health education module developed by Oral Health America (OHA, which has recently ceased operations, but oral health resources for older adults are still available at www.toothwisdom.org). The education module provides information on the importance of oral health and its link to chronic diseases, hygiene instructions and nutritional counseling and is offered concomitantly with a dental hygienist administering a Basic Screening Survey (BSS).[8] The BSS is an oral health surveillance tool available for purchase from the Association of State and Territorial Dental Directors (ASTDD, www.astdd.org/basic-screening-survey-order-form) that the SDC uses to triage the patients' dental needs and urgency before the first dental visit. At each dental visit, the patient's vitals, weight, blood glucose levels and HbA1C (when appropriate) are measured.

Data Collection

We collected data using traditional electronic records, integrated by a patient-centered shared health record that captured CGA data, computed clinical heuristics and metrics and allowed communication and referral between patients and the providing organizations (SDC and SWC). Trained SDC and SWC staff collected patient information from intake through treatment completion and referral for adjunct services. We extracted and merged patient data after Institutional Review Board (IRB) approval as a continuous quality improvement (CQI) study (exemption granted by Western IRB, reference number 1-969904-1).

Data Analysis

Descriptive characteristics for the cohort of seniors seen in 2016 for dental services and for a subset of the first 97 patients who completed dental treatment were tabulated. This 2016 cohort includes seniors (n = 504) with completed CGAs from calendar year 2016 (Jan. 1–Nov. 23, 2016). Descriptive statistics about the care provided to the treatment-complete group were summarized. Seniors in the treatment-complete group completed assessments before and after treatment and rated their overall general health status and oral health status (on a scale of poor, fair, good, very good, excellent), general pain and dental pain, difficulty chewing (none versus any), frequency of limiting food due to problems with teeth (seldom/never versus sometimes/often/always). Pre-post comparisons were made with the McNemar test for all categorical variables to examine if there were statistically significant differences before and after dental treatment.

Results

Cohort Demographics

Patients (n = 504) were aged 60 to 101 with an average age of 71. About half (49 percent) of the patients were male and 71 percent had at least some college or a more advanced degree. The cohort was economically vulnerable, with more than half (59 percent) living at or below the federal poverty level.

The average monthly income was $1,036. Patients came from a diverse set of racial and ethnic backgrounds, with 57 percent white, 14 percent black/African-American, 25 percent Asian and 2 percent other. Of the 57 percent reporting white as their race, 16 percent reported Hispanic as their ethnicity. English, Mandarin and Spanish were the most common primary languages. One hundred (20 percent) reported the need for translation. **TABLE 1** includes sociodemographic characteristics of the cohort of seniors seen in 2016 (N = 504), along with the subset of 97 seniors who completed dental treatment. **TABLE 2** includes various dental, medical and psychosocial characteristics of the cohort.

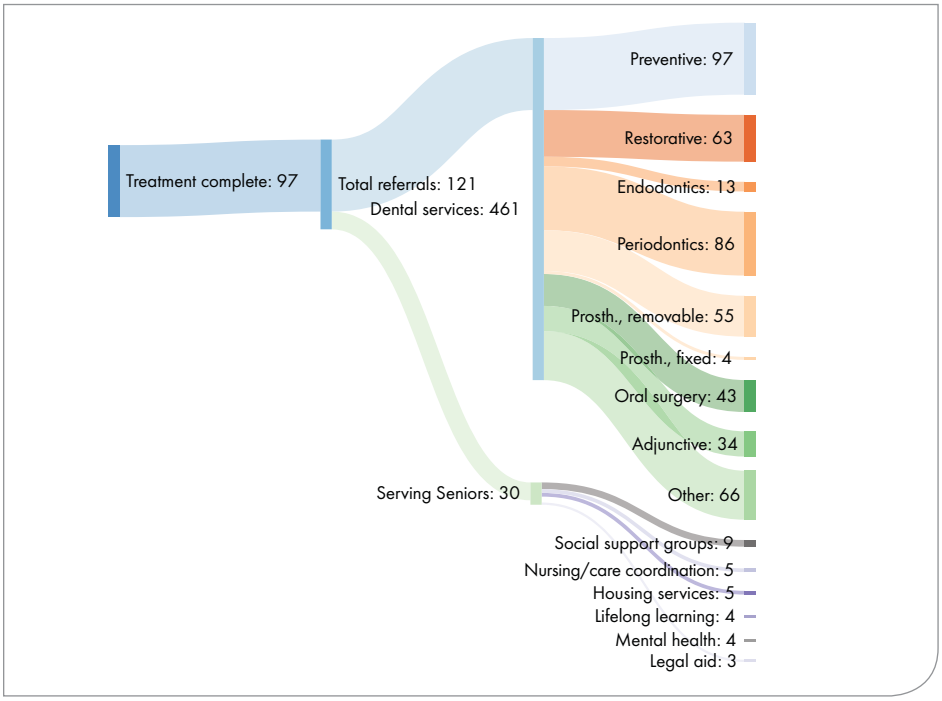

FIGURE 2. SDC and SWC referral outcomes for the treatment-complete group (n = 97).

Baseline Health Status

Of the 504 patients assessed, 41 percent had full or partial dentures, 39 percent reported toothache or other dental pain, 50 percent had difficulty chewing and 73 percent reported food limitation due to oral health problems. Slightly over half (57 percent) had not seen a dentist within the last year and 41 percent had urgent dental care needs based on the BSS administered during triage. Analysis of medical status showed an average of 1.6 chronic medical conditions and 2.5 active medical symptoms with general pain affecting 77 percent of respondents. The most common medical conditions included hypertension (45 percent), arthritis (23 percent) and diabetes (22 percent). About half the cohort reported problems with vision (56 percent), memory (52 percent) and hearing (41 percent). One-third (32 percent) reported a fall within the last year and (13 percent) reported a hospitalization within the last six months. Only 7 percent reported the lack of a primary care physician (PCP) or medical home.

Psychosocial and Functional Status

One-quarter (25 percent) of patients reported a significant mental health diagnosis and 41 percent reported they were not in treatment. The average Patient Health Questionaire-9 (PHQ-9)[9] was 3.0 (range 0–27; lower is better) and quality of life assessed by the Older People's Quality of Life Questionnaire (OPQoL-brief)[10] was 50.3 (range 13–65; higher is better). Average functional status as measured by the Vulnerable Elders Survey (VES-13)[11] was 2.1 (range 0–10; lower is better).

Referral Outcomes

Of 504 patients seen, 97 completed their dental treatment plans during the first year. Twelve were referred from the CGA due to acute complaints: eight for urgent dental care and four for emergency (911) medical services or immediate primary care for medical attention. For non-acute patients referred to dental, 30 were referred for additional services provided by the SWC for a total of 121 referrals for 97 patients (**FIGURE 2**). A total of 461 dental services were provided. All 97 patients who completed their treatment plans received preventive care, 63 received restorative, 86 received periodontics, 13 received endodontics, 55 received prosthodontics (removable) and four received fixed, 34 received adjunctive care, 43 had oral surgery and 66 had other services (**TABLE 3**). The SWC had 30 referrals that included mental health services (four), nursing/care coordination (five), support groups (nine), legal aid (three), lifelong learning (four) and housing support (five).

Treatment Outcomes

Pre- and post-dental intervention (through treatment completion) oral and general health statuses were followed by comparing the initial CGA with a posttreatment assessment given within 30 days of treatment completion. For this cohort, there was a significant 20 percent absolute reduction in dental pain, a 60 percent improvement in self-rated oral health,

TABLE 1

Cohort Demographics for Seniors Seen in 2016 (n = 504) and First Treatment-Complete Group (n = 97)

Cohort characteristics				
	N = 504		N = 97	
Demographics	N	(%)	N	(%)
Age*	71 (7.3)*		72 (6.1)*	
Male	261	(49)	45	(46)
≤ High school education	154	(31)	24	(25)
Single/widowed/separated/divorced	391	(78)	83	(86)
Average monthly income*	$1,036 (481.5)*		$1,102 (406.4)	
≤ 99% federal poverty level	282	(59)	53	(56)
Race				
White/Caucasian	281	(57)	64	(68)
Black/African-American	71	(14)	14	(15)
Asian	124	(25)	12	(13)
Other	15	(2)	4	(4)
Ethnicity				
Hispanic	79	(16)	17	(18)

*Mean (SD)

an 18 percent improvement in chewing and a 27 percent improvement in food limitation (all p-values < 0.05). There was a significant 20 percent overall improvement in general pain and a 7 percent overall improvement (trending toward statistical significance, p = 0.07) in perception of general health (fair/poor: 26 percent pretreatment versus 19 percent posttreatment) (**TABLE 4**).

Discussion

The SDC team's reflections on lessons learned in the first year are summarized in **TABLE 5**. These observations from the field relate to seven broad areas: triage, scheduling, staffing, communication, management of medically complex patients, special needs/considerations for treating seniors and resources needed to provide whole-person dental care for seniors.

The SDC's unique collaboration with the SWC provided an opportunity to design and evaluate the efficacy of a human-centered model of care that integrated community-based dental, social and health services. Using the clinic's whole-person approach in conjunction with an expanded CGA, dental professionals looked beyond traditional dental, medical, mental health and functional measures to identify barriers to care, nutrition, social needs and other quality-of-life issues in a multidisciplinary and timely manner. Many patients who were seen in the first year were frail, medically complex or had mental health, behavioral or developmental conditions and disabilities. Oral health is too often a low priority for these lower-income older adults and many simply were used to poor function. Triage was important to screen for the most acute health issue and address that need first before referring to dental services. Unmet dental needs were prevalent among seniors at the SDC.

One of the key aspects of the initial success of the SDC has been its ability to engage patients where they already are and get them to return to complete treatment. The seniors frequenting the SWC value the meals and social support services provided there. Bringing comprehensive oral health services to locations where older adults already receive services and support in the community is an effective strategy for reaching this population. In the case of the SWC-SDC collaboration, co-location made it easy for seniors to access dental services. Bringing health care to a convenient place in the community is evidenced by the SDC's low no-show rate of 4.9 percent. Other community health centers have reported no-show rates of 20–25 percent[12] ranging up to 40 percent[13] or 50 percent.[14] Future analyses will examine the periodic maintenance utilization patterns and extent of clinical improvement among the first patients who completed treatment.

The philosophy and expectation at the SDC is that seniors are partners in their oral health, and all treatment plans included preventive services and patient engagement through supplemental teaching and education modules outside the clinic chair in the SWC. Importantly, seniors in the treatment-complete group self-reported significant improvements in function posttreatment. In the future,

TABLE 2

Cohort Psychosocial Needs and Health Characteristics for Seniors Seen in 2016 (n = 504) and First Treatment-Complete Group (n = 97)

	N = 504		N = 97	
Oral health	N	(%)	N	(%)
Full or partial dentures	206	(41)	27	(30)
No dental visit in last year	286	(57)	45	(46)
Dental pain (toothache)	196	(39)	35	(36)
Difficulty chewing	252	(50)	42	(43)
Limiting food	364	(73)	63	(65)
Need urgent dental care	137	(41)	33	(36)
Average number of dental symptoms*	3.1 (1.9)		2.8 (1.9)	
Medical				
Average number of medical conditions*	1.6 (1.4)		1.9 (1.5)	
Average number of medical symptoms*	2.5 (2.4)		2.3 (2.3)	
Hypertension	227	(45)	39	(40)
Arthritis (rheumatoid and osteoarthritis)	117	(23)	25	(26)
Hyperlipidemia	131	(26)	34	(35)
Diabetes	109	(22)	24	(25)
Vision problems	282	(56)	52	(54)
Hearing problems	206	(41)	31	(32)
Memory problems	261	(52)	43	(44)
Lack of primary care provider (PCP)	37	(7)	2	(2)
Fell in the last year	159	(32)	24	(25)
Hospitalized within last six months	67	(13)	12	(12)
Average pain score (0–10)*	3.2 (3.0)		4.1 (2.9)	
General pain**	388	(77)	80	(82)
Psychosocial				
Mental diagnosis	125	(25)	23	(24)
Mental diagnosis and in treatment	74	(59)	12	(52)
Average PHQ-9 score (range 0–27)*	3.0 (4.0)		2.6 (3.4)	
Average OPQoL-B score (range 13–65)*	50.3 (6.2)		51.3 (5.9)	
Average VES-13 score (range 0–10)	2.1 (2.0)		4.0 (1.4)	

*Mean (SD) **Any pain

when more patients complete their treatment plans, subgroup analyses will characterize low versus high utilizers, compare and contrast group differences and further examine the impact of dental care within these groups posttreatment. While some dental chair time and education program data have been collected, these data were incomplete and not yet available for this analysis and will be analyzed in depth in the future. The SDC will continue to directly involve seniors in their care maintenance and solicit their feedback about next steps. In 2018, the SDC established an Oral Health Peer Ambassador Program to further engage patients who completed their treatment plans in promoting oral health among their peers and community by sharing their experiences, stories and new smiles with other seniors.

In order to effectively engage and work with diverse patients, the SDC assembled a culturally and linguistically diverse care team with training in geriatrics, special needs and advanced prosthodontics and worked collaboratively with the SWC staff to integrate care processes. The model presented here demonstrates the oral

TABLE 3

Service Utilization by Category Among the Treatment-Complete Group (n = 97), Unduplicated Patients

	N
Diagnostic and preventive[1]	97
Restorative	63
Endodontic	13
Periodontic	86
Prosthetic, removable	55
Prosthetic, fixed	4
Oral surgery	49
Adjunctive[2]	34
Other[3]	66

[1]Preventive category also included diagnostic services.
[2]Adjunctive category included standard CDT codes as well as "missed appointment," "office visit for observation," "translation" or "palliative emergency treatment for pain."
[3]Other category most commonly included services like "postoperative check" as well as documenting "attempt."

TABLE 4

Pre-Post Dental Treatment Results for Treatment-Complete Group (N = 97)

Variables	Pre	Post	Absolute difference	p-value
Self-rated general health				.07*
Fair/poor	26%	19%	–7%	
General pain				< .0001*
No pain at all	18%	38%	+20%	
Dental pain				<.01**
No pain at all	64%	84%	+20%	
Self-rated oral health status				< .0001*
Fair/poor	74%	14%	–60%	
Difficulty chewing				< .01**
No difficulty at all	57%	75%	+18%	
Limiting food				< .0001**
Seldom/never	48%	75%	+27%	

*p-values reported from Fisher Exact test for cell size < 5
**p-values reported from McNemar's $\chi 2$ test

TABLE 5

Lessons Learned From the First Year of Operation of the SDC

Triage	■ Prescreening for acute medical, mental health or dental emergencies is needed before dental referral. ■ Interdisciplinary referrals to care or social services strengthen the value of dental care provided.
Scheduling	■ Co-location led to a low no-show rate of 4.9 percent at the SDC. ■ Extra time is needed to explain treatment options and determine patient's needs for treatment that will enable functionality and improve quality of life. ■ Appointment times need to be extended for certain patients, e.g., when extra time is needed for set up and/or transfers for seniors with mobility issues. ■ Seniors are less able to sit for long periods for treatment and more appointments may be needed to provide care safely. ■ High-risk seniors require more frequent preventive and maintenance visits.
Staffing	■ Bilingual teams (specifically Mandarin and Spanish) are needed to be linguistically and culturally competent. ■ Interprofessional care teams are needed to provide true whole-person care.
Communication	■ Communication with other medical providers and primary care providers (PCPs) can be challenging. There is a need to consult PCPs often due to early memory issues and the number of medications and medical conditions that typically tend to increase over time. ■ Patient overall health, motivation and ability to maintain treatment are key parts of the discussion for treatment planning. ■ Patients need clear documentation of the treatment plan and all postoperative instructions so it is easy for them to remember.
Managing medically complex patients	■ Extra time is necessary to review patient's medications at every visit and make sure the expectations and understanding for their treatment needs are realistic. ■ Patients with multiple medical and mental health needs require more time overall as their ability to comprehend, tolerate and maintain treatment is a constant challenge. ■ Need to screen for active medical problems (e.g., hypertensive urgency, bleeding problems or poorly managed diabetes) at each dental visit.
Special needs/ considerations for treating seniors	■ Availability of restorative materials with anticariogenic and self-adhesive properties seems to be of importance in this population as the minimum preparation, fluoride release, reasonable aesthetics, biocompatibility and less technique sensitivity offer an advantage as compared to composites.[21] ■ Constant communication with the patients is key to validate patient preferences and input for their needs and wants during treatment planning. This is critical to select the treatment that will be best to fulfill patient needs and improve quality of life to prevent or delay further disability.
Resources	■ Financing is a challenge and in many cases is not easy for the patient to admit to due to competing financial priorities. Offering sliding-scale fees and treatment options that are not complex or too expensive improves access to care. ■ Many seniors are single or widowed and require the support of the care coordination team to facilitate their treatment.

health and other benefits of a whole-person team-based approach and the importance of being able to provide referrals to many services in addition to providing comprehensive dental care. In several cases, it was critical to address other care coordination needs before a patient could be safely seen at the SDC, for example, when dealing with homelessness or acute psychiatric or medical conditions.

New tools and technology are needed to support this kind of whole-person integrated care model, such as integrated electronic health records (EHR) that medical, dental and behavioral health providers can all access to document needs and coordinate care. In late 2016, additional data points were added to the CGA to capture more information about seniors' social context and perceived isolation and loneliness. Future analyses will be able to report on these important aspects of quality of life for seniors.

Cost is the most commonly cited barrier among seniors nationwide to accessing needed dental care.[15] The SDC sought to remove financial barriers to dental care for seniors and in its first year served many patients who were uninsured. However, a major challenge at the SDC is securing sustainable funding to offset the cost of providing affordable care and running the operation. Donations alone are not enough and therefore other innovative sources of revenue generation are being investigated to ensure sustainability of the model.

Future directions of the SDC include plans to start testing mobile dentistry on a small scale. Teledentistry is a promising option to explore further and may be a way for the SDC to expand services to seniors with more limited mobility. California's laws and workforce support mobile dentistry and teledentistry options and the virtual dental home has been piloted successfully with older adults.[16,17] The future of dentistry will require new workforce models that include dental providers as part of multidisciplinary care teams in order to move toward a whole-person approach to care.[18] Team-based care models allow dentistry to establish relationships with other care and service providers and increase awareness of the role social determinants of health play in the treatment of patients,[19,20] particularly vulnerable adults.

Cost is the most commonly cited barrier among seniors nationwide to accessing needed dental care.

Conclusion

The Gary and Mary West Senior Dental Center promotes the importance of senior oral health care and combined their efforts with the Senior Wellness Center to create a new model of care for older adults. Public health dentistry and community wellness workflows are integrated via whole-person care. During the first year, the SDC served more than 500 seniors, with 97 completing their initial treatment plan and reporting substantial improvements in oral health status posttreatment in the first year. Although the program is new and the data are only from the first year of operations, there are a number of SDC elements that could be replicated in other community settings. While it may not be possible to open a senior-focused dental center inside every wellness center or other community-based organization, there are a number of lessons learned that dental providers can use to prepare and create partnerships in their own communities to support new and improved interprofessional models of care for underserved, vulnerable older adults in California and nationwide. ■

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Strategies for Oral Health Care Practitioners To Manage Older Adults Through Care-Setting Transitions

Elisa M. Ghezzi, DDS, PhD, and Mary M. Fisher, DDS

ABSTRACT As patients age, there are changes in dependency, medical conditions and mobility that directly affect treatment needs and recommendations. Some of these patients can be treated in a private practice setting while others require treatment in long-term care facilities or places of residency. As older adults transition through stages of dependency and housing environments, oral health care providers simultaneously must transition how care is managed in the areas of assessment, prevention, treatment and communication.

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Most patients who are older adults are not significantly different than their younger counterparts. So, what makes an older adult different? When does the care of an older adult change substantially from what would be the care for a younger patient? The latter question was addressed by Iain Pretty, BDS, MSC, MPH, PhD, et al.[1] in the development of the Seattle Care Pathways. This framework structured the care of older adults (assessment, prevention, treatment, communication) based on their level of frailty or dependency (**TABLE 1**). Many older adults pass through some of the early stages of dependency (none/pre/low) while still in a private practice setting though they may start to need more intervention. Those with medium or high dependency often reside in long-term care settings or at home with substantial assistance. As older people transition through stages of dependency and housing environments (**TABLE 2**), their oral health care needs simultaneously transition. The goal of this paper is to describe strategies for oral health care professionals to manage care for older adults over a lifetime using dependency, living environments and care settings as a framework.

Private Practice

Oral health care providers in private practice will see a range of patients who transition from no dependency to predependency to low dependency. The clinical care objective for this group is to assist in maintaining oral health for a lifetime while cognizant of future challenges that will present as dependency increases. Having a dentist and good oral hygiene habits are associated with a decreased risk of caries development in home-dwelling people with moderate or substantial supportive care for daily living.[2]

TABLE 1

The Seattle Care Pathway: Actions Required To Maintain Oral Health at Different Levels of Dependency

Actions	Level of Dependency				
	None	*Pre*	*Low*	*Medium*	*High*
Communication	Explain implications of increased dependency.	Explain to patients and health care providers the significance of conditions likely to complicate the management of oral health as dependency increases.	Expand to all members of the health care team; emphasize preventive strategies to manage the risk of oral disease and maintain oral function.	Maintain communication with members of the interprofessional health care team; increase vigilance regarding daily oral care plan.	Monitor established communication and include family and friends to allow for continuous adjustments to palliative care by everyone involved.
Prevention	Home-care plan for better oral health.	Consider prescribing for oral disease; risk modification for oral cancer, tooth surface loss and mucositis; develop daily oral care plan.	Base preventive plans on identified aggravating factors; adjust methods of delivering predependency prescriptions; assess risks and manage adverse effects of polypharmacy; monitor daily oral care plan.	Monitor and help contributions to oral health regimens; reassess the need to increase prescriptions for oral disease; reassess risks and manage the adverse effects of polypharmacy; reassess the effectiveness of daily oral care plan.	Focus on the increasing challenges of preventing and managing oral infection and disorders; emphasize the management of pain and infection; maintain the use of prescribed agents for oral disease; manage severe mucositis.
Assessment	Appropriate dental recall.	Systemic conditions; appropriate dental recall; strategic health care plan delivery; recognize risk is elevated by increased dependency; long-term viability of oral health; assess for elder abuse.	Risk of oral disease; increase dental recall; strategic health care plan delivery; growing risk of oral disease; long-term viability of oral health and management strategies.	Participate in social and other medical services; reassess long-term viability of oral health-related preventive strategies.	Identify barriers to emergency palliative and elective oral care; monitor burden of oral care on the patient and others; monitor the oral health care plan; increase vigilance for elder abuse.
Treatment	Routine.	Long-term viability of existing treatment plans; plan treatment outcomes for easy maintenance.	Treatment to maintain function; maintain function and oral health.	Conservative treatment; use prosthetics to simplify hygiene and maintenance.	Offer palliative treatment on demand from the patient to control pain and infection and maintain social contacts and activities.

From: Al-Sulaiman A, Jones J. Geriatric oral health care delivery in the United States of America. *Curr Oral Health Rep* Published online 18 June 2016.
Pretty IA, Ellwood RP, Lo ECM, MacEntee MI, Müller F, Rooney E, Thomson WM, Van der Putten GJ, Ghezzi EM, Walls A, Wolff MS. The Seattle Care Pathway for securing oral health in older patients. *Gerodontology* 31(Suppl. 1):77–87; 2014.

There are critical components of care that will be used throughout dependency transitions that should be established while patients have minimal to no dependency. Every patient in private practice should have a daily oral care plan (**TABLE 3**, available as a form at cda.org/CT1). This is a document that is relatively straightforward for people who are independent, but can become more complex as dependency increases. Keeping instuctions simple and not creating elaborate, multistep oral hygiene regimens is beneficial if the plan is to be implemented and maintained. Idealistic regimens can be overwhelming. For example, interproximal cleaning such as flossing is recommended but it may not be attainable for patients with limited dexterity or those who require full assistance with oral hygiene daily. This document can be provided to care staff when people are admitted to hospitals or short-stay rehabilitation environments so oral hygiene is not neglected and the presence of prostheses is made known.

At each dental cleaning appointment, the daily oral care plan should be reviewed and updated.[3] See **TABLE 4** for guidelines in the assessment process, which should include current oral status, current regimen, current level of intervention, risk assessment and determination of modification required. If the current level of intervention is not adequate to promote a stable oral status, then a change needs to be implemented. As an example, the use of a power toothbrush instead of a manual one is often necessary for those patients with dexterity limitations (e.g., stroke, rheumatoid arthritis). Implement strategies to maintain autonomy as long as possible until the risk for decay or tooth loss becomes too great.

Treatment planning for the aging patient must be based on the needs of the individual and enhance their quality of life; therefore, it is individual based.[4] Several treatment planning paradigms have been developed for the aging population. The rational treatment plan includes evaluation of the following factors:

TABLE 2

Housing Environment Timeline

Home	Independent living (community apartment living)	Assisted living	Nursing home: Subacute	Nursing home: Rehabilitation	Nursing home: Long-term care/ cognitive impairment
Independent home: Typically private practice* patients Home with in-home assistance: Typically private practice patients Homebound: Patients require mobile dental care Bedbound: Patients require mobile dental care	Typically private practice patients; some have cars. May transition into assisted living following an acute hospital stay that may have required rehabilitation.	Typically start as private practice patients. Often transition to need for mobile or virtual dentistry and aggressive preventive strategies as dependency increases. Can transition from needing assistance to full dependence and mortality without entering the nursing home environment. Typically have multiple hospitalizations over the course of time. May spend time in rehabilitation prior to returning from a hospitalization.	Typically short stay following hospitalization prior to returning to home or assisted living (aspiration pneumonia/ COPD and CHF exacerbation). Often are no longer able to access regular dental care in private practice and have significant needs; often need significant dental rehabilitation and aggressive preventive strategies. Educate patient's decision-maker of need to continue regular care following discharge.	Typically short stay following hospitalization prior to returning to home or assisted living requiring PT/OT (hip or knee replacement/ stroke). Often are no longer able to access regular dental care in private practice and have significant needs; often need significant dental rehabilitation and aggressive preventive strategies. Educate patient's decision-maker of need to continue regular care following discharge.	Short- or long-term stay, often until the end of life. Focus on preventive and palliative care. May need some rehabilitation; no urgency. Address acute needs and observe chronic issues; plan long-term strategy to address dental needs.

*"Private practice" is used to include any practice setting where the patient would travel independently to receive care including community health clinics.

- The patient's desires and expectations.
- The type and severity of the patient's dental needs.
- How the patient's dental problems affect their quality of life.
- The patient's ability to tolerate the stress of treatment.
- The patient's ability to maintain oral health independently.
- The probability of positive treatment outcomes.
- The availability of reasonable and less-extensive treatment alternatives.
- The patient's financial status.
- The dentist's ability to deliver the care needed (e.g., resources, skills, equipment).
- Other issues (e.g., the patient's life span, family influences and expectations and bioethical issues).[5]

Clinical treatment planning for older adults must incorporate strategies to maintain teeth when oral hygiene is no longer ideal. This includes increased recall frequency with adjunctive therapies such as fluoride rinses, varnishes, gels and pastes. As cervical plaque and food impaction are the most common causes of tooth decay in older adults, crowns fabricated with subgingival margins can increase longevity.[6] Occlusal guards are recommended to protect the restorations following restorative treatment in people with bruxism.[7] Treatment planning for 50- to 70-year-old edentulous patients for implant-retained lower dentures will allow for adequate nutrition and an improved alternative to ill-fitting lower dentures and resultant ulcerations that accompany a severely resorbed mandibular ridge.[6]

Oral health care providers are active participants in identifying changes in a patient's dependency. At routine cleanings, an increase in the presence of cervical plaque, calculus and food debris with increased gingival inflammation may be the first indication of a functional decline.[8] Statements made by the patient such as "I have a hard time getting to the bathroom" or "Sometimes I forget my appointments" can indicate a change in dependency. Further discussion is needed with the patient to determine appropriate interventions to not only improve oral care, but also logistical arrangements to keep appointments. Increased assistance by family or friends can help a patient continue to be seen in the private practice environment, which is often the ideal location for care until no longer feasible.

Transitioning through the stages of dependency requires the addition of reliance on assisted devices. Oftentimes, older, dependent patients arrive at a private practice with assisted devices (e.g., walkers, canes) as well as wheelchairs and, in some instances, motorized scooters. A private practice should formulate an office policy regarding the level of staff involvement with patient transfers. A written directive provided to patients regarding transfer responsibilities is helpful. They should be informed in advance that transfer responsibilities of the patient to

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TABLE 3

Daily Oral Care Plan

Recommendations
No changes in oral hygiene regimen recommended at this time.
Recommend changes in current oral hygiene regimen to prevent tooth decay and gingival inflammation.
A professional cleaning recall interval of 1 2 3 4 6 months is recommended to maintain oral health.
Care of Patient's Teeth
The patient has been instructed/needs assistance to brush their teeth daily with a toothbrush and fluoride toothpaste two (2) times per day, after breakfast and before bedtime.
An order was written for fluoride gel application: Using a toothbrush, apply fluoride gel to all tooth surfaces before bedtime following toothbrushing. Patient must not eat, drink or rinse for two (2) hours following application. If uncooperative, apply a thin layer to the cheekside of teeth using a toothette.
An order was written for 0.12% chlorhexidine gluconate: Swish and spit 1 tablespoon or apply with toothette following morning and/or evening toothbrushing.
Other
Care of Patient's Dentures
The patient has been instructed/needs assistance to remove their upper and/or lower dentures at night. Dentures should be cleaned with toothbrush and toothpaste and placed in a denture cup with water and tablet of effervescent denture cleanser (Polident, Efferdent or other generic denture cleanser) overnight. The denture should be thoroughly rinsed and placed back in the mouth in the morning before breakfast.
The patient has been instructed/needs assistance to place a very thin and even layer of denture adhesive in their upper and/or lower denture each morning.
The patient has been instructed/needs assistance to remove their upper and/or lower dentures following each meal, rinse with water and place back in mouth.
Other

(Full version available as a form at cda.org/CT1)

and from the dental chair is a duty of the caregiver who brings the patient to the dental appointment. It is not prudent to have dental staff members involved with transferring a patient from a wheelchair or motorized scooter to a dental chair unless the staff members are trained. Letting patients know that dental office staff members will assist with moving wheelchairs once the patient has transferred to the dental chair and will open and close office and car doors for the patient and their escort is reasonable. When patients are no longer able to transfer to a dental chair, the practitioner needs to decide if the patient can comfortably and safely continue to be treated in a dental office setting. Reasons to consider transitioning out of a dental practice include patient and practitioner challenges with treatment provided in a wheelchair and unavailability of transfer devices such as Hoyer lifts.

Besides patient transfer, cognitive concerns create challenges to providing care in a private practice setting. When patients start to forget appointments, forget oral hygiene instructions or lack the ability to implement instructions, a practice needs to determine how involved the staff will become in the facilitation of care. Many patients can continue to be treated in a private practice setting if family or friends can be contacted to assist with the logistics of transportation, scheduling, transferring into the dental chair and understanding and following posttreatment instructions and recommendations. Setting a guideline requiring a person other than the patient to be designated responsible for coordination of care can help achieve successful outcomes. Often with cognitive changes come behavioral changes. These can be displayed as increased anxiety or belligerence toward oral care. Use of oral sedation such as lorazepam or alprazolam (**TABLE 5**) in a private practice setting could be considered, but may require additional training and licensure in certain states. Dentists, staff and patients should also be aware of an increased fall risk, in the office and after dismissal as long as the patient is sedated, and plan accordingly. This could require an escort to and from the dental appointment or use of a wheelchair until the patient is no longer sedated.

Transitioning Out of Private Practice

As private practitioners, we are busy treating the patients "in front of us." Schedules are routinely filled with patients who actively seek treatment. Therefore, older adults in private practice who are transitioning through the stages of dependency can unintentionally get lost. One day, we think about Mr. and Mrs. Smith and realize we haven't seen them in a while. We may learn that Mr. Smith has entered an assisted living facility. Because clinicians stay busy running their practices, there is little time to follow up with this group of elderly patients who no longer make their recall appointments because of medical issues, cognitive decline, transportation and other problems. What are our options at this point in time? Do nothing and let the patient drop out of your practice and disappear, or be proactive and start the conversation at the time the debility is first noticed or encountered?

When noticing decline in a patient, start the discussion and "set the stage" for them to move out of your practice. "Decline" can run the gamut from

TABLE 4

Daily Oral Care Assessment and Intervention

- What is the current oral status (generalized cervical plaque/xerostomia/food hoarding/open contacts with food impaction/fixed prostheses with food impaction at abutments)?
- What is the current daily oral care regimen (toothbrushing/tongue brushing/flossing/oral rinse/fluoride application/prosthetic care)?
- Define the current level or stage of daily oral care intervention:
  - Person brushes teeth 2x/day without reminder.
  - Person brushes teeth 2x/day needing reminder:
    - Verbal reminder.
    - Take to bathroom.
    - Hand person toothbrush with toothpaste in bathroom.
  - Person brushes teeth 2x/day with reminder and with caregiver involvement:
    - Hand person toothbrush with toothpaste in bathroom.
    - After person independently brushes teeth, caregiver brushes maxillary and mandibular teeth along gum line.
  - Person unable to brush teeth independently; needs complete caregiver assistance.
- What is the risk of losing teeth due to caries or periodontal disease with subsequent decline in oral function?
- Concepts:
  - Maintain autonomy as long as possible, but not at the risk of increased decay or tooth loss.
  - Determine current level of intervention; if not adequate to promote a stable oral status, move to the subsequent level.

mobility issues noticed when seating and dismissing the patient from the chair (counter holding) to memory impairment issues evidenced during dental conversation as well as loss of a driver's license and/or recent change in living arrangement. Be proactive and discuss mobility issues such as challenges related to being wheelchair or bedbound. Obtain permission to reach out to other family members and discuss the situation. If it is feasible for the practice, let the family know the patient is welcome to continue care at the office with their support.

More often than not, care management is in upheaval when a patient transitions to a facility and leaves their home and the routine of life that accompanied it. Often, routine dental care is missed because of the pressing medical issue(s) that brought on the facility admission. Families appreciate being informed of a missed three-, four- or six-month prophylaxis interval and now may add this appointment to the list of appointments that they need to schedule and attend. Letting the family know that oral hygiene may now be more of a challenge due to the patient's increased dependence is important. Provide suggestions such as setting up a dental brushing station bedside so the patient can continue to provide their own oral care or provide specific instruction if a caregiver will be required to supervise oral hygiene. Let the family know that ensuring twice-daily brushing is vital to preserving the investment the patient has made in their dentition during their lifetime as well as their quality of life.

Facility Relationship

A decision to provide oral health care to residents of a long-term care (LTC) facility should be made with deliberation. The closest LTC facility to an office may not be the best place to develop a working relationship if the LTC staff do not make oral health a priority. When a patient transitions to an assisted living facility, an LTC facility or simply remains at home with increasingly challenging mobility issues, it is important to understand that oral health may not be a priority for the facility or patient and oral hygiene may become more difficult for the homebound patient. Facilities routinely deal with their own management issues (e.g., adequate staffing, instituting and following policies, providing adequate patient care and addressing regulations) and have little time to devote to oral health.[9] Staff attitudes toward oral care, lack of time and staff to complete oral care and behavioral and physical difficulties with residents have been found to adversely impact oral health care delivery in LTC facilities.[10]

When approaching an LTC or assisted living facility in which a previous private practice patient now resides, it is important to understand relationship building. Rushing in and overwhelming the facility with an increased workload is asking for disaster. To be successful, the oral health care provider must develop relationships with the facility staff, from administration to patient aides. This takes time. Start small and grow slowly. Although private practitioners are used to being in charge of their office and staff, recognize that LTC facilities have their own rules and regulations. Oral health care professionals may take on more of a role as consultant to assist the facility in improving and maintaining the oral health of their residents. Education is always a key piece in success. Starting a relationship with a LTC facility through a patient who has just transitioned to their care is often the best introduction. When the patient is no longer able to

routinely seek care outside the facility, a mobile practice model must be considered to take services to the patient.

The role of an LTC facility is to facilitate residents obtaining the care they desire and to ensure the patient's decision-maker is addressing all care needs. The LTC facility needs to document where residents will obtain oral health care services at time of admission as well as address this at yearly care-plan meetings with the patient's decision-maker. An authorization for dental examination form (**TABLE 6**, available as a form at cda.org/CT2) can be adapted to be included in admission packets given to the patient's decision-maker to notify them of services available on-site or to document where oral health care will be sought off-site. This will be documented at the time of admission and reviewed with the daily oral care plan and oral health care/dental plan at annual care-plan meetings with the patient's decision-maker and the nursing staff. Due to challenges in transportation of highly dependent patients, some facilities will choose to enlist a mobile practice to meet oral health needs on-site.

Determining how to approach providing consultations and direct care in a facility can be challenging. Attempting to screen all patients at a facility for oral health needs can be inefficient and expensive if there is little interest in follow-up care. It can be costly to follow up with the patients' decision-makers on oral findings and treatment recommendations as well as obtaining permission and financing for further care. If you find you are creating treatment plans, but few patients are moving forward to obtain treatment, it may be necessary to modify to a consultant model to identify those residents who would benefit and follow up with treatment recommendations. Many patients have an existing relationship with a private practice dentist and intruding on that relationship may not be welcomed. The consult-based model is practical, efficient and helpful. The consult-based model works toward maintaining the oral health of an individual resident desiring dental care and is specific to an emergent dental need. A mobile practice dentist is often contacted when an acute dental problem arises. The nature of consults can run the gamut from acute infections to a simple denture problem or a broken tooth or to request routine care that has been missed. It is very common to be

TABLE 5

Commonly Used Prescriptions

- Indication: Caries risk
  Fluorides
  Rx: 1.1% sodium fluoride gel
  Dispense: 1 (one) tube
  Instructions: Using a toothbrush, apply fluoride gel to all tooth surfaces before bedtime following toothbrushing. Patient must not eat, drink or rinse for two hours following application. If uncooperative, apply a thin layer to the cheek side of teeth using a toothette.
- Indication: Severe gingival inflammation/halitosis secondary to periodontal disease
  Rx: 0.12% chlorhexidine gluconate
  Dispense: 1 (one) 64-ounce bottle
  Instructions: Swish 1 tablespoon for 30 seconds then spit out or apply to gums with toothette following morning and/or evening toothbrushing.
- Indication: Tooth extraction* or oral pain
  Rx: Extra-strength acetaminophen (500 mg or 625 mg)**
  Dispense: 16 (sixteen) tablets
  Instructions: Patient to be given one tablet four times a day for oral pain for four days following tooth extraction.
- Indication: Acute swelling and infection
  Antibiotics
  Rx: Amoxicillin 500 mg
  Dispense: 40 (forty) tablets
  Instructions: Take two tablets immediately, then one tablet four times a day until gone.
- Indication: Candidiasis
  Rx: Nystatin suspension (100,000 units/cc)
  Dispense: 160 ml
  Instructions: With denture out, swish and spit 1 tablespoon four times a day for two weeks.
- Indication: Behavioral management/unable to cooperate for oral care
  Sedation
  - Training and licensure as required by state law.
  - Obtain medication administration record (MAR).
  - Consult with primary care physician (PCP).
  - Discuss risk versus benefit with patient/patient's decision-maker including postadministration precautions until sedation wears off.

  Rx: Lorazepam 0.5 mg
  Dispense: 2 (two) tablets
  Instructions: Patient to be given 0.5 mg lorazepam one hour prior to treatment with an additional 0.5 mg lorazepam given if needed.

  Rx: Alprazolam 0.25mg
  Dispense: 2 (two) tablets
  Instructions: Patient to be given 0.25 mg alprazolam one hour prior to treatment with an additional 0.25 mg alprazolam given if needed.

* PCP consultation may also be indicated prior to extractions for persons on blood thinners such as warfarin, clopidogrel, rivaroxaban and apixaban.
** Always check the MAR for other sources of acetaminophen to avoid liver toxicity. Acetaminophen may not be indicated and duplicative if the patient is regularly taking stronger pain medications (e.g., hydrocodone with acetaminophen), as those will be adequate for pain control. If greater pain relief is needed than what is provided by acetaminophen, it is recommended that the PCP be consulted.

TABLE 6

Sample Authorization for Dental Examination Form

Introduction
With *XX* years of experience in treating the elderly in assisted living facilities, nursing homes, hospitals and the dental office, *Dr. XX* is pleased to announce the expansion of *his/her* dental practice to your residence.

Services
In *his/her* fee-for-service practice, *Dr. XX* is able to provide comprehensive dental care through portable dentistry and office care. The services provided through the mobile dental practice include oral examinations, regular professional cleanings, restorations, crowns and bridges, extractions and complete and partial denture construction and rebasing.

Further services can be provided at *his/her* dental office in *XX*. Referrals are also available to dentists closer to your residence. To ensure regular oral care, we maintain a schedule for regular oral examinations and dental cleanings at an agreed upon interval that is appropriate to maintain oral health.

Payment
The practice is fee for service. As a service to you, we submit all bills to the dental insurance company provided to us. The insurance reimbursement will be paid directly to the insured and a bill will be sent to the patient's decision-maker for payment in full.

Appointment information
If you have any questions about our services or would like to schedule an appointment or consultation, please contact us at *phone number* or *email address*.

We look forward to helping you maintain a healthy smile for a lifetime.

- ❑ I am currently seeing my private dentist regularly for oral health care and do not desire to receive in-house dental services at this time.
- ❑ I would like an oral examination to be performed by the in-house dental service, which will cost *$*. No further treatment will be provided without the approval of the patient's decision-maker.

(Full version available as a form at cda.org/CT2)

consulted for an acute dental problem and then learn when gathering past dental history that the resident has not been seen by a dental professional for several years. Family members and the patients' decision-makers who realize there is a dental need or that the patient has missed their routine cleaning appointment often request that their family member continue to receive comprehensive dental care.

Mobile Dentistry in Long-Term Care

The delivery of mobile dentistry to the geriatric population is uniquely challenging and requires the delivery of dental care in a physically rigorous, emotionally charged and mentally challenging environment. Obstacles can arise from facility regulations, family and patient expectations, equipment repair and maintenance issues and sometimes even from the dental profession.

The presence of a registered dental hygienist or an appropriately trained provider on a routine basis to provide services to those residents who desire preventive care as well as hands-on education to the nursing staff on daily oral care is ideal.[11] The four-pronged role of this on-site oral health champion would include performing clinical procedures, developing and maintaining oral hygiene care plans for residents, providing in-service training and continuous support for nursing home staff and assisting staff with incorporating oral hygiene care into the residents' daily hygiene schedules.[12,13] This provider can also serve to screen new patients with problems and gather information needed for the dentist to plan necessary future treatment.

Ideally, all patients who transition from a private practice setting to an assisted living or LTC setting would be seen by an oral health care provider at the recommended preventive care interval at which they had been maintained (i.e., three, four or six months) in the recent past. However, that usually requires access to oral health care in the assisted living or long-term care setting. If there is no access, it is imperative to continue preventive care outside the facility setting to reduce the need for restorative or specialty care (such as oral surgery). A well-transitioned patient would be one who obtains oral hygiene twice daily as ordered by a dental provider and receives preventive care by a dental professional at intervals determined by their individual risk factors for oral diseases[14] (**TABLE 7**).

When meeting patients for the first time in a long-term care setting, the first visit should include an initial assessment of the patient's oral hygiene, an oral examination, appropriate radiographs and, if possible, a prophylaxis or full-mouth debridement after a thorough review of past dental and medical histories. After findings have been gathered, urgent treatment needs should be completed first. There is no need to rush the completion of necessary restorative treatment given the patient will likely need to be seen on a three-month interval. It is prudent to treat the worst areas of decay first and reassess the next pressing treatment needs at each three-month prophylaxis interval until all needs are addressed. Having a 12- to 18-month plan is not uncommon if treatment is not urgent, and this time can be extended if at each assessment there is minimal decline in oral status. Surgical and restorative procedures should be completed strategically and according to the patient's ability to tolerate and benefit from such treatment. For example, consideration to extract a second molar in a case where there is an open contact with interproximal decay and food impaction may be necessary to retain the first molar. Placement of restorations when the patient's oral hygiene is unable to support them may not be prudent. Small areas of decay and root caries decay under crowns can be observed and treated with silver diamine fluoride (SDF) at

recommended intervals.[15,16] SDF is also a good option for the uncooperative patient who is not a candidate for restorative treatment. Preventive prescription fluoride products should be used daily according to caries risk as well as patient and caregiver ability to comply with the proposed regimen[1] (**TABLES 5** and **7**).

The discussion with a patient and/or their decision-maker in a mobile practice setting should begin with a recap of the screening/preventive/emergent-need appointment. These decision-makers are quite accustomed to speaking to medical and other health care professionals about their loved ones. Address the primary reason for the dental consult, list other pertinent findings, such as an obvious decline in oral hygiene, broken teeth or presence of caries, and focus on which teeth can be saved. Recommending strategies that are tried and true with positive outcomes is an important way to build the provider/patient/patient's decision-maker relationship. Focus on the dental challenges at hand, acknowledge the challenges inherent for highly dependent patients in a mobile practice and discuss how best to overcome and work through them in a timely manner.

Educating families of patients experiencing cognitive, behavioral and functional decline is one of the biggest challenges a dental provider faces. Helping families understand that patients with increasing dependency issues are a unique population with ever-changing needs and unique challenges is a necessary but extremely difficult task. Many times families want their loved one to receive dental care similar to what they receive (e.g., a six-month recare interval) and acceptance of the limitations imposed by declining physical and cognitive conditions can be difficult.

The transition from a long-term care setting into hospice care requires the understanding that there is still a need for continuing oral care as long as the patient desires, requires and can tolerate the treatment planned. Whether or not the patient continues to take food by mouth, the need to clean the oral cavity daily exists. A need for education arises when patients' decision-makers or hospice providers deem that because the patient has been transferred to hospice, there is no future need for preventive care, only comfort care. Comfort measures can include a broad range of interventions, from chemotherapeutics to adjustment of prostheses and other procedures to meet preventive or surgical needs.[17]

TABLE 7

Oral Prevention in Long-Term Care Settings

- Daily oral care
  - Every resident should have a daily oral care plan.
  - Supervised toothbrushing should occur twice daily – after breakfast and before bedtime – with a regular toothbrush and fluoride toothpaste, not a toothette or sponge.
  - An accountability system with regular evaluation should be established.
  - Yearly oral health education of staff should be provided via in-servicing.
- Daily fluoride application[20]
  - First, a decay risk assessment[21] should be performed to determine fluoride need.
  - An assessment of resident pharmacy formularies should be performed to determine fluoride prescription coverage and availability.
  - Appropriate fluoride application should be administered depending on the level of decay risk: fluoride toothpaste, fluoride rinse, fluoride gel (Jenson et al. 2007).[14]
  - Staff training should occur annually for proper administration of fluoride toothpaste, fluoride rinse and fluoride gel.
- Regular professional cleanings
  - The last cleaning and due date for the next cleaning should be documented in the resident's medical record upon admission.
  - Assessment and identification of barriers to obtaining regular professional cleanings should be performed (i.e., funds, transportation, behavior challenges).
  - Confirmation and documentation that the facility dental provider offers regular professional cleanings (i.e., every three to six months) for the residents should be secured.

From: Fisher MM and Ghezzi EM. Preparing Patients for Future Oral Healthcare Decline; Compendium 34(2): 150-151; 2013. See Spolsky et al., 2007 for comprehensive list of Caries Management by Risk Assessment (CAMBRA) products.

Practical Implementation of Mobile Dentistry

Prior to seeing a patient in an LTC facility, permission must be obtained from the patient's decision-maker and the facility. Most facilities require credentialing that can include submission of a state dental license, a Drug Enforcement Agency license, proof of malpractice insurance, fingerprinting and a background check. In some states, a mobile dental license or permit is required if dental care is to be provided outside a private practice setting.

When first contacted to provide care for a person in an LTC facility, it is important to obtain the document that includes the patient's demographic, insurance and patient's decision-maker information (commonly called a facepage) as well as the medication administration record (MAR) that not only lists current medications and dosages, but often includes the patient's medical diagnoses and allergies. It would be important to note medications such as anticoagulants, bisphosphonates, immunosuppressants, pain or sedative medications and medications causing xerostomia. Also note that patients with medications for behavioral management (e.g., quetiapine, lorazepam, haloperidol) may have difficulty cooperating for oral health care. Consultation with the primary care physician (PCP) may be required to determine the risk of complications

TABLE 8

A Morning in the Life of a Mobile Dental Practice

Two weeks prior:	■ Determine facility and patients to be visited. ■ Contact the facility: Determine who is still a resident and who has passed away. ■ Send sympathy cards to families of deceased patients. ■ Determine who will need sedation; PCP consults for patients with new sedation orders. ■ Contact patients' decision-makers, notify of date and intended treatment. ■ Determine if patients' decision-makers plan to be present; provide with two-hour window when patient will be seen.
One week prior:	■ Send orders for medications required for day of treatment.
One day prior:	■ Fax list of patients to be seen with arrival time and times of medication administration; do not include specific appointment times or sequence of patients as it is not predictable. ■ Pack car with equipment; note that in cold weather, electrical equipment can blow a fuse after being left outside for prolonged periods.
Visit day:	
7 a.m.:	■ Phone call from daughter of patient No. 1 states that the daughter is sick and unable to be at the appointment, so she would like to cancel treatment.*
8:30–8:45 a.m.:	■ Call the facility prior to arrival to let them know who you want to see first. ■ Dentist and assistant arrive at location to be ready to begin seeing patients at 9 a.m.** ■ Visit all patients' rooms to notify them and their direct care staff that they will be seen for dental care. ■ Confirm with med techs that required premedication has been administered. ■ Determine facility staff who will be assisting in bringing patients for care. ■ Set up equipment.
9 a.m.:	■ Patient No. 1: Canceled. ■ Patient No. 2: New consult for treatment. Patient just returned from rehabilitation. Brief exam reveals upper denture coated with plaque; erythematous upper ridge; anterior teeth Nos. 21–27 with crowns; no acute needs; cooperative; needs denture cup. Discuss need for daily denture hygiene with care staff. Next visit: Comprehensive examination/prophylaxis/full-mouth radiographs/clean upper denture/maxillary complete denture rebase once erythema resolves/oral care plan/Rx: fluoride gel/treatment plan/three-month recall. ■ Patient No. 3: Follow-up examination to evaluate need for immediate treatment. Met patient at last facility visit for consultation for upper and lower dentures. Patient presented with multiple decayed and broken teeth; uncooperative due to cognitive decline; not a candidate for dentures; recommend full-mouth extractions of remaining seven teeth and four retained roots; family unable to afford treatment and desires only urgent care; no swelling, pain or abscesses noted; recommend reevaluate in three to six months. ■ Patient No. 4: Staff states patient doesn't want to be seen. ■ Patient No. 5: Periodic examination and prophylaxis (sonic scaling/polish/floss) for patient on three-month recall; Medicaid only covers cleanings every six months; family has agreed to pay for additional cleanings; patient lives on memory care unit and with 0.5 mg lorazepam is able to cooperate for cleanings; adequate but not ideal oral hygiene: generalized plaque and calculus but no decline in oral status; patient with severe cognitive impairment has been in practice for almost four years and maintained dentition with only routine cleanings. ■ Patient No. 6: Patient arrives with son; wearing upper denture coated with plaque and root remnant of tooth No. 24; erythematous upper ridge; patient refused to get out of bed for examination at the previous visit; goal of today's treatment is to evaluate existing prostheses to determine which are usable, but unable to accomplish goal because facility is no longer able to locate the prostheses; radiograph taken of root remnant; topical and local anesthetic applied; root remnant removed; no pain medication prescribed; needs denture cup; discuss need for daily denture hygiene with care staff; consider maxillary complete denture rebase once erythema resolves and add patient's name to denture; consider Rx: nystatin if erythema not resolved by daily oral care. ■ Patient No. 4: In courtyard smoking; approach to discuss need for care; patient agreeable to treatment and will come after finishes smoking. ■ Patient No. 7: In bathroom; will come to appointment when done. ■ Patient No. 8: Younger, 79-year-old patient in practice for almost three years at four- to six-month intervals (due to financial constraints); two teeth have been extracted, one tooth restored and three crowns completed; silver diamine fluoride placed on eight teeth today in areas of decay at cervical margins of crowns; patient is on a three-month recall with a stable dentition as treatment needs were present at initial examination. ■ Patient No. 7: Needs help in the bathroom; decides to brush hair; seen for six-month evaluation and cleaning of upper and lower complete dentures; severe mandibular bone loss and maxillary anterior bone resorption; uses denture adhesive in previously rebased maxillary denture. ■ Patient No. 4: Periodic examination and prophylaxis (sonic scaling/polish/floss) for patient on three-month recall; seen during the lunch hour as he will be able to eat independently following treatment; presents with maxillary complete denture and mandibular removable partial denture coated with plaque; clean prostheses and three remaining lower teeth; ulceration in area of posterior right mandibular flange; mandibular RPD adjusted.
Noon:	■ Wrap up. ■ Follow-up phone calls to patients' decision-makers discussing oral findings, treatment provided and further recommendations.

* Patient was uncooperative at the initial visit, but able to have treatment subsequently with 0.5 mg lorazepam and daughter present to calm and redirect the patient; the patient will be rescheduled for another visit when the daughter can be present.

** If attempt is made to start treatment prior to 9 a.m., many residents are still eating breakfast or not dressed and ready to be seen.

from dental procedures related to the use of some medications, such as those listed previously, or their indication for use. Also consider the potential for adverse drug interactions with medications administered or prescribed to the patient for dental needs.

The oral care of people in long-term care settings does not require a complicated list of prescriptions in one's arsenal. Indications for commonly used prescriptions include caries risk, severe gingival inflammation, halitosis, oral pain, candida, acute swelling and infection and behavior management (**TABLE 5**). The role of the PCP is to manage the medical care and medications for their patients. If a patient is unable to cooperate for dental care and a sedative medication is indicated, submitting a consultation to the PCP can be both a courtesy and confirmation that the PCP is aware of the new medication with potential adverse side effects. The patient's decision-maker will often be much more agreeable to and comfortable with the use of sedation for oral health care if the PCP is aware and has approved its use. Although most dentists are licensed to write sedation orders, it is helpful if the consultation provides the specific order requested to be written by the PCP. Many patients have PRN orders for pain medications that could be used following an extraction. However, given the challenges of people with cognitive impairment to verbalize pain, it is best to write an order for scheduled pain medication (**TABLE 5**).

Communication and relationship building with an LTC facility are critical for success. On both sides of the relationship, there should be designated contact people with whom schedules, prescriptions and treatment can be relayed. Oftentimes in a facility, this person is the director of nursing or the care coordinator, but could be a social worker as facility staff structure can vary greatly among facilities. Knowing the key players in each facility helps to establish accountability. Prior to a facility visit, send the LTC facility a schedule indicating the arrival time of the provider, the patients to be seen and all medication names, dosages and times to be administered (**TABLE 8**). Ordering prescription medication needed for routine care may be required up to a week in advance.

Assessing the oral status, diagnosing disease and recommending interventions and treatment are accomplished at the clinical visit. As findings are documented, oral care plans (**TABLE 3**) and treatment plans are developed and distributed to multiple parties (LTC facility, patient, patient's decision-maker). It is helpful to develop forms that can be duplicated, disseminated and placed in the patient's facility chart. The patient and/or patient's decision-maker determine desires for daily and professional care. Oral health care professionals assess daily oral care and oral hygiene, providing feedback and education and creating accountability through care plans and orders made within the LTC facility.

There are many treatment models that can be implemented for the provision of mobile oral health care depending on the level of care to be provided. It is recommended that any provider interested in considering mobile dental care start with minimal investment of time and equipment to develop relationships with facilities and patients before expanding to an extensive treatment model. Valuable practical information can be obtained by contacting mobile dental care providers and organizations such as Apple Tree Dental in Minnesota (appletreedental.org), which has developed a sophisticated means of

TABLE 9

Required Equipment for Treatment Models

- Screenings (may be referred to private practice for care)
  - Light/coat/gloves/masks/explorer/mirror
  - Documentation/forms
- Denture adjustment
  - Light/coat/gloves/masks
  - Documentation/forms
  - Portable adjustment tool with burs
  - Applicable denture adjustment supplies (articulating paper, PIP)
- Radiographs (may be referred to private practice for care)
  - Light/coat/gloves/masks/X-ray holders
  - Documentation/forms
  - Portable X-ray machine (Nomad); extra batteries and recharger
  - Film/developer (if not transported to off-site dental office for processing) or sensors/laptop/software
  - Patient and provider lead aprons
- Prophy
  - Light/coat/gloves/masks/explorer/mirror
  - Documentation/forms
  - Ultrasonic scaler (recommended)
  - Portable suction with compressor (recommended)
  - Polishing handpiece with prophy angles
  - Disposables (floss/bridge threaders/fluoride varnish)
- Restorative or surgical treatment
  - Light/coat/gloves/masks/explorer/mirror
  - Documentation/forms
  - Portable suction with compressor (required)
  - High- and low-speed handpieces
  - Restorative or surgical materials and supplies
- Denture treatment
  - Light/coat/gloves/masks
  - Documentation/forms
  - Portable adjustment tool with burs
  - Torch and fuel (restricted use around people using oxygen)
  - Applicable denture treatment supplies (impression materials)
  - Water bath (consider logistical challenges)
- Sterilization
  - Portable autoclave versus transportation of used instruments (per state law)

delivering care to older adults in long-term care. Equipment costs and requirements vary based on the type of treatment to be provided (**TABLE 9**). Much can be done with little investment and expansion is typically dictated by patient demand.

One innovation to improve access to care for patients with limited mobility and access to care is the virtual dental home.[18] The virtual dental home is "based on the principles of bringing care to places where underserved populations live, work or receive social, educational or general health services, integrating oral health with general health, social and educational delivery systems, and using telehealth technologies to connect a geographically distributed, collaborative dental team with the dentist at the head of team-making decisions about treatment and location of services."[19] Consider the ideal situation of a well-transitioned patient to a facility who has an initial appointment with a registered dental hygienist for preventive care. Records are gathered including necessary radiographs and past medical and dental history. Preventive care is completed and the information is streamed to a provider who creates recommendations for treatment based upon pertinent findings. This type of care model allows a provider a bonanza of information and more time to focus on necessary restorative and/or prosthetic treatment when they are on-site as a mobile provider or to limit the necessity of in-office visits, scheduling only when treatment needs exceed what can safely be done on-site with the resources available to the provider. This model of care allows streamlined communication and information sharing with other specialists (oral surgeons), facilities and family members and allows a provider the necessary time to complete administrative duties.

Conclusion

Patients will age and experience changes in dependency, medical conditions and mobility. Dental providers must be sensitive to these changes and proactive in modifying preventive and restorative treatment recommendations. Observing our patients for subtle changes in cognition and behavior, anticipating their needs and initiating the discussion of these changing needs with the patient and family members as appropriate through stages of dependency is essential. As oral health care providers, we too need to transition our established model of care to suit the increasingly complex needs and environments frail older adults must navigate. ■

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Developing an Interprofessional Oral Health Education System That Meets the Needs of Older Adults

Kathryn A. Atchison, DDS, MPH; Anita Duhl Glicken, MSW; and Judith Haber, PhD, APRN, BC

ABSTRACT This article discusses how education can bridge the silos between dental and medical care to better serve older adults who suffer from complex dental and medical conditions. A strong interprofessional team-based, patient-centric care model is essential to reach older adults who attend primary care visits but do not have regular dental care or vice versa. Interprofessional didactic and clinical education opportunities are needed to train a broad mix of health professional students and practitioners to work together to integrate oral health care, particularly directed at the complex medical, social and financial needs of older adults.

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The number of individuals in the U.S. aged 65 and older is expected to double from 2012 to 2050, increasing from 43.1 million to 83.7 million.[1] The population will also be more diverse racially; by 2055 it is projected that there will no longer be a white majority, reflecting strong Asian and Hispanic growth.[2] These changes are clearly demonstrated in California, the most populous state in the union. Among the 37 million California residents, 57 percent are white, 37 percent are Hispanic or Latino, 13 percent are Asian, 6 percent are black or African-American, 16 percent identify as "other" race and 2 percent report being two or more races.[3]

Within the U.S., there is a wide variation in the population who identify as "older adults." Many are well-educated, financially well-off and have good health insurance. They seek regular primary care visits and their lives continue much as they did in the years prior to retirement. However, many other older adults suffer from multiple chronic diseases that impact activities of daily living, have no retirement income, lack dental insurance, lack English proficiency, have limited health literacy and/or have little social support. The rapid growth of this segment of the aging population presents many challenges to our health care system, particularly an evolving health care workforce.

Mapping Our Health Care System to the Needs of Older Adults

In a recent editorial, Vujicic[4] proposed reforms to the dental care system that are essential to expand the use of dental care by all older adults and to create meaningful improvements in overall health, including oral health. First, Vujicic observed that dental care use among seniors is driven by affluent seniors, thus we should improve dental coverage in order to increase access to care and decrease disparities in oral health. The high cost of dental care is reported as the key reason that older adults do not receive dental care.[4] Medicaid, a state-federal assistance program, covers adult dental benefits in only about half of the states, and benefits vary, with 19 states providing emergency-only adult benefits for nonpregnant adults, leaving many older adults with no coverage.[5]

Second, Vujicic advised that the dental system needs to measure things that are important to both patients and providers. A commonly used outcome measure is the proportion of the population that is edentulous; this measure often demonstrates disparities in health. For example, the proportion of older adults who have lost all natural teeth is currently 13 percent of adults aged 65 to 74, but the percentage increases to 26 percent among adults 75 and older.[6] The rate of edentulous adults also documents income and race disparities. However, as a measure, edentulousness alone does not clearly indicate a need for dental care or active disease. Active dental caries and periodontal diseases continue into older age and measuring untreated caries or active periodontal disease signifies a need for dental treatment. This would be a useful measure for older adults as it emphasizes the oral-systemic connection and may relate to measures of improvement in overall health.

> Older adults ... have numerous oral and physical health problems that call for an interprofessional approach to primary, acute and long-term care.

Vujicic further suggested that reimbursement models for health care recognize treatment that improves health outcomes. Accountable care organizations (ACOs) are groups of health care providers who are contractually responsible for both the cost and quality of care provided.[7] Now serving more than 18 million Americans, ACOs are testing the need to build dental services into their list of covered health services. Demonstration programs have shown that increased use of emergency rooms and failure to have regular preventive dental care such as cleanings drove up the total cost of care. Fraze and colleagues[8] found that ACOs that include dental services were more likely to include federally qualified health centers (FQHCs) and community health centers that have a Medicaid contract to provide care. Building oral health into health insurance programs increases recognition of the oral-systemic connection and helps to support dental care for older adults who otherwise find that dental treatment remains an expensive out-of-pocket cost.

Finally, Vujicic stressed the need to bridge the silos of traditional dental and medical care. This is especially true for care of older adult populations that often suffer from complex medical conditions such as diabetes and cardiovascular disease, which are now considered to be related to periodontal disease. Older adults, more than any other age group, have numerous oral and physical health problems that call for an interprofessional approach to primary, acute and long-term care. For a number of diseases common among older adults, oral systemic associations have been reported and management of these diseases are reasonable places for oral health to be integrated as part of the standard of care by primary and acute care providers and dentists. For example, the inflammatory process in diabetes is a common pathophysiological process that increases the risk for periodontal disease with related infection and tooth loss.[9,10] Microorganisms and inflammation also play a role in the association between periodontitis, poor oral hygiene and respiratory diseases. For example, plaque accumulation and biofilm in the upper respiratory tract can serve as a haven for respiratory pathogens that can travel to the lungs in frail and/or critically ill older adults at home and in long-term care or hospital settings. Aspiration pneumonia is a leading contributor to morbidity and mortality in older adults. Oral hygiene is recognized as an evidence-based intervention

for reduction of risk for ventilator-acquired pneumonia and nonventilator hospital-acquired pneumonia.[11]

Chronic conditions common to older adults, such as hypertension, dyslipidemia, depression, reflux and chronic obstructive pulmonary disease (COPD), often require multiple medications that result in xerostomia and decreased salivary production. The resulting dry mouth provides a climate conducive to accumulation of plaque, bacteria and inflammation. Chronic conditions that affect mobility and the completion of activities of daily living (ADL), such as Parkinson's disease, arthritis, stroke and dementia, can make oral self-care and the ability to obtain adequate nutrition difficult and, with increasing motor and/or cognitive dysfunction, require special aids for handling utensils and performing oral hygiene.[12,13] These conditions exacerbate the likelihood of dental decay.[14]

Older adults with cancer commonly experience acute and chronic oral sequelae of their chemotherapy and/or radiation treatments including xerostomia, mucositis, oral ulcers, candidiasis and osteonecrosis. These side effects make oral hygiene difficult but critical to accomplish because the xerostomia and open lesions provide an increased risk for infection in already immunocompromised patients. Moreover, eating and obtaining adequate nutrition are challenges related to the pain of having food in an ulcerated mouth as well as painful chewing and swallowing.[15]

Oral health has also been found to have a bidirectional association with mental and psychosocial health problems. Mental health problems, like depression and anxiety, can make people indifferent to their oral hygiene and to seeking regular dental treatment. Likewise, older adults with significant dental problems who have attendant symptoms such as pain when chewing or drinking cold drinks have been associated with depression.[16] For older adults who have longstanding serious and persistent mental health disorders like schizophrenia, bipolar disorder or substance abuse, years of neglect to physical health and oral health, coupled with the use of mood stabilizers and antipsychotic medications, are associated with gingival hyperplasia, increased risk for periodontal disease, tooth decay, tooth loss and poor nutrition.[17,18]

It is also important to note that a significant proportion of older adults reside in the community and, eventually, some will enter long-term facilities and may require assistance from caregivers as they lose the ability to brush and floss daily and complete their own denture care. Caregivers are often unprepared to assume this ADL and may need coaching to learn strategies to overcome residents' resistance to oral hygiene while maximizing residual self-care capacity.

Producing this interprofessional oral health workforce, however, requires a significant shift in health-profession education.

Importance of Interprofessional Care for Older Adults

The U.S. dental workforce will not be sufficient to handle all of the preventive and therapeutic oral health needs of a growing older population. There are more than 5,866 dental Health Professional Shortage Areas, including rural and urban areas across the U.S. representing almost 63 million Americans with poor access to dental providers.[19] There are almost 200,000 working dentists[20] and more than 170,000 dental hygienists[21] in the U.S. Few dentists offer dental services in peoples' homes, nursing homes or long-term care facilities. It will be critical to develop a strong interprofessional, team-based, patient-centric care model to reach older adults who see a primary care provider but do not have regular dental care. The nondental health care workforce, comprised of more than 4 million nurses, 250,000 nurse practitioners, 1 million physicians and 131,000 physician assistants, has significant capacity to assess risk for oral health problems, provide preventive services such as oral cancer screening, tobacco-cessation counseling and fluoride treatment, identify oral health problems, provide referral to dental professionals as needed and ultimately help extend the reach of the dental workforce to improve the oral health *and* overall health of older adults.[22,23]

Primary care professions are in the midst of transforming health profession education and practice in ways that will be beneficial for treating older individuals. These initiatives are increasingly focused on bridging professional silos through team-based, collaborative care models. Three complementary initiatives describe the development and implementation of competencies, models and guides that can be used to improve the way multiple professions can and should work together to improve oral health. Producing this interprofessional oral health workforce, however, requires a significant shift in health-profession education, beginning with educator commitment to develop and train health profession students and clinicians to work across traditional professional lines to integrate oral health in their curriculum.

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The Institute of Medicine released competencies focused on providing patient-centered care, identifying technologies for teamwork communication and coordination and the importance of using evidence and continuous quality improvement to lay out the process and skills needed to inform collaborative practice models for geriatric oral health.[24] The Interprofessional Education Collaborative (IPEC) builds on these competencies by proposing a set of interprofessional collaborative competencies for health-profession education.[25] Competency domains fall into four categories: values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication and teams and teamwork (**TABLE**). In 2014, the Health Resources and Services Administration (HRSA) used these foundational guidelines to create a report specific to interprofessional oral health. The *Integration of Oral Health and Primary Care Practice* includes a set of oral health core clinical competencies for nondental primary care providers.[26] The competencies include risk assessment, oral health evaluation, preventive interventions, communication and education and interprofessional collaborative practice. It was recommended that the competencies be integrated into existing accreditation and certification standards associated with education and training at the predoctoral and continuing education levels. The report further describes a systems approach defining the interdependent elements needed to implement and adopt the competencies into primary care practice and an implementation strategy for translating these into primary care practice within safety-net settings. Taken together, these three initiatives provide valuable signposts that are guiding transformation across our workforce.

TABLE

Interprofessional Education Collaborative (IPEC)*

Competency 1. Work with other professionals to maintain a climate of mutual respect and shared values. (values/ethics for interprofessional practice)
Competency 2. Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations. (roles/responsibilities)
Competency 3. Communicate with patients, families, communities and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease. (interprofessional communication)
Competency 4. Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective and equitable. (teams and teamwork)

*Interprofessional Education Collaborative. Core competencies for interprofessional collaborative practice: 2016 update. Washington, D.C.: Interprofessional Education Collaborative.

Progress has been made in interprofessional education. All dental schools are now instructed to "provid(e) opportunities early in their educational experiences to engage allied colleagues and other health care professionals." Nonetheless, the Commission on Dental Accreditation recognizes there are significant challenges to providing opportunities for dental students to partner with other "health care professionals educated to deliver patient-centered care as members of an interdisciplinary team."[27] Although the accreditation cycle means that change is not immediate, the American Dental Education Association noted that by 2014, 90 percent of dental schools offered interprofessional education (IPE) experiences for their students, although only 69 percent of those activities were mandatory and some involved volunteer or service projects only. Experiences, however, can be quite limited, ranging from a one-hour seminar to an extended learning experience over several months or years.[28]

In 2009, The National Interprofessional Initiative on Oral Health (NIIOH) was created to advance oral health integration across health-profession education and practice. In addition to cultivating leadership and facilitating interprofessional learning and agreement, two national resources supported by NIIOH are free online and now widely used by primary care educators and clinicians to support workforce training. Smiles for Life, a national oral health curriculum created by the Society of Teachers of Family Medicine, offers eight modules that cover oral health issues across the lifespan, including geriatric oral health.[29] Smiles for Life has been endorsed by the ADA along with more than 18 other professional academies and organizations. The training is used in private practice as well as community health settings to create a common knowledge base for integrating team-based care. Providers and students can complete the curriculum online or educators/trainers can download slides and speaker notes for in-person training.

The NIIOH and its funders also commissioned the Qualis Health Oral Health Delivery Framework and Implementation Guide.[30] Offered from the perspective of how primary care providers communicate with dental professionals after providing an oral health screening, the framework provides a pathway to integrate oral health into the practicing clinician's primary care workflow. The framework also aligns with transitioning the traditional head, eyes, ear, nose and throat (HEENT) components of a physical examination to include oral health (HEENOT),[31] thus intentionally including oral health in all aspects of patient history taking and physical exam by asking clinicians to:

- ASK questions about oral health when completing the health history.
- LOOK in the mouth and complete the intraoral exam including an oral cancer screening.
- DECIDE on the patient's risk factors and formulate your management plan including those related to the patient's oral health.
- ACT to engage the patient in preventive interventions that include oral health (e.g., smoking cessation, management of glycemic control, motivational interviewing for lifestyle change, oral hygiene coaching, dental referrals).
- DOCUMENT oral health findings for the history, physical exam, risk factors and interventions, including referrals.

The implementation guide offers a practical approach to enhance partnerships between primary care and dental providers and includes tools and strategies that were deemed useful by the participants who field-tested the framework in FQHCs and private practices. The tools include the key components of a dental referral as well as a dental-consultation note back to the primary care team. The framework, endorsed by 18 professional academies and organizations including the ADA, could be a ready initiation point for discussing collaboration with other health providers about elders' overall health or in a continuing education program.

Educational Opportunities Are Needed for Interprofessional Oral Health Training

The accomplishments discussed previously in this article help to define and frame the competencies and curriculum needed for health-professional training by defining what each profession can contribute and how they will work together in a team-based, collaborative-care environment. Nonetheless, this is not sufficient. A position statement by the Partnership for Health in Aging Workgroup on Interdisciplinary Team Training in Geriatrics noted that most health care professionals lack "sufficient opportunities to learn with, from and about other health care professionals."[32] Survey results show that many primary care professionals do not feel competent to perform an oral exam without clinical training and clinical experiences. Dental schools and dental professional organizations need to find ways to work with other health professions to educate our colleagues on oral health. To help inform this work, the National Center for Integration of Primary Care and Oral Heal (CIPCOH) created a partnership of several academic institutions in the Boston area to conduct systems-level research on educational resources used and barriers to successful oral health integration into primary care training.[33]

Dental schools and dental professional organizations need to find ways to work with other health professions to educate our colleagues on oral health.

The following initiatives, offered by dental and other health professions schools, are examples of innovative programs that provide interprofessional training within the university and in the community.

- The Oral Health Nursing Education and Practice (OHNEP) program at the New York University College of Nursing and College of Dentistry offers an innovative, educational experience for dental and nurse practitioner (NP) students to focus on oral-systemic health and team-based care as they rotate through a nursing faculty practice, conduct an oral health assessment and a physical exam and then, if needed, refer patients for dental care.[34]
- The Western University of Health Sciences implemented a three-phase interprofessional education and practice (IPE-IPP) program including a case-based curriculum with small-group discussions, followed by collaborative, team-based oral health care in the Western U Diabetes Institute.[35,36]
- The University of Colorado Denver medical and dental schools offer an oral health program for medical and physician assistant (PA) students where third-year dental students and faculty provide hands-on instruction in oral health prevention and diagnosis including physical-exam skills and techniques of fluoride varnish application.[37]
- A community-based program developed by the University of Alabama's School of Dentistry and the Fairhaven Retirement Community created the Fairhaven Oral Health Center, a combined dental clinic and learning center that trains medical and dental professionals to understand the interconnection of oral and overall health.[38]

- The University of Iowa Colleges of Dentistry, Nursing and Social Work offer an innovative community-based program serving frail older adults in nursing homes using a mobile dental clinic staffed by a joint team of their students. The approach immerses students in patient cases with multiple chronic conditions that need to be considered in improving the patient's total health, including oral health.[39]

These examples demonstrate viable ways to provide clinical and didactic training across professions that can engage clinicians and students to work together to address the oral-systemic connection.

Discussion

Dental, medical and other health educators and practitioners will increasingly be called upon to provide leadership, expertise and collaboration in shaping effective new policies and standards to address Vujicic's reforms[4] and to ultimately integrate oral health and overall health care. These leaders will also need to develop strategies to strengthen the current workforce through professional development and increased opportunities for multidisciplinary training for faculty, residents and students.

Health professional students, especially dental professionals, can benefit from training that prepares them to collaborate with social service agencies that can facilitate patient access to dental care. Older patients have multiple needs, such as physical, mental and financial challenges that the older adult and/or their caregivers must address to secure appropriate oral health care. Health professionals are confronted with responding to the multiplicity of health-related and nonhealth-related challenges, such as securing transportation to dental and primary care visits, access to free or low-cost medication and access to financial resources for dental coverage. Transportation barriers are particularly important for elders with lower incomes, mobility problems and the underinsured/uninsured.[40] Patient navigators, such as those described in the University of Iowa program, and community health workers can be particularly helpful in bridging access to care. Social workers can often address a wide array of social, behavioral and payment system factors that contribute to better health outcomes, including education and behavior management as well as resources to support medication and payment for services. They can assist providers with referrals and coordinate patient management for complex and co-morbid conditions. Older adults benefit from collaborative practice where communication and shared management of support services and health care are brought together on behalf of the patient.

Transportation barriers are particularly important for elders with lower incomes, mobility problems and the underinsured/uninsured.

Dental, medical, nurse practitioner and PA students also need to learn about the nuances of the health care payment system to best serve their patients. Many are surprised to learn that Medicare does not cover most dental care except under narrowly defined medically necessary dental treatment.[41] Medicaid coverage varies from state to state and is not guaranteed year to year.[42] ACOs may provide oral health services in order to improve the overall health of the patient, although they may require billing periodontal services or extractions under the medical insurance, using medical ICD codes, and to facilitate measurement of the patient's overall health improvement, rather than only outcomes in oral health.

The IPEC competencies emphasize the importance of communication training for students and existing health professionals to develop a verbal, electronic and written common language in order to collaborate across professions. Communication training and utilization of information technology often receives little emphasis in health-profession education, but is a critical element to be assured that the provider can adequately communicate with the patient, caregivers (if needed) and other health care providers so all will have a common understanding of the patient's problems, the proposed care path and how each provider contributes to improving the health of the patient.

One dental school study showed that poor health literacy was the strongest predictor of patients failing to show up for a dental appointment.[43] Clearly explaining the patient's problems, medications or potential secondary preventive behaviors needed to manage their problems and treatment options is the challenging communication responsibility of the provider. Health literacy is described as "the degree to which individuals can obtain, process, understand and communicate about health-related information necessary to make informed decisions."[44] Older adults with poor health literacy often feel overwhelmed trying to resolve the multiple challenges of finding appropriate primary and specialty health care providers while managing

other physical and financial problems of transportation and medication renewals associated with multiple chronic diseases and dental providers must also be prepared to help them navigate these systems.

Conclusion

Ultimately, we must educate dental students and existing practitioners to successfully function as part of a health care team. This means understanding their role on the team and communicating that to patients and the others on the team. They must also understand the responsibilities and functions of the other professions to make appropriate and effective referrals and develop meaningful collaborations. The ongoing trend toward a patient-centered medical-dental home model describes the type of patient care experience that accommodates the oral and systemic needs of the older adult and focuses on clear communication between the health professional and the patient. Models such as this integrate many health professionals within one "home" and emphasize good access to primary care, shared decision-making and education and navigation that support personal health management.[45–47] More interprofessional didactic and clinical educational opportunities are needed to prepare dental professionals for the integration of oral health care with medical care, particularly directed at the complex medical, social and financial needs of older adults to improve their health and experience while maintaining or decreasing the cost of health care. ■

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A Conceptual Framework for Improving Oral Health Among Older Adults: Application of the Spectrum of Prevention Strategies

Jayanth Kumar, DDS, MPH, and Ravi Dasu, PhD

ABSTRACT: In California, the older adult population is growing rapidly. Both national and state data show a considerable need for oral health care. Despite the unique challenges with access to care that older adults face, very little attention has been paid to the development of a comprehensive public health approach that addresses their needs at a national level. This paper examines the oral health of older adults and discusses the application of the Spectrum of Prevention strategies to address the complex needs of older adults.

AUTHORS

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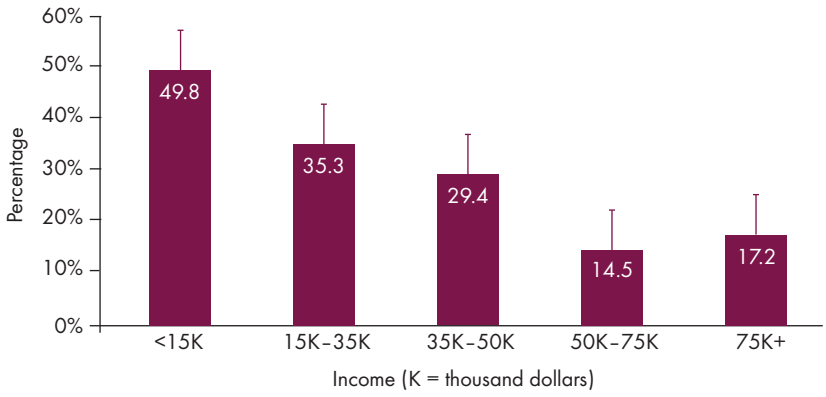
Oral health is integral to overall health and affects quality of life, yet oral health is often not considered in integrated approaches to overall health promotion.[1] Poor oral health not only leads to pain and discomfort, but also affects food choices and the ability to chew. In addition, deteriorating oral health can be detrimental to speech and social interaction. Healthy teeth are needed for chewing food that supports a healthful diet, such as fruits and vegetables.

This paper examines the oral health of older adults and discusses a broad public health framework for addressing their needs in California. The problem of poor oral health among the older adult population has important implications for California because this population is growing so rapidly that by 2030 there will be an estimated 10.9 million older Californians.[2] While dental insurance coverage for children has improved significantly in recent years because of the Affordable Care Act, dental care for adults is not covered by Medicare and is an optional benefit in Medicaid with no minimum standards.[3]

Nationally, Griffin et al.[4] reported significant racial/ethnic and income disparities in untreated dental disease and oral health-related quality of life among older adults. Older people with chronic conditions, such as arthritis, cardiovascular disease, chronic obstructive pulmonary disease,



Data source: California Behavioral Risk Factor Surveillance System (BRFSS) survey data 2016. More details about CA-BRFSS can be found at www.csus.edu/research/phsrp/brfss.html.
Data represent mean ± SE of weighted frequencies.

FIGURE 1. Tooth loss (six or more teeth) among older adults (aged 65 and older) by income, 2016.

TABLE

New Spectrum of Prevention Framework for Public Health Practice

- Influencing policy and legislation
- Mobilizing community activities
- Fostering coalitions and networks
- Changing organizational practices
- Educating providers
- Promoting community education
- Strengthening individual knowledge and skills
- Assuring access to quality health care

Source: Contra Costa Health Services. The Spectrum of Prevention. cchealth.org/prevention/spectrum.

diabetes and low vision/blindness, had higher rates of complete and partial tooth loss when compared with people without these conditions. About 22 percent of adults aged 65 to 74 reporting poor general health also reported avoiding particular foods because of problems with their teeth, dentures or mouth. Based on the analysis of the 2011–12 National Health and Nutrition Examination Survey (NHANES) data, Dye et al.[5] found that nearly all U.S. adults aged 65 and older (96 percent) with any permanent teeth had experienced dental caries and approximately 19 percent had untreated caries. The prevalence of edentulism was 13 percent and 26 percent among adults aged 65 to 74 and 75 and older, respectively.

A recent report by the Center for Oral Health found that a significant number of older adults in California are burdened by oral health problems despite the fact that dental disease is largely preventable.[6] The report indicated that, among several other oral health issues, half of the older adults residing in skilled nursing facilities have untreated tooth decay, 1 in 3 older adults in California's skilled nursing facilities has lost all their teeth and nearly 40 percent of skilled nursing home residents cannot chew. Furthermore, more than 1 in 3 community-dwelling older adults has untreated tooth decay and 18 percent of those screened had lost all of their natural teeth.[6] Moreover, disparities in oral health are persistent. For example, the California 2016 Behavioral Risk Factor Surveillance System (BRFSS) showed that lower-income older adults reported approximately two to three times more severe tooth loss (loss of six or more teeth) than those with higher incomes (**FIGURE 1**).[7]

Griffin et al.[4] reported that not only is the burden of oral disease particularly high among those with poor general health and in lower-income groups but also a significant number of older adults lack access to interventions that are effective in preventing and controlling oral disease. Based on these findings, Griffin et al. suggested that public health priorities include: better integration of oral health into medical care; community programs to promote healthy behaviors and improve access to preventive services; the development of a comprehensive strategy to address the oral health needs of homebound and long-term care (LTC) residents; and an assessment of the feasibility of ensuring a safety net that covers preventive and basic restorative services to eliminate oral pain and infection. Tilly[8] has outlined several options for expanding access to oral health, including encouraging the coordination of aging and public health networks to expand oral health promotion. Albert et al.[9] demonstrated that prevention behaviors with respect to chronic diseases can be activated in aging-services settings and incorporated into daily routines. In spite of the unique challenges with access to care, mobility and chronic morbid conditions that older adults face and the opportunities available, very little attention has been paid to the development of a comprehensive public health approach to address their needs at a national level.

To implement these suggestions at a community level, we propose the adoption of the Spectrum of Prevention developed by Larry Cohen.[10] This was initially developed as a systems approach to address injury prevention in Contra Costa County and included six strategies that shifted the emphasis from education

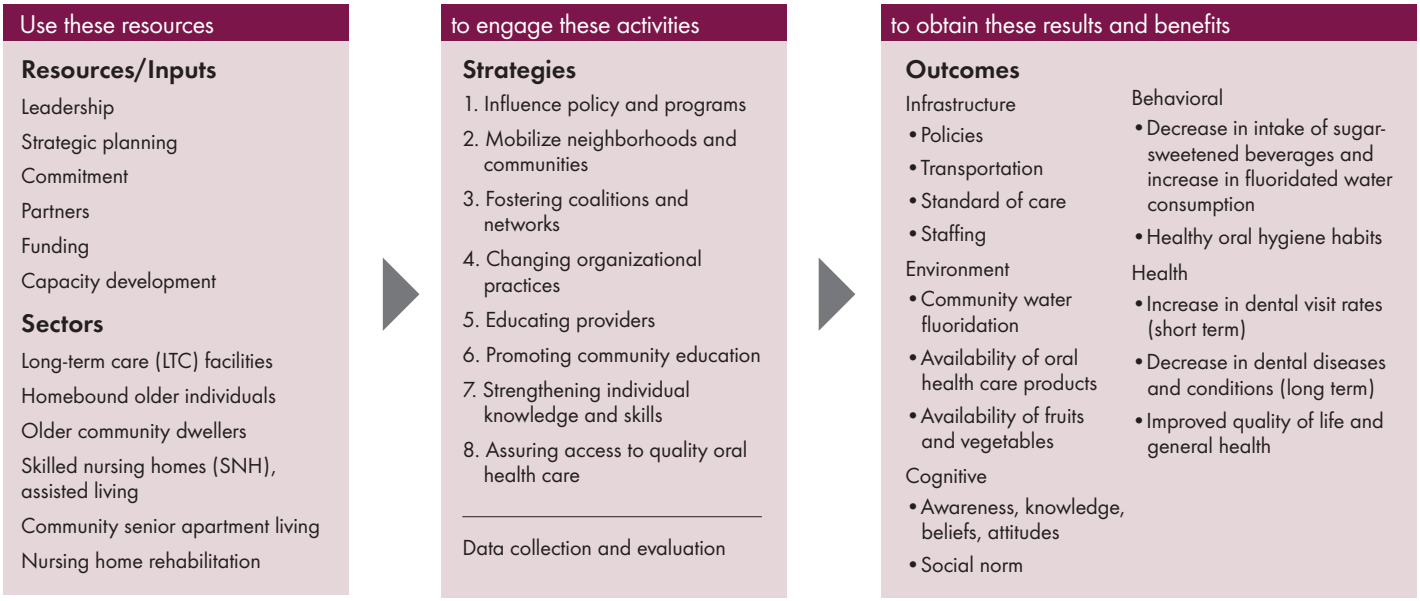


FIGURE 2. Logic model for a public health program for improving oral health among older adults.

only to a set of comprehensive strategies. While health education is important, it is, on its own, not sufficient to address complex health needs. The Prevention Institute has compiled examples of the adoption of the Spectrum of Prevention tool in the prevention of injury, violence, smoking and obesity.[11] Rattray et al.[12] described how Contra Costa Health Services has used this framework for improving community health. Veschusio et al.[13] used this framework to implement the Community Water Fluoridation Advocacy Training Project. This was designed to develop networks of community water fluoridation advocates in rural communities in South Carolina. More recently, Contra Costa Health Services expanded this approach, called the "New Spectrum of Prevention," to include eight strategies for addressing a wide range of public health issues, including chronic disease prevention (**TABLE**).[12] While most suggestions regarding prevention are in the realm of primary prevention, secondary prevention efforts, such as screening, early detection and treatment, are also needed to address the oral health needs of older adults. Therefore, several activities should be undertaken simultaneously to address the multiple determinants of oral health as well as untreated oral disease. The Spectrum of Prevention framework[10,12] gives local health departments (LHDs) and community-based organizations a structure within which to organize their efforts to deal with complex public health problems. According to Rattray et al.,[12] these actions, when considered as parts of a single approach, become an effective tool for planning public health interventions and coordinating the activities of multiple programs and agencies. This framework allows flexibility to adapt the model based on their needs, assets and resources.[10,12]

While one of the objectives of the California Oral Health Plan 2018–2028 is to increase dental visit rates among older adults, it recognizes that achieving optimal oral health requires a commitment to self-care and preventive behaviors as well as ongoing professional care.[14] Tobacco use, excessive alcohol consumption, poor dietary choices, oral hygiene habits and dry mouth caused by medication play a significant role in oral health. Research shows that conditions in community environments have a far greater effect on health outcomes than access to health care alone.[15]

Proposed Framework Elements

To produce positive outcomes, the Spectrum of Prevention strategies[12] and corresponding activities should use the resources and inputs for oral disease prevention effectively, together with leadership, political commitment, funding and capacity development (**FIGURE 2**). These strategies comprise concerted plans for action that, when implemented, can project the extent of progress in oral health care among older adults. Based on the results of earlier prevention efforts using the Spectrum of Prevention strategies, we propose the utilization of these strategies in a framework to improve older adults' oral health. According to the Contra Costa Department of Health Care Services, the Spectrum of Prevention strategies[10,12] have been used to give planners a structure within which to consider a range of efforts to address complex health issues. In addition, they have helped to coordinate the efforts of different groups working on health issues by providing a framework and common language for people from diverse backgrounds to come together, share information, highlight gaps in service and develop joint plans to achieve positive health outcomes. Attention to

these strategies can provide support to local-level oral health program activities. We therefore propose that the following examples of activities be considered for implementation to improve oral health among older adults in California.

Influencing Policy and Legislation

The Older Americans Act Reauthorization Act[16] includes a provision allowing area aging agencies to use the funds they receive to conduct oral health screenings as part of their disease prevention and health promotion activities. Enacting these policies requires community mobilization, the fostering of coalitions and the promotion of community education. In California, LHDs and community organizations can explore the possibility of an oral health safety-net coverage policy for low-income and racial/ethnic elderly minorities. Policies can also be developed to support regulations that enforce daily mouth care in institutional settings, regular dental visits and transportation. Moreover, the local coalitions can work with national organizations to include oral health coverage in the Medicare program.

Mobilizing Community Activities

Making the oral health of older adults an important issue requires community engagement. In California, LHDs receiving Proposition 56 tobacco tax grants for improving oral health are required to identify their needs, resources and assets and to develop a plan to address these needs. Dental professionals can provide valuable guidance in this process. Some of the activities that facilitate community mobilization include building the capacity of local providers to integrate oral health into community programs, including oral health in integrated care models, as well as exploring alternative models for the delivery of oral health care like the virtual dental home.[17] The virtual dental home model employs telehealth technology to link allied dental professionals working in the community with dentists located in dental offices or clinics. The community-based providers collect patient information, including medical histories and X-ray images, which is then sent to the collaborating dentist to develop an appropriate treatment plan. Community-based providers render preventive services, and patients requiring more complex services are referred to a collaborating dentist. Local dental societies can help to coordinate these efforts by connecting community-based organizations to providers.

The virtual dental home model employs telehealth technology to link allied dental professionals working in the community with dentists located in dental offices or clinics.

Fostering Coalitions and Networks

Many communities in California have developed coalitions and networks to promote oral health policies, programs and organizational change. These coalitions and networks have been successful in re-establishing the State Oral Health Program, restoring the adult Medicaid program and including oral health in the 2016 tobacco tax initiative. The California Dental Association has been a strong leader in these efforts. The California Pan-Ethnic Health Network (CPEHN) has received funding to serve as the backbone organization for the California Oral Health Network.[18] The network seeks to include engaged, diverse stakeholders from multiple sectors and populations who are committed to advancing oral health equity for all. CPEHN is working to strengthen existing relationships and create new connections, provide timely information and share best practices, align state and local oral health efforts, provide opportunities for engagement in advocacy and advance equitable oral health policies to best meet community needs.[18] Activities that promote coalitions and networks comprise establishing community and aging-services partnerships for oral health care, expanding community-clinical linkages to provide oral health care for older adults and the integration of dental services with educational, social and medical services.

Changing Organizational Practices

According to the Spectrum of Prevention,[12] changing organizational practices involves modifying the internal policies and practices of agencies and institutions. Advocating for organizational change at agencies such as the Area Agencies on Aging, LTC facilities and senior nursing homes can result in a broad impact on community health. Activities to support this strategy may include encouraging primary care physicians, caregivers, dietitians and geriatricians to learn about the burden of poor oral health among the elderly and to explore ways to provide on-site oral health care and education, which could include the use of teledentistry for sites challenged with access to care. In addition, dental education programs can change the predoctoral dental curriculum to promote interprofessional education.

Educating Providers

This strategy involves both dental and nondental providers who have regular contact with large numbers of people at high risk for oral disease as they can become powerful advocates and champions of oral health care. Educating providers will help to not only enhance their capacity to manage oral health problems of individuals, but also to help motivate them to take broader actions that affect the oral health at the community level. In addition to rendering care, health care providers can encourage the adoption of healthy behaviors, screen for oral disease risks, contribute to community oral health education and advocate for oral health care policies and legislation. Similarly, dental providers can screen for chronic disease indicators and promote timely receipt of vaccines and preventive regimens. Additional activities may include training primary care providers, LTC staff and pharmacists about oral health issues among older adults. Smiles for Life[19] is a national oral health curriculum developed for medical professionals and includes geriatric oral health. Such educational efforts may be useful in establishing training programs.

Promoting Community Education

Communitywide health education has the potential to reach a large number of individuals. The national media campaign, Tips From Former Smokers, featured former smokers coping with devastating oral diseases caused by their tobacco use.[20] It is possible to engage the media to create awareness about oral health and to earn coverage if there are interesting stories or reports to share. Activities to accomplish this strategy may consist of providing community education on the impact of oral health on quality of life, including the common risk factors for poor oral health and chronic conditions commonly associated with aging. Oral health staff in a variety of programs may approach the media to disseminate important messages on oral health. Oral health care organizations and advocacy groups could work with media to disseminate important messages about the oral health needs of adults and raise awareness about local resources.

Strengthening Individual Knowledge and Skills

Dental hygienists and other staff members work with patients in their homes, community settings, private practices and clinics to provide information that promotes oral health. Individual-based learning, such as motivational interviewing and teach-back methods, has been employed in other areas of health care to change behaviors, encourage compliance and improve outcomes with daily regimens.[21–23] The opportunities for integration of oral health education into group-based learning on self-management practices with respect to nutrition and chronic diseases such as diabetes could be explored. According to the Spectrum of Prevention,[12] another component of strengthening individual knowledge and skills involves building the capacity of community members to use new approaches and to educate other individuals in their communities, such as through patient support groups. Training programs in such areas as communication, advocacy and policy development could lead to an increase in media advocacy, community mobilization and work with policymakers.

Educating providers will help to not only enhance their capacity to manage oral health problems of individuals, but also to help motivate them to take broader actions.

Assuring Access to Quality Oral Health Care

Regular dental care provides an opportunity for people to maintain good oral health, prevent dental complications and improve oral health. For low-income, uninsured and underinsured Californians, assuring access to quality oral health care requires the availability of a sufficient number of providers in the Medi-Cal Dental Program, access to dental clinics, and oral health care at LTC facilities, nursing homes and senior living facilities. In California, adult dental benefits have been restored in the Medi-Cal Dental Program and significant improvements have been made, such as in the enrollment process, billing, prior authorization of services and reimbursement. Therefore, activities such as recruiting providers to participate in the Medi-Cal Dental Program, expanding the capacity of health centers to provide dental care and exploring innovative models of oral health care access and delivery like the virtual dental home[17] or the Gary and Mary West Senior Dental Center approach[24] can have a significant impact.

Opportunities for Applying the Spectrum of Prevention Framework

California has a unique opportunity to make progress toward achieving national and state oral health objectives. Oral Health America, a national advocacy group, ranks each of the 50 states on the overall health status of older adults measured by an overall state score in their State of Decay report.[25] The state score is based on

six indicators (percentage of adults 65 and older missing six or more teeth because of disease or decay, percentage of adults 65 and older with a dental visit within the past 12 months, the extent to which a state Medicaid program covers 13 commonly used Medicaid dental services, the percentage of the population covered by community water fluoridation, the existence and extent to which a state plan contains immediate or recent strategies to improve the oral health of its older adults and the status of a state's Basic Screening Survey).[25] California jumped from No. 30 in the state rankings in 2016 to No. 9 in 2018 because a state oral health plan was created and the Medi-Cal Dental Program restored the full set of 13 Medicaid dental services for older adults.

The application of the Spectrum of Prevention strategies has the potential to make progress toward achieving one of the Healthy People (HP) 2020 leading national health indicators, a subset of national health objectives that includes the proportion of children, adolescents and adults who visited a dentist in the past year.[26] The California Oral Health Plan 2018–2028[14] supports the HP 2020 objective of annual visits to a dentist, local oral health infrastructure and capacity, reducing disease risk factors, promoting healthy habits and improving oral health. Indeed, screening, counseling and preventive services are strongly recommended in community settings. Another strategy is the promotion of training programs such as the American Dental Association's *Dentistry in Long-Term Care: Creating Pathways to Success and Care*,[27] the University of the Pacific's *Overcoming Obstacles to Oral Health*[28] and Smiles for Life.[19]

The implementation of the Spectrum of Prevention framework could be tested in a community as a pilot demonstration program. Such a program is best described using a logic model (**FIGURE 2**). A logic model provides a picture of how a program is intended to work. If adequate resources are used to implement the strategies and activities, the program should yield the anticipated outcomes.

The anticipated outcomes shown in the logic model include short-, intermediate- and long-term outcomes. The outcomes achieved in the program (**FIGURE 2**) will depend on the nature and length of the interventions and the resources available to implement the interventions. The timeline of the interventions often determines whether the program can progress toward a short-term outcome (e.g., increasing the number of transportation services to provide access to oral health care among older adults), an intermediate-term outcome (e.g., increased dental visits among older adults) or a long-term outcome (e.g., a decrease in untreated oral disease). Outcomes may be categorized based on the nature of the change (**FIGURE 2**): structural outcomes, environmental outcomes, cognitive and social outcomes, behavioral outcomes and health outcomes. Structural, institutional and environmental factors can significantly influence access to and the availability of oral health care. Behavioral outcomes include the population and individual mediators of behavior (e.g., awareness, knowledge, attitudes, beliefs, values, preferences and skills) and the actual behavioral and social changes that affect older adults' oral health. The health outcomes are important both at an individual level and a population level for those implementing large-scale programs targeting communities. The long-term outcomes relate to the improved oral health and overall health of older adults and their improved quality of life. It should be acknowledged that the achievement of these outcomes will require significant planning and may require years of effort.

Structural, institutional and environmental factors can significantly influence access to and the availability of oral health care.

Evaluation

It is essential to develop the metrics and design a data collection system in the beginning that allow assessments to be undertaken and interpreted so as to generate information that can be used to determine the success of the strategies. The data collected may be used to evaluate the effectiveness of the interventions implemented, monitor changes in dental visit rates and oral health conditions, assess improvement in the quality of life, determine the cost of interventions and support planning and the allocation of appropriate resources within the public health and health care systems.[29]

Both process and outcome evaluations can be used to assess the strategies and activities implemented. The process evaluations can provide information regarding the strength of the underlying program rationale to address oral health among older adults, the ways in which the program is suited to specific settings and the ways and extent to which the program implementation matches the program plan. The results obtained through

the process evaluation will provide information to the program planners on the need to make adjustments to the program during its formative stages and will offer critical insights into the intervention after the outcome data are available. Determining the increase in dental visit rates and subsequent improvements in oral health, general health and quality of life requires the establishment of a data-gathering system. To assess these intermediate and long-term outcomes, periodic surveys of a panel of community members may also have to be undertaken in addition to gathering other health information and perspectives.

Conclusion

The oral health needs of the older adult population will require considerable attention because of the growth in this population demographic and its unmet needs. As suggested by Griffin et al.,[4] there is a need for a comprehensive public health approach. The framework presented here will assist in identifying the relevant sectors, the necessary resources and inputs, effective strategies and activities and the explicit structural, environmental, behavioral and health outcomes that could signify meaningful changes in the oral health and overall health of older adults. The proposed framework will contribute to building a strong evidence base on which promising and best practices can be identified and scaled up statewide and nationally. ■

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QUESTIONS MOST OFTEN ASKED BY SELLERS:

1. Can I get all cash for the sale of my practice?
2. If I decide to assist the Buyer with financing, how can I be guaranteed payment of the balance of the sales price?
3. Can I sell my practice and continue to work on a part time basis?
4. How can I most successfully transfer my patients to the new dentist?
5. What if I have some reservation about a prospective Buyer of my practice?
6. How can I be certain my Broker will demonstrate absolute discretion in handling the transaction in all aspects, including dealing with personnel and patients?
7. What are the tax and legal ramifications when a dental practice is sold?

QUESTIONS MOST OFTEN ASKED BY BUYERS:

1. Can I afford to buy a dental practice?
2. Can I afford not to buy a dental practice?
3. What are ALL of the benefits of owning a practice?
4. What kinds of assets will help me qualify for financing the purchase of a practice?
5. Is it possible to purchase a practice without a personal cash investment?

6. What kinds of things should a Buyer consider when evaluating a practice?
7. What are the tax consequences for the Buyer when purchasing a practice?

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A Dental Benefit in Medicare: Examining the Need in California

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ABSTRACT Many older adults in California lack access to oral health care due to the absence of affordable, comprehensive dental coverage. As a result, older Californians have a high prevalence of oral diseases. Forty-six percent of community-dwelling older adults and 65 percent of older adults living in skilled nursing facilities have untreated oral diseases. A comprehensive dental benefit added to Medicare Part B could help all older Californians maintain health and dignity over their lifetime.

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Conflict of Interest Disclosure: None reported.

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Conflict of Interest Disclosure: None reported.

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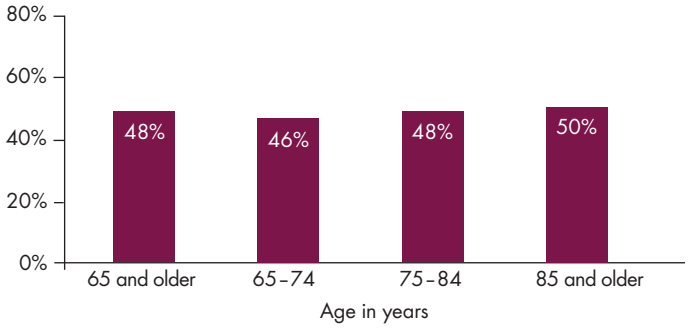
Conflict of Interest Disclosure: None reported.

Fourteen percent of California's population, more than 5 million people, are currently aged 65 or older and this figure is expected to almost double by 2030, when the youngest baby boomers will reach retirement age.[1] Upon reaching retirement, many people lose access to dental insurance when their employer-based dental coverage ends. Original Medicare, the federal insurance program that is the primary form of medical coverage for older adults, does not include an oral health benefit and dental benefits through private Medicare Advantage plans or other standalone plans are often costly and limited in scope. Without access to dental insurance, dental utilization diminishes and oral and systemic health can suffer.[2]

While California's poorest older adults have oral health coverage through the Medi-Cal Dental Program (Denti-Cal), California's Medicaid dental benefit for



Data source: A Healthy Smile Never Gets Old – A California Report on the Oral Health of Older Adults, 2018.
Note: Data represent a probabilistic representative sample of older adults aged 65 and older residing in California's skilled nursing homes. Data were collected between March 2016 and September 2017.

FIGURE 1. California skilled nursing home residents (aged 65 and older) with untreated tooth decay, by age.

the state's lowest-income beneficiaries, low provider participation and many administrative barriers make the benefit difficult to access. Californians have experienced the effects of a labile system of dental coverage through the Denti-Cal system, including the loss of adult dental benefits in 2009 that were only fully restored last year. There are also many older adults who do not qualify for Denti-Cal but don't have the means for regular dental care. A comprehensive Medicare Part B dental benefit could address disparities in access to oral health care by providing a guaranteed benefit to all older adults in California and the nation, across all income levels.[3] Additionally, a comprehensive benefit would help to integrate oral health care with medical care aimed at improving health outcomes overall. Good oral health can have significant physical, psychological and social benefits that ultimately contribute to successful aging.[4]

This paper reviews the current oral health status of older Californians, the bidirectional relationship with systemic health and barriers to the access of affordable dental services, including the limitations of Denti-Cal. This review also lays out the rationale for a comprehensive oral health benefit within Part B of Medicare and discusses potential costs and savings. Finally, it discusses efforts to build consensus around the need and scope of a benefit and additional steps needed to move the effort forward.

Changing Paradigms in Oral Health Care

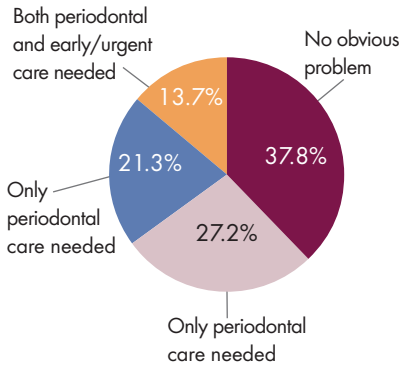
Oral health is integral to systemic health, well-being and quality of life throughout the lifespan.[5] Social, political and economic influences can prevent individuals and certain populations from achieving and maintaining good oral health.[6] Dentistry is undergoing a paradigm shift at both the individual and population level. This includes a strong emphasis on early detection and risk assessment, minimally invasive dentistry, interprofessional collaboration across the health care delivery sector and development of models that demonstrate integration of oral health care with medical care.[7] In the absence of broadly accessible oral health coverage and a coordinated system for care, older adults will not have the opportunity to benefit from such efforts.

The Unique Oral Health Needs of Older Adults

Older adults have unique needs that make access to oral health care vital to maintaining their overall health. Older adults have on average at least one chronic health condition and about 20 percent have more than one.[8] Chronic diseases and conditions can impact oral health, and poor oral health has been shown to have numerous associations with chronic inflammation and systemic disease.[9] Tooth decay, oral pain/infection, tooth loss and the inability to chew due to lack of functional, occlusal contact can result in poor nutrition and weight loss and exacerbate conditions like diabetes and heart disease.[10] Research indicates that diabetic individuals who have periodontal infections may have poorer glycemic control than their counterparts who don't have a periodontal infection.[11] The association between oral infections and acute exacerbations of aspiration pneumonia is another example among frail older adults and nursing home residents.[12] One study by Hirotomi et al. showed that older adults with 20 or more natural teeth have a significantly lower adjusted mortality rate than their counterparts with 19 or fewer teeth.[13]

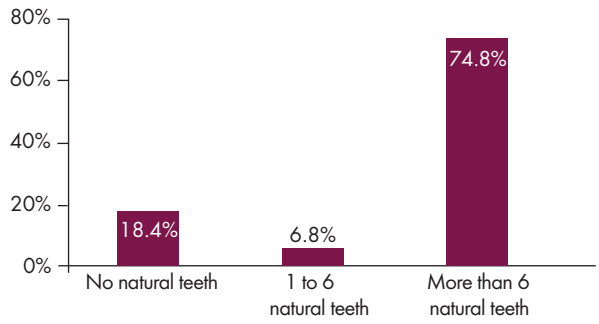
Additionally, medications used to manage chronic diseases and conditions can increase the risk for oral diseases. Hypertension treated with calcium channel blockers can result in gingival enlargement, and COPD treated with steroid inhalers can increase the risk for oral candidiasis.[14] Several medications commonly used by older adults, like antihypertensives and antidepressants, inhibit salivary flow, increasing the risk of dry mouth and, resultantly, oral disease.[15]

Older adults face additional challenges. Nationally, approximately 50 percent of nursing home residents are unable to perform three or more of the "activities of daily living," one of which is personal hygiene that includes oral care.[16] Normal age-related changes such as those that occur in hearing and vision can complicate access to and



Data source: A Healthy Smile Never Gets Old – A California Report on the Oral Health of Older Adults, 2018. Note: Data represent a probabilistic representative sample of older adults aged 65 and older residing in California's skilled nursing homes. Data were collected between March 2016 and September 2017.

FIGURE 2. California skilled nursing home residents (aged 65 and older) who need early or immediate dental treatment and periodontal care.



Data source: A Healthy Smile Never Gets Old – A California Report on the Oral Health of Older Adults, 2018. Note: Data represent a convenience sample of 1,179 community-dwelling older adults (aged 65 and older). Data were collected between March 2016 and September 2017.

FIGURE 3. Tooth loss as measured by the number of remaining natural teeth in California community-dwelling adults aged 65 and older.

receipt of care.[17] Other examples include changes in dexterity and cognition, due in part to aging but often compounded by comorbidities like degenerative arthritis and other neurodegenerative disorders that challenge many older adults' ability to maintain good oral health and to access and receive services in a timely and favorable manner. Furthermore, these age-related conditions and age-prevalent diseases complicate prevention, restoration and maintenance efforts to achieve optimal oral health for older adults.[10]

Nationally, about 1 in 5 older adults (aged 65 and older) has lost all of their natural teeth[18] and 70 percent of older adults have periodontal disease.[19] Although largely preventable, many Americans reach adulthood and older adulthood with untreated dental diseases. Oral diseases are chronic conditions and tend to be progressive if left untreated, but are amenable to timely preventive interventions.[20] Owing to its chronic nature coupled with natural physiological changes that accompany aging and those that come with diseases most commonly associated with aging, addressing oral health needs of older adults is vital yet uniquely complex.[21]

Oral Health Status of Older Adults in California

A recent California study presents a grim picture of the oral health of older Californians.[22] This study, using the Association of State and Territorial Dental Directors' Basic Screening Survey methodology for dental disease surveillance, measured the oral health status of a probabilistic sample of older adults residing in skilled nursing facilities (SNFs). The study also documented the oral health status of a convenience sample of 1,179 community-dwelling older adults. Findings showed that 48 percent of the older adults residing in SNFs have untreated tooth decay (**FIGURE 1**) and nearly 17 percent of all residents have untreated tooth decay in four or more teeth. One in 3 residents has one or more decayed root fragments and, overall, institutionalized older Californians have a significantly higher burden of untreated tooth decay than the national average of 30 percent.[22]

Thirty-five percent of older adults in California's SNFs are edentulous and 4 in 10 older adults do not have a functional posterior occlusal contact on either side of their mouth, either due to missing teeth and/or missing or ill-fitting dentures. The rate of periodontal disease was also found to be high. Forty percent of dentate older adults (with at least one remaining natural tooth) showed signs of substantial oral debris or deposits covering two-thirds of their natural tooth surfaces. In summary, 65 percent of older adults residing in California's SNFs have unmet treatment needs for tooth decay and/or gingival/ periodontal disease (**FIGURE 2**). Disparities by rurality of residence were also apparent. Older Californians residing in SNFs in rural counties were 9 percent more likely to have untreated tooth decay than their counterparts in urban counties.[22]

Of the 1,179 community-dwelling older adults in the survey, 32 percent have untreated tooth decay, 18 percent are edentulous (**FIGURE 3**) and 46 percent have unmet treatment needs for tooth decay and/or gingival/ periodontal disease.[22]

Barriers to Oral Health Care for Older Adults in California

As noted, traditional Medicare does not include an oral health benefit. Some private Medicare Advantage plans do offer dental benefits, but coverage varies widely from plan to plan. Benefits are typically limited in scope, often with significant co-insurance and low annual maximum benefit limits. Standalone dental plans also require enrollees to pay a premium with high

cost-sharing amounts and a limited menu of benefits with low annual maximum benefit limits. Consequently, many older adults forgo oral health coverage because it is too costly. For example, just over one-third of low-income Medicare beneficiaries had a dental visit in the last year compared to nearly three-quarters of higher-income Medicare beneficiaries[23] with a significant number of low-income Medicare recipients specifically citing cost as the reason for either delaying or entirely forgoing dental treatment.[24]

Many of the 5.3 million older adults living in California today cannot afford oral health coverage. Of this number, 49.3 percent are living below the supplemental poverty level.[25] Due to economic, health and social inequities compounded over time, certain groups have even fewer resources. For example, black and Hispanic Medicare recipients have average annual incomes of $17,350 and $13,650 respectively compared to $30,050 for white Medicare recipients. Furthermore, while the average white Medicare recipient has $108,250 in savings, the average black recipient has only $16,000.[26]

The issue of affordability is particularly acute for the 750,000 older Californians who have income and resources that exceed the eligibility limits for public programs, but not enough income to pay for their basic needs of food, clothing and housing.[27] The need is projected to grow. Over the next 20 years, California's population older than 65 will almost double, with the biggest growth occurring in the age group older than 75 and within nonwhite racial groups.[28]

California has the second highest senior poverty rate in the country with approximately 1.4 million of California's poorest older adults and people with disabilities eligible for both Medicare and Medi-Cal, California's Medicaid program. Enrollment is limited to individuals who have income below $15,000 and less than $2,000 in resources.[29] Medi-Cal includes a dental benefit delivered through its dental program (Denti-Cal). However, benefits through Denti-Cal have been unstable. They were eliminated for adults in 2009 in response to the recession. During the time benefits were eliminated, emergency room visits for dental-related emergencies increased.[30] Adult benefits were partially restored in 2014, but major services including root canals on posterior teeth, partial dentures, periodontal treatment and many other services remained uncovered. The Little Hoover Commission in its 2016 report on the state of the Denti-Cal program declared: "… Denti-Cal, California's Medicaid dental program, is widely viewed, historically, and currently, as broken, bureaucratically rigid and unable to deliver the quality of dental care most other Californians enjoy."[31]

> While the average white Medicare recipient has $108,250 in savings, the average black recipient has only $16,000.

Adult Denti-Cal benefits were entirely restored as of January 2018. Nevertheless, the permanence of dental benefits through Medicaid (Denti-Cal) is uncertain as coverage is labile and benefits are neither mandatory nor guaranteed.[31] Accordingly, many other states, in addition to California, reduce or eliminate dental benefits and other optional Medicaid benefits when faced with budget constraints.[32]

Other barriers affect access to Denti-Cal benefits. While California's Denti-Cal benefit is fairly comprehensive compared to other states, there are numerous restrictions to Denti-Cal services, such as limited preventive care and restorative care that is not based on individual need or medical necessity, as well as low annual caps on coverage and low provider reimbursement. Low reimbursement rates have deterred providers from participating in the program. As of 2017, there were fewer than 10 participating providers in 22 of California's 58 counties with no providers available in seven rural counties.[33] Consequently, for the 1.4 million older adults relying on Denti-Cal, access to oral health treatment remains a challenge, which is evidenced by the fact that only 1 in 4 older adults on Denti-Cal had a dental visit in the last year.[34]

Adding Oral Health Coverage to Medicare Part B: Benefit Structure and Financing

With a growing need and gap in coverage, adding oral health coverage to Medicare is essential to ensure that older adults age in good health and with dignity. Medicare provides medical coverage to individuals aged 65 and older and to people with disabilities. Medicare benefits are delivered through different parts: Part A covers inpatient hospital services, Part B provides outpatient services, Part C allows Medicare beneficiaries to select a private Medicare Advantage plan to administer their benefits and Part D provides prescription drug coverage.[35]

The way to include oral health coverage under Medicare seamlessly would be to lift the current exclusion of coverage for dental services in Medicare and provide coverage through Part B, which already covers outpatient and preventive services. This approach would ensure the integration of oral health coverage with overall health coverage and would mirror

the medically necessary criteria currently used to administer other Part B benefits. Inclusion under Part B would also ensure that individuals enrolled in traditional Medicare and in Medicare Advantage plans (Part C) would have access to the same benefit because Medicare Advantage plans are responsible for delivering all Part A and Part B covered benefits.

The Medicare oral health benefit would be subject to the same cost sharing as other Part B benefits and further financed through premiums just as Part B benefits are funded today. Low-income Medicare beneficiaries would receive the same financial assistance through Medicare Savings Programs as they do today for Part B benefits including help with premiums and cost sharing.[36]

A dental benefit through Medicare Part B would also improve access to coverage for California's low-income older adults who currently rely on Denti-Cal. A Medicare benefit could allow beneficiaries to access services based on medical necessity like other health benefits without many of the restrictions set by Denti-Cal. Additionally, the Medicare Part B payment systems and rules are well-established and Medicare reimbursement rates are historically higher than those in Medicaid, likely increasing provider participation. In fact, in a survey conducted by the American Dental Association (ADA), more than 70 percent of dental providers agree that Medicare should include comprehensive oral health coverage.[37]

Potential Savings and Cost Analysis

While the ADA has not taken a position on including a dental benefit in Medicare,[38] the organization recently conducted a study that analyzed various cost structures for dental benefit designs within Medicare based on 2016 self-insured market rates.[36] The study estimated that a comprehensive benefit without dollar value caps would cost the federal government $32.3 billion in 2018. The estimated base premium increase for a Part B benefit would be $14.50 per beneficiary per month. This estimate assumes a general fund contribution of 75 percent of all costs and takes into account low-income beneficiary subsidies applied to premiums and cost-sharing as well as surcharges paid by high-income beneficiaries, like the current Medicare Part B funding structure. The study assumes a reimbursement rate pegged to fees charged by at least 50 percent of dentists in the U.S.[36]

Several retrospective studies from insurance companies have demonstrated cost savings when their consumers utilized their dental benefits.

Research is also available to help assess potential offsetting savings in overall health costs. There is evidence that the receipt of oral health care can potentially reduce overall health care costs for individuals.[39] In a Cigna study, a year of dental coverage provided to its clients was associated with medical cost savings of approximately $1,418 per patient.[40] In the absence of a usual source of oral health care, individuals often end up in the emergency room for nontraumatic dental conditions as a last resort, which is an expensive source of dental care, does not result in definitive treatment of the issue and is often followed by repeated visits to the emergency room.[41] A landmark study conducted by the University of Pennsylvania examined more than 200,000 patients with periodontal disease and found that good periodontal maintenance resulted in an annual reduction of health care costs of $2,840 (40.2 percent) for patients with Type 2 diabetes, $5,681 (40.9 percent) for patients with cerebral vascular disease, $1,090 (10.7 percent) for patients with cardiovascular disease and $581 (6.3 percent) for patients with rheumatoid arthritis.[42] The study also found a reduction in hospital admissions among patients with Type 2 diabetes (39.4 percent reduction), cerebral vascular disease (21.2 percent) and cardiovascular disease (28.6 percent).[42]

Several retrospective studies from insurance companies have demonstrated cost savings when their consumers utilized their dental benefits.[3,39] A study conducted for Pacific Dental Services by Avalere Health LLC estimated that over 10 years the potential medical cost savings to Medicare from providing periodontal treatment alone was $63.5 billion.[43] This does not suggest that these savings should or would pay for dental services if they were included in Medicare, but including the services would help offset costs through those savings and by improving outcomes in other areas of medical care. Importantly, without better integration of medical and dental services and broader access to dental care, more deliberate, prospective study of these interactions will be difficult to achieve.

Building Consensus

Several groups including The Santa Fe Group, Oral Health America and others have convened meetings of stakeholders to discuss the need for the Medicare dental benefit and ideas about benefit structure. In 2015, Oral Health America held its first Dental in Medicare symposium.[44] Seeing that more broad awareness and input was needed to advance the effort, groups engaged in the Oral Health

Equity and Progress Network (OPEN), including The Santa Fe Group, Oral Health America and The DentaQuest Foundation, convened and sponsored a group to examine and work on developing a dental benefit in Medicare.[45,46] OPEN also included adding a dental benefit to Medicare in its 2020 goals.[46] To move this effort forward, representatives of diverse organizations and institutions were invited to attend The Santa Fe Group Salon in 2016 and weigh in on the proposal and draft benefit proposals.[47] From those initial meetings, experts in dentistry and medicine, academics, policy, organized dentistry, insurance, government, senior consumer groups, law and others have continued discussion, and more consensus around developing a benefit that would more closely mirror the way the structure of the Medicare medical benefit has evolved.[3,36,44,46]

This broad interest demonstrates that all interested stakeholders are seriously considering the importance of creating such a benefit and the importance of a structure that adds value beyond fee-for-service structures, supports provider participation and avoids artificial caps and restrictions on necessary services.

To secure comprehensive oral health coverage in Medicare, the dental profession must educate policymakers about the oral health needs of older adults, the potential negative health outcomes of poor oral health as well as the monetary and nonmonetary costs that ensue in the absence of access to regular oral health care. Patients must also be educated. Many Medicare beneficiaries do not realize that Medicare does not include oral health coverage, so it is equally important to arm current and future Medicare beneficiaries with tools to educate their communities and empower them to advocate for these benefits with federal policymakers.[36,44]

National and state surveys are rich sources of self-reported data, owing to the unique and hidden nature of oral diseases. However, objective data on the prevalence and burden of dental disease is critical to help make informed programmatic and policy decisions aimed at improving older adult oral health at the population level. Inclusion of dental benefits to Medicare will not only address a key barrier faced by older adults in achieving optimal oral health finances, but will also provide a significant source of data to examine critically the unmet need, burden of disease and correlation/association/causal relationship between oral disease and systemic disease.

Legislative Changes Needed and Strategies

Today, Medicare does not provide dental benefits due to statutory language that specifically excludes dental coverage under the Medicare program.[48] Accordingly, the first step to offering dental services under Medicare requires passing federal legislation to remove this statutory exclusion and specifically add oral health coverage and payment for services under Part B.[3,36] Legislation would also need to grant the Centers for Medicare and Medicaid Services the authority to issue regulations to implement and administer the benefit.

Conclusion

Access to a dental benefit through Medicare would help people continue to receive dental care over their lifetime and help those who have not had regular access to care as adults, or maybe even since childhood, access treatment that can benefit their total health and well-being. It is never too late to seek the quality of life and dignity that good oral health can provide. Given California's proven commitment to maintaining oral health care as a part of Medicaid despite its many challenges and limitations, the state is well-positioned to help lead efforts to remove the exclusion from Medicare while working toward the development of a meaningful and sustainable benefit for all. All older Californians would stand to benefit from the inclusion of dental services in Medicare Part B. ■

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LOS ANGELES COUNTY

CANOGA PARK— 25+ years of goodwill GP w/ 4 eq ops and 1 plmbd not eq op. Located in a single story bldg. **Proj. approx. $366K for 2018. Property ID #5241.**

CENTURY CITY—GP in 11 story prof med bldg. Has 5 eq in a 1,955 sq ft. **Grossed approx. $715K. Buyer's net of $200K. Property ID 4509.**

ENCINO— GP with 40 years of goodwill in prestigious 12 story med/prof. building. Has 4 eq ops and 1 plumbed not eq. **Grossed approx. $309K in 2018. Property ID #5263.**

LANCASTER—GP + Real Estate! Long established practice w/ 4 eq ops in a single standing bldg. On a major downtown street. **Net $239K. Property ID #5222.**

LA PUENTE - Established in 1961 in single free standing building with 4 eq ops and 1 plumbd not eq. **Grossed approx. $300K in 2018. Property ID # 5269.**

LOS ANGELES— Beautiful office with a great built out. Has 5 eq ops and 1 plmbd not eq . Has Easy 2000 software. **Grossed approx. $420K in 2018. Property ID # 4489.**

LYNWOOD— GP in single story busy shopping center. Absentee owner. **Grossed approx. $610K in 2018. Property ID #5264.**

WOODLAND HILLS - Well established GP in a 5 story med/dent bldg with 4 eq ops and 1 plmbd not eq. **Projecting $1M for 2018. Property ID #5246.** SOLD

KINGS & VENTURA COUNTIES

LEMOORE— GP + Real Estate. 33 years of goodwill with 5 eq ops in a 1,655 sq ft office. Averaging 35-40 new patients/mo. **Grossed $1.4M in 2017. Net $377K. Property ID # 5232.**

ORANGE COUNTY

ANAHEIM— GP located in 2 story building w/ heavy traffic flow. Has 8 eq ops. **Grossed approx. $754K in 2018. Property ID #5255**.

IRVINE - Well established Cash Only GP w/ 5 eq ops in a1,915 sq ft office . **Grossed approx. $482K in 2017**. **Property ID #5193.** SOLD

LADERA RANCH— Beautiful GP in premier shopping center. Has 11 eq ops. **Grossed $1.9M in 2018. Property ID 5262.**

ORANGE— Turn-Key GP in small shopping center on a major heavy traffic street. Has 3 eq ops in a 1,800 sq ft suite. **Proj. approx. $164K for 2018. Property ID # 5253.**

SANTA ANA— GP W/ 3 eq ops and 1 plmb not eq in 4 story med bldg. **Property ID 5113.**

STANTON— Turn-Key GP in a single story corner strip mall. PPO and Cash only! Has 2 eq ops in 797 sq ft suite. **Grossed approx. $237K in 2018. Property # 5267.**

TUSTIN— LH & EQUIP ONLY! Beautiful remodeled office with 3 eq ops and 1 plmbd not eq. Located in a single story professional building. Has two price points. **Property ID #5244.** SOLD

YORBA LINDA— GP established in 1987 consists of 4 eq ops in a 1,150 sq ft suite. PPO & Cash Only. **Grossed approx. $658K in 2018. Property # 5258**

SAN DIEGO COUNTY

CARLSBAD— This beautiful practice has over 22 yrs of goodwill. Has 4 eq ops in a 1,800 sq ft suite. Fee for service office**. Projecting approx. $440K for 2018. Property ID # 5256.**

EL CAJON - **GP + Real State.** Consists of 5 eq ops and equipped with 3D Sirona CBCT Digital X -ray. **Grossing over $1M in the past 10 years. Property ID # 5265.**

OCEANSIDE— Established in 1990 with 4 eq ops in a one story busy shopping center. PPO and Cash Only. **Grossed approx. $560K in 2018. Property ID #5267.**

SAN DIEGO— **Price Reduced!!** GP in med/dent bldg. w/ 3 eq ops. Fee for service. Estab. circa 1950**. Grossed $306K in 2018. Net $151K. Property ID # 5212.**

SAN DIEGO—Spacious GP located in a 3 story professional building. Has 5 eq ops in a 2,157 sq ft suite. **Grossed approx. $652K in 2018. Property ID #5233.**

SAN DIEGO— Beautiful GP in a 2 story professional bldg w / 6 eq ops and 2 plmd not eq in a 2,250 sq ft suite. **Grossed approximately $1.2M in 2018. Property ID #5251.**

RIVERSIDE & SAN BERNARDINO COUNTIES

PALM DESERT— Beautiful GP located in a single story corner building. Heavy traffic flow. Consists of 4 eq ops in a 1,800 sq ft office. Reasonable rent. **Monthly revenues of $132K. Grossed $1.4M in 2017. NET $477K. Property ID #5217.** SOLD

TEMECULA - **Pedo and Ortho Practice + Real Estate!!** It's located in a duplex single story building. **Projecting approximately $1.8M with a Buyer' net of $1M.** PPO/Cash/Denti-cal. Has 8 eq ops in a 3,500 sq ft office. **Property ID # 5243.** SOLD

TEMECULA—Absentee owner GP with 2 GP Associates. Has 4 eq ops in busy shopping center. **Grossed approx. $327K in 2018. Property ID 5259.**

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CDA JOURNAL, VOL 47, N°4

Balance Honesty With Objectivity When Addressing Prior Treatment

TDIC Risk Management Staff

Dentists are naturally proud of their profession. After all, they've built a life around helping patients improve and maintain their oral health. So, it's understandable to be a bit disconcerted when they come across questionable work performed by a colleague.

Dentists often find themselves in an awkward predicament when a patient presents with what appears to be substandard work by another provider. On one hand, patients have a right to be informed about the state of their oral health. On the other, dentists should avoid openly criticizing another dentist's work, even if that criticism may be justified. Finding the right balance between candidness and restraint can be tricky.

In a case reported to The Dentists Insurance Company, a dentist saw a patient who had mild discomfort on a lower molar. He stated that he had been to three other dentists and they had not been able to help him. The patient insisted on a crown and was convinced that it would make his symptoms disappear. The dentist performed an exam and took radiographs of the tooth in question. Based on her findings, the dentist recommended a root canal. Due to calcification and curvature at the apex, she referred the patient to an endodontist. The patient took the referral slip and left the office.

A few months later, the patient returned to the office with a report from a different endodontist. The report indicated that the tooth was ready to be restored. The dentist did not have a previous working relationship with the other endodontist, but had heard from colleagues in the community that this endodontist was known for questionable work and an unwillingness to work collaboratively with other providers.

> A dental practice that has not received a written request to log injuries and illness is not required to complete these two forms.

The patient was adamant about getting the crown done without any further delay. The dentist took a radiograph to assess the status of the root canal treatment. To her surprise, the radiograph revealed a slight overfill. The patient expressed his relief at finally being pain-free and shared that he believed the endodontist he chose did a great job.

The dentist chose not to discuss her findings with the patient, nor did she attempt to reach out to the endodontist to discuss her concerns, as she assumed he would not be willing to speak with her. Because the patient was not experiencing any symptoms and the specialist's report indicated that the tooth was ready to be restored, she proceeded with preparing the tooth for a crown, although she had concerns about the presence of the overfill.

The patient returned two weeks later to have the permanent restoration delivered. The following day, the office received a call from the patient reporting discomfort with his new crown and feeling that the crown was high. He was seen the same day for an occlusal adjustment. The patient returned for subsequent occlusal adjustments. After each visit, he left the office happy and free from discomfort.

Approximately two weeks after that, the patient returned, frustrated, stating he had been in so much pain that he had to go back to the endodontist. The endodontist told him that the pain was coming from the ill-fitting crown and advised him to go back to the dentist to have it redone. The dentist was surprised by the criticism of her treatment from the endodontist given the fact that the root canal he had performed was of poor quality.

The dentist tried to adjust the crown once more, but ended up adjusting off an excessive amount of the porcelain layer. She informed the patient and offered to remake the crown at no additional charge. The patient was annoyed but hesitantly agreed. The dentist removed the crown to take a new impression for a replacement crown.

The patient continued having symptoms for the next few weeks. He canceled his appointment to have the permanent restoration delivered and demanded a refund. He stated that he had gone back to the endodontist, who then referred him to another dentist to remake the crown. Regretting her decision to allow

the patient to dictate treatment in the first place, the dentist agreed to provide the patient with a refund.

Senior TDIC Risk Management Analyst Taiba Solaiman says this case demonstrates the necessity for dentists to inform patients of their findings, regardless of how awkward or uncomfortable it may be. Dentists have an ethical responsibility to be upfront about their patient's oral health and should feel empowered to provide their professional opinions in an honest manner. That said, dentists must be sure to remain objective. They should avoid finger-pointing and disparaging comments when referring to another dentist's work.

"While these comments may seem innocent, they can aggravate a patient who may already be emotionally charged," Solaiman said.

The ADA's "Principles of Ethics and Code of Professional Conduct" states: "Patients are dependent on the expertise of dentists to know their oral health status. Therefore, when informing a patient of the status of his or her oral health, the dentist should exercise care that the comments made are truthful, informed and justifiable …. A difference of opinion as to preferred treatment should not be communicated to the patient in a manner which would unjustly imply mistreatment. There will necessarily be cases where it will be difficult to determine whether the comments made are justifiable. Therefore, this section is phrased to address the discretion of dentists and advises against unknowing or unjustifiable disparaging statements against another dentist."

Before making a determination, it is advised to contact the previous treating dentist, with the patient's permission, to determine under what circumstances and conditions the treatment was performed.

When you discuss another dentist's treatment with your patient, be sure the comments are justifiable and based on objective facts and not merely a difference of opinion. Presenting your findings without bias or undue criticism maintains the integrity of your profession and ensures you're taking the right steps in protecting your patients' oral health. ■

TDIC's Risk Management Advice Line is a benefit of CDA membership. If you need to schedule a confidential consultation with an experienced risk management analyst, visit tdicinsurance.com/RMconsult or call 800.733.0633.

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4338 PENINSULA PROSTHODONTIC PRACTICE Preeminent 45 year Prosthodontic practice located in mid peninsula neighborhood. State-of-the-art 1,242 square foot facility with 5 operatories. Seller willing to help in the transition. Outstanding referral sources. Average Gross Receipts $1.3M with 4 doctor-days per week. Asking $884K.

4256 SANTA CRUZ COUNTY GP Seller moving out-of-state and offering 33 years of goodwill. Wonderful location on major thoroughfare in a charming beach community close to wineries and the water. Tranquil and modern, beautifully appointed, 5 op facility. Approx. 1,300 active patients (all fee-for-service). Seller will help for smooth transition. Asking $180K.

4343 CAPITOLA GP Ample 3,000 sq.ft. faciltiy w/5 fully-equipped operatories,. Terrific opportunity to own the facility and well-established community practice with quality and seasoned staff. Average Gross Receipts $870K+. Asking $643K.

4261 CAPITOLA GP Retiring doctor offering an established practice in professional office complex built around a garden setting. Beautiful and modern 1,465 square foot facility with 4 fully-equipped operatories. Average gross $743K+ with 3 doctor days and 6 hygiene days per week. Approximately 1,800 active patients. Asking $562K. SOLD

4349 CONTRA COSTA COUNTY PEDIATRIC Practice in a bright and relaxing atmosphere in an ample 1,600 sq. ft. 3 op facility with large private office that can be upgraded to include a fourth op. Surrounded by referral sources in a class A medical center. 3 doctor days per week. Scan X with Visix software fully-integrated with Open Dental. Seller retiring. Great upside potential. Asking $141K. PENDING

4172 NAPA GP Amazing opportunity to own the practice of your dreams in one of the world's premier wine destinations! Situated in a prime neighborhood close to many amenities. 1,200 square foot office with 4 fully-equipped and updated operatories. Over 1,000 active patients. Average annual gross receipts over $700K. Asking price for practice $484K. Building available for purchase. SOLD

4233 SF GP Seller offering 26+ year general practice in SF Financial district. Ground floor office with high volume foot traffic. Approx. 1,200 sq. ft. facility with 4 fully-equipped ops. $930K+ avg. annual GR. Seller willing to help for a smooth transition. Asking $640K. SOLD

4331 SF GP Downtown SF practice in gorgeous, remodeled 1,300 office with panoramic views. Suite includes 4 fully equipped ops, reception area, business office, private office, staff lounge, lab area, and sterilization area. Beautiful, modern cabinetry and equipment. 1,600 active patients with 15-20 new patients/mo. Owner/doctor works 3 days/wk with 5 hygiene days/wk. Average gross receipts $738K with average adj. net of $305K. Asking $495K.

4344 SF GP Prime & convenient location in Laurel Heights neighborhood. 9 year practice averageing $500K+ with approx. 50% overhead in fully-equipped 2 op. modern faciltiy. Motivated seller relocating out-of area. Asking $110K.

4336 SAN BRUNO GP Legacy practice centrally located in a combined commercial & residential neighborhood, convenient to highways 101, 280, and 380 and close to the BART station. Elegant, remodeled 1,463 sq.ft. office with 5 fully-equipped ops. & digital radiography. 5 year average Gross Receipts $922K+. 1,000 active patients with an average of 10 new patients per month. Asking $661K. SOLD

4316 SARATOGA GP Vibrant and active practice located in beautiful 4 op, fully-equipped, facility at upscale residential, professional, and commercial neighborhood. 10 new pts./month. 4 doctor days & 4 hygiene days per week. $464 avg. Gross Receipts. Asking $357K. SOLD

4216 SIERRA NEVADA FOOTHILLS 23 year practice located in the heart of the Sierra Nevada foothills in modern building close to downtown area. 1,024 square foot office with 4 fully- equipped ops., upgraded major equipment and digital radiography. Average Gross Receipts $890K+ with 56% average overhead. Asking price for practice $604K. Seller is offering real estate for sale to the buyer of his practice.

4262 MOUNTAIN VIEW GP Desirable 1,700 square foot Mountain View location. 5 fully equipped operatories. Average Gross Receipts $886K+ with 4 doctor days and 6 hygiene days. Practice with an emphasis on Restorative and Preventative care. Seller retiring. Great opportunity for a skilled dentist to take over a 35 year practice with seasoned staff and loyal patient base. Asking $619K. PENDING

4340 WEST SONOMA COUNTY GP Charming and growing community practice with over 40 years goodwill in seller owned building. Busy corner location adjacent to several retailers. Well appointed, 4 op office with several Recent leasehold improvements and upgrades. Approximately 1,000 active patients. Average Gross Receipts $788K with consistent growth. 2018 on schedule for $822K with 65% overhead and 3.5 doctor days per week. Asking $538K. SOLD

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NORTHERN CALIFORNIA

CAMPBELL: 3 Ops+room to expand, Dentrix, Dexis, SoftDent, Laser. Established 25 yrs. 2017 GR $364K. #CA528 SOLD

CASTRO VALLEY: 1,800 sq. ft., 5 treatment rooms, Digital Pan, Digital Sensor, Dentrix PMS. 2017 GR $354K on 2 day/wk. #CA534 SOLD

EL DORADO COUNTY: 1,200 sq. ft., 3 Ops, with Pano, EZ 2000, new Dexis, I/O cameras. 2017 GR $454K on 3 day/wk., 2018 Q1 Collections of $152K! Owner retiring. #CA390 SOLD

FREMONT: 4 equipped Ops in approx. 1,800 sq. ft. suite. Dentrix PMS, Digital X-ray, Diode Laser, and I/O Camera. 2017 GR $446K on 3 day/wk. #CA547

GREATER PLACERVILLE: Selling for less than 50% of 2017 collections of $699K. 25 min. from El Dorado Hills. Owner wants to retire, price reduced for quick sale. 1,500+ sq. ft. office w/ 4 Ops, Dentrix software, 2 Schick sensors, new server & CPUs. #CA407

GREATER RENO/LAKE TAHOE AREA: Digital Practice with 4 Ops w/ 2 more plumbed 54% of patients are "Out of Pocket". 1,600 sq. ft., Dexis Sensor, and Digital Pano. 2017 GR $994K on 32 Dr. hrs/wk. #CA552 SOLD

GREATER SACRAMENTO: 4 ops in approx. 1,500 sq. ft. office in a professional bldg. on major thoroughfare, equipped w/ Digital X-rays, Digital Pan, I/O camera, laser, and CAD-CAM. Seller relocating. #CA516

GREATER SACRAMENTO: 3 Op, PPO practice in approx. 1,399 sq. ft. High-end TI's and neighborhood, SoftDent, Carestream sensors, and I/O camera. 2017 GR $506K on 4.25 days/wk. #CA543

GREATER SACRAMENTO: 5 Ops, 1,856 SF, Dentrix, microscope, air abrasion, intra-oral camera. 2017 GR $1,036,000 4 day work week. Office Condo to be purchased with practice. #CA545

GREATER SACRAMENTO: *Price reduced!* North Area: Modern 4 Op w/ 5th Open, PPO practice, 1,664 sq. ft. Higher-end TI's and neighborhood, Gendex sensor, I/O camera, Nomad, Pano and Laser. 2017 GR $755K on 33 hrs./wk.. #CA550

GREATER SACRAMENTO: *New Listing!* PPO Practice with 4 Ops, digital sensors, imaging system, I/O camera. Practice in business for approx. 33 yrs. 2017 GR $652K; Office Condo available for purchase with this Practice. #CA561

GREATER STOCKTON AREA: *New Listing!* Established "All-Pedo" Limited GP Practice with 3 Ops. 1,169 sq. ft., attractive "children-designed" setting, 2 Digital Sensors, Nitrous, 3 "Cavitron" units. 2017 GR $273K 24 hrs (3 days) avg. Dr. hrs./wk. #CA555

GREATER VACAVILLE AREA: *Price Reduced!* 2 Ops GP PPO practice in approximate 1,200 sq. ft.. Dexis sensor, Dentrix. 2017 GR $449K on 32 avg. Dr. hrs./wk. Purchase of Dental bldg. avail. with Practice. #CA556

HAYWARD: 1,900 sq. ft. office, 4 Ops, Digital Pan, Dexis Sensor, Dentrix PMS. 2017 GR $300K on 2-3 day/wk. #CA535 SOLD

MILPITAS: 5 fully equipped treatment rooms in 1650 sq. ft., including Dentrix PMS, Dexis Digital X-ray, I/O camera and Laser. 2017 GR of $786K with 4 days/hyg. #CA549

SACRAMENTO: 3 Ops, shopping center location, Digital X-ray, move in ready. 2017 Collections of $572K (From 2017 Corp. Tax Return), 30 hrs./wk., 29 yrs. goodwill. #CA527

SACRAMENTO AREA: GP & Specialty HMO/ some PPO Practice. 9 Ops, Digital Sensors, Imaging System, I/O camera, Digital Pano. 2017 GR $1.1M, 2018 Quickbooks (to be verified) GR $680K. Approx. 5,000 sq. ft. bldg. available w/ Practice. #CA567

SAN FRANCISCO: Restorative Multi-Specialty Prostho. Practice in Downtown San Fran. 2,463 sq. ft., in-house lab. 4 Ops, 2 lab rooms. Dentrix & Carestream. 2017 GR $613K on 3 day/wk. #CA529

SAN JOSE: 3 yr. avg. revenue $1.25M, over $500K avg. Adj. Net on 4 day/wk. 100% FFS w/ 3 Ops, 1,100 sq. ft., Cone Beam Imaging, Schick Sensors, Lasers and more. #CA506

SAN RAMON: ENDODONTIC Practice in 3 Ops and 1,300 sq. ft. office with TDO Imaging Software, Digital X-ray, and Global Microscope. 2017 revenues of $341K w/ Adj. Net above 38% on reduced schedule. Owner retiring. #CA526

SONOMA COUNTY: *New Listing!* Modern GP offering a broad range of service. 6 Ops in 2,200 sq. ft. space. Seller owned facility. 2018 GR $802K w/ 4 days/hyg. Dexis Digital X-ray, Dentrix PM, I/O Camera, Laser. MOVE-IN READY, this will not last! #CA564

SONOMA COUNTY: *New Listing!* 1,890 sq. ft. office w/4 Ops. 2017 GR $529K on 3 day/wk. 3.5 days/hyg. Dexis, Dentrix, I/O Camera, and Laser. Real Estate avail. for purchase. Doctor retiring. #CA563

SONOMA COUNTY: Lg. General Practice with 2017 GR above $2.6M. Stand Alone 3,000 sq.ft. Prime Real Estate, 72 NP per/Mnth & 10 days hyg/wk. 6 Ops Pano X-ray, Dexis, Cameras, Laser, Dentrix. Both Business & Real Estate for sale or Lease. Doctor Retiring. #CA544

VALLEJO: Real Estate Available. 1,250 sq. ft. practice w/ 3 equip. Ops, Eaglesoft PMS, Digital X-ray, and CAD/CAM. 2017 GR $736K on 3½ day/wk. Owner can assist with Real Estate financing, is retiring. #CA521

WESTERN CONTRA COSTA CO.: 1,625 sq. ft. 4 Ops, 3 equip. Digital, Paperless charts, Digital Pan, Digital X-ray, Eaglesoft PMS. 2018 GR $764K, 5 days/hyg., avg. 65 new patients/ month. #CA569

CENTRAL CALIFORNIA

CENTRAL COAST ENDO PRACTICE: 3 Ops, Digital X-rays, Paperless, Cone Beam CT, and PBS Endo Software. 2016 GR $925K w/$561K Adj. Net. #CA489

FRESNO PERIO/IMPLANT PRACTICE: 6 Ops, large conference room for teaching/ meetings, 20 yrs. goodwill, 2017 GR $649K on 2 day/wk., cash only office. #CA518

GREATER MODESTO: 4 Ops. Approx. 1,400 sq. ft. 2017 GR $366K on 3 Dr. days/wk. Bldg. must be purchased w/ practice. #CA546

MADERA: *New Listing!* Modern 4 Ops (room for 5th) PPO and Denti-Cal practice w/ newer equipment, approx. 1,800 sq. ft. 2017 GR $233K on 2 Dr. days/wk. Bldg. facility also avail. for purchase. #CA542

NORTH FRESNO/MADERA: 2017 & 2016 avg. gross $809K w/ 52% overhead. Office has been in same location for 30 yrs. Dexis and Dentrix software. 7 Ops. 10 days/hyg. #CA541

VISALIA: 2,700 sq. ft., Bldg + Practice for sale, located near hospital. 4 yr. old equipment, Dentrix, Digital X-ray and Pano. PPO/Cash (no HMO or Denti-Cal), 2017 GR $585K. Great opportunity to own bldg. and practice. Illness forces sale - make offer! #CA536

VISALIA: Efficiently run practice with 4 Ops, Practice Web software, I/O Camera, Digital X-ray. 2017 GR $1M w/ very low overhead. #CA512

SOUTHERN CALIFORNIA

APPLE VALLEY: *New Listing!* 3 Ops, 38 yrs. goodwill. EagleSoft, digital X-rays, I/O cameras, laser, and a Digital Pan/Ceph. Doctor and Hygienist work 3 days/wk. 2017 GR $381K with $113K Adj. Net. #CA557

BAKERSFIELD: *Price Reduced!* 6 Ops, 5 Equipped, Duplex bldg. with signage. 2017 GR $544K w/ $147K Adj. Net. Most specialty work is referred out. PPO/Denti-Cal. #CA459

BREA: 5 Ops, 4 Equipped, paperless w/ Dentrix and Dexis Digital X-rays. 40+ yr. history in Brea with strong hyg. program and most specialty referred out. 2017 GR $724K w/ $253K Adj. Net. #CA548 SOLD

CENTRAL ORANGE COUNTY: *New Listing!* 3 Ops, paperless and digital, retail center location on busy corner. 2017 GR $415K w/ $148K Adj. Net. #CA554

GLENDALE: *New Listing!* 4 Ops, 3 Equip., EagleSoft, Digital, I/O Camera. Prof. bldg. 2018 GR $508K. $249K Adj. Net. #CA575

GLENDALE: *New Listing!* 4 Ops, Prof. bldg. Seller retiring, 14 yrs. Goodwill, A-dec equipment, CEREC, and Digital X-rays. 35+ hrs/hyg. per week. 2018 GR $499K. #CA573

GREATER LOS ANGELES PERIO PRACTICE: *Price reduced!* 5 Ops, 34 yrs. goodwill. Dentrix, Digital, Laser, great referral base, 2017 GR $694K Adj. Net $276K #CA173

LAGUNA BEACH: 4 Ops, 3 Equipped, beautiful location. Dentrix G4, Dexis Digital X-rays, paperless. 2017 GR $442K w/ $211K Adj. Net. #CA443

LAKE ARROWHEAD/SAN BERNARDINO MTNS: PPO/FFS practice. 6 Ops w/ SoftDent, Dexis Digital X-rays, I/O camera, Pano, and laser. Strong hyg. program. 7 days of hyg./wk. 2017 GR $1.14M. $368K Adj. Net. Bldg. also for sale. #CA517

LOS ANGELES, BRENTWOOD PROS PRACTICE: 6 Ops in professional bldg., EagleSoft, CEREC in-lab with experienced techs, Pano. Priced for quick sale. 2017 GR $680K. #CA539 SOLD

LOS ANGELES, HANCOCK PARK: *New Listing!* 4 Ops, Street front signage. Office has been a Dental practice since 1928. Doctor retiring due to illness. 2017 GR $365K, older office equipment in a great location. #CA565

LOS ANGELES, WEST SIDE: 4 Ops, Est. 54 yrs., SoftDent, Laser, Strong hyg. Program, refers out most Specialty work. 2017 GR $600K w/ $171K Adj. Net. #CA531

NORTH ORANGE COUNTY: *New Listing!* 5 Op practice has been open since 1965. Dentrix, Digital Pano. Retiring seller will assist w/ a smooth transition. Single-story prof. bldg. 2017 GR $249K. Room to grow as most specialty procedures are referred out. #CA558

ORANGE COUNTY ENDO PRACTICE: 5 Ops, 3 equipped, in professional bldg. 42 yrs. goodwill. 2 micro, Dolphin digital X-rays, I/O camera. 2017 GR $670K w/ very low overhead. #CA532 SOLD

ORANGE COUNTY PERIO PRACTICE: 5 Ops, 9+ days hyg./wk. The retiring seller has approx. 18 NP/mo w/ strong referral base. Long history of collecting $1M+/yr., 2017 Adj. Net $498K on a 4 day/wk. #CA520

RANCHO CUCAMONGA: 7 Ops, free-standing bldg. on busy corner, Dentrix, Dexis, Digital Pano, separate 4 chair Ortho bay. 2017 GR $838K w/ $158K Adj. Net. #CA514

RIVERSIDE COUNTY: Turn-key 4 Op practice in single story Prof. Bldg. w/ signage. Dentrix, Digital, Paperless. 2017 GR $816K w/ $330K Adj. Net. #CA471

SOUTH BAY, LOS ANGELES AREA: *New Listing!* 7 Ops in a sought-after neighborhood. Dentrix, Dexis, Laser, and 6 days/ hyg. Prof. bldg. location, fantastic opportunity to own a thriving practice in the South Bay. 2017 GR $769K with $266K Adj. Net. #CA560

SOUTH BAY, LOS ANGELES AREA: *New Listing!* 6 Ops, Dentrix, Digital X-rays, and laser and 6 days/hyg. 40+ yrs. goodwill in a very desired area of the South Bay. 2017 GR of $913K with $287K Adj. Net on 4½ day week. #CA562

SOUTH BAY, LOS ANGELES AREA-IMPLANT/ORAL SURGERY: 3 Ops, 1,700 sq. ft., in a retail/profess. center. Paperless and computerized with WinDent OMS Software, Dexis Digital X-rays, Digital Pano, and CBCT. 2017 GR $475K. #CA498

SOUTH ORANGE COUNTY: *New Listing!* 4 Ops, 3 Equipped, Dentrix, 3½ day/wk. with PT RDH. 50 yrs. goodwill. 2017 GR $446K with $94K Adj. Net. #CA553

SOUTH ORANGE COUNTY: 4 Ops, 3 Equip., utilizes an I/O Camera, Digital X-rays, Laser, and CariVu. Practice has 18 yrs. goodwill w/ retiring seller. 2017 GR $331K working 20-24 hrs./wk. w/ the seller referring out most specialty work. #CA509

TUSTIN: 6 Ops, Pano, 6 new equipment, PracticeWorks, 30 yrs. goodwill. GR $525K #CA486 SOLD

VAN NUYS: 4 Ops, SoftDent, Kodak sensors and Digital Pano. Easy access and is convenient to all of Van Nuys. PPO/HMO/Cash w/ 10% of patients having Denti-Cal. 2017 GR $366K w/ $95K Adj. Net. #CA538

WESTERN SAN FERNANDO VALLEY PEDO PRACTICE: *Very motivated seller!* Great opportunity to purchase a Pedo practice in the SF Valley. Upscale location, 4 Ops, EagleSoft, I/O Camera. 10+ yrs. Goodwill. 2017 GR $266K on 3 day/wk. #CA399

SAN DIEGO

ENCINITAS: *New Listing!* 4 Ops, Retail center. Re-modeled 5 yrs. ago with new equip. Dentrix, Digital, Pano, and Laser. 4 days hyg./wk. 2018 GR $813K. #CA575

NORTH COUNTY INLAND PROS PRACTICE: 4 Ops, Dentrix & Digital X-rays in a beautiful facility. Curbside visibility and loyal referral sources nearby. Seller relocating. 2017 GR $737K w/ $182K Adj. Net. #CA524

SAN DIEGO PERIO: *New Listing!* 5 Ops, 4 equipped, in an excellent, bright location, with digital x-Rays and Dentrix. Seller is retiring. 2017 GR of $379K with room to grow! #CA559

SAN DIEGO: 3 Ops, EZ 2000, Digital, PPO/ FFS, Sm. amount of Denti-Cal, Seller Retiring. Excellent Opportunity for a new Dr. or a 2nd office. GR $253K w/ $129K Adj. Net. #CA523 SOLD

OUT OF CALIFORNIA

CENTRAL OAHU, HAWAII: *New Listing!* Family-oriented GP practice located in a busy shopping area. Newly refurbished, 3 Ops with new equipment, Digital X-Rays, Upgradeable 2D Panorex, Dentrix. Excellent opportunity. Seller is relocating. #HI112

CENTRAL OAHU, HAWAII: Convenient, family-oriented practice, 3 Ops, 2 Eq., PPO/FFS, Seller retiring, Digital, Innova. 2017 GR $357K w/ $153K Adj. Net. #HI110

HONOLULU, HAWAII: Well-designed, 3 Ops, Innova, All specialty procedures sent out, PPO/ FFS, Seller retiring, motivated. #HI111 SOLD

CDA JOURNAL, VOL 47, N°4

Are You Cybersecurity Aware?

CDA Practice Support

Dental practices rely on electronic information systems to perform critical operations, such as scheduling patients, filing claims, tracking patient accounts and analyzing practice performance. Technology has eased the practice of dentistry in many respects, but it has also presented new concerns and challenges. A practice owner's unawareness of an information system's vulnerabilities and the owner's failure to consider natural, environmental and man-made threats to the system place the practice's reputation and finances at risk. A prudent practice owner should maintain a certain level of awareness of information security risks and take recommended steps to reduce their potential impact. A practice owner should be cybersecurity aware, which means to be aware of criminal or unauthorized efforts to access the practice's servers, workstations, networks, programs, mobile devices, electronic devices and stored data.

The federal government takes cybersecurity very seriously. The Cybersecurity Act of 2015 mandated, among many things, the development of practical cybersecurity guidelines to reduce risks in the health care industry. The guidelines were published in December 2018 by the U.S. Department of Health and Human Services (HHS), which collaborated with the industry in its development. "Health Industry Cybersecurity Practices (HICP): Managing Threats and Protecting Patients" is a four-volume publication that delivers actionable and practical advice.[1] The publication explores five current threats (**TABLE**) and discusses the cybersecurity practices that can be implemented. One volume of the publication is focused on small health care organizations. Another volume includes resources for an organization's IT staff and advisers. It would be well worth a practice owner's time to review the guidelines with his or her IT adviser and discuss whether recommended steps can or should be implemented.

TABLE

Five Prevailing Cybersecurity Threats to Health Care Organizations

Threat	Potential impact of attack.
Email phishing attack	Malware delivery of credential attacks. Both attacks further compromise the organization.
Ransomware attack	Assets locked and held for monetary ransom (extortion). May result in permanent loss of patient records.
Loss or theft of equipment or data	Breach of sensitive information. May lead to patient identity theft.
Accidental or intentional data loss	Removal of data from the organization (intentionally or unintentionally). May lead to a breach of sensitive information.
Attack against connected medical devices that may affect patient safety	Undermined patient safety, treatment and well-being.

Source: Technical Volume 1: Cybersecurity Practices for Small Health Care Organizations, phe.gov/Preparedness/planning/405d/ Documents/tech-vol1-508.pdf.

In October 2018, the Office for Civil Rights (OCR), the HHS division that enforces HIPAA, highlighted a handful of basic cybersecurity safeguards that can reduce the impact of malicious/malevolent actors or system failures. October is National Cybersecurity Awareness Month and 2018 was the 15th year of the awareness program. The following are the safeguards highlighted by the OCR:

Encryption: Encryption is the process of converting electronic data into a coded form that is unreadable without a decryption key.[2] Encryption can prevent unauthorized users from viewing electronic data and can substantially reduce the risk of compromising patient information. A dental practice may utilize encryption software or one of many email service providers that encrypt messages. A HIPAA-covered entity must assess whether encryption is a reasonable and appropriate safeguard as a means of protecting electronic protected health information at rest (stored) and in motion (transmitted).

Social engineering: Untrained and unaware staff can be victims in one of the most common and effective social engineering tactics for stealing user credentials and other sensitive information. Phishing is the act of sending deceptive emails to users, enticing them to disclose login credentials or click links that may install malware, such as ransomware. Phishing exploits human vulnerabilities, such as inattention to details, fear

and being rushed or threatened. A practice owner should ensure that staff is trained to recognize phishing attempts. A suggestion is to find a short video on YouTube; many IT and security companies have posted useful videos that can be used for training. The HIPAA Security Rule does require security awareness training for all workforce members.

Audit logs: A practice owner can record network and system activity and monitor the activity by reviewing, or auditing, the activity logs. The owner or IT adviser may be able to detect suspicious activities or reconstruct events by reviewing the logs. The audit log can be an important security tool as long as the log is reviewed on a regular basis. Audit logs are one of the required HIPAA Security Rule safeguards.

Secure configurations: Proper configuration of information system devices, network and software will improve a dental practice's cybersecurity defenses. Safeguards, including encryption, anti-malware and audit logs, require appropriate settings in order to function as intended. For example, an older version of encryption software may not be as effective. Maintaining and updating malware definitions within the anti-malware program is necessary for maximum protection. Audit logs must be properly configured in order to collect and retain the correct data and to protect against unauthorized manipulation or deletion of data. The configuration of firewalls, workstations, routers, servers and other components all play an important role in minimizing the chance of security incidents.[3] ■

REFERENCES

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2. National Institute of Standards and Technology (NIST). Encryption Basics. www.nist.gov/publications/encryption-basics.
3. Johnson L, Dempsey K, Ross R, Gupta S, Bailey D. NIST Special Publication (SP) 800–128: Guide for Security-Focused Configuration Management of Information Systems. August 2011. csrc.nist.gov/publications/detail/sp/800-128/final.

Regulatory Compliance appears monthly and features resources about laws that impact dental practices. Visit cda.org/practicesupport for more than 600 practice support resources, including practice management, employment practices, dental benefits plans and regulatory compliance.

CORRECTION

In the March 2019 Regulatory Compliance article, the following should have been a bullet under the Prescribing section: "Starting Jan. 1, 2019, a uniquely serialized number in a manner prescribed by the Department of Justice." We apologize for the omission.

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6162 REDDING 2018 collected $700,000 on Owner's 3.5 day week. 4-days of hygiene. 5-ops. River views.

6161 SAN FRANCISCO BAY AREA PROS PRACTICE - "OUT-OF-NETWORK" 2018 produced $1.18 Million and collected $1.18 Million. 4-days of Hygiene. Owner available for long transition. Condo optional purchase.

6160 SAN FRANCISCO'S 450 SUTTER 12th floor with unencumbered views of Downtown. Upgraded office, technology and delivery systems. PPO practice collected $270,000 part-time due to Owner's East Bay practice.

6159 WOODLAND 3-day practice perfect for first practice, or acquisition by nearby DDS as can be relocated. Collections in 2018 totaled $518,000. 3-days of Hygiene. 4-ops in well-designed office. Quality patients. Full Price $250,000.

6158 FORTUNA Relaxed lifestyle in Humboldt County's Banana Belt. Adjacent to Ferndale. Perfect for Dentist seeking small town living. Collects $390,000. 6-weeks off. Lots of work referred. Full Price $75,000.

6157 SACRAMENTO'S ELK GROVE AREA 2018 collected $909,000 on Owner's 3-day week. Successor can immediately increase to 4-days as practice is rich in patients. 25+ new patients per month. 5-ops, digital Pan, strong Recall, great staff. Want to be busy and make a "no-risk" acquisition? Then investigate this opportunity.

6156 SANTA ROSA Sited on Sonoma Highway near Oakmont. Strong foundation evidenced by 4-days of Hygiene. Well-designed 5-op office. 2018 collected $730,000. Over $200,000 invested in equipment and technology. Full Price $325,000.

6155 LAKEPORT - "SOLD" 5-days of Hygiene. 2018 collected $825,000. Lakeside location and nicely equipped. Seller happily looks forward to retirement. Full Price $225,000.

6152 SAN RAFAEL - "SOLD" Across the street from Marin Academy. 2018 collected $520,000. Stand-alone building optional purchase. Nearby DDS who desires their own building should vertically integrate their practice here and have an instant $1+ Million practice in a superior location.

6151 MODESTO Located on north end of Coffee Road where new development is occurring. Attractive 3-op office. 2018 collected $408,000 on 2-day week. Did $700,000+ in 2016 when Owner was full time with $240,000 in Profits. Full Price $200,000.

6150 HAYWARD - "SOLD" Strong Dental DNA. Well-designed 5-op office. Digital radiography and computers. 2018 trending $850,000+. 5-days of hygiene. Full Price $200,000.

6149 NOVATO - PERFECT START-UP OPPORTUNITY – BUILDING + 3-YEAR OLD OFFICE Stand-alone building at busy stop light intersection off Highway 101. 4-ops, paperless at cost of $180,000. Doorway to Hamilton with 100s of homes. No competition. Perfect for Dentist seeking perfect location. Scott McDonald from Doctor Demographics states: "Well, I have to say that you were right, Ray. This is an interesting and viable location."

6147 SAN FRANCISCO BAY AREA - "OUT-OF-NETWORK" - "SOLD" 2018 collected $2.2 Million. Hygiene produced $1+ Million. $700,000+ in profits. Unique in so many ways! Seller available for long transition.

6143 BERKELEY'S ALTA BATES VILLAGE - "SOLD" 3-day week collected $540,000 in 2018. 4-days of Hygiene. Housed in its own building on Webster Street.

ALTA LOMA Great exposure. Grossing $700,000. 5-ops, 3-equipped.

BAKERSFIELD AREA Grossing $1.2. Owner works 16-hours. Nets $300,000.

BAKERSFIELD AREA Grossing $40,000/month on 2-days. 5-ops.

BAKERSFIELD Practice & building. Has done $500,000. Full Price for both $350,000.

CAPISTRANO BEACH Senior DDS Grosses $200,000. Full Price $150,000.

DEL MAR -- ENCINITAS HMO grossing near $400,000. 4-ops.

DENTURE PRACTICE Needs Western Boards. Grossing $750,000. Did $1.2 with OS. Prosthodontist / Implant Specialist will do extremely well.

DIAMOND BAR High identity Asian center. Will do $1 Million. Hundreds of people walk by each day.

EMERGENCY SALE SoCal Paradise. Seller moving out-of-state. 9-ops. Skilled and rive Successor can net $400,000 first year one and it will only get better.

ENDODONTIST Join Periodontist in Santa Clarita, Only $35,000 or GP who wants a good reliable job.

GLENDALE / BURBANK Grosses $840,000. Includes apartment.

INLAND EMPIRE Adec, cone beam. Gross $1.3 Million. Includes RE.

INLAND EMPIRE DentiCal grossing near $300,000. Full Price $150,000.

INLAND EMPIRE Union Practice can do $1+ Million. 5-ops.

INLAND EMPIRE HMO $8-to-10K/month. Grossing $500,000. All Hispanic. FP $450,000

IRVINE Female Grossing $1.2 Million. 5-ops.

LA HABRA Shopping mall. Female Grossing $330,000. 6-ops, 5 equipped. Million Dollar location. Full Price $270,000.

LA MIRADA Like new 5-ops, 3-equipped. Grossing $450,000.

NORTH PASADENA Million Dollar practice. 5-op free-standing building across from Starbucks.

OC BEACH 6-ops, Dentrix, digital, computerized. Full Price $150,000.

OC BEACH Absentee owned, grossing $550,000. 4-ops. New Doc does $1 Million.

OC BEACH Grossed $100,000 last month. Full Price $900,000.

OC'S FASHION ISLAND Grossing $650,000. Rare opportunity.

ORANGE COUNTY- INLAND-EMPIRE 2-practices grossing $1.8 Million. Right Buyer does $3 Million.

PEDO Chinese & Latino. Grosses $450,000. Full Price $285,000.

RIVERSIDE Female grossing $250,000. 30-new patients/mth. FP $165,000.

SANTA CLARITA Hi identity center. DDS wants to share office and remain 1 day in 2 ops. 8 ops avail. 70,000 autos pass/day. This location did almost $2 Million in past.

TUSTIN - SANTA ANA Just opened. $450,000 invested. Cone Beam.

TORRANCE Entrance to Palos Verdes. Grossing $300,000+. Full Price $290,000.

UPLAND Grossing $135,000 part-time. 3-ops. Full price $65,000.

VAN NUYS 2 Ops, room for more. Hi identity medical building. On first floor. Full Price $150,000

VENTURA 3 practices HMO grossing $2.6 million.

WEST COVINA Grossing $650,000. 2 days hygiene. Refers lots of work!

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Better Fit

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BAY AREA

AC-886 SAN FRANCISCO (Facility): Unsurpassed visibility & location! Potential here is limitless! 850 sf w/ 3 ops **$85k**

AG-871 SAN FRANCISCO: Seller Motivated! 600 sf w/ 2 ops **Price Reduced $65k**

AG-944 SAN FRANCISCO: An opportunity like this does not come along very often! 980 sf w/ 3 ops **$595k**

AG-945 SOUTH SAN FRANCISCO: Be a part of this vibrant, diverse population. 1800 sf w/ 4 ops **$495k**

AN-939 REDWOOD CITY: Tradition of restoring smiles & improving dental health! 1165sf w/ 4 op + 2 add'l. **$295k**

AN-947 DALY CITY: Great staff, stellar reputation are just some of this opportunities attributes! 1500sf w/ 4 ops. **$375k**

BC-741 DANVILLE (FACILITY): Move in Ready! ~ 1600 sf w/ 3 ops. **PRICED TO SELL! $10k**

BC-926 ANTIOCH: Long established, well respected office. 1866 sf w/ 5 ops **$495k**

BC-949 ALBANY: Desirable commercial/residential area. Medical Prof Bldg w/ good frontage. 3200sf w/ 4 ops **$695k Real Estate: $1.8**

BG-925 HAYWARD: Profits close to $900K per year! ~ 1930 sf w/ 6 ops **$1.15M**

BG-981 BERKELEY: Long established, family-oriented practice. 1100 sf w/ 3 Ops **$345k/ Real Estate Available $499k**

BN-891 PINOLE: This seller is ready to retire, & looking for someone to continue the legacy! 1300 sf w/3 ops. **$350k**

BN-906 OAKLAND: Located in Oakland's thriving and bustling China Town! 1,000sf w/2 ops. **$195k**

BN-943 MARTINEZ: Opportunities like this only comes along every great once in a while. 1520sf w/ 4 ops +1 add'l. **$450k**

BN-952 BERKELEY: Step into this quality practice and you'll know you belong here! ~ 835 sf w/ 3 Ops. **$450k**

CC-846 SAN RAFAEL: Prof/Retail Building Complex. 3 ops 640 sf Collections $433k in 2017 **$275k**

CC-927 SAN RAFAEL: Build the practice of your dreams by increasing this 2-day work week! 800 sf w/ 3 ops **$225k**

CC-960 SONOMA: Great location in one-of-a-kind setting! 950 sf w/ 3 ops. **$385k/ Real Estate Available $350k**

CC-963 SANTA ROSA: Dream Practice in Free Standing Building on major thoroughfare. 1765 sf w/ 5 ops **$550k**

BAY AREA CONTINUED

CG-859 SONOMA: Priced below market value at only $395k! 2000 sf w/ 4 ops highly esteemed FFS Practice **$395k**

CN-911 SANTA ROSA: "Quality Care & Patient well-being FIRST". 2250 sf w/4 ops + 1add'l. **$545k**

CN-951 VALLEJO Facility: Move In Ready! 2000 sf w/ 4 fully equipped ops. Negotiate your new lease! **Only $50K**

DC-930 FREMONT (Facility): 1846 sf w/5 ops! Includes some dental equipment! **FREE – JUST TAKE OVER LEASE!**

DC-946 REDWOOD CITY: Long established. Seller unable to work full-time due to health issues. 1577 sf w/ 2 ops & plumbed for 2 add'l **$120k**

DG-862 MID-PENINSULA: Rare gem with up to 7 operatories in the Bay Area!! 2274 sf w/ 6ops + 1 add'l. **$475k**

DG-936 SUNNYVALE: Hesitate and you may lose out on this opportunity of a lifetime! ~1000 sf w/ 3 ops. **Call For Details!**

DG-978 PALO ALTO: Imagine the possibilities with the newly opened Amazon corporate office nearby! **$455k**

DN-898 SAN JOSE: Built-out 2015 w/ location, visibility, convenience in mind! 2,204 sf w/4ops + 2 add'l. **$500k**

DN-914 SANTA CLARA: This beautiful and compact office produces a lot of dentistry! 950sf w/ 3 ops. **$210k**

DN-937 SAN JOSE: This opportunity is waiting for your talent & skills! 2210 sf w/ 4 Ops + 2 add'l. **$500k**

DN-938 SUNNYVALE: The ideal opportunity to practice in this community! 2000 sf w/ 4 Ops + 2 add'l. **$500k**

NORTHERN CALIFORNIA

EN-664 SACRAMENTO Facility: Great corner location, excellent visibility & easy access! 2300 sf w/ 4 ops. **$30k**

EG-910 MIDTOWN SACRAMENTO: Unlimited Potential. ~ 1107 sf w/ 2 ops + 1 add'l. **$248k**

EG-965 SOUTH AUBURN VICINITY: The ideal opportunity to practice in this community! ~1100 sf w/ 4 Ops. **$350k**

EG-968 SACRAMENTO: Desirable, mid-town neighborhood, w/ ample parking in garage! ~1527 sf w/ 5 Ops. **$550k**

EG-972 ELK GROVE: Prime location & spacious office! ~3500 sf w/8 ops +add'l. **$599k**

800.641.4179 WPS@SUCCEED.NET


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NORTHERN CALIFORNIA CONTINUED

EN-836 CITRUS HEIGHTS: Well-established, quality practice. 30+ years of goodwill. 1300 sf w/3 ops + 2 add'l. **$188k**

EN-885 ROSEVILLE Facility: Ideal location w/ visibility & close to about anything! 1000 sf w/3 ops. **$65k RE: $450k**

EN-899 DIXON: State-of–the-art office, with all the "bells & whistles"! This fantastic practice w/ 3 ops. **Only $95k!**

EN-935 SACRAMENTO: Word to the wise: Act fast on this, it will not be available for long! 1800sf w/ 4 ops. **$400k**

EN-977 MIDTOWN SACRAMENTO: **Grossed over $1.4M in 2018!** State-of-the-art equipped, 1800sf w/5 ops. **$950k**

FC-650 FORT BRAGG: Family-oriented practice. 5 ops in 2000 sf **$350k for the Practice & $400k for the Real Estate**

FC-962 HEALDSBURG: Known as 1 of top 10 small cities in the US! Amazing practice w/ 1200 sf & 3 ops. Beautifully landscaped professional plaza **$180k**

FG-841 ARCATA: Own a little slice of heaven! 1114 sf w/3 ops **Reduced Price: $250k/ Real Estate Also Available**

FN-961 EUREKA: Where the quality of life can't be beat! 1400sf w. 4 ops. **$395k/ Real Estate Available $395k!**

FN-855 NO. HUMBOLDT: Seller relocating! Long-established, 100% FFS practice! 1600 sf w/ 3ops + 1 add'l. **$275k**

GN-799 PARADISE: Remarkable opportunity – Call for Details! 1800 sf w/ 4 ops. **Practice $375k, Real Estate $325k**

GN-953 CHICO: Established for 55 years and the seller is passing their goodwill on to you! 1067sf w/ 3ops. **$315k**

HG-815 TRUCKEE AREA: Busy, productive practice with 3 days of hygiene! 1000 sf w/ 3 ops **$165k/ Real Estate $437k**

HG-827 SO. LAKE TAHOE: Ski, live, play and practice here where your lifestyle can't be beat! 1200 sf w/4 ops. **$310k**

HG-851 SO LAKE TAHOE: Projected Revenue on track to do $700k this year! 2100 sf w/ 5 ops **$425k**

HG-983 GRASS VALLEY: Newly remodeled office in highly desirable neighborhood! ~1250 sf w/ 3 ops. **Call For Details!**

HN-618 SIERRA FOOTHILLS: Seller Retiring! Huge opportunity for growth by increasing office hours! 750 sf w/ 2 ops **$65k**

HN-740 SHASTA CO: Beautiful mountain community, well-established practice, exceptional long-term staff. 2400 sf w/5 ops + 1 add'l. **$475k/ Real Estate $350k**

HN-773 SUTTER CREEK: Qualified & credentialed Seller willing to show you how! 1536 sf w/4 ops + 1 add'l **Only $95k!**

HN-879 SONORA: Great Cash-Flow for Only 3 Days a Week! 2950 sf w/ 3 ops **Reduced Price: $265k**

HG-934 GRASS VALLEY: Just imagine living and practicing here! ~1200 sf w/ 3 Ops **$225k/Real Estate $190k**

HN-941 GOLD COUNTRY/CALAVERAS CO: This is the right practice for you! 2,300sf w/2 ops + 3 add'l. **$175k**

CENTRAL VALLEY

IG-832 OAKHURST: Rare Opportunity. 2048 sf w/3 ops + 1 add'l. **$235k/ Real Estate 375k**

CENTRAL VALLEY CONTINUED

IG-881 TURLOCK: Consistently growing practice ~3500 sf w/ 10 Ops (shared). **$360k**

IN-764 STOCKTON: Well-established, fully computerized, paperless, digitalized. 5,000 sf w/10 ops. **Only: $120k!**

IN-917 MERCED AREA: Well established practice with a stable, loyal patient base! 1300 sf w/ 3 Ops. **Reduced! $295k**

JC-811 FRESNO COUNTY: Amazing Opportunity! Considerable Goodwill in Community! 3,000 sf w/ 6 ops **$350k**

JC-823 LOS BANOS: Heavy emphasis on hygiene. Growth potential by increasing DDS days. 1000 sf w/ 3 ops **$80k**

SOUTHERN CALIFORNIA

KL-909 SAN DIEGO: Remarkable Opportunity. Long established in vibrant North Park. 2400 sf w/ 5 ops & 2 Pedo chairs **NOW ONLY $910k**

KG-921 SANTA MARIA: Live and practice in this desirable collegiate coastal community! 930 sf w/ 3 ops **Seller Motivated $315k**

KL-955 SAN DIEGO: Just Listed! Well established & centrally located in 1st floor suite w/easy freeway access. Adjacent vacant suite available for expansion. **$225k**

SPECIALTY PRACTICES

BC-784 CENTRAL CONTRA COSTA CO Perio: Seasoned Staff. Office runs like well-oiled machine! 3 ops **$395k**

BG-843 WALNUT CREEK Perio: Collections over $1M! Great gross and profit for only 2 ½ days per week! 1085 sf w/ 4 ops **Reduced Price: $595k**

DC-835 TRI-VALLEY Perio: Professional office bldg in highly desirable location. Owner available to work back to assist w/ transition. Collections over $1.2M. 2,100 sf **$800k**

DG-912 SUNNYVALE Ortho: Premier ORTHO practice opportunity in the Silicon Valley today! ~2030 sf w/ 5 chairs in open bay **$925k**

DN-908 SAN JOSE Pedo: Amazing Location! Providing affordable pediatric dentistry to families! 3600 sf w/ 4ops + 3 add'l. **$175k**

DN-959 APTOS Perio: Highly successful at this proven location! 1350sf w/ 4op. **$750k / Real Estate Available $650k**

EG-903 CARMICHAEL Oral Surgery: Gross receipts were over $1.1 million in 2017! Stable patient base won't be affected by transition! 2282 sf w/ 5 ops **Amazingly Priced: $450k**

GG-940 NORTHERN CALIFORNIA Pedo: Practice is on track to collect more than $1 million in revenues this year! 4300 sf w/ 5 ops. **$695k**

JG-757 VISALIA Perio: 9 Hygiene days per week, this practice is a rare gem! ~ 2,000 sf w/ 5 ops **Steal at $335k**

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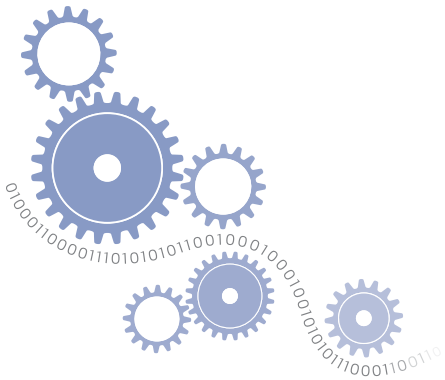

A look into the latest dental and general technology on the market

Blink XT ($129 to $499, Blink)

Security is at the forefront of every practice owner's mind. Many practitioners have sophisticated, monitored security systems complete with burglar alarms, glass-break sensors and motion-sensing cameras. These systems can cost thousands of dollars to set up, carry monthly charges in the hundreds of dollars and require professionals to install. Because of these factors, a new cottage industry has appeared on the market: the do-it-yourself security system. These systems leverage technologies like mobile devices and Wi-Fi to provide consumers with simple-to-set-up, no-monthly-cost solutions. The Blink XT is an entry in the wireless, indoor and outdoor, motion-sensing HD camera system market, and it manages to introduce some eye-catching features that warrant it serious consideration.

Blink was founded in 2009 as a home automation company, and thanks to its successes, was acquired by Amazon in 2017. The Blink XT is the company's only outdoor-capable camera, boasting a 1080p HD resolution, motion detection, microphone and an operating temperature range of minus 4 to 113 degrees F. The Blink XT is smaller than a modern cellphone and is powered by 2 AA batteries for up to two years, but it can also be powered with a USB cable. By connecting to its sync module (which can support up to 10 cameras) wirelessly, the Blink XT can record, store and stream video to users' cellphones via a mobile app.

The app itself is minimalistic to a fault. Features like the scheduler, snapshot updating and device management can be challenging to find. Despite those challenges, setting up and using the Blink XT system requires only a basic set of tools if a user desires their cameras to be mounted. Finding the appropriate range to cover a property can be tricky as the Blink XT requires it to be both in range of its sync module and a strong Wi-Fi signal. In day-to-day practical use, the Blink XT functions as advertised, sending alerts when triggered, always recording high-quality video and remaining operational in extreme temperatures. The motion detection is a letdown: If an object moves even briskly, it is possible to trigger the Blink XT but leaves it unable to capture the object, person or event that triggered it. Camera placement affects all aspects of the camera greatly, as there are ideal operating temperatures, data transmission ranges, motion-detection optimization and field-of-view coverage to consider. The Blink XT is not a perfect system, but for the money and ease of use, it is an attractive option for the practitioner who would like to try their hand at a DIY security camera system.

–Alexander Lee, DMD

Citymapper Transit Navigation

(Free, Citymapper Limited)

Citymapper for iOS and Android is an app that combines various modes of transportation and figures out the best route to get from points A to B in 39 major cities around the world. Depending on the city selected, the service collects information for the most popular modes of transit in the area including, but not limited to, walking, bus, rail, ferry, cab, Uber, Lyft, shared bicycles and trains. Users simply enter a starting point, a destination and when they would like to depart or arrive. The app will display suggested transit options and their costs along with estimated times. For those interested in fitness and wellness, the suggested options also take into consideration the number of estimated calories burned with the various modes of transportation. Once an option is selected, the app will provide detailed directions and notifications on how to get to a destination. The app can also be installed on Apple Watch and Android Wear devices to provide the same directions and notifications in real time. If a transit option involves a paid service such as Uber or Lyft, Citymapper will link to its corresponding installed app and provide a seamless experience to book a ride. This app is only useful for travelers who are not tied to a static mode of transportation aside from a personal bicycle. For example, those who own their own vehicle will not be able to incorporate the app into a commute because personal vehicles are not included as a mode of transportation.

–Hubert Chan, DDS

Would you like to write about technology?

Dentists interested in contributing to this section should contact Andrea LaMattina, CDE, at andrea.lamattina@cda.org.


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