Consensus Statement

New Models

Alternatives

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Special needs population

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Not For Sale

t was only 10 a.m., but the heat and humidity on this central Florida morning belied the fact that the calendar said autumn. As beads of perspiration formed and clothing began feeling sticky and burdensome, I longed for either air conditioning or a swimming pool. On the front lawn of the Orange County Convention Center there was neither. But there was a tent, a mobile dental unit, a few dozen boisterous local schoolchildren, and a group of busy but smiling volunteers from Colgate orchestrating the proceedings. The real perspiration belonged to them.

Inside the mobile dental unit, children were being screened for dental needs and given a bag containing a toothbrush and other hygiene items. The children were then guided to the tent, where they visited several educational stations: a volunteer demonstrating brushing on a giant foam molar, dental coloring books, and an educational video. This was the manifestation of a partnership between Colgate-Palmolive Company and the American Dental Association called Save the World From Cavities, which members may be aware of now.

This is one example of a growing list of partnerships between the ADA and the dental industry. Clay Mickel, associate executive director, corporate relations and communications at the ADA, has outlined other recent corporate sponsorship programs taking place on the national level. Among these are Give Kids a Smile with partners Crest, Sullivan-Schein, DEXIS and Ivoclar Vivadent Inc.; a diabetes and gum disease campaign with partner Colgate; and an oral cancer awareness campaign with partner CDx Laboratories.

Closer to home, an article in the Sept. 16,

2004, *CDA Update* discussed how corporate sponsors Procter & Gamble, Oral-B, and Sky Financial Solutions work with CDA to strengthen our dental community here in California. We are also used to seeing corporate sponsorship of speakers at both ADA Annual Sessions and CDA Scientific Sessions. And why not? After all, the dental industry provides valuable resources including funding, equipment, and personnel to these and other worthwhile services being

provided to both the public and members of the dental profession. So with these very positive activities in mind, let's examine the growing relationship between the profession of dentistry and the dental industry. Is there cause for concern?

It seems that many dentists have a mixture of acceptance and suspicion of corporate involvement in our profession's pursuits. Most realize there are clearly instances where corporate partnerships with the dental profession are successful and benefit all involved. There are others where potential pitfalls exist. Perhaps our members' suspicion is due to a keen awareness that there is danger in becoming too cozy with the forprofit world. Three examples illustrate this danger and demonstrate some undesirable outcomes when a profession, grounded in scientific knowledge and integrity of action, takes the wrong direction in its relationships with industry. The first example occurred not in dentistry, but in medicine. Several years ago, the American Medical Association garnered substantial criticism from, among others, its own members as a result of a controversy surrounding its seal program, when money was apparently exchanged between a company seeking seal approval for a product and the AMA. While



Let's examine the growing relationship between the profession of dentistry and the dental industry. Is there cause for concern? the seal was in no way connected to the money exchanged, the damage was done. With accusations that the AMA seal was "for sale," the AMA and its seal program lost credibility; and it is likely that membership numbers were negatively affected as a result.

the AMA insisted the eventual awarding of

We are the watchdogs and must be ever vigilant over every activity and endeavor that relates to dentistry. The second example occurred within the dental profession several years ago, when Coca-Cola inked a deal with the American Academy of Pediatric Dentistry to fund caries research. This poorly thoughtout partnership could have potentially led to research tainted by a for-profit interest and/or mistakenly drawn conclusions by the practicing community had not the organization halted this relationship. This corrective action may also have been taken too late to avoid a loss of some credibility of the organization.

The third example, unfortunately, lies within the domain of dental journalism. There have been a growing number of respected clinicians and researchers who are vocal in their disapproval over the direction some of our scientific journals are taking. The source of their consternation lies in the publication of research that is funded by a for-profit entity, particularly when the subject of the published study is a product manufactured by the funding entity. Furthermore, it is not uncommon for one or more of the investigators to be directly employed by the company or receive compensation from them in some form. Some claim that disclosure of funding for the study and any financial ties to the company by the authors is sufficient information to allow the reader draw his or her own conclusion as to the validity of the research. Common sense, however, tells us that there is something very wrong with this arrangement. In spite of disclosure, there are numerous ways in which the final published article can be biased, for example, by the suppression of results or even of entire studies that may prove unfavorable to the funding entity.

We must not continue to let corporate involvement in the dental profession erode our trustworthiness, our integrity, or our position of respect with the public. It is therefore incumbent upon the various segments within the profession to ensure that this does not happen. It is the responsibility of those in the research and academic community to guarantee the unbiased and untainted pursuit of new information through research never takes a backseat to for-profit interests. Those in the dental industry sector must maintain a transparent approach to business that clearly separates pursuit of profit from outside independent research or altruistic activities. Those in organized dentistry leadership must exercise caution when entering into partnerships with industry so that financial sponsorship of projects that benefit humankind does not jeopardize other valuable programs, such as the seal program. Those involved in our professional scientific journals must set and consistently achieve the highest standards with regard to publication of truly unbiased and independent research so that when a practitioner makes a treatment decision based on a published study, he or she has the assurance that the study is reliable. And finally, the greatest responsibility falls on the individual members of our great profession. We are the watchdogs and must be ever vigilant over every activity and endeavor that relates to dentistry. We must have the courage to speak out and take action when we observe corporate entities cross the line from altruism to self-interest. We must make it clear to all that the profes-CDA sion of dentistry is not for sale. _ _ _ _ _ _ _ _ _





Nicotine-Puffing Moms Can Harm Future Generations

moking while pregnant not only harms the health of a woman's future children but also can impact the next generation.

In the April 2005 issue of *Chest*, researchers at the Keck School of Medicine of the University of Southern California found that a child has nearly twice the

chance of developing asthma if their grandmother smoked during pregnancy, regardless if the child's mother did not smoke while pregnant.

Illustration: Polly Powell

"The findings suggest that smoking could have a longer-lasting impact on families' health than we had ever realized," said Frank D. Gilliland, MD, PhD, "Questions about senetic inheritance from grandparents have not been raised in the past because there was no plausible reason

why such a thing might happen. But now some ideas are emerging."

FRANK D. GILLILAND, MD, PHD, MPH

MPH, senior author of the paper and Keck professor of preventive medicine.

A group of 908 subjects — in grades 4, 7, and 10 — from more than 4,000 children participating in the 12-year-old Southern California children's health study was chosen. Of those selected, 338 had asthma by the age of 5 while 570 children did not have asthma.

"We were trying to understand how a mother's smoking affects a child's asthma," said Gilliland. "Then it occurred to us to ask what happens if the mother didn't smoke, but the grandmother did."

Researchers gathered smoking habit information about the subject's mothers before and during each trimester of pregnancy. Also included were the smoking histories of the children's grandmothers.

■ In cases where the mothers lit up while pregnant, their children were 1½ times likely to develop asthma early on compared to mothers who did not smoke during pregnancy.

■ Children who had grandmothers who smoked during pregnancy were 2.1 times as likely to develop the chronic breathing disorder.

■ Children of mothers who did not puff while pregnant but had grandmothers who did were 1.8 times more likely to develop asthma.

■ And finally, if both mother and grandmother smoked during their pregnancies, a child had a 2.6 risk of developing asthma.

"We suspect that when a pregnant woman smokes, the tobacco might affect her fetus' DNA in the mitochondria, and if it is a girl, her future reproductive cells as well," said Gilliland. "We speculate that the damage that occurs affects the child's immune system and increases her susceptibility to asthma, which is then passed down to her children."

The notion that a grandmother's smoking could negatively impact a grandchild was "an unexpected and novel finding," he said, adding that it necessitates further substantiation in subsequent studies.

"We're just starting to understand these things," Gilliland said. "Questions about genetic inheritance from grandparents have not been raised in the past because there was no plausible reason why such a thing might happen. But now some ideas are emerging." And on a practical level, "the main message here is to stop smoking, especially for women of child-bearing age."

Kenneth Olden, director of the National Institute of Environmental Health Sciences, commented that the findings are consistent with previous studies that showed in utero exposure to maternal smoking increases the risk of asthma and negatively impacts postnatal lung infection.

Researchers suggest that when a woman smokes during pregnancy, the chemicals from the tobacco harms the fetus in a couple of ways such as affecting the eggs of a girl, thus impacting future generations, and damaging the fetus' mitochondria which also may be transmitted through the maternal line.

While boys may inherit the altered gene, they cannot pass it on since mitochondrial DNA only is transmitted by mothers.

Researchers hypothesize that the alterations diminish immune function and weaken the body's ability to purge itself of toxins, subsequently increasing the risk of asthma in smokers' offspring and grandchildren.

"These findings indicate that there is much more we need to know about the harmful effects of in utero exposure to tobacco products and demonstrate how important smoking cessation is for both the person smoking and their family members," said Paul A. Kvale, MD, president of the American College of Chest Physicians.

"We need to really focus resources on this," said Gilliland. "We have plenty of information about how bad smoking is. This is more evidence that it may be even worse than we knew."

Illustration: Matt Mullin

More Periodontal Health Benefits Discovered

On the heels of Japanese researchers who said those who brush frequently tend to be healthier than their counterparts who go days without, researchers at Columbia University Medical Center now suggest that preventing gum disease may reduce one's risk of stroke and heart attack.

The study, which appeared in the Feb. 8 edition of the American Heart Association's publication, *Circulation*, reported that people with gum disease are more likely to suffer from atherosclerosis, which can lead to a heart attack or stroke.

Previous studies suggested a relationship between vascular and periodontal disease but relied on surrogate markers such as tooth loss or pocket depth. The recent study, however, is the first to examine the microbiology of periodontal infection and positively connects it to the narrowing of blood vessels.

"This is the most direct evidence yet that gum disease may lead to stroke or cardiovascular disease," said Moïse Desvarieux, MD, PhD, assistant professor of epidemiology at Columbia University's medical center, Mailman School of Public Health, and lead author of the paper. "And because gum infections are preventable and treatable, taking care of your oral health could very well have a significant impact on your cardiovascular health."

Researchers measured the bacterial levels in the mouths of 657 people with no history of myocardial infarction or stroke. Also measured was the thickness of the carotid arteries, the same blood vessel which is used to identify atherosclerosis. Researchers found that people with a higher level of a specific bacteria that causes periodontal disease also had increased carotid artery thickness, even after accounting for other cardiovascular risk factors.

Desvarieux and colleagues showed that in these subjects, atherosclerosis is specifically associated with the type of periodontal disease-causing bacteria and not other oral bacteria. This finding was confirmed by assessing the levels of three various microbes: those known to cause periodontal disease; those thought to cause periodontal disease; and those not connected to periodontal disease. The relationship between oral bacteria and atherosclerosis only existed for bacteria causally related to periodontitis.

One possible explanation is that a bacterium that causes gum disease may migrate, courtesy of the bloodstream, throughout the body and stimulate the immune system, causing inflammation that results in clogged arteries, said Desvarieux, principal investigator of the study.

"It is important that we have shown an association between specific periodontal pathogens and carotid artery thickness that is unique and unrelated to other oral bacteria," said Panos N. Papapanou, DDS, PhD, professor and chair of the Section of Oral and Diagnostic Sciences and director of the Division of Periodontics at Columbia University School of Dental and Oral Surgery. Papapanou also was coauthor on the study whose laboratory performed the periodontal microbiological analysis.

"The measurement of carotid arteries thickness, which has been shown to be a strong predictor of stroke and heart attacks, was performed in our ultrasound lab without knowledge of the subjects' periodontal status to ensure an unbiased evaluation of cardiovascular health," said Ralph L. Sacco, MD, MS, and coauthor of the study. Sacco also is associate chair of neurology, professor of neurology and epidemiology, and director of the Stroke and Critical Care Division of Columbia's College of Physician and Surgeons. "This is the most direct evidence yet that gum disease may lead to stroke or cardiovascular disease." MOÏSE DESVARIEUX, MD, PHD

First DNA-Based Test to Detect Cystic Fibrosis Gets Approval

The Food and Drug Administration has approved the Tag-It Cystic Fibrosis Kit, which directly analyzes human DNA to find genetic variations indicative of the disease.

> "This test represents a significant advance in the application of genetic technology and paves the way for similar genetic diagnostic tests to be developed in the future," said Daniel Schultz, MD, director of FDA's Center for Devices and Radiological Health.

The test will be used to help diagnose cystic fibrosis in children as well as identify adults who are carriers of the gene variations.

A serious genetic disorder, cystic fibrosis affects the lungs and other organs, often leading to an early death. It affects about 1 in 3,000 Caucasian babies; half of those with the disease die by their 30th birthday. Cystic fibrosis is the No. 1 cause of chronic lung disease in young

adults and children and the most it

common fatal hereditary disorder affecting Caucasians in the United States.

The Tag-It test identifies a group of variations in a gene called the "cystic fibrosis transmembrane conductance regulator" that causes cystic fibrosis. The FDA approved the kit based on the manufacturer's study of hundreds of DNA samples showing the test identifies the cystic fibrosis transmembrane conductance regulator gene variations with a high degree of certainty. The manufacturer also provided the FDA with a broad range of supporting peer-reviewed literature.

Since the kit detects a limited number of the more than 1,300 genetic variations identified in the cystic fibrosis transmembrane conductance regulator gene, the test should not be solely used to diagnose cystic fibrosis. Physicians should interpret test results in the context of the patient's clinical condition, family history, and ethnicity. Patients also may need genetic counseling to help them understand their results.

Meningococcal Vaccine Recommended for Teens and College Freshmen

The Centers for Disease Control and Prevention is now recommending routine vaccination — using the newly licensed meningococcal conjugate vaccine — of children between the ages of 11 and 12 years old, previously unvaccinated adolescents prior to entering high school, and college freshmen living in the dorms.

The recommendation is to help achieve vaccination among those at highest risk for meningococcal disease. The disease strikes up to 3,000 Americans, killing 300 annually. Between 10 percent to 12 percent of meningococcal disease die. Among survivors, up to 15 percent sustain long-term, permanent disabilities including limb amputation, hearing loss, or brain damage.

Some forms of bacterial meningitis are contagious, spread through the exchange of respiratory and throat secretions. Early symptoms

often are mistaken for common ailments such as the flu. Common symptoms of meningitis in anyone over age 2 are headache, high fever, and a stiff neck. Other afflictions range from discomfort looking into bright lights, nausea, vomiting, sleepiness and confusion. The disease may be difficult to detect with newborns and children as they may only appear to be inactive or slow, be irritable, vomit, or feed poorly. Anyone at any age may also have seizures.

The disease can progress quickly and can kill within hours. Early diagnosis and treatment are key. Diagnosis typically is made by obtaining a spinal tap. Proper identification of the type of bacteria is important in selecting the correct antibiotics.

The newly licensed meningococcal conjugate vaccine is a single shot, should offer longer protection than previously administered vaccines, and the only common reaction is a sore arm.



The Future of Oral and Maxillofacial Surgery

Shaping the future practice of oral and maxillofacial surgery will be short- and long-term research in wound healing, tissue engineering, pain management, and minimally invasive surgery, according to participants of the recent American Association of Oral and Maxillofacial Surgeons research summit.

Researchers from around the country met to fulfill a dual goal: define current knowledge or technological gaps affecting the current practice of oral and maxillofacial surgery and identify specific research needs that may provide the groundwork for future research initiatives; and secondly, identify current limitations to effective research in oral and maxillofacial surgery, and propose potential explanations for identified shortcomings.

Summit participants ranged from researchers and faculty from accredited oral and maxillofacial surgery residency programs, representatives of the National Institutes of Health/National Institute of Dental and Craniofacial Research, the American Association of Oral and Maxillofacial Surgeons, and the OMS Foundation, to biomedical scientists and bioengineers.

"I view this research summit as a call to action that will reawaken within the specialty a recommitment to the principles of investigative research that is so essential to the future of oral and maxillofacial surgery," said Daniel J. Daley Jr., DDS, AAOMS president.

After contemplating presentations on current technologies and practice procedures available now or in an early stage of development, summit participants formed small study groups to ponder the future of oral and maxillofacial surgery, and the priorities that should be accorded possible research projects in terms of feasibility and benefits to the public's health. Researchers also learned which grants were available and how to apply for them.



During the summit's plenary session, participants called for a program that not only advances the specialty, but improves patient care through research programs, specifically addressing minimally invasive surgery, tissue engineering, and improved pain and wound management.

The results of the summit will be published in an upcoming issue of the *Journal* of Oral and Maxillofacial Surgery.



Oral Health and the Older Adult

Problematic teeth also affects the health of the elderly, increasing their risk of irregular heartbeats.

In a study recently published in the *Journal of the American Geriatrics Society*, researchers examined 125

generally healthy individuals over the age of 80 living in urban, community-based populations. It was discovered that those with three or more active root caries had more than twice the odds of cardiac arrhythmias than those without. Researchers indicated that caries may be a marker of general physical decline in the older population, and specifically emphasize that the mouth is a vital part of the body.

"The findings make a strong case for the active assessment of an attention to oral problems for the older community-dwelling population," said Poul Holm-Pedersen, DDS, PhD, lead author of the study.

Researchers underscored the significance of taking dental diseases seriously since arrhythmias can indicate other potential undiagnosed diseases in the elderly.

Honors



Marc J. Geissberger, DDS, has been appointed chair of the Department of Restorative

Dentistry at University of the Pacific, Arthur A. Dugoni School of Dentistry.



The Academy of Laser Dentistry named John D.B. Featherstone, MSc, PhD, as its first honorary

member. Featherstone, Leland and Gladys Barber Distinguished Professor of Dentistry, is chair of the Department of Preventive and Restorative Dental Sciences at the University of California, San Francisco.

Upcoming Meetings

2005

Aug. 17-20	Sixth Annual World Congress of Minimally Invasive Dentistry, San Diego, (800) 973-8003.	
Sept. 9-11	CDA Fall Scientific Session, San Francisco, (866) CDA-MEMBER (232-6362).	
Sept. 25-28	Pacific Coast Society of Orthodontists/Rocky Mountain Society of Orthodontists Joint Annual Session, San Diego, www.pscortho.org.	
Oct. 6-9	ADA Annual Session, Philadelphia, (312) 440-2500.	
Nov. 4-6	Second International Conference on Evidence-Based Dentistry, Chicago, www.icebd.org.	
2006		
March 15-18	Academy of Laser Dentistry, Tucson, www.laserdentistry.org.	
April 27-30	CDA Spring Scientific Session, Anaheim, (866) CDA-MEMBER (232-6362).	
Sept. 15-17	CDA Fall Scientific Session, San Francisco, (866) CDA-MEMBER (232-6362).	
Oct. 16-19	ADA Annual Session, Las Vegas, (312) 440-2500.	
Dec. 3-6	International Workshop of the International Cleft Lip and Palate Foundation, Chennai, India, (91) 44-24331696.	
To have an event included on this list of nonprofit association meetings, please send the information		

to Upcoming Meetings, *CDA Journal*, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to (916) 554-5962.



Employers Refrain from Shifting Dental Costs to Workers

While the trend of cost-shifting medical benefits to employees is on the rise, it appears employers are not doing the same when it comes to dental insurance, according to the March issue of *Managed Dental Care*.

In fact, the monetary benefit of cutting dental coverage is so small, employers see it as nonproductive. Dental currently accounts for about 7 percent to 8 percent of all health benefit costs for businesses. If a belt-tightening measure can reduce dental expenses by 10 percent, it actually would result in a less than 1 percent reduction of total health costs.

The only change, according to the article, employers might make to their dental benefits is to opt from indemnity only to managed dental only. However, statistics show that dental HMO penetration was flat in 2003 and 2004, maintaining only 16 percent of the total dental insurance market.

Introduction

Oral Health for People With Special Needs

Paul Glassman, DDS, MA, MBA

he number of people with special needs is increasing dramatically. In this context, people with special needs refers to people who have difficulty obtaining good oral health or accessing oral health services because of a disability or medical condition. Among these groups, the numbers of people with developmental disabilities and the emerging population of aging baby boomers with teeth are demonstrating dramatic growth. People in these groups have significantly more dental disease than the general population. It is already difficult for many people with special needs to obtain oral health services. Under the current system of care, this situation will only get worse.

The major health disparities experienced by people with special needs in California are attracting the attention of policy makers as the problem increases and advocates for these populations become more vocal about their concerns. The dental profession must carefully consider the implications of these growing populations and the implications for the future training of oral health professionals, and the delivery of dental services.

This issue of the *Journal* and the next are devoted to presenting the conclusions of a conference developed by the Pacific Center for Special Care at the University of the Pacific Arthur A. Dugoni School of Dentistry and host-

ed by the California Dental Association Foundation in November 2003. Some of the background papers are included in this issue and the rest in the next issue of this Journal. Some of the solutions proposed in these issues of the Journal may be controversial and may test boundaries and hypotheses. However. a conscious effort was made at the conference not to be constricted by the structure of the current dental delivery system and to "think outside the box" in developing potential solutions to a very serious problem emerging in our society and our state.

We hope the consensus statement and the background papers in these issues will stimulate thinking among many people about the dramatic problems that are emerging with providing oral health services for people with special needs. It will take an increased awareness of these problems and the engagement of many individuals and groups to create a world where people with special needs can have a lifetime of oral health.



Guest Editor / Paul Glassman, DDS, MA, MBA, is professor of Dental Practice, associate dean for Information and Educational Technology, and director of the Advanced Education in General Dentistry Program at the University of the Pacific Arthur A. Dugoni School of Dentistry.



Oral Health for People With Special Needs: Consensus Statement on Implications and Recommendations for the Dental Profession

 Paul Glassman, DDS, MA, MBA; Tim Henderson, MSPH; Michael Helgeson, DDS; Linda Niessen, DMD, MPH; Neal Demby, DDS, MPH; Christine Miller, RDH, MHS, MA; Cyril Meyerowitz, DDS; Rick Ingraham, MS; Robert Isman, DDS, MPH; David Noel, DDS, MPH; Rolande Tellier; and Karen Toto, MA

Abstract

In November 2004, the Pacific Center for Special Care at the University of the Pacific Arthur A. Dugoni School of Dentistry, with support from the California Dental Association Foundation, hosted a conference to explore the issue of oral health for people with special needs. This conference was held in conjunction with the joint meetings of Pacific's Statewide Task Force on Oral Health for People With Special Needs and Pacific's Statewide Task Force on Oral Health and Aging. These groups of interested stakeholders meet several times a year to discuss the increasing problems faced by people with disabilities, elderly individuals, and other special populations in obtaining access to oral health services and maintaining good oral health.

The purpose of this conference was to explore the changing population of people with special needs, analyze the implications for the dental profession and society, and describe systems and strategies that might lead to improved oral health for these populations. This conference also served as a forum for developing oral health recommendations as a part of the California Commission on Aging's Strategic Plan for an Aging Population. Seven nationally recognized speakers presented draft papers on various aspects of this topic. These presentations are published as the additional papers in this and the next issue of the *Journal*. There was time for audience reaction and discussion with the speakers. The speakers and a designated group of reactors then developed this consensus statement and recommendations for addressing these issues.



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DDS, MPH, is director of the Department of Dentistry at Lutheran Medical Center; Christine Miller, RDH, MHS, MA, is associate professor and director of Community Programs at the University of the Pacific Arthur A. Dugoni School of Dentistry; Cyril Meyerowitz, DDS, is professor and chair of the Department of Dentistry at the University of Rochester; Rick Ingraham MS, is branch manager of the Children and Family Services Branch of the California State Department of Developmental Services; Robert Isman, DDS, MPH is a dental program consultant; David Noel, DDS, MPH, is the chief dental program consultant with the California Department of Health Services; Rolande Tellier, is director of education and training, California Dental Association Foundation; and Karen Toto, MA, is a licensed marriage and family therapist, and program manager of the Pacific Center for Special Care at the University of the Pacific Arthur A. Dugoni School of Dentistry.



Along with the changing demographics of our population and advances in medical and social systems, the number of people with special needs who need oral health services is rising dramatically.^{1,2} In this context, people with special needs refers to individuals who have barriers to achieving good oral health primarily because of a disability or medical condition. This includes people who may also have complex medical, physical, and psychological problems, and elderly individuals with these conditions.

The rise in numbers of people with special needs is due to many factors. The percent of people over age 65 is increasing at the same time that the rate of edentulism is decreasing dramatically. In California, only 13 percent of people over 65 are edentulous now compared to close to 50 percent only a few decades ago.² This new population of baby boomers with teeth has invested heavily in maintaining oral health, has complex restorations that require maintenance, and will present significant challenges to the dental profession as they become less able to maintain good oral health.3 Another group is people with complex developmental and mental disabilities who are being released from state institutions into community living arrangements. The population of people living in institutions has been reduced by 75 percent over the past 20 years. The majority of people who would have been living in institutions now live in community settings.⁴ Specialized services that were available in these institutions are typically not available in the community. In addition, the medical health care system has made dramatic strides which have resulted in far more people with chronic diseases taking multiple medications, undergoing complex medical treatments, and living and seeking dental services in community settings.

The current oral health care system is not working well for those populations previously described.⁵ Increasing oral health workforce shortages, inadequate training of oral health professionals, a reimbursement system that does not reward the kinds of services needed by these populations and other factors all contribute to the failure of the current system for these groups. The result

> The majority of people who would have been living in institutions now live in community settings.

is significant oral health disparities with more dental disease, few preventive services, and significant access problems for people with special needs.

The dramatic increase in the number of people with special needs who will need dental care comes at a time when there is a declining dental workforce.⁶⁻⁸ It is already difficult to impossible for many people with special needs to find a dentist willing or able to treat them. Under the current system, this situation can only get worse.

Issues to Be Addressed

The panel considered the major issues that need to be addressed if people with special needs are to achieve optimum oral health. The following is a summary of those issues as determined by the panel:

■ People with special needs, including those elderly individuals and people with disabilities who have complex medical, physical, and psychological problems, are having increasing difficulty finding oral health services and obtaining good oral health.

■ There is inadequate training for dental professionals in treatment of individuals with the complex situations described previously. There are currently no requirements in the accreditation standards for dental and dental hygiene education programs to provide experiences for graduates in treating these groups of people.

■ There are inadequate incentives for dental professionals to become involved in treatment of individuals with the complex situations described previously who may take more time to treat and may produce less income for the dental professional.

■ The predominant funding mechanism for oral health care for people who are disabled, and consequently have lowered incomes, is Medicaid. In most states, this reimbursement system does not recognize the complex issues involved with caring for people with special needs, including the need for increased consultation with general health and social service professionals, and more time to complete procedures.

■ The current system of care relies predominantly on dental offices and clinics to provide all levels of oral health services, including screening, oral health education, minor procedures, and complex procedures. A dental office or clinic may not be the only place where some of these services can be provided, and for some services, it may not be the best place. In particular, preventive services may be more effectively delivered in settings closer to where people live and spend the majority of their time.

■ The separation between the oral health care system and other general health and social services systems leads to a lack of integration of oral health

issues in general health, social service treatment, and funding mechanisms.

■ Caregivers who work with people with special needs on a daily basis are typically not educated, motivated, or engaged in efforts to prevent dental disease in the people for whom they are caring.

■ Quality improvement systems in place at residential facilities for people with special needs, including nursing homes, licensed health care facilities, and community care facilities often do not consider the extent to which oral health services are being provided in these facilities.

■ Policy makers who calculate current and future oral health workforce needs typically do not consider the needs of underserved populations such as people with special needs. Many workforce projections assume that people who are currently outside of the currently delivery system will continue to stay outside.

Characteristics of a New System

The panel then considered proposals for how a new system for delivering oral health care would look.⁵ They agreed upon a series of characteristics of such a new system. These are:

■ A focus on prevention — The current and future oral health workforce will not be able to keep up with the burden of oral disease as special needs populations continue to grow, unless there is a dramatic reduction in the rate of development of oral diseases. This shift will require more focus on the prevention of oral diseases by oral and other health professionals and by social service systems as well as by caregivers, families, and people with special needs themselves.

■ An incentive system that addresses services likely to improve oral health for these populations — The current system primarily rewards surgical interventions (including dental restorative procedures) and provides minimal rewards for other activities that might be more cost-effective strategies for obtaining better health outcomes. A new system should provide incentives for early promotion of preventive practices, early identification of potential and actual oral health problems, preventive education, screening and referral, case management, application of the least invasive solutions, and

A community triage is a referral and tracking system that can identify people in need of oral health services and facilitate matching them with sources of care to best meet their needs.

use of major surgical interventions as a last resort. In this context, restorative dentistry procedures such as fillings and crowns could be considered major surgical interventions. They are certainly major compared to re-mineralization procedures applied early in the caries process.

■ A system integrated with other community health and social service systems — If we consider an emphasis on preventive education and early intervention to be important aspects of a new oral health system, then it can be argued that the dental office is not the best, nor the most efficient place for such activities to take place. These and other interventions might be better applied in the context of other community health and social service systems. Oral health professionals could adopt new roles as mentors and guides for general health and social service professionals. This approach would not only integrate these services with social and general health services, but would allow dental practices to focus on those more complex procedures where surgical intervention is needed.

■ A case management approach where oral diseases can be identified and people referred to care settings that best match their situation and needs — Currently, many people with special needs have trouble finding sources of oral health care. A case management model can significantly decrease problems people have in finding sources of care. A community triage is a referral and tracking system that can identify people in need of oral health services and facilitate matching them with sources of care to best meet their needs.

■ A tiered delivery system with oral health professionals serving as coaches, mentors, and supporters of other health and social service professionals — The current and future oral health workforce will never be able to provide all the preventive education, minor treatment procedures, and surgical interventions that are needed to maintain oral health in populations of people with special needs. It is therefore critical other people become involved in these oral health preventive and treatment activities. Oral health professionals can act as coaches, mentors, and supporters of other health and social service professionals, thereby multiplying the effectiveness of the oral health professionals.

■ A system that engages caregivers closest to the individual in playing a major role in maintaining oral health — If oral health professionals act as coaches, mentors, and supporters of other health and social service professionals, then it may be possible to support those individuals who provide care and are in contact with people with



special needs on a daily basis in the application of oral health prevention practices.

■ A tiered delivery system where increasingly complex care is performed by those with the most extensive training to deliver such care and less complex care is delivered by those with less extensive training — If the bulk of preventive activities and even less invasive oral health treatment procedures were integrated with activities of other community health and social service systems, this would enable dental providers to concentrate on the most complex procedures that only they are trained to perform. Such an approach would require increased training about oral health for caregivers and general health and social service professionals, and possibly development of new professionals or oral health professionals with new roles who could function in general health and social service setting and concentrate on oral health issues.

Figure 1 contains a diagram of a tiered oral health system. In this diagram, basic services are delivered in settings where people live, work, play, attend school, or receive social services. These basic services include screening, triage, referral and tracking of care; preventive education; application of modern preventive protocols for people with special needs; and minor dental procedures. When more complex services are required, traditional dental providers in dental offices, clinics, and hospitals can be involved.

Recommendations

The panel then considered a series of ideas that could lead to specific solutions for the issues previously listed and developed a list of recommendations to address these issues. The recommendations are to:

Focus on prevention. Although the current population of people with spe-



Figure 1. A tiered oral health care delivery system.

cial needs is carrying a large burden of current disease, we are falling further behind in our ability to provide treatment. Therefore, focusing more on preventing future disease must begin.

Develop a reward system that addresses services likely to improve oral health for these populations. It is currently very difficult to find funding for case management services, health education programs, triage and referral systems, and other strategies that can limit the need for costly and complicated dental procedures. Funding a pilot or demonstration projects can help establish the efficacy of this approach.

Increase or provide funding for modern caries prevention and early intervention procedures, including the application of fluoride varnish, dispensing and providing education about the use of xylitol and other products that have been shown to reverse or prevent the caries process.

Provide adequate reimbursement for oral health treatment services. Provide a mechanism in Medicaid programs to reimburse extra time spent with a patient with special needs who has medical or behavioral challenges.

Provide support systems for professionals working with people with special needs. These include the ability to consult with experts in person or using distance technology, web-based resources, or online education programs.

Integrate oral health services with other community health and social service systems. It is clear oral health professionals alone cannot solve the oral health problems of people with special needs. Oral health identification, prevention, and treatment activities can be integrated with general health and social service systems and professionals in these fields trained and enlisted to carry out these activities in conjunction with other health and social interventions they are performing.

Develop oral health goals and standards for residential facilities and use quality improvement systems to improve compliance with these standards. Tie compliance with these standards to licensure and certification inspections.

Employ case management systems, including triage and referral systems, where oral diseases can be identified and people referred to care settings that best match their situation and needs.

Consider a new role for oral health professionals as coaches, mentors, and supporters of other health and social service professionals. Expand the scope of oral health activities that can be performed by allied dental professionals and general health and social service professionals when working with people with special needs outside of the dental office or clinic settings. Include in these scope of service reforms case management, preventive procedures, and minor treatment procedures.

Develop incentives and systems for engaging caregivers closest to the individual in playing a major role in maintaining oral health. Incentives can include performance rewards and standards tied to licensing.

Recognize that many people with special needs require professional care from dentists with a higher level of training than is provided in most dental schools. Require a year of "service and learning" for all dental graduates in an advanced education program accredited by the Commission on Dental Accreditation for dental licensure. Ensure these programs graduate dentists competent to treat people with a wide variety of special needs.

Increase training for all dental professionals in providing care for people with special needs. This includes providing didactic instruction and clinical experience in this area for dental and dental hygiene students. Make this a part of the accreditation requirements for dental and dental hygiene programs. Also, require continuing education in this area for all dental professionals.

Coordinate data systems across state programs. It is currently difficult to

Develop oral health goals and standards for residential facilities and use quality improvement systems to improve compliance with these standards.

obtain good data about the oral health and other characteristics of people with special needs because information about them is tracked by differing state agencies using systems that do not allow cross-referencing of data.

Construct an index of dentally underserved populations that would include ways to identify underserved populations of people with special needs.

Catalog and publicize successful models. Fund replication and expansion of models that have been shown to be cost-effective as adjuncts to alternatives to the current oral health delivery system for people with special needs.

Fund research on oral health delivery and prevention models for people with special needs.

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New Models for Improving Oral Health for People With Special Needs

Paul Glassman, DDS, MA, MBA

Abstract

The number of people with special needs is increasing dramatically. In this context, people with special needs refer to people who have difficulty having good oral health or accessing oral health services because of a disability or medical condition. Among these groups, the number of people with developmental disabilities and the emerging population of aging "baby boomers with teeth" are demonstrating dramatic growth. People in these groups have significantly more dental disease than the general population. It is already difficult to impossible for many people with special needs to obtain oral health services. Under the current system of care, this situation will only get worse. The characteristics of a new model, which can better address the oral health problems of people with special needs, are described.

magine you find yourself as the health minister of a small country. You realize heart disease is rampant in your country. Now, imagine you decide that the best way to treat this epidemic of heart disease is to train many heart surgeons. One might conclude this solution was a misallocation of resources. One might argue that systems could be developed that would better serve those people with heart disease. These systems might include a number of strategies, a focus on prevention, and training and deployment of a number of types of practitioners. Now, this small country might not be a perfect analogy to the current situation with oral health and people with special needs, but it has striking similarities. This paper will review the current situation and the oral health system for people with special needs. It also will describe some characteristics of an oral health system that might better address their oral health needs.



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Figure 1. Population with disabilities by age. From U.S. Census Bureau.¹

The Population of People With Special Needs Is Increasing Dramatically

The number of people with special needs who need oral health services is rising dramatically. In this context, people with special needs refers to people who have difficulty maintaining good oral health or accessing oral health services because of a disability or medical condition. The U.S. Census reported in 2000 that 49.7 million people had a long-standing condition or disability.¹ They represented 19.3 percent of 257.2 million people aged 5 and older in the civilian noninstitutionalized population, or nearly one person in five. Figure 1 illustrates the fact that the majority of people with disabilities are over the age of 65. In Figure 2, it can be seen that the major areas of disability are physical, difficulty going outside, sensory, and mental disabilities. A significant portion of the population, 9.5 percent of those over age 65, also has

problems with basic self-care. Also of interest in the 2000 census data was the finding that 46.3 percent people with at least one disability reported having more than one. **Figure 3** illustrates the rate of multiple disabilities found in the population.

While there is a growing population of people with disabilities in general, there is explosive growth in the number of people with certain disabilities. For example, Figure 4 illustrates the number of people with developmental disabilities who are served by the California Department of Developmental Services has been growing at more than 5 percent per year, while the general population of California is growing at approximately 1.8 percent per year.² In addition, the prevalence of autism in California has increased from 7.5 per 10,000 for people born in 1983-'85 to 20.2 per 10,000 for people born in 1993-'95, an increase of 269 percent.³ Other states have shown similar or greater increases.⁴

Many reports show that people with disabilities have more dental disease, more missing teeth, and more difficulty obtaining dental care than other members of the general population.⁵⁻¹⁰ Reports that focus on people with developmental disabilities demonstrate that those who reside in community settings have significant unmet medical and dental needs.¹¹⁻¹⁸ The situation is worse for individuals with disabilities who live in rural areas.¹⁹

The surgeon general's report on oral health points out that people with mental retardation or other developmental disabilities have significantly higher rates of poor oral hygiene and an increased need for periodontal treatment than the general population.⁵ People with disabilities also have a higher rate of dental caries than the general population, and almost two-thirds of community-based residential facilities report having inadequate access to dental care.²⁰⁻²³ Untreated dental disease











(For more information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/prod/cen2000/doc/sf3.pdf)

Source: U.S. Census Bureau, Census 2000 Summary File 3.

Note: The statistics for difficulty going outside the home are only for people aged 16 and older. The statistics on employment disability are only for people 16 to 64. All other disability estimates include people 5 and older.



has been found in at least 25 percent of people with cerebral palsy; 30 percent of those with head injuries; and 17 percent of those with hearing impairment.⁶ A study commissioned by the Special Olympics concluded that individuals with mental retardation have poorer oral health, more untreated caries, and a higher prevalence of gingivitis and other periodontal diseases than the general population.²⁴

In 1999, the U.S. Special Olympics Special Smiles Program performed extremely conservative oral assessments (no X-rays, mirrors, or explorers) of athletes of all ages, and found that 12.9 percent of the athletes reported some form of oral pain; 39 percent demonstrated signs of gingival infection; and nearly 25 percent had untreated decay.²⁵ These findings are in a population that tends to be from higher income families. However, people from lower socioeconomic groups and those covered by Medicaid also have more dental disease and receive fewer dental services than the general population, and many individuals with disabilities are in these



Annual Growth Rate Comparison Between DDS Population and State of Calif. Population

Figure 4. Growth rate comparison between the population served by the California Department of Developmental Services and the general population of California.²





Figure 5. Growth in the elderly population.³³



Figure 6. Percent of elderly with high school diploma or higher.³³

lower socioeconomic groups.^{5,26,27}

In the mid-20th century, many people with physical and mental disabilities were institutionalized and institutionbased preventive dentistry programs were developed.²⁸⁻³⁰ However, since the 1970s, almost two-thirds of those residing in institutional settings have been moved into community-based settings and dental care services, which had been available in the institution, are in many cases, no longer unavailable for them.³¹ Deinstitutionalization has exacerbated the problem that many individuals with special needs have in obtaining access to dental care as they move from childhood to adulthood. The limited availability of dental providers trained to serve special needs populations and limited third-party support for the delivery of complex services further complicates the issue.⁵ Some believe that the U.S. health care system discriminates against people with disabilities because health care professionals are uncomfortable working with people with disabilities and find ways not to treat them.³²

The nation's growing senior citizen population is especially at high risk for dental problems, particularly those with health problems or other disabilities. An estimated 70 percent of the nation's 2 million-plus nursing home population has dental problems, including dentures that don't fit, loss of some or all of their teeth, and most significantly, poor oral hygiene.⁶

Most people are aware of the "graying of America," the phrase used to describe the dramatic growth in the proportion of the population over the age of 65. The number of Americans older than 65 increased more than 10-fold from 1900 to 2000, from 3 million to 35 million, representing almost 13 percent of the total population.³³ The number of people over the age of 65 is expected to grow to 70 million by 2030 when they will represent 20 percent of the population. Even more dramatic growth is expected in the number of people over the age of 85, which will reach 19 million by 2050, representing 5 percent of the total population. The size of this "oldest old" age group is especially important for the future of our health care system, because these individuals tend to be in poorer health and require more services than their younger counterparts. **Figure 5** illustrates the increase in the population over 65 and 85 in the coming decades.

In addition to there being more elderly people, those over 65 are increasingly better educated than in previous generations and have a higher net worth. **Figure 6** shows the increase in the percent of elderly individuals with a high school diploma or higher, and **Figure 7** illustrates the increasing mean household net worth of the elderly population. These trends portend a population that will be better educated, have more income than previous generations, and therefore, demand better dental care.

While most people are aware of the "graying of America," it is not widely understood that, at the same time, the rate of edentulism is decreasing dramatically.5 In California, only 13 percent of people over 65 are edentulous now compared to close to 50 percent only a few decades ago. Figure 8 illustrates the dramatic drop in the edentulism rate from the early 1970s to the 1990s. This new population of baby boomers with teeth has invested heavily in maintaining oral health, has complex restorations that require maintenance, and will present significant challenges to the dental profession as they become less able to maintain good oral health.

Implications for the Oral Health System

The dramatic increase in the number of people with special needs who will need dental care comes at a time when there is a declining dental work-





Figure 7. Mean household net worth of elderly population.³³

The Percentage of People Without Any Teeth Has



Figure 8: Rate of edentulism in U.S. population.⁵



force. The number of graduates will not keep pace with the number of retirees and the dentist-to-population ratio is expected to decline over the next 20 years and beyond.^{34:37} Even the most optimistic workforce projections are based on the assumption that those populations, who do not currently receive dental care, will continue to remain outside of the current delivery system. It already is difficult to impossible for many people with special needs to find a dentist willing or able to treat them. Under the current system, this situation can only get worse.

The dramatic population shifts previously described present increasing challenges for the oral health care system. There are many reasons why the oral health of people with special needs is poorer than the general population, and access to dental services is more restricted. In addition to those factors already mentioned, there are also limitations in individuals' understanding and physically being able to perform personal prevention practices, or to obtain needed services. Some oral problems are exacerbated by medical problems, side effects of medication, or by the disability itself.⁵ Additionally, many dentists are not trained, or are not willing, to manage complex medical, social, and behavioral problems experienced by many individuals in this group.⁶

Most people with disabilities who live in community settings are adults.^{38,39} Older individuals with mental retardation have more missing teeth and are at higher risk for poor oral health compared with their younger counterparts and those in the general population.²⁴ Annually, 36.5 percent of severely disabled persons 15 years and older reported a dental visit, compared with 53.4 percent of those with no disability.²⁷ Few states cover dental services for adults under Medicaid. Even in those states with Medicaid coverage, low reimbursement rates and the reluctance of practitioners to accept those rates, reduce the availability of care, including hospitalization and anesthesia required for treating patients with disabilities.⁶

All of the factors mentioned thus far lead to the inevitable conclusion that the current oral health care system is not working well for those popula-

> If good oral health is to become a reality in the future for people with special needs, a new health care system will be needed.

tions described. Increasing oral health workforce shortages; inadequate training of oral health professionals; a reimbursement system that does not reward the kinds of services needed by these populations; inadequate knowledge and application of preventive practices; and other factors all contribute to the failure of the current system for these groups. The result, as previously outlined, is significant oral health disparities with more dental disease, fewer preventive services, and significant access problems for people with special needs.

If good oral health is to become a reality in the future for people with special needs, a new health care system will be needed. This new system must address the unique characteristics of populations of people with special needs. The remainder of this article explores the characteristics of such a system and strategies that might lead to improved oral health for these populations.

A New Oral Health Care System

A new health care system would need to have some characteristics different than the current one if it is to provide health care services for people with special needs. Seven characteristics of a heath care system that could meet the needs of these populations are:

■ A focus on prevention — The rapid growth of populations of people with special needs and the barriers they experience in receiving dental treatment, has and will continue to produce a tremendous burden of disease that the current system cannot address. The only way to address this burden of disease in the future is to reduce the incidence of new disease. It will therefore be critical in the future to shift the focus of oral health care in these populations from treatment to prevention. This shift will require a focus on prevention of oral diseases by oral and other health professionals, social service systems, caregivers, families, and people with special needs themselves.

A reward system that addresses services is likely to improve oral health for these populations — The current system rewards surgical interventions and does not reward other activities that might be less costly overall, and might be more likely to lead to better health outcomes. Reimbursement systems, and even fee schedules for people who pay for oral health services directly, include reimbursement for procedures performed by oral health professionals, primarily in dental offices and clinics. They include little or no reimbursement for preventive education, screening and referral, case management, or other less procedure-oriented interventions. A new system should reward early promotion of preventive practices, early identification of potential and actual

oral health problems, application of the least invasive solutions, and major surgical interventions as a last resort. In this context, one could consider restorative dentistry procedures such as fillings and crowns as major surgical interventions. They are certainly major compared to remineralization procedures applied early in the caries process.

■ A system integrated with other community health and social service systems — The dramatic increases in the numbers of people with special needs, the declining dentist-to-population ratios, and the increasing burden of disease experienced by special needs populations are all contributing to a reduced ability of the oral health profession to address the oral needs of these populations. It is critical that dental professionals partner with other professionals to address these problems. If we consider an emphasis on preventive education and early intervention to be important aspects of a new oral health system, then it can be argued the dental office is not the best or most efficient place for such activities to take place. These interventions might be better applied in the context of other community health and social service systems. If general health and social service professionals could work with oral health professionals and become involved in activities to promote oral health, the number of people who could be reached could be increased tremendously. This would not only integrate these services with social and general health services, but it would allow dental practices to focus on those more complex procedures where surgical intervention is needed.

■ A case management approach where oral diseases can be identified and people referred to care settings that best match their situation and needs — Currently, many people with special needs have trouble finding sources of oral health care. It has been shown that a case management model can significantly decrease problems people have in finding sources of care.⁴⁰ Case management models employ triage, referral and tracking systems, as well as resource identification and development components. In this manner, people in need of oral health services can be identified and matched

If the individual is not capable of complete self-care, it is essential that people who are in daily contact with the individual being served become engaged in the prevention of dental disease and other aspects of the individual's oral health care.

with sources of care that best meet their needs. In a three-year demonstration project using such a system, there was a 38 percent improvement in visible caries, a 44 percent improvement in decayed fillings or crowns, and a 21 percent improvement in gum disease.⁴¹

■ A tiered delivery system with oral health professionals serving as coaches, mentors, and supporters of other health and social service professionals — As the population of people with special needs continues to grow at a pace that is far greater than the growth of the general population, the current and future oral health workforce will never be able to provide all the preventive education, minor treatment procedures, and surgical interventions that are needed to maintain their oral health. It is therefore critical that other people become involved in these oral health preventive and treatment activities. Ideal candidates for involvement are general health and social service professionals and caregivers of people with special needs. It has been demonstrated that oral health professionals can act as coaches, mentors, and supporters of other health and social service professionals, thereby multiplying their effectiveness.⁴¹

■ A system that engages those caregivers closest to the individual in playing a major role in maintaining oral health - Most oral health preventive procedures must be applied on a daily or more frequent basis. It is clear there is no way oral health professionals can be in contact with people they are trying to serve with that frequency. Therefore, if the individual is not capable of complete self-care, it is essential that people who are in daily contact with the individual being served become engaged in the prevention of dental disease and other aspects of the individual's oral health care. If oral health professionals act as coaches, mentors, and supporters of caregivers and other health and social service professionals, then it may be possible to support those individuals who provide care and are in contact with people with special needs on a daily basis in their application of oral health prevention practices. For example, it has been demonstrated that educational materials, applied in such a "pyramid" training approach can be effective in reducing dental disease.42

■ A tiered delivery system where increasingly complex care is performed by those with most extensive training to deliver such care and less complex care is delivered by those with less extensive training — Conceptually, it is possible to separate interventions that can improve oral health of people with special needs



into those that can be applied outside of dental offices or clinics by people other than oral health professionals; those that can be applied outside of dental offices or clinics by oral health professionals; and those that must be applied in dental offices or clinics. This conceptual model could form the basis for a tiered system of care.

At a conference sponsored by the Pacific Center for Special Care at the University of the Pacific Arthur A. Dugoni School of Dentistry, a protocol was developed for preventing dental disease in people with special needs residing in community settings.^{43,44} Application of the interventions described in this protocol could be one of the functions of the tiers of a new delivery system that are closest to where the individual being served lives or spends time.

If the bulk of preventive activities and less invasive oral health treatment procedures were integrated with activities of other community health and social service systems, this would enable dental providers to concentrate on the most complex procedures that only they are trained to perform. Such an approach would require increased training about oral health for caregivers and general health and social service professionals, and possibly development of new professionals or oral health professionals with new roles who could function in general health and social service settings and concentrate on oral health issues.

Conclusion

If we return to the analogy of a world with heart disease with only heart surgeons to treat this disease, we can see the advantage of a different world where there are heart surgeons, cardiologists, nurse practitioners, dieticians, and physical fitness coaches. In addition, the advantages are clear for having teachers, social workers, cooks, and others being aware of the problems with heart disease and strategies for its prevention. We also can see how these professionals and nonprofessionals might be supported by information about healthy diets, physical fitness programs, statin medications, and public awareness campaigns.

The challenge for the oral health profession is to take the leadership role in finding the analogies to this world

> This may require rethinking the role of the profession at a fundamental level.

for dental disease in people with special needs. The profession has the opportunity now to design a new model for delivering oral health services that can better serve people with special needs. This may require rethinking the role of the profession at a fundamental level. However, given the dramatic increase in the number of people with special needs, the staggering health disparities in these populations, and the inability of the current oral health care systems to solve these problems, it is essential that oral health professionals become aggressively involved in partnership with policy makers, advocates, as well as general and social service professionals in addressing these issues. It will take an increased awareness of these problems and the engagement of many individuals and groups to create a world where people with special needs can also benefit from a lifetime of oral health. CDA

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Improving Oral Health Disparities and Access to Care: Challenges and Opportunities for the States

Tim M. Henderson, MSPH

Abstract

States and their dental reimbursement, practice, and education policies and programs have done little to address oral health disparities. Particular state policies and programs are often cited as having an adverse impact on oral health access for vulnerable populations. These include poor Medicaid and State Children's Health Insurance Program reimbursement, an inadequate safety net, the ban on the corporate practice of dentistry, and a lack of funding to prepare the dental workforce to treat special needs populations and provide culturally competent care. (The State Children's Health Insurance Program, created by the Balanced Budget Act of 1997, enacted Title XXI of the Social Security Act and allocated about \$20 billion over five years to help states insure more children.) While state health officials have paid less attention to oral health disparities, there has been increased interest by state policymakers in addressing the special health care needs

of the elderly, disabled, and children. These include state responses to the 1999 Olmstead Supreme Court decision and state pharmaceutical assistance programs for the elderly and disabled. (In rejecting the state of Georgia's appeal to enforce institutionalization of individuals with disabilities, the Supreme Court in 1999 affirmed the right of individuals with disabilities to live in their community in its 6-3 ruling against the state of Georgia in the case Olmstead v. L.C and E.W.) However, a few states have begun to develop solutions to explicitly address oral health access problems. States are considering or testing the following programs and policies pertaining to 1) improving workforce supply and distribution, 2) education reform and increased public accountability, 3) practice reform, and 4) increased data collection and research.

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hile the oral health status of Americans overall has improved dramatically in the past 25 years, profound and troubling disparities in oral health remain. Minority, low-income, certain special needs, medically underserved populations, and many rural communities suffer disproportionately from oral pain and disease. Nearly one-third of seniors over age 65 have untreated tooth decay. Similar differences in access to oral health care services exist among these population groups.1

State Challenges

A 2002 report by the National Conference of State Legislatures for The Robert Wood Johnson Foundation concludes that states and their dental reimbursement, practice and education policies and programs have done little to address oral health disparities.² Interviews with state officials found, not surprisingly, that there is a shortage of dentists who are willing to treat low-income clients, particularly those insured by Medicaid, and children or adults with special health care needs. Many dentists, the report notes, are taught in dental school to refer disabled patients and young children elsewhere, and consequently lack the training and comfort level to treat these populations. Officials in one state noted there is a three-week wait for oral health services for children with special health care needs. Although in another state, a few disabled patients can receive care at a city hospital through the WICHE program (a multistate exchange program that provides slots in professional schools for state residents from states without schools); the impact is seen as minimal. A fiscal analyst at the state legislature said "it would take four years for them to serve the whole disabled population with one dental visit." It has also been found in many states that much of the oral health workforce has little preparation in providing culturally competent care to racially and ethnically diverse populations.²

Particular conditions and trends in the states are often cited as having an adverse impact on oral health access for vulnerable populations. These include:

■ Poor Medicaid and SCHIP reimbursement. In addition to Medicaid and SCHIP, low payment rates that negatively affect dentists' willingness to serve low-income and disadvantaged populations, barriers to access also result when some procedures or

Many dentists, the report notes, are taught in dental school to refer disabled patients and young children elsewhere and consequently lack the training and comfort level to treat these populations.

services receive no reimbursement. For example, coordination or case management between physicians and dentists is rarely funded, though some state children's health officials see the need for it. Also, state Medicaid programs rarely provide extra reimbursement to treat the elderly or people with disabilities, which is particularly challenging considering such patients are seen as more difficult and time-consuming to treat than children.²

■ Inadequate safety net. A decaying and inadequate public health infrastructure or safety net for oral health care in most states is a growing concern.²

■ Ban on the corporate practice of dentistry. Many states have a ban on the corporate practice of dentistry in their

Dental Practices Act, which prevents dentists from working for any entity other than another dentist. Although such restrictions are often viewed as preserving quality of care, they have been used to prevent the development of dental-managed care and maintain the solo practice model. Such provisions may also erect a legal barrier to the development of public health clinics or the addition of dental services to community health centers in some states unless exceptions are written into law or regulations.²

■ Lack of funding to prepare the dental workforce to treat special needs populations and provide culturally competent care. Few, if any, state appropriations for dental education target funding to address these needs, perhaps because of the perception held by some that the dental profession is increasingly focused on providing elective treatment to higher socioeconomic groups.²

The status of these conditions and trends are influenced by the fact that most states have had budget crises in recent years. To lower costs, at least 25 states have reduced or eliminated dental benefits or restricted program eligibility, particularly for adults, under their Medicaid programs. Approximately 37 states have frozen or reduced Medicaid payments to dental providers, causing greater concern over rates of provider participation. Public funding of higher education, including dental training, has been slashed in many states. Consequently, the goal of most state health officials has been simply preservation, rather than expansion, of programs and policies. In general, the National Conference of State Legislatures report concluded that oral health appears to be a low priority for some state health agencies and most state lawmakers. Dental directors in a number of states said they lacked the necessary support from the health commissioner or governor in asking their legislatures for funding for oral health programs.

Moreover, since oral health is a small percentage of overall spending in Medicaid and public health, it typically receives little attention in the policy-making or budgeting processes. In addition, the report found that oral health is not a priority for advocacy groups in the disability or special needs children communities. In two states interviewed, the disability community says that oral health is a "back-burner issue" because access to health care can be a life or death issue.²

State Opportunities

While state health officials have paid less attention to oral health disparities, there has been increased interest by state policymakers in addressing the special health care needs of the elderly, disabled, and children without regard explicitly to oral health care.

Response to Olmstead

Long before the 1999 Olmstead Supreme Court decision, states were increasingly providing home and community-based services for the elderly and disabled, primarily through Medicaid waiver programs. However, Olmstead, along with federal grants, have spurred state and local activity and have kept the momentum alive for serving qualified individuals with disabilities in the most integrated setting. According to a February 2004 report by the National Conference of State Legislatures, 29 states had issued an Olmstead-related plan or report as of the end of 2003. The plans identify a strong communitybased system as one in which consumers have a variety of options tailored to their individual needs.3

Although the budget crises have constrained the more costly Olmstead plan recommendations, the states were able to implement some of the low-cost or cost-neutral solutions, especially those receiving federal grant support, such as consumer-directed care; efforts to move people back into the community or divert institutional placement; and consumer outreach and education. In at least nine states, worker wages have increased, background checks are required, or new curriculums or training to address severe workforce shortages have been created. There are high turnover rates of paraprofessional workers such as nursing assistants, home health aides and personal care attendants, who provide the bulk of hands-on care that many people with disabilities need in order to remain at home or in community-like environments. This direct care worker shortage results from low wages, nonexistent or poor benefits, limited advancement

> Approximately 37 states have frozen or reduced Medicaid payments to dental providers, causing greater concern over rates of provider participation.

opportunities, and lack of respect for the important services they provide.³

Pharmaceutical Assistance Programs

As of September 2004, at least 39 states have established or authorized some type of program to provide pharmaceutical coverage or assistance, primarily to low-income elderly or persons with disabilities who do not qualify for Medicaid. Most programs utilize state funds to subsidize a portion of the costs, usually for a defined population that meets enrollment criteria. but an increasing number use discounts or bulk purchasing approaches. The availability of tobacco settlement funds has been a substantial factor in stimulating discussion and legislative activity relating to prescription drug subsidies.⁴

State Children's Health Insurance Program

Enactment of the State Children's Health Insurance Program in the late 1990s gave states a unique opportunity to effect change for low-income, uninsured children with special health care needs. States can use the flexibility of SCHIP to grapple with design issues to improve services for children with special health care needs. Strategies include providing supplemental benefits, arranging for specialists to be included under the SCHIP plan, expanding eligibility criteria to assist additional families, defining "medical necessity" more broadly, modifying cost-sharing requirements, and addressing quality assurance issues.

In addition, a few states, with a greater awareness and concern of oral health disparities, and in some cases, an improved budget climate in the past two years, have begun to develop solutions to address oral health access problems. Some states have implemented or are considering testing the following programs and policies:

Improving Workforce Supply and Distribution

■ Create and target dental/dental hygiene and public health career promotion activities to junior high and high school students from underrepresented populations in underserved and diverse communities.

■ Revise dental/dental hygiene school admission requirements to favor admitting an increased complement of students interested in community/public service and students from medically underserved areas and underrepresented minority populations. Encourage or require dentists/ hygienists from medically underserved areas/underrepresented minority populations to serve on school admissions committees.

■ Create/expand the availability of



financial incentives for community service for dental/dental hygiene students, particularly those from underserved and underrepresented populations. Incentives include tuition reimbursement, educational scholarships, debt/ loan forgiveness programs, and federal traineeships.

■ Create pilot projects to encourage licensure of qualified foreign-trained dentists. California enacted legislation to start a pilot project to bring dentists from Mexico to underserved areas of California, and to require that the California Dental Board visit and certify foreign dental schools so graduates of those schools can take the California license examination.

Education Reform

■ Identify and diffuse a model core curricula in community/public service for publicly funded dental and dental hygiene schools, including the creation of:

• A strong complement of coursework in community/population health and disease management, cultural competence, needs of special groups, public health and health services research, program planning and evaluation, and public policy, and

• More service-based education opportunities in low-income and racial-ly/ethnically diverse community-based settings, perhaps requiring such rotations to be a condition of graduation.

■ Encourage existing schools to develop/expand satellite campus training programs in community-based, underserved areas.

■ Engage area health education centers to involve/support more dental health professionals in community-based education and projects.

■ Promote/fund the creation of a "year of service learning" postgraduate residency in a variety of public health or underserved community-based settings, initially as an elective and later

as a requirement. Apply what has been learned from New York and other states, Mexico and other countries, as well as other programs that have a fifth year of service. Provide nonprofit providers (e.g., community health clinics) the needed funds to hire dentists to provide supervision for dental students and graduates doing such residencies and externships.

■ Identify practical means for integrating oral health into other health professions education, such as medicine and nursing. There is growing interest in North Carolina and other states to develop programs to train pediatricians to do screening for oral health problems

> If the research findings are to have any lasting impact on dental care, they must become integrated into the education of future dental health professionals.

in the newborn to age 3 population and collaborate with dentists regarding treatment. Similarly, a few states are interested in funding public dental schools that will also provide training for physicians, nurse practitioners and physician assistants in oral health screenings and the application of fluoride varnishes.

Practice Reform

■ Evaluate innovative approaches for providing services in underserved areas and for minority populations, such as the New Zealand dental nurse program and the Alaska health technician or community health worker program.

■ Create authorization for pri-

mary care physicians/nurse practitioners to provide certain preventive oral health services, particularly in public health/low-income settings. Provide financial incentives (e.g., tax credits) for dentists to collaborate with them in this capacity.

■ Provide incentives (e.g., license/ malpractice insurance subsidies, special licensing, and malpractice immunity) for retired dental professionals to provide voluntary care at least on a parttime basis, particularly in public health/ low-income settings. Minnesota's Legislature created a program to reimburse retired dentists for the cost of license renewal and malpractice insurance if they perform 100 hours of volunteer dentistry annually. Similar initiatives have been enacted in other states, and may be modeled after programs funded by Volunteers in Health Care.

■ Through legislation or regulation, design, demonstrate, and evaluate the impact of various new dental practice alternatives that better address community/population health and disease management, particularly for lowincome and underrepresented populations. Some states have sought seed money to establish or support "model practices" and demonstration programs to improve access, such as a non-entitlement adult dental care program or a dental HMO that uses evidence-based practices, focuses on prevention, and evaluates outcomes.

■ Expand the number of model stationary and mobile public dental clinics operating in underserved communities. Provide greater financial and other incentives for recruiting and retaining dentists/hygienists to work in such settings, e.g., tax credits, grants via tobacco settlement/tax funds, loan repayment, travel/lodging discounts, practice management/cultural competence training and technical assistance, continuing education, and donation of clinical/ business equipment. ■ Create more incentives for dentist participation in Medicaid/SCHIP by states paying at market levels and offering volume-based fee incentives. Other funds could be made available to improve outreach to dentists to become Medicaid/SCHIP providers and to provide incentives for dentists who treat disabled and low-income, high-need patients.

Increased Data and Research

■ Develop a new oral health data collection and research agenda to address issues associated with populations with special health care needs in dental education and practice, as well as in government and public policy. For state policy officials in particular, there is a need for more data on the nature and extent of current access problems and for research, evaluation or policy analyses on financing or program models to fix access problems. A number of state oral health officials want more current and detailed information about the prevalence of oral health problems and unmet needs among different populations, not only to spur policy and program development but to develop realistic cost projections of new dental benefits in Medicaid and SCHIP. For example, research is needed to determine the cost of hospital dental care for disabled patients for care that could be delivered in a dental office if qualified dentists were available. Disability advocates might want information about the impact of untreated dental problems and poor oral health on employability. Participation in such data collection and research by the dental profession is important to improving understanding of populations with special health care needs.

• Increase federal and state government funding for disability-based oral health data collection and research. Promote and justify the evidence and need for the new research agenda. • Inform policymakers and agency administrators of the results of applied disability-based oral health/health services research for their constituents. Translating evidence-based research into policy and program decision making is a key activity to realizing the value of such study.

• Incorporate new research findings on disability-based dental health/health services research into school curriculum and practice guidelines. If the research findings are to have any lasting impact on dental care, they must become integrated into the education of future dental health professionals.

Greater Public Accountability

As evident by their long history of financial support, many states believe dental education to be a public good. That is, they believe it to be a good or service that benefits the public at large and will not be produced at the appropriate level in the private market because of difficulty in pricing it. Although the community at large, including future patients and dentists, benefits from dental education, it is impossible to charge future beneficiaries. If left to itself, the private market is likely to "underproduce" dental education. Managed care and other private health plans do little to invest support for dental education. Moreover, the costs of training are too great for many dentist trainees to pay entirely without incurring large debts.

In an era of tight state budgets, states should be prepared to address the following questions in deciding how to continue their support for dental education (much like many states have done for medical education):

■ What does the state want from its dental school?

■ How effective are state-supported dental schools in preparing dentists to meet public needs?

■ How can states improve the chances that their state-supported den-

tal schools will prepare dentists to meet public needs?

Conclusion

Several new ideas and initiatives by states hold promise in improving access to oral health care for special needs and other vulnerable populations. Given shifting state fiscal capacities and policy priorities, oral health advocates must be prepared to develop collaborative partnerships with other advocates of vulnerable and special needs populations to ensure that oral health access is improved.

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The Minnesota Oral Health Care Solutions Project: Implications for People With Special Needs

Michael J. Helgeson, DDS

Abstract

Disparities in oral health status and access to dental care are major problems for people with special needs in Minnesota and across the country. The current delivery system for people with special needs is failing. Patients, community leaders, private dentists, safety net clinics, and state agencies are frustrated with the Medicaid program that funds the current system; and everyone is looking for new solutions. What would an improved oral health care system and Medicaid model look like? This paper describes Minnesota's Oral Health Care Solutions Project that seeks to answer this question and highlights the implications of a new model for people with special needs.

The low reimbursements and administrative burdens of Minnesota's Medicaid program have led many dentists to reduce or stop seeing public program patients. As a result, many people with special needs have been unable to obtain routine dental care and therefore seek treatment in emergency rooms. o facilitate the design of a new oral health care system model to serve public program patients, including people with special needs, Minnesota's Department

of Human Services awarded a planning grant, the "Oral Health Care Solutions Project," to Apple Tree Dental, a private nonprofit organization. Apple Tree facilitated the design of a new model in collaboration with more than 50 partnering organizations and individuals who had been working together for many years (**Table 1**). During a yearlong collaborative design process, the planning partners set out to design a new model for an oral health care system, and then create a business plan for a two-year pilot project to implement the new model.

The Oral Health Care Solutions Project's planning partners received help from several national experts and developed a new oral health care system model featuring patient-centered, evidence-based strategies designed to expand access and enhance the delivery of oral health care services to people of all ages enrolled in Minnesota's health care programs, which include its medical assistance (Medicaid), Minnesota-Care, and general assistance programs.

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Oral Legith Care Solutions Preject - Dianning Partners List			
Oral Health Care Solutions Project – Planning Partners List			
Professional Organizations			
Minnesota Dental Association			
 Minnesota Dental Hygienists' Association 			
Minnesota Dental Assistants Association			
Minnesota Association for Community Dentistry			
Minnesota Primary Care Association	Designing a New Oral Health Care		
Community Clinics and Safety Net Providers	System Model		
Apple Tree Dental	Apple Tree Dental's role during the		
Children's Dental Services	project was to help bring out the best		
Community University Health Care Center	in each of the partners and help them		
Family Health Care Center	design a new system that would work		
Peterson and Peterson Family Dental	well for Minnesota's health care program		
Red River Valley Dental Access Project	recipients, including those with special		
West Side Community Health Services	needs. Rather than asking the group		
Educational Programs	"How can we improve access to dental		
Century College	care?" the group was asked "How can		
Lake Superior Community College	we create an effective new oral health		
Mankato State University	care system tailored to the diverse needs		
Minineapons Community and Technical Conege	of public program patients?" By pos-		
 University of Minnesota Department of Pediatrics 	emphasis was shifted from a focus on		
University of Minnesota, School of Dentistry	"access to dental care" to a new focus		
Hoad Start and Community Action Programs	on designing a new "oral health care		
Minnesota Head Start Association	system." It was agreed that the goal was		
	to improve oral health outcomes by		
Mahube Community Action. Detroit Lakes	providing targeted education, preven-		
Ramsey Action Programs Head Start	tion, early detection and treatment and		
Western Community Action Head Start	that "increasing access to dental care"		
Health Plans	was a key part, but not the only goal.		
Healthpartners			
PrimeWest Health System	Why is this Project Important for Received With Special Needs?		
Advocacy and Local Public Health The current dental care delivered to the current del			
Carver County	tem simply wasn't designed to meet the		
Dakota County	needs of disabled children, adults with		
Legal Services Advocacy Project	disabilities or the frail elderly who face		
Minneapolis Department of Health and Family Support	a host of well-documented barriers to		
Minnesota Disability Law Center	obtaining care in traditional settings. ¹		
Oral Health America Foundation	Current health insurance programs and		
Region Nine Development Commission	their underlying financial models were		
Renville County	designed based on the service utiliza-		
State Agencies	tion patterns of commercial popula-		
Minnesota Department of Human Services	tions that are able to access dental care		
Minnesota Department of Health	codes used for insurance billing have		
Minnesota Board of Dentistry	evolved to describe the services pro-		
	vided to patients successful in obtaining		
Others	dental care in traditional settings. The		
Cincinnatus	utilization patterns and costs associ-		
MAP for Nonprofiles Project Management Institute	ated with these patients are the basis		
	for financial models sometimes applied		
	to the problems facing public program		
	patients and people with special needs.		
And numerous additional local individuals and national experts.	Unfortunately, people with special		
	needs and a large number of other		

public program patients are only rarely able to access the traditional delivery system, and when they do, the services offered often fail to include the unique services they need to achieve optimal oral health. The Oral Health Care Solutions Project set out to design an oral health care system with a new delivery system and a new financial model designed to provide appropriate and necessary services for people with special access needs.

About Minnesota's Dental Access Problems

Less than a third of people covered by Minnesota's public programs are able to access even a single dental appointment each year.² With about 600,000 public program enrollees in the state, that means more than 400,000 people are not accessing dental services despite having a dental care "benefit." Ironically, this same group of people has the highest rate of dental diseases in the state, the greatest need for dental care, and the least access to it. Only about one-third of the dentists in Minnesota provide more than \$10,000 in dental care services to public program patients annually and one-fourth provide no services at all.² Why? The No. 1 reason, according to a recent survey of Minnesota's dentists, is that payments for their services average less than 50 percent of billed charges, while the amount dentists pay for their staff, supplies and other expenses range from 60 to 70 percent of billed charges.³ A typical dentist providing \$100 of billed services actually pays about \$10 to \$20 on behalf of each public program patient they treat while also donating their own professional services. As a result of the lack of available dental appointments, the majority of patient complaints about the inability to access any type of health care service at the state's ombudsman office involve dental access, even though dental care is less than 2 percent of the health care budget.³

What's a Medicaid Agency to Do?

To gain broad-based input from a variety of stakeholders, Minnesota's Department of Human Services impaneled a dental access advisory committee in December 1999.⁴ The committee studied the state's dental access problems, leading to the preparation of several dental access reports with recommendations to the Legislature.² The dental access advisory committee identified leading strategies and practices locally, nationally and internationally, and over the years, recommended multiple comprehensive strategies to improve access to care. The Department of Human Services and the Legislature made incremental changes over the next few years.

To increase the participation of dentists in the program, the Dental Practices Act was changed to make it easier for foreign dentists and those who had completed general practice residencies to obtain dental licenses.5 A new student loan repayment program was designed to reward dental students who agreed to serve public program patients.6 Funding was appropriated to establish a donated dental services program, and targeted higher reimbursements for "critical access dental providers" was established to help stabilize the state's struggling dental safety net.7,8

To help make oral health education, prevention, and screening services more widely available, changes were made to the Dental Practices Act, which permitted dentists to engage in "collaborative agreements" with dental hygienists.⁹ By working together to establish on-site oral health programs in schools, Head Start centers, nursing homes and other sites, the roles of both dentists and hygienists were expanded to permit them to function like physicians and nurses outside their offices in community settings. Dentists are now able to authorize hygienists to educate, provide prevention services, and screen patients without the old requirements that the dentist see the patient first or be present on site. Collaborating dentists and hygienists can now work together to identify patients needing care, assess risk factors, and to triage prompt follow-up care.

Unfortunately, these incremental changes within the current failing Medicaid system have not been enough to reverse the downward spiral of access to dental care. In December 2002, the assistant commissioner of the Department of Human Services stated in a presentation that the system was broken. In early 2003, the department held several informal meetings with key stakeholders and decided to issue a planning grant for the design and pilot testing of a new model based on the strategies recommended by the dental access advisory committee.

"Everything Is on the Table"

The Department of Human Services announced in its request for proposals that it would consider alternatives to:¹⁰

■ How they purchase dental care,

■ From whom they purchase it,

■ What services are purchased and how they are delivered; and

■ How they pay dentists and other providers.

In addition, the department stated that it was willing to:

■ Change internal administrative strategies and policies;

■ Seek necessary federal Medicaid waivers; and

■ Seek necessary statutory or regulatory changes.

With this open invitation for a creative design process, the Oral Health Care Solutions Project was launched in January 2004. The project's goals were to prepare a business plan for a pilot project, and secure commitments from local partners who were ready, willing, and able to carry it out.



How Was the New System Designed?

Apple Tree established a management group to manage the project within the requirements established by the department. The management team was led by a project executive and project coordinator with expertise in community oral health and included professional facilitators from Cincinnatus, project managers from the Project Management Institute, and a business planning expert from MAP for Nonprofits. A contract administrator from the Department of Human Services worked very closely with the management group and the governance committee throughout the entire project, and played an invaluable role.

The sequence of steps used in the Oral Health Care Solutions Project included:

■ Recruiting key stakeholders as design partners (see partners list);

■ Establishing a governance committee and project ground rules;

■ Retreat No. 1: Consensus on the project's design goals;

■ Retreat No. 2: Consensus on the oral health care system design framework;

■ Meetings of design teams, with leaders and project managers;

■ Designing synthesis and consensus on the new oral health care system model;

■ Drafting and approval of the business plan for a pilot project;

■ Recruiting ready, willing and able pilot project partners; and

■ Submitting the business plan to the Department of Human Services.



Figure 1. The oral health care system's design process.

What Should the New Oral Health Care System Provide?

The governance committee, which included key stakeholders and functioned like a board of directors for the project, determined the broad goals and vision for the project. The project's partners agreed that the new oral health care system should provide:

■ The earliest possible education, prevention, screening, diagnosis, and treatment;

■ New or expanded points of entry in community-based settings;

■ Expanded community health roles for allied health professionals and dentists;

■ A "Respectful Referral" system that matches patients with dentists;

■ Evidence-based care that leads to better outcomes and accountability; and

■ Flexibility to adapt to changes in workforce, technologies, and resources.

Oral Health Care System Design Teams

Four design teams were established to design the functional elements of the new model. A fifth team, called the "system team" was established to manage the other teams and to design the central management functions for the pilot project (**Figure 1**).

The "prevention and access team" designed new ways to provide expanded access to education, prevention and screening services at community sites



Figure 2. Oral health care system diagram in the next system.



where public program patients live, work, attend school, or receive other health and social services. The "treatment team" designed new ways to expand access to dental treatment in private dental offices and at safety net clinics while reducing the use of emergency rooms. The "help team" designed new ways to meet the unique needs of patients on the one hand, and dental offices and safety net clinics on the other, seeking to maximize successful referrals while serving as a centralized source of information. The "evaluation and research team" designed an evaluation plan to measure the performance of the new model, and helped other teams identify leading practices and sources of information needed for planning. It also designed methods for incorporating evidence-based decisionmaking processes into the management of the pilot project.

The New Oral Health Care System

Based on the work of the design teams, a pilot project was designed to implement the new oral health care system. The new system features a new community-based delivery system, a centralized source of help and information, a new governance and management model, and a new financial model. The oral health care system diagram illustrates key roles played in the new system (**Figure 2**).

To carry out the oral health care system pilot project, the Department of Human Services plans to issue a request for proposals and award a contract to a management contracting entity. This entity will be governed by a board of directors representing key stakeholders and will establish a clinical advisory board to provide advice on leading practices, evidence-based care, and other clinical issues.

The Help Center

The help center is a critical new component of the oral health care

system model, serving as the central source of help and information in the new system. The help center will be staffed by care coordinators skilled at helping Minnesota's health care programs' patients coordinate transportation, language, and other social services needed to obtain dental care successfully. In addition to assisting patients, the help center also serves dentists, oral health care centers, and community oral health care sites, and must be familiar with their scheduling and

The help center is a critical new component of the oral health care system model, serving as the central source of help and information in the new system.

billing needs. The help center will use computerized information management technologies and a call center to create a single point of contact via a 1-(800) service and also provides a website for patients and providers. This single source of system-wide information will also provide data needed for quality assurance and evaluation.

Private Dentists

Increasing the participation of private dentists is essential in the new system, and will be voluntary. Private dentists will have enhanced flexibility and control over how they participate and will receive higher reimbursements from a single administrator. Private dentists can choose whether to provide comprehensive dental services for public program patients or to deliver specific treatments recommended by a referring oral health care center or via a help center referral. Private dentists will be able to control the type and number of public program patients referred to them on a monthly basis by updating their own dental practice's "referral preferences form" stored at the help center.

Oral Health Care Centers

Existing safety net clinics such as federally qualified health centers, the school of dentistry, and critical access dental providers may become oral health care centers in the new model. In addition to providing their current safety net dental services, the new oral health care centers will expand or establish new on-site services agreements with community oral health sites and employ hygienists in collaborative agreements to provide education, prevention, and screening services. The oral health care centers will also provide diagnosis and referral services, collect diagnostic information, develop treatment plans, and collaborate with private dental practices to provide necessary treatments.

Community Oral Health Care Sites

Community oral health care sites play a critical role in expanding access to services by providing convenient new points of entry for public program patients. These sites will offer oral health education, prevention and screening services without the need for transportation to private dental offices, and offer the help of teachers, nurses, and translators to overcome a number of access barriers. Community oral health care sites establish contracts with oral health care centers that employ dental hygienists to provide services on site.

Management Contracting Entity

A single organization, called the management contracting entity, will be responsible for implementing the oral health care system pilot project. The management contracting entity will establish a board of directors, which

will include key stakeholders such as the school of dentistry, the Minnesota Dental Association, the Minnesota Primary Care Association, the Minnesota Dental Hygienists' Association, and patient representatives. The purpose of the board of directors is to provide governance oversight for the pilot project. The board of directors will receive clinical decision-making advice from a clinical advisory board that will apply evidence-based care principles. The clinical advisory board's members will include both local and national experts in clinical oral health care. The management contracting entity will consist of management partners and staff with expertise in the areas needed to manage the pilot project. The management contracting entity will be responsible for pilot project enrollment, finance, information systems, help center management, quality assurance, marketing, communications. and evaluation.

How Does the New Model Serve Patients With Special Needs?

Patients with special needs have a single point of contact and a virtual dental home in the new model provided by the help center. The center provides a new way for people with special needs to receive ongoing care coordination services, no matter where they live or work. Specially trained staff at the help center will assist people by assessing their unique needs and then linking them to participating community oral health care sites, oral health care centers, or area private dental practices ready, willing, and able to serve patients with their particular needs. The help center serves as the virtual dental home for patients throughout their lifetime, and is a single source of information about their health and social service needs, oral health assessments, risk factors and treatment history, oral health providers, and other information.

In the new model, patients with special needs have multiple points of entry and/or treatment. Oral health care centers establish contracts with community oral health care sites, including group homes for people with disabilities, nursing homes, senior assisted living centers, work sites for people with disabilities, medical offices serving people with special needs, and other locations where people with special needs live, work, or receive other services. These "oral health services contracts" facilitate the provision of ongoing oral health services under the

> In the new model, patients with special needs have multiple points of entry and/or treatment.

direction of an oral health care center dentist and staffed by a combination of dental hygienists, dental assistants, and dentists. Designed to avoid sporadic and episodic care that arises when prevention has failed, the new oral health services contracts will provide a mechanism to assure that ongoing preventive services and comprehensive care are available year round.

Like the old model, the new model respects dentist-patient relationships. So enrollment of dentists and patients into the new model is carried out by first enrolling participating dentists and dental clinics and then assigning all their existing patients to the new pilot project. Existing relationships are unaffected, and patients without a dentist relationship can seek care through any of the new points of entry offered by the new model, the help center, private dental office, a group home, school, oral health care center, etc.

Providing oral health services at community sites adds the skills of group home staff, social workers, nurses and physical therapists, physicians, and other caregivers to those of the oral health care team, and with their help, it becomes possible to overcome a host of well-documented barriers that arises when patients with special needs are transported to traditional dental offices. For example, patients with developmental disabilities frequently become fearful and uncooperative when transported to traditional dental offices. In the new model, a dental hygienist will visit the patient at their own group home during periodic on-site visits throughout the year. During those visits, the hygienist becomes a familiar face to the patient and their caregivers, and is able to observe and assist with toothbrushing in the patient's own bathroom. Under these circumstances, it becomes possible to provide a whole new level of education and prevention. After repeated visits that include one-on-one caregiver coaching and supervision, many disabled patients are able to cooperate sufficiently to accomplish an examination and receive preventive services while reducing the use of physical or chemical restraints. In this example, the new model can reduce hospitalizations for general anesthesia, reduce the use of oral sedatives and physical restraints, reduce the risk of injury to patients or dental office staff during dental appointments, and reduce the time and resources spent attempting unsuccessful referrals to dental offices not adequately prepared to meet the patient's needs.

The pilot project also provides a new financial model for special care clinics, dental school clinics and other oral health care centers so that they can provide a range of new services for people with special needs. In the new model, oral health care centers are not simply



reimbursed based on existing dental treatment codes, but can be reimbursed for providing the new on-site education and prevention services previously described. The new model provides reimbursement for follow-up treatment provided on site using mobile equipment, at oral health center clinics or through targeted referrals made through the help center to specific participating private dentists who are ready, willing, and able to meet the needs of individual

patients. Oral health care centers will create specific program budgets tailored to the mix of old and new services they deliver, and will be paid on a monthly basis based on their budgets and their performance. Inappropriate financial

Table 2	
Cost-Savings Strategies	
1. Provide less costly education, pre- vention and screening services	Community oral health care sites can deliver education, prevention and screening services on site at a lower cost than private dental offices. Data shows that between 55 percent and 90 percent of children below poverty are healthy and do not need to see a dentist. Screening larger numbers of patients early, and doing so at a much lower cost at community oral health care sites, reallocates existing funding to permit higher payments to den- tists for examinations and restorative services.
 2. Optimize the roles of all the providers: Private practices Oral health centers Community sites Emergency rooms 	The roles of private practices are optimized by triaging patients after they have been educated, screened and have received a "respectful referral" for a successful dental visit, reducing appointment failures. The roles of the old "safety net" clinics change from providing high levels of expensive care for people with uncontrolled dental disease, to the coordinators of a pub- lic health approach that targets preventive care to at-risk people through community site partnerships. Emergency room use for urgent dental care needs can be virtually eliminated in the new model by using the help cen- ter to coordinate effective and timely dental visits.
3. Optimize the frequency of preventive care, based on risk assessment	Substantial costs can be saved in the new model by tailoring the frequency of oral screenings and dental examinations to the needs of each patient. Patients who have been disease-free for one or more years, and are at low risk for disease can be seen annually rather than every six months. Conversely, patients who are actively experiencing disease, or who have moderate or high-risk factors should be seen more frequently for preven- tive services and screenings.
4. Reduce the use of infective treatments	The new model will reduce the use of ineffective treatments by collecting centralized data and using a clinical advisory board to apply principles of evidence-based care and disease management to optimize the use of the most effective treatments and minimize the use of ineffective treatments.
5. Reduce indirect costs	Indirect costs include those for claims processing as well as costs incurred by the general health care system due to failures of the oral health system. Administrative costs are reduced in the new model by eliminating multiple redundant administrative systems. General health care savings can be obtained by reducing the consequences of untreated dental diseases which include low birth weight pre-term babies, pneumonia, heart disease, oral cancer, and complications of diabetes.

incentives in the current system will be reduced and new incentives will be created that reward the expanded use of leading practices that demonstrably improve oral health outcomes.

To continually improve the content and delivery of oral health services, the new model establishes a clinical advisory board and internal evaluation management system that works together to evaluate the pilot project and its outcomes. The clinical advisory board's composition will include one or more oral health professionals with expertise in special care dentistry. To assure that patients' satisfaction levels continue to improve, patient satisfaction surveys will become an ongoing and integral part of all aspects of service delivery. Patient representatives on the board of directors, alongside dental professionals and other stakeholders, will further assure that the new system is accountable for meeting the needs of patients and dentists alike.

How Does the New Model Work for Private Dentists?

The new model was designed with continuous input from private dentists and the Minnesota Dental Association. The new model for care delivery emphasizes community-based education, prevention and screening, and carefully coordinated referrals for treatment by private dentists. The new financial model obtains cost savings in the areas of prevention, and transfers those savings into higher reimbursements to private dentists. The new model addresses each of the top complaints about the current public program system as reported by Minnesota's dentists in a recent survey.³

The new model provides:

■ Higher reimbursements, ranging from 65 percent to 85 percent of usual and customary reimbursement levels;

■ Help preventing "no shows" from the help center;

■ Freedom to control the number and type of patient referrals;

■ A single source of prompt payments with reduced administrative barriers: and

■ Freedom to offer appropriate alternative treatment options.

Where Will the Pilot Project Be Carried Out?

The pilot project is designed to be carried out in three regions of Minnesota that include urban and rural areas. These specific regions were selected by the governance committee based on several factors, including the documented need for improved dental access in the region, the numbers and types of community organizations in the region interested in participating in a pilot project, and a survey of dentists conducted by the Minnesota Dental Association indicating where dentists felt the needs were greatest. The Twin Cities metropolitan area, the Red River Valley area in the northwest, and the St. Louis County region, including Duluth, in the northeast, were selected.

What Are the Cost-Saving Strategies?

The financial goal for the new model is to contain costs to the levels currently being expended per person treated per year. This new financial model is a variation of "contact capitation" models and is different than traditional capitation models that charge "per member per month" fees for people who did not receive any services. The total amount expended will rise as the number of people receiving treatment rises. Cost savings are obtained in the new model using the following strategies (**Table 2**).

What's Next?

Following the 2005 legislative session, the Department of Human Services will decide whether or not to issue a request for proposals to launch the pilot project. The pilot project was designed to include a six-month startup period followed by two years of operation. Periodic evaluations and reports will be generated during the pilot project, and if successful, it will be expanded in future years.

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The sheepish reply revealing I had no fax number, relegated me immediately into the category of antique citizens who wore celluloid collars and voted for Herbert Hoover.

Action Fax-tion

very office and home should have one. You definitely have to have one of these babies," exclaimed the bouncy hyperthyroid at Best Buy. He peered at me closely, probably wondering if I had been immured in a Tibetan monastery for the last 15 years. With fax machines as dead common as Mr. Coffee machines, it was only his curiosity that prevented him from sidling off into the washer/dryer department where less obtuse marks might be shopping.

He seemed to feel that, unless I was Amish, which was dubious because of my plaid pants and Hawaiian aloha shirt, my existence without a facsimile device so far into the 21st century was incontestable proof of my doltishness.

He was right, of course. I did feel left out of the electronic loop. Persons I hardly knew asked me for my fax number as casually as they would request the correct time. The sheepish reply revealing I had no fax number, relegated me immediately into the category of antique citizens who wore celluloid collars and voted for Herbert Hoover.

Having already been lapped by precocious moppets who spoke computerese framed in gigabytes and were more at home with 512 MB RAM and Wi-Fi capabilities than they were with Nancy Drew and the Hardy Boys, I determined to essay a timorous step toward compliance with modern mores.

"So, tell me about these models," I asked the salesman who, eyeing his watch, was edging toward the door.

"OK, they come in black, dark gray and putty to complement every office decor," he began.

"No, I mean what do they do?"

"You can send a letter or any other document with it," he explained.

"I can do that now with a stamp."

"You can fax it immediately."

"I can phone it."

"Can you send a picture with it?" I pressed. He made a dismissive gesture with his hand. *Continued on Page 665*

Commuted on Fuge 005



On the other hand, the fax machine has an insatiable appetite for paper, whereas the phone has no yearning for anything other than higher rates.

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"Of course!"

"In color?"

"No," he sighed ruefully.

It turns out the compelling reason for having a fax machine is that it's the thing to do. Everybody has one. There's simply no point in pursuing the chimera of respectability without one. I must possess one, just to keep my head up in society.

Mine is dark gray. It has 43 buttons and a green light. After I plugged it in, I squatted in front of it for three days, transfixed, waiting for something to happen.

"I've got a fax machine," I confided to a friend.

"Really?" he said, stifling a yawn.

"So fax me something."

"What?"

"I don't care, anything! I want a fax!

He faxed me last month's calendar. What a thrill! I mean the phone rang — bur-e-e-t! bur-e-e-t! — and this page just slid right out of the machine, all curled up like the Dead Sea Scrolls with last month's calendar on it, plain as day. I belong!

There are just a couple of the speed bumps on the information highway. If I really want to go top drawer in the fax world, I must have a dedicated line, i.e. a special telephone line hooked up exclusively to my fax machine. Otherwise, when the phone rings, it has only a moment to figure out whether the call is destined for the fax machine or it's Sears wanting me to extend the warranty on my dryer. My phone never quite got the hang of this, its electronic innards puzzling over the call until both the fax and the caller gave up.

The dedicated line is nice. I have

an insomniac friend who thinks the rates for faxing are lower at night, so around 3 a.m. a couple times a week, I am awakened by the fax machine that seems to yell INCOMING! in a particularly annoying way while I lie there wondering if I should get up and read the message, or try to get back to sleep and check it in the morning. See, your phone can't do that. It wants to talk to you right now or not at all. I think we can all agree that not at all is better, because a phone call at 3 a.m. can be an unsettling thing. On the other hand, the fax machine has an insatiable appetite for paper, whereas the phone has no yearning for anything other than higher rates. The fax can give you that plus the bill for paper.

Sales of fax machines seem to be lagging. Computers and e-mail are cited as the reason. The real reason is clear to me. Putty is not an acceptable name for anything but putty itself, an amorphous substance that is of no interest to anybody but plumbers. Dark gray and black are simply not inspiring colors, either and should be confined to the utilitarian drabness of destroyers and battleships.

As it stands, fax machines are never going to be as popular as digital picture-taking, text messaging, MP3-playing, miniaturized telephones. With the telephone's choice of classic, popular or rap ring tones and 256 color variations of covers, the fax purveyors have their work cut out for them. Panasonic, Sony, AT&T, Brother, etc. should take a leaf from the designers of these telephones that are tricked out to look like old steam locomotives, classic cars like Duesenbergs, Packards, '57 Chevys or Harleys. That would lasso both ends — the kids under 12 and nostalgic geezers over 70.

Throw in some pastel fax paper and I guarantee iPods will never know what hit 'em.