The U.S. Oral Health Workforce in the Coming Decade: Workshop Summary

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Workshop Summary

Tracy A. Harris
Rapporteur

Board on Health Care Services

INSTITUTE OF MEDICINE
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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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PLANNING COMMITTEE FOR THE WORKSHOP ON THE SUFFICIENCY OF THE U.S. ORAL HEALTH WORKFORCE IN THE COMING DECADE[1]

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[1] IOM planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published workshop summary rests with the workshop rapporteur and the institution.

Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the NRC's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by coordinator **CARMEN GREEN,** of the University of Michigan Medical School. Appointed by the Institute of Medicine, she was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the author and the institution.

Contents

1

Introduction

Access to oral health services is a problem for all segments of the U.S. population, often related to geography, insurance status, sociodemographic characteristics, and income levels. For example, the 2000 surgeon general's report *Oral Health in America* called tooth decay the single most common and chronic childhood disease (HHS, 2000). The Medicare Expenditure Panel Survey found more than one-third of the U.S. population lacks dental coverage (Manski and Brown, 2007). Finally, older adults often reside or receive health care services in alternative settings such as private homes, nursing homes, and assisted living facilities, many of which do not offer onsite oral health services.

Access to oral health services is especially problematic for vulnerable populations, such as rural and underserved populations. As a result, many new models of care have been proposed, including the development of new types of oral health practitioners and the expansion of roles for dental hygienists and dental assistants. Alternate types of practitioners, such as the dental therapist, have been used internationally for decades. However, these and other strategies have been controversial with proponents arguing for their ability to increase access, especially for vulnerable populations, and opponents voicing concerns for the quality of care provided by these practitioners. Other challenges to improving access to oral health services include the lack of coordination and integration among the oral health, public health, and medical health care systems; misaligned payment and education systems that focus on the treatment of dental disease rather than prevention; the lack of a robust evidence base for many dental procedures and workforce models; and regulatory barriers that prevent the exploration of alternative models of care.

ROLE OF THE INSTITUTE OF MEDICINE

The Institute of Medicine (IOM) has previously addressed issues related to oral health. Most notably, a 1995 study, *Dental Education at the Crossroads: Challenges and Change* (IOM, 1995), provided recommendations to improve the availability of dental care to underserved populations, integrate dental education with medical school education, increase student exposure to alternative sites of care, increase diversity of the dental workforce, and eliminate barriers to improving working relationships among all oral health professionals.

In July 2007 the IOM convened a 1-day planning meeting to consider challenges in access to oral health services. As a result, the Health Resources and Services Administration and the California HealthCare Foundation cosponsored a project on the sufficiency of the U.S. oral health workforce to consider three key questions:

- What is the current status of access to oral health services for the U.S. population?
- What workforce strategies hold promise to improve access to oral health services?
- How can policy makers, state and federal governments, and oral health care providers and practitioners improve the regulations and structure of the oral health care system to improve access to oral health services?

A planning committee[1] organized the 3-day workshop, the U.S. Oral Health Workforce in the Coming Decade, which was held February 9–11, 2009.

WORKSHOP CHARGE AND APPROACH

David N. Sundwall, M.D.
Chair, IOM Planning Committee
Utah Department of Health

At the end of the day, a high-quality oral health system includes access to adequate, affordable, and appropriate oral health services for all. However, defining that is quite challenging. Discussions in the first day of the workshop focused on the current status of oral health care and the delivery of oral health services. For many people, oral health services are unavailable or unaffordable, and care tends to focus on treatment rather than prevention. Panelists discussed the intimate relationship between oral health and overall health and well-being (Chapter 2). They also presented on the current needs along the life cycle as well as special needs due to geography and racial and ethnic disparities (Chapter 3). Then, later presentations focused on the demographics and trends of the workforce itself, including the use of nonoral health professionals (Chapter 4). Finally, panelists discussed the current delivery system, which is primarily a private practice model, but increased efforts by public health professionals have arisen to meet the needs of underserved populations (Chapter 5).

The panels for the second day of the workshop focused on the major challenges of the current overall system of oral health care (Chapter 7), the ethical principles and obligations to increasing access (Chapter 8), and innovative workforce solutions being used in this country and around the world (Chapter 9). Panelists then described a wide variety of strategies for increasing access to oral health services through new types of professionals, changing the roles of current oral health professionals, or developing new systems of care (Chapter 10). Finally, the third day of the workshop engaged stakeholders to discuss who will provide the leadership to make the necessary changes happen. Representatives from states, federal government, payors, academics, legislators, advocates, and others discussed each of their roles in moving the oral health care system forward (Chapters 12-14).

The following is a summary of the presentations and discussion of the workshop and, as such, is limited to the views presented and discussed during the workshop. The broader scope of issues pertaining to this subject area is recognized but could not be addressed in this summary. In addition, as a summary, this document is not a transcript of each panelist's presentation but rather, a distillation of the themes of the discussions. The workshop was designed to address the planning committee's charge (see earlier in this chapter) and is presented here chronologically.

[1] The planning committee's role was limited to planning the workshop, and the workshop summary has been prepared by the workshop rapporteur as a factual summary of what occurred at the workshop.

Chapters 2-6 cover the first day of the workshop, focusing on the status of access to oral health services. Chapters 7-11 cover the second day of the workshop, focusing on strategies to improve access to oral health services. Chapters 12-14 cover the third day of the workshop, focusing on the roles and responsibilities of various stakeholders to improve access to oral health services. Appendix A is the workshop agenda, and Appendix B presents the biosketches of the members of the planning committee. Appendix C lists the workshop speakers and moderators, and Appendix D lists the workshop participants. For many of the workshop sessions, participants were invited to submit comments and questions on cards; however, not all the comments and questions were able to be addressed during the discussion periods. Appendix E provides a representation of the breadth of comments and questions submitted (although not necessarily answered) by workshop participants.

2

The Connection Between Oral Health and Overall Health and Well-Being

Caswell A. Evans, Jr., D.D.S., M.P.H.
University of Illinois at Chicago,
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In 2000, Surgeon General David Satcher released *Oral Health in America: A Report of the Surgeon General* (HHS, 2000). This report highlighted the lack of understanding about what constitutes oral health as well as the association between oral health and overall health. Oral health is much more than just healthy teeth; it also includes the health of many other anatomical structures such as the gums, bones, ligaments, muscles, glands, and nerves. In addition, oral health affects some of our most basic human functions, thereby shaping an individual's self-image and sense of well-being:

> These are tissues whose functions we often take for granted, yet they represent the very essence of our humanity. They allow us to speak and smile; sigh and kiss; smell, taste, touch, chew, and swallow; cry out in pain; and convey a world of feelings and emotions through facial expressions (HHS, 2000)

In the coming decade, certain demographic changes will emphasize the importance of the connection between oral health and overall health and well-being. For example, the combination of increased longevity with the aging of the baby boom generation will contribute to rapid growth in the cohort of adults over age 65, a group that typically has higher rates of chronic disease and disability.

Many medical conditions may affect oral health, and vice versa. For example, the metabolic processes of diabetes mellitus can explain the increased destruction of tissue seen in diabetic periodontitis. In turn, like other infections, periodontal disease has been shown to exacerbate glycemic control in diabetic patients, and lower overall medical costs have been seen among diabetic patients who receive proper periodontal care. Other mild associations have been seen, such as between periodontal disease and myocardial infarction, but studies to date have not proven a causal relationship. Several studies have shown an association between periodontal disease and adverse outcomes in pregnancy such as premature deliveries, fetal growth restriction, and other complications. However, the reasons for the associations are not clear.

The oral cavity may serve as a source for early detection of other medical concerns. For example, lesions in the mouth may be the first indication of HIV infection and may be used to determine the staging and progression of AIDS. In addition, saliva may be used to detect and measure medications, hormones, environmental toxins, and antibodies and thereby might serve to replace invasive blood testing for the monitoring of chronic disease.

Lastly, the connection between oral health and overall health can be seen in the case of oral and pharyngeal cancers. Over 35,000 cases of oral and pharyngeal cancers are diagnosed annually, and there are almost 8,000 deaths each year due to these types of cancer (American Cancer Society, 2008). African American males in particular have a relatively high incidence of oral cancers and as a group are typically diagnosed at later stages of the disease and have a significantly lower 5-year survival rate.

These examples all serve as reminders for how oral health and general health and well-being are associated. A fair question is "How well is the oral health workforce positioned to manage these current and future challenges?" As the focus turns to the issues of the oral health workforce, there will undoubtedly be varying viewpoints, and given the same information, there may be substantially different conclusions. However, solutions should focus on health outcomes, health benefits, and the best interest of the patient. In particular,

- Is the workforce sufficient in number, distribution, and skills to attend to these health concerns?
- Is the makeup of the workforce sufficient to provide the necessary range of services?
- Is there enough cultural and ethnic diversity to ensure access to a welcoming environment?

The connection between oral health and overall health and well-being cannot be ignored. This is reflected in the narrowing gap between public health dentistry and organized dentistry. However, there is still room for greater collaboration, understanding, and sharing of expertise, especially at the local and state levels. As these and the other challenges that lay before us are confronted, it is vital to first come to a greater appreciation for a shared vision of opportunities.

3

Current Oral Health Needs and the Status of Access to Care

A panel of experts discussed the unique oral health needs, challenges, and status of access to oral health services for several specific patient populations, including examples of approaches used by various stakeholders to address these issues.

EARLY LIFE CYCLE

Shelly Gehshan, M.P.P.
Pew Center on the States

Good oral health is critical for children, as it can affect their overall health, social adjustment, appearance, school performance, and ability to thrive. Two factors that increased the focus on the status of the nation's oral health and the delivery of oral health services are the surgeon general's 2000 report *Oral Health in America* (HHS, 2000) and the death of Deamonte Driver in 2007[1].

Issues for Children's Oral Health

Several challenges face the oral health care of young children (ages 0–3). First, there is a prevalent cultural attitude that baby teeth are not important since they will be replaced by permanent teeth. In fact, baby teeth are important for nutrition and speech development. Both early counseling of mothers and caregivers regarding risk factors and the need for oral hygiene with appropriate fluoride use and the professional application of fluoride varnish have been employed to prevent dental caries. The provision of dental services for women may include education about how their own oral health relates to their children's oral health. However, in the Medicaid program, only about half the states currently reimburse for the dental care of pregnant women. Finally, there just are not enough pediatric dentists.

Oral health is also critical for elementary school-aged children. At this age, children are forming their health habits and permanent teeth are coming in. School-based interventions, including the application of sealants, can help improve oral health, but such programs are fragmented and may not help those who are most in need of care. In this age group, the public health dental hygienists and general dentists are the most important parts of the oral health workforce.

[1] See Chapter 13 for more information about Deamonte Driver, a 12-year-old boy who died as a result of complications from an untreated oral infection.

Finally, adolescents have critical oral health needs as well. Among this age group, there is an elevation of behavioral risks such as tobacco use, sports-related injuries, mouth jewelry, and ultimately, for many of those at the highest risk, the loss of Medicaid eligibility.

Utilization and Disease Burden

Among all these age groups, not nearly enough children get dental visits: about 25 percent of children under age 6, about 59 percent of children ages 6–12, and about 48 percent of adolescent children ages 13–20 had a dental visit in 2004 (Manski and Brown, 2007). Dental insurance coverage and the source of this coverage make a difference in utilization of dental services. In 2006, nearly one-fifth of all children had no source of dental insurance (see Figure 3-1). As seen in Figure 3-2, the source of coverage is important to the use of dental services. More specifically, a higher percentage of children who have private dental insurance will receive dental services than children covered by public sources or without dental coverage.

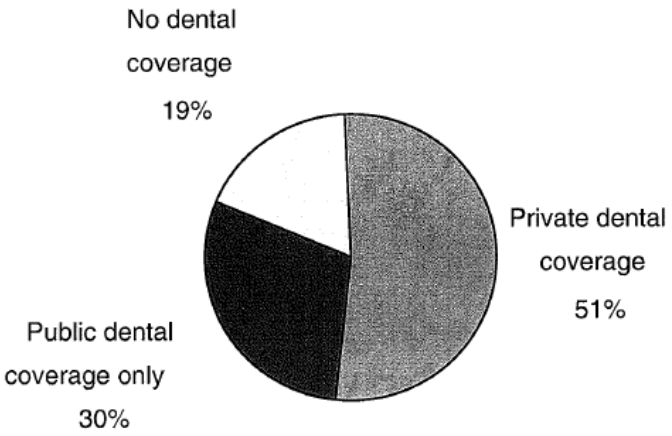

FIGURE 3-1 Sources of children's dental coverage, 2006
SOURCE: Manski and Brown, 2008.

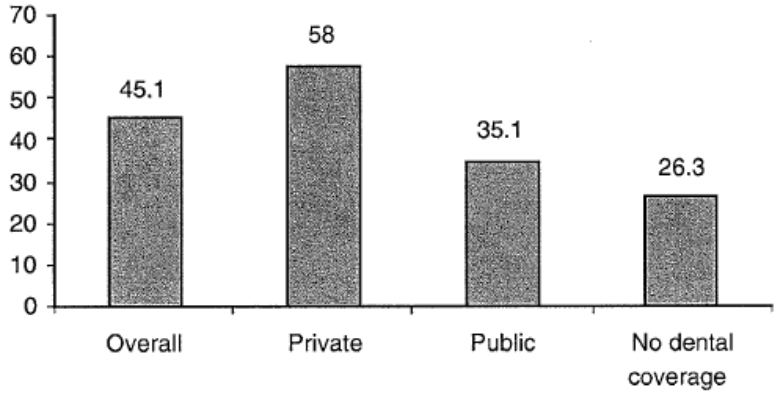

FIGURE 3-2 Percent of children utilizing dental services by coverage source, 2006
SOURCE: Manski and Brown, 2008.

About 80 percent of dental caries occurs among only 25 percent of children (Kaste et al., 1996). The prevalence of tooth decay is also related to income; the highest-income children have the least decay[2] and, conversely, the lowest-income children have the highest rates of decay. Three times as many children who are on Medicaid have decay compared to the non-Medicaid population. In spite of this, dentist participation in Medicaid is very low, in large part due to the business model of dentistry. Overall, the prevalence of caries had been improving, but there has been a recent increase among very low-income children and young children. Racial and ethnic disparities are especially stark—Hispanic and black children have much higher burdens of dental decay than white children.

Prevention is critically important among young children, especially through the use of dental sealants. The percentage of children ages 6–19 with dental sealants has been increasing across all ages, races, and incomes. However, the most progress is seen in the groups least in need of care—those in the highest-income groups and those with the lowest disease burden.

Barriers to Improving Access

Many barriers challenge improvements in children's access to oral health services. The delivery system is based on a private-practice model that works well for those who are healthy, ambulatory, insured, and motivated to seek dental care. To access existing services, some patients may need help with filling out applications, translation services, and transportation. The system of care also needs to become more patient centered, including consideration of making services available where the most vulnerable patients are found, such as schools and child care centers. In addition, for low-income working families, services need to be available during nontraditional hours. The financing of the current system is also largely inadequate.

A safety net does not exist for dental care as it does for medical care. Community health centers, hospitals, and professional schools provide some services. However, all together, the dental safety net only cares for about 7 or 8 million of the 82 million people who are dentally underserved (Bailit et al., 2006).

Finally, there are legal and policy barriers to improving access. Dental practice acts were created at a time when dentists were the only providers of oral health services; difficulties ensue every time a new type of practitioner is created in order to define scope of practice. In addition, each state has laws concerning who can own a dental practice, stifling innovation and the development of new models of care for the underserved.

OLDER ADULTS AND PEOPLE WITH DISABILITIES

Michael J. Helgeson, D.D.S.
Apple Tree Dental

Older adults (adults aged 65 and older) and people with disabilities have unique challenges in regards to their oral health. First, they often have chronic diseases that may exacerbate their oral health, and vice versa. For example, aspiration pneumonia is a major cause of death among nursing home residents. One survey of nursing home residents with hospital-acquired pneumonia showed that dental plaque was the source of infection for 10 of the 14 residents (El-Solh et al.,

[2]Includes both decayed and filled teeth.

2004). Second, older adults and people with disabilities may have difficulty accessing services due to physical and mobility limitations, as well as mental health problems that may make management difficult in a dental setting. Finally, these populations usually have a large number of caregivers, and so good care coordination among them can be very complex. For example, arranging a dental visit for a chronically ill older adult or a person with a disability in a nursing home may include (but not be limited to) physicians, nurses, dentists, medical records clerks, family caregivers, nurse aides, personal care aides, and medical van drivers.

Challenges of the Current System

These populations are challenged because the oral health delivery system does not accommodate their needs. The current system expects patients who are not self-responsible to be active in seeking dental care and does not proactively deliver patient-centered, equitable care. Most oral health professionals lack expertise in special care dentistry. Physically, dental offices are often inaccessible to these populations, or the practitioners are unwilling or ill equipped to treat older adults with complex health care needs. Finally, all but a very few nursing facilities, group homes, and other settings where people with disabilities live lack onsite dental clinics. For example, according to a 1999 survey, only 13 percent of nursing home residents over age 65 receive dental services in the billing year of their discharge (Jones, 2002).

Financing issues also challenge the care of these special populations. There are very few dental benefits after retirement; Medicare and Medicaid provide little to no dental benefits, and those benefits that do exist are usually designed for children, not frail older adults. In the year 2000, about 77 percent of dental care for all older adults was paid by out-of-pocket expenditures, and less than 1 percent was covered by Medicaid (Brown and Manski, 2004). Nationally, there is even less insurance coverage for low-income older adults.

Apple Tree Dental

These challenges may be overcome by embracing the principles of special care dentistry in which the delivery of dental services is adapted to a wide variety of special needs using different patient-centered approaches. For example, Apple Tree Dental is a nonprofit, sustainable staff model group dental practice and is an innovator in delivery systems. Apple Tree Dental has been increasing the visits and services to at-risk populations over the last 20 years. Helgeson, one of the founders of Apple Tree Dental, stated that almost 60,000 visits were provided in 2008. The model involves an interdisciplinary board of directors and a large staff with a wide variety of roles in oral health care delivery, support, and administration. Oral health services are delivered in special care clinics as well as in the community using mobile equipment.

Underserved populations often lack the knowledge to seek care before problems arise, have health problems that impede their ability to access services, and lack financial resources. The Apple Tree Dental model proactively delivers early education and prevention in collaboration with other professionals, leveraging financial resources from the whole community, to create what is called a “community collaborative practice.” This is essentially an extension of the private practice model into the community with a formal three-way collaboration between a dental practice, a community partner, and an onsite team, which provides quality care to populations in need.

RURAL POPULATIONS

Diane Brunson, M.P.H, RDH
University of Colorado,
School of Dental Medicine

Identification of a rural population can be challenging. For example, examination of populations at the subcounty level demonstrates that even some urban counties can have parts that are rural. This is important when defining health professional shortage areas and also when considering varied workforce strategies. In addition, defining a population as rural does not necessarily imply that it is low income, and a high-income area does not necessarily translate into a high degree of access. Rural areas may even have varying degrees of both income and access within a single population. For example, in the resort areas of Colorado, the residents may have a high income and not necessarily have access issues; however, these areas are also home to a large service industry (e.g., hotels, restaurants) whose workers may have access issues.

When looking at rural areas, many often identify the number of counties without a dentist or primary care physician; however, in reality, many of these areas do not have sufficient patient populations to support a full-time practice. In addition, other demographics may be more important such as the number of counties that do not have an oral health practitioner that accepts Medicaid. Also, rural areas may not have third-party dental insurance in general due to a lack of large employers that would provide such a benefit.

Workforce Solutions—The Colorado Experience

In Colorado, some common strategies for improving access have been implemented, but with some unique twists. For example, a dental loan repayment program was implemented in 2002 as a recruitment strategy. The program focuses on underserved populations instead of health professional shortage areas. The criterion of geographic distribution with an emphasis on low-income populations helps to reach the urban Medicaid population. The program also attempts to address retention in that practitioners who have participated in the program have priority to reenroll in the program. The program is funded by tobacco dollars and is available to both dentists and dental hygienists.

Another strategy to increase the oral health workforce is to establish educational programs within the state, under the colloquialism of "growing your own." A 2008 survey of rural dentists in Colorado showed that over 50 percent of the dentists grew up in rural areas (Colorado Health Institute, 2008). The University of Colorado is currently establishing an interdisciplinary rural track for students in dentistry, medicine, and pharmacy. The track will include rural grand rounds, seminars, and rotations with a focus on establishing the leadership skills needed to practice in rural areas.

The Colorado survey of dentists also showed that dentists are drawn to practice in rural areas because of the quality and pace of life. However, a barrier commonly seen is the ability for spouses to also find work in those areas. Therefore, the Colorado STRIDES effort encourages communities to examine their attractiveness to rural health professionals and their spouses.

In addition, the Colorado Workforce Collaborative is working to establish a strategic public policy framework, including the examination of health care workforce issues as an element of health care reform. One of the specific issues the group is examining is the issue of clinical placements. Simply increasing class sizes will not solve access issues. For example, in medicine

and nursing, every student needs a clinical site and a preceptor, which is challenging to find in rural communities. Another major area for the group is scope of practice. Last year, the governor of Colorado created a commission to conduct an evidence-based review of the scopes of practice of advanced nurse practitioners and dental hygienists; however, the commission did not make strong recommendations for change in either profession.

Specific alternative workforce strategies currently implemented in Colorado include

- the use of mobile and portable practices to provide preventive care and limited restorative care to children and some homebound elderly;
- the placement of dental hygienists not supervised by dentists in primary care and pediatrics offices;
- the training of medical and general dental practitioners in caries risk assessment, fluoride varnish, and self-management goal setting; and
- the training of medical students by dental students in caries risk assessment, fluoride varnish, and head and neck examination.

Conclusions

While no single intervention will solve the problems of the oral health system, several overarching elements are needed. First is the interdisciplinary training of all students in order to bridge the gap between medicine and dentistry. Second is the retraining of existing professionals to understand the relationship between oral health and systemic disease. Third is to improve reimbursement and the opportunities available in rural communities. Finally, to improve access to oral health services in rural areas, the scopes of practice of all health care professionals need to be maximized.

INDIAN HEALTH SERVICE[3]

Patrick Blahut, D.D.S., M.P.H.
Indian Health Service,
Division of Oral Health

The Indian Health Service (IHS) defines access to dental care as the percentage of the user population (people who accessed any part of the IHS system within the previous 3 years) that underwent at least one procedure in a dental clinic within the previous year. The most recent data show that access to dental care in the IHS is around 23 percent. However, this is likely an underrepresentation in part due to the lack of data submission by a number of tribal programs. Since access data for the general U.S. population is based on self-reporting, comparison is challenging, but the access for Native Americans appears relatively comparable to other minority populations in the United States. The major challenges that affect the IHS system include an extremely high prevalence and severity of decay, a lack of sufficient numbers of practitioners,

[3] Data presented in this section belongs to the Indian Health Service. Personal communication, P. Blahut, Indian Health Service, February 9, 2009.

and a relative lack of total resources. While much attention is paid to increasing the number of practitioners to provide treatment, more consideration should be given to decreasing disease in the first place through prevention.

Challenges and Strategies

The biggest discrepancy in oral health burden between the American Indian and Alaska Natives and the rest of the U.S. population is at the youngest age groups; these children have much higher rates of decay as compared to similar age groups in the general U.S. population (IHS, 1999). Many children miss school due to dental pain and avoid laughing or smiling because of the way their teeth look.

Another challenge underlying the IHS system is the vacancy rate in spite of the ability of facilities to accommodate multiple professionals. When these facilities are understaffed, efforts invariably need to focus on treating acute problems and the ability of these professionals to implement wider-reaching public health strategies such as enhancing water fluoridation on reservations or establishing school-based sealant programs is diminished.

In spite of these challenges, the IHS has fared better than the general U.S. population in the application of sealants in children. The IHS applies approximately 250,000 sealants each year, and the prevalence of sealants among 8-year-olds and 14-year-olds in the IHS is more than double the prevalence of sealants among the same age groups in the U.S. population.

Strategies for improving oral health care in the IHS include

- optimizing the use of allied personnel,
- customizing programs for specific patient populations,
- promoting cultural competency,
- expanding the perspective of organized dentistry to recognize the needs of and reach out to patients outside of the private practice model of care, and
- establishing responsibility for improving the care of underserved populations beyond the efforts of individual patients and their caregivers.

Finally, without adequate resources, access to oral health services will deteriorate.

Conclusions

The challenge of providing adequate care to Native Americans is a microcosm to providing adequate care to the most underserved populations in this country. However, access to oral health services and the organization of oral health care delivery should not be examined in isolation, but rather within the context of the general organization of society.

AFRICAN AMERICAN POPULATIONS

Hazel J. Harper, D.D.S., M.P.H.
National Dental Association

Health risk factors in the African American community still include racism, education, socioeconomics, cultural mores, stress, and health disparities. Barriers and facilitators (many of which can be both) include access, availability, cultural competency, health literacy, lifestyle,

underrepresented minorities in the workforce, health policies, health legislation, and the health education curriculum itself.

The National Dental Association (NDA), founded in 1913, has a commitment to vulnerable and underserved populations and works under the philosophy that health care is a right, not a privilege. The NDA has determined several needs in oral health including the following:

- Include community practitioners and health leaders in policy deliberations.
- Increase the number of underrepresented minorities applying to and graduating from dental programs.
- Place more attention on funding, regulating, and enforcing existing federal programs.
- Improve the image and rewards of dental careers.
- Mandate cultural competency as a core course in health professions' curricula.

In response to these needs, the NDA developed multiple efforts including the training of national, local, and student leaders in the skills needed to be community health leaders; spokesperson training with both media and legislative training; consumer messaging in popular publications; and the promotion of partnerships and alliances with corporations, federal agencies, and other professional associations.

One specific effort is the Student National Dental Association's Impressions Program, a student-to-student recruitment effort wherein dental students expose elementary and high school students to the dental schools. Another is the Deamonte Driver Dental Project, which was formed by the Robert T. Freeman Dental Society, a local component of the NDA. This project was designed to provide grassroots solutions to the children's dental health crisis in Prince George's County, Maryland. The goals of the project include the following:

- Increase the number of practitioners in the dental safety net and the number of dental Medicaid providers.
- Increase the number of children connected to a dental home.
- Identify and enroll eligible children who are not enrolled in Medicaid.
- Increase community awareness of the link between oral health and overall health.

HISPANIC POPULATIONS

Francisco Ramos-Gomez, D.D.S., M.S., M.P.H.
University of California, Los Angeles,
School of Dentistry

Even without counting illegal immigrants or the island of Puerto Rico, Hispanics now represent the largest ethnic minority in the United States. The U.S. Census defines *Hispanic* as people who originate from Spanish-speaking countries or regions; this origin may include the person's heritage, nationality group, lineage, or country of the person's ancestors before they arrived in the United States. People who identify themselves as of Hispanic or Latino origin may be of any race.

As seen in Figure 3-3, the Hispanic population is growing rapidly, with projections that Hispanics will comprise one quarter of the population in the year 2050. About one-third of

Hispanics in this country are under the age of 18 (U.S. Census Bureau, 2007b). In spite of the growth within this population, Hispanics only make up a very small percentage of all dentists. For example, even though one-third of the population of California is Hispanic, less than 5 percent of California's dentists are Hispanic. This is important because Hispanic dentists typically care for the majority of Hispanic patients, mostly because patients tend to be more comfortable with a practitioner who speaks their language and understands their culture.

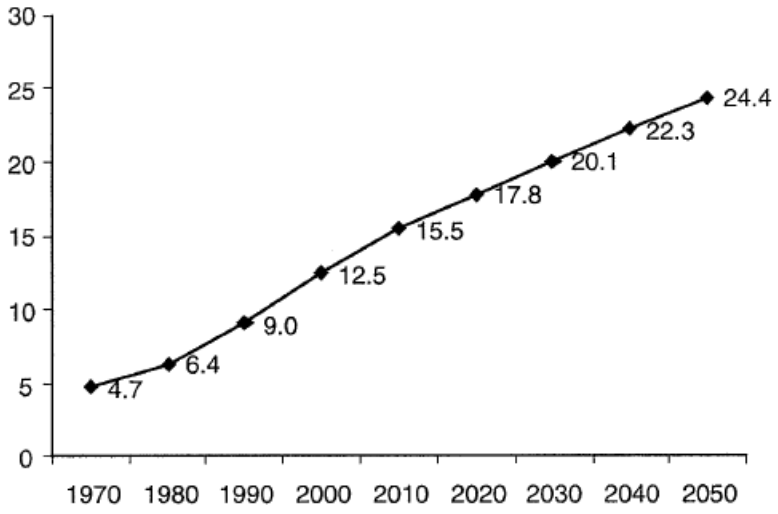

FIGURE 3-3 Hispanic population as percentage of total U.S. population, 1970–2050
SOURCE: U.S. Census Bureau, 2008.

Hispanic children are much more likely to have a history of tooth decay and are less likely to receive treatment than their white peers. About 31 percent of Mexican American 6- to 11-year-olds have dental caries, compared to 19 percent among their non-Hispanic peers (Dye et al, 2007). In the general population, children under the poverty level are more likely to be untreated than those above the poverty level. This is important since the poverty rate of Hispanics is about three times greater than the poverty rate for non-Hispanic Whites.

REACTION AND DISCUSSION

An open discussion followed the panelists' presentations. For this session, workshop participants were asked to submit cards with comments and questions for the panelists. The following sections summarize the discussion session. (See Appendix E for a broader sampling of the submitted questions and comments.)

Moderator: Shelly Gehshan, M.P.P.
Pew Center on the States

Financing

In response to a question about the financing of Apple Tree Dental, Helgeson said that the revenues received from the 30 percent of patients who pay out of pocket help cover the cost of the rest of the patients who receive coverage through public programs. He added that about 10

percent of Apple Tree Dental's total income came from grants and gifts, but that these monies were generally used to fund items such as capital acquisitions, new projects, and educational collaborations.

Replicating Successful Models

Several participants asked how to replicate successful models of care and what the implications might be for state dental practice acts. Brunson said that Colorado's dental practice acts have allowed for the independent practice of dental hygiene since the 1980s under the premise that it would increase access to oral health services. She said that increasing the independent practice of dental hygiene still has many challenges including significant overhead in setting up practice and the inability of dental hygienists to receive reimbursement from many publicly funded programs or third-party carriers (because they are not recognized as qualifying practitioners). Helgeson said the success of Apple Tree Dental can be attributed to the nonprofit corporate structure, the interdisciplinary governance, and the collaborative staff model. He acknowledged that some state dental practice acts do not permit that type of structure. Brunson added that the Association of State & Territorial Dental Directors has a best practices Web site[4] that shares information about successful models and programs.

Nomenclature

One participant submitted a comment stating that the semantics and words used to describe the various types of practitioners need to be addressed and modernized. For example, older terminology such as *unsupervised*, *auxiliary*, and *midlevel practitioner* may be demeaning and imply that these professionals are unnecessary.

Broadening the Framework of Workforce Planning

Participants submitted several comments regarding the need to think more broadly in workforce planning, especially with the inclusion of a prevention focus (rather than a treatment focus). Harper said that the NDA strives for broad collaboration and integration of many different segments of the community, including the business community, dental practitioners, state and local health departments, schools, parents, and faith-based groups. Blahut said that for Native Americans, simply increasing the number of dentists will not solve the problem; instead, oral health will not change until the socioeconomic strata of the population changes. Ramos-Gomez said that several dimensions need to be considered: the child, the family, the environment, and the community. He agreed that efforts need to be community driven but that professionals need to bring the evidence base to guide patients as to what is most appropriate for that particular individual, community, and population.

[4] http://www.astdd.org/index.php?template=bestpractices.html

4

Current Demographics and Future Trends of the Oral Health Workforce

Two panels of experts discussed the demographics and trends of the oral health workforce, including the relevant numbers, distribution, training, and specialization. The first panel examined the members of the dental workforce directly involved in the delivery of oral health care services—dentists, dental hygienists, and dental assistants. The second panel considered other members of the health care workforce who may provide oral health services including physicians and nurses, and how they interact with traditional dental professionals.

THE DENTAL WORKFORCE

Dentists

Richard W. Valachovic, D.M.D., M.P.H.
American Dental Education Association

A variety of data sources can be used to describe the dental workforce, and those data vary depending on variables such as the year and source of collection. There are over 179,000 professionally active dentists in the United States (ADA Survey Center, 2008). Professionally active dentists are predominantly male, white, in private practice, practicing general dentistry (as opposed to a specialty), and over age 45 (ADA Survey Center, 2008a, 2008c). Some of these demographics are beginning to change, however. For example, women account for 39.6 percent of all dentists graduating since 1997 and 43 percent of current graduates (ADA Survey Center, 2008b). Additionally, while the number of applicants from underrepresented minority groups has been on the rise in recent years, these numbers remain too low to have an immediate impact.

There are several ways in which to consider the appropriate number of dentists. The Health Resources and Services Administration (HRSA) defines dental health professional shortage areas (HPSAs) according to several factors related to access; this definition roughly approximates when the dentist-to-population ratio rises to 1 to 5,000 (HRSA, 2009a). In the early 2000s, there were less than 2,000 dental HPSAs. By 2008, this number climbed to over 4,000 dental HPSAs, representing 49 million residents (HRSA, 2009b). Another data point is the number of professionally active dentists per 100,000 population, which has been decreasing for several years and is expected to continue to decrease (see Figure 4-1). However, this may be attributable in part to the increased use of technology or other oral health professionals.

Finally, there are the trends seen at schools of dentistry. Recently there has been an upturn in the number of applicants, with about three applicants for every available slot. While the number of available slots has been variable over the past few decades, the current number of slots will be

insufficient to replace the cohort of retiring dentists. Since 1982, seven schools closed, four opened, and eight are seeking accreditation or are under consideration.

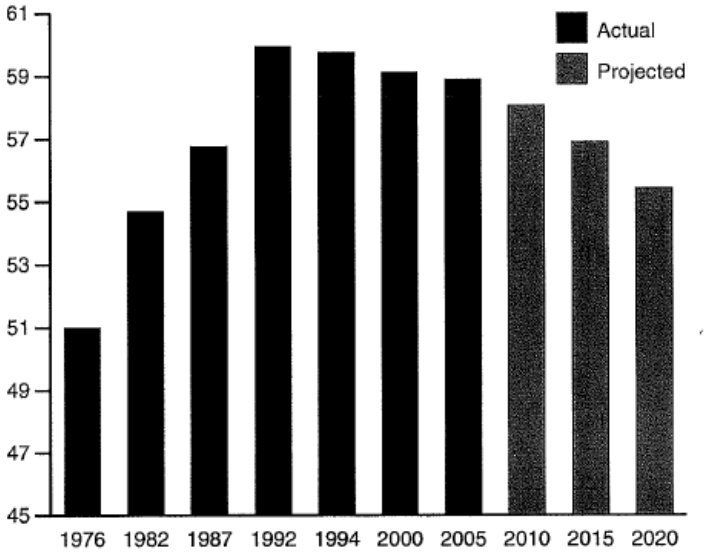

FIGURE 4-1 Number of professionally active dentists per 100,000 U.S. population, 1976–2020
NOTE: Data for the years 2010–2020 are projected.
SOURCE: Personal communication, W. Wendling, ADA. May 5, 2009.

Dental Hygienists

Ann Battrell, M.S.D.H., RDH
American Dental Hygienists' Association

The oral and general health needs of the population are growing. Health care practice and education need to evolve to meet those needs, health care delivery needs to become more integrated, and health care stakeholders need to work cooperatively to identify and remove the barriers that restrict the public's access to oral health care services.

Currently there are 312 entry-level dental hygiene programs,[1] with at least one program in every state. Fifty-nine programs are at the baccalaureate level and 18 are master's level (ADHA, 2009c). Enrollment trends are up, and new programs are arising regularly. The sustainability of these programs may be problematic as positions are being cut back or eliminated altogether. However, while traditional positions may be on the wane, the demand for hygiene services in alternative settings is on the rise. For example, the Bureau of Labor Statistics (BLS) predicts a 30 percent growth in the employment of dental hygienists by the year 2016; at the same time, they predict only a 9 percent growth in the employment of dentists (BLS, 2007b,c).

[1]Entry-level programs offer degrees or certificates that allow for entry into the practice of dental hygiene.

To obtain licensure in dental hygiene, 49 states require graduation from an accredited program. All states require national written exams and either state or regional clinical exams. Some states require completion of jurisprudence exams, and 49 states require continuing education.

Dental hygiene is a predominantly a profession of Caucasian females. On average, dental hygienists are in their mid-forties with just under 20 years of experience. Most dental hygienists are in private practice. According to data collected by the American Dental Hygienists' Association (ADHA), one-quarter of dental hygienists hold licenses in more than one state, and almost one-third work in multiple sites, indicative of a trend toward the use of part-time hygienists, which becomes an issue due to the loss of full-time benefits.

Dental hygienists can help overcome many patients' hurdles to accessing oral health care services. While the heart of dental hygiene is in prevention, many patients are in need of both prevention and treatment services. To change the ability of dental hygienists to provide needed services, many stakeholders need to be engaged, including the dental examiners. In addition, we need to use a common nomenclature. For example, the term *direct access* should be used instead of *unsupervised practice*.

Much activity has occurred at the state level reflecting the increasing recognition and use of dental hygienists. The ADHA defines *direct access* as meaning that

> the dental hygienist can initiate treatment based on his or her assessment of patient's needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and can maintain a provider-patient relationship (ADHA, 2009b).

Since 1995, the number of states allowing direct access to a dental hygienist outside of the dental office rose from 5 to 29. Figure 4-2 shows the status of direct access by state as of January 2009. In addition, 15 states currently recognize and directly reimburse dental hygienists as Medicaid providers (ADHA, 2009d).

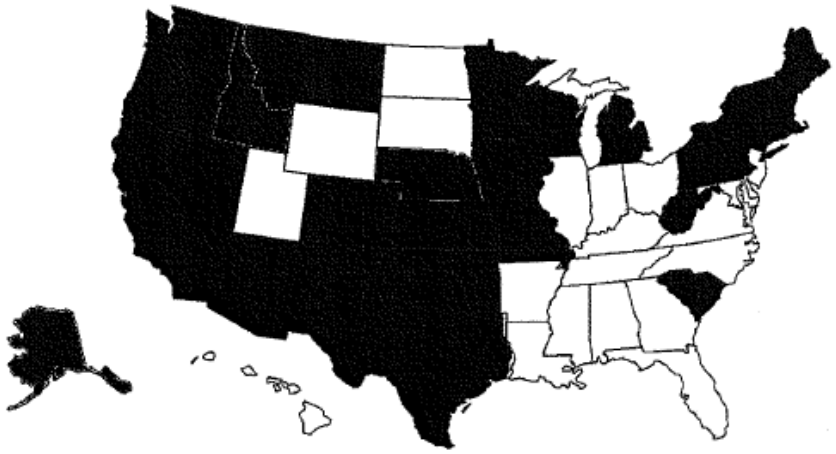

FIGURE 4-2 States that allow direct access to dental hygienists in some settings outside of the dental office, January 2009
NOTE: States in dark shading allow direct access
SOURCE: ADHA, 2009

There are many opportunities to increase the use of dental hygienists. Dental hygienists are often trained to provide services beyond what they are allowed to do, and changes in legislation would enable them to practice to the extent of this education. Options for practice settings should be increased to shift the paradigm from supervision to collaboration. Finally, new types of practitioners should be considered, such as the ADHA model for the Advanced Dental Hygiene Practitioner, which builds upon the existing workforce. Many changes are needed to improve access to oral health services for many different populations. As new roles are considered, oral health professionals must be able to work within the system, know how to use research, know how to make informed decisions, and practice in an evidence-based capacity.

Dental Assistants

Cathy J. Roberts, CDA ,EFDA,COA,CDPMA, MADAA
American Dental Assistants Association

At about 280,000 persons, dental assistants make up the largest part of the dental workforce (BLS, 2007a). Dental assistants primarily work in a clinical capacity. Other roles include front-office positions, practice management, and education. Most dental assistants work in private practices and as assistants to general dentists, but many dental assistants work in specialty practices such as orthodontic and pediatric practices. Currently, there are more than 30 different job titles for dental assistants across the country in different states. While the dental assisting profession used to be regarded as a transient profession, many more dental assistants are now making it a long-term career. For example, according to the American Dental Assistants Association (ADAA), the average number of years of employment of a dental assistant in any one practice is about 11 years. The BLS expects employment for dental assistants to grow about 29 percent between 2006 and 2016, putting it among the fastest growing professions during that period of time (BLS, 2007a).

As dentists' workloads increase, they may turn to dental assistants to perform more routine tasks. With proper education and training, expanded function dental assistants can perform many procedures such as application of topical fluoride or anesthetic, application of sealants, and coronal polishing. However, the laws regulating the practice of dental assistants vary by state. State variation in laws also affects educational requirements. Current programs vary widely from weekend courses in a dentist's office with no set curricula to ADA-accredited programs with defined curricula. Some assistants receive on-the-job training, but this often does not prepare assistants for positions in other offices or does not allow them to carry their credentials to other states. As with other professions, a standardized and mandatory national credential would allow more flexibility and stability in the profession. For example, many dental assistants serve in the armed forces and acquire significant experience, but are unable to meet state-based educational requirements when returning to the United States. State variation in education and credentialing is also confusing because requirements also vary among states for individual tasks, such as taking an X-ray.

ADAA and the Dental Assisting National Board (DANB) have compiled minimum core competencies for dental assistants for each advanced level of duty. DANB offers two national certification exams (e.g., for the certified dental assistant) and two exams for stand-alone national certificates of competency (e.g., radiation health and safety). The certified dental assistant credential is recognized in 29 states, and 38 states recognize at least one DANB exam

(DANB, 2009). This certification leads to higher wages and a higher likelihood the individual stays in the profession. As the education and credentialing of dental assistants becomes more standardized, they may be one source to increase access to oral health services for many populations for some basic oral health care needs.

THE NONDENTAL ORAL HEALTH WORKFORCE[2]

Integration with Nondental Health Care Professionals

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San Francisco Department of Public Health

Aside from traditional dental practitioners in the United States—dentists, dental hygienists, and dental assistants—many more individuals can be involved in the delivery of oral health services, including physicians, nurses, and other health care workers. To integrate the dental and nondental workforces, more consideration is needed for what services the nondental workforce can provide. Within the medical model, tasks may include the assessment for oral disease risk and the presence of oral disease, the initiation and promotion of prevention strategies, the initiation and management of nonsurgical interventions, and the proper referral of patients. In addition, consideration is needed to determine which populations these professionals can best serve. Currently most members of the nondental workforce involved in the provision of oral health services address the needs of pediatric populations. Other special populations that might be served by the nondental professions include the perinatal population, special needs populations, medically complex adults, and geriatric patients.

Challenges and Opportunities for Increased Integration

Members of the nondental workforce need increased training and exposure to oral health care. For physicians, residency appears to be the most opportune place to teach oral health content due to residents' engagement, increased time allotment (as compared to medical school curricula), and the ability to impart both clinical and didactic experiences. Currently, family medicine is the only area of medicine that has developed standardized competencies for oral health in residency programs. Finally, if oral health services are provided by nondental professionals, consideration is needed for how to assess the clinical quality of those services. In truth, there are not many evidence-based standardized clinical guidelines for oral health care in general. For example, it is known that fluoride varnish reduces caries incidence, but there is no consensus as to the best frequency of application.

Several barriers challenge the true integration of dental professionals and other health care professionals. First, dental professionals are less likely than nondental professionals to be familiar with participating in a referral network with other types of practitioners. Second, while academically based training programs may be easier to implement since many medical training institutions are associated with a dental school, physicians and other professionals may lack a community referral network of dentists once they are out in practice. This requires an

[2] The nondental health care workforce includes health care professionals aside from dentists, dental hygienists, and dental assistants.

infrastructure that may not exist for many professionals, such as referral forms, electronic recordkeeping, and case management follow-up procedures.

Conclusions

As the use of nondental professionals increases, consideration is needed for the effects on the oral health workforce overall. The more training these professionals receive to recognize oral disease, the more unmet need will be identified, especially for surgical restorative services in the short term. However, with the implementation of successful prevention strategies, there may eventually be a long-term decrease in the demand for surgical services. Additionally, integration with the nondental workforce allows for evolution toward true oral health, with dental professionals being an integral part of maintaining the systemic health of their patients.

Pediatrics

David M. Krol, M.D., M.P.H., FAAP
University of Toledo

Physicians may receive oral health education at many levels including during medical school, during residency training, and in continuing education programs. A 2006 survey found that two-thirds of graduating residents thought they should be performing oral health assessments on their patients (Caspary et al., 2008). However, only about one-third of pediatrics residents receive any oral health training during their residencies and of those that do, two-thirds get less than 3 hours of training. Only about 14 percent had clinical observation time with a dentist. The majority of pediatrics residents want more oral health training. In addition, in a recent survey of recently trained general pediatricians, more than half of respondents expressed the need for additional residency training in oral health (Freed et al., 2009). In fact, this need was second only to mental health in terms of areas in need of increased training.

Increasing Recognition of Oral Health

The pediatrics profession has taken many steps to ensure better training of residents in oral health care. The Academic Pediatrics Association, the society for general academic pediatrics, has explicit educational guidelines for oral health training in pediatric residency. In addition, the pediatric board exam has questions about oral health. However, the residency review committee for pediatrics has not yet identified oral health as a required topic for pediatric residencies. While the topic is not required in residency, many curricula have been developed to educate and train pediatricians in oral health care.

The pediatrics profession has increasingly recognized the importance of oral health in recent years via policy statements, publications, and meetings. In May 2003, the American Academy of Pediatrics (AAP) delivered its first policy statement on oral health, covering basic topics such as dental caries, risk assessment, and the dental home (Section on Pediatric Dentistry, 2003). In December 2008, a second policy statement addressed support for medical-dental collaboration and the inclusion of oral health in well child care (Section on Pediatric Dentistry, 2008). In addition, AAP's agenda has included oral health for the last few years and pediatric dentists have been members of the AAP since 1999. *Bright Futures* provides prevention and treatment guidelines on well child visits to pediatricians, including a specific subset of guidelines specific

to oral health. In the most recent edition, oral health was one of the 10 major themes and was identified as a component of every well child visit. The AAP has developed Pedialink, a resource for continuing education online (available to AAP members), which has a specific module on early childhood caries as well as audio CDs on oral health. Oral health has also received increased attention at local, state, and national conferences. In 2005, the Pediatric Academic Societies had a mini-course on oral health for the first time, and in 2008, the AAP annual meeting focused on oral health.

Many programs and grants have also risen to spread oral health education to pediatricians. Preceptorship programs provide individualized training. The Chapter Advocates Training in Oral Health program is attempting to identify an oral health advocate at each of the 66 AAP chapters in the United States. These individuals will serve as chapter oral health experts and have a dental partner to build collaborations at the state and local levels.

Conclusions

Oral health has to be integrated into every level of pediatrics training. It has to be supported and instituted by the accreditation bodies and competence must be tested. While there are multiple curricula, the content and quality of the information must be consistent to both practitioners and parents. These curricula also need to be evaluated for their effectiveness in changing behaviors and their effects on both the oral health and overall health of patients. Finally, there needs to be more collaboration at every level of education and practice.

Family Medicine

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Central Washington Family Medicine Residency, and
University of Washington School of Medicine

Family physicians practice across a spectrum of care settings and care for a variety of populations. Family physicians are the largest primary-care specialty and are a major source of care for rural and underserved populations. Without family physicians, almost the entire nation becomes a health professional shortage area. Family physicians often provide the medical home for both children and adults.

Family medicine physicians typically receive little exposure to oral health in medical school or residency and perceive oral health as an area of knowledge deficit. In June 2006, the residency review committee for family medicine residencies added oral health as a requirement. However, the extent or content of the requirement is not explicitly defined. In a recent survey of directors of family medicine residencies, about three-fourths of the residency directors knew of the oral health requirement and about two-thirds of the programs were actually including oral health content, with the most common training time being 2 hours per year (Douglass et al., 2009)

Several academic groups have come together to develop *Smiles for Life*, a curriculum based on a blending of the nation's best practices for teaching oral health to family medicine physicians. The curriculum has seven modules and is being used by at least eight states. Other efforts are attempting to educate practicing physicians on oral health. More continuing medical

education lectures and published journal articles have arisen. Family medicine board exams also include questions on oral health.

In conclusion, to advance oral health education and training within family medicine, more needs to be done to expand this education and training in both medical schools and residency programs. In addition, strategies that are the most effective in changing physician practice patterns must be identified. Finally, the health care system needs to become more fully integrated.

Nursing

Caroline Dorsen, M.S.N., FNP-BC
New York University, College of Nursing

Donna Shelley, M.D., M.P.H.
New York University, College of Dentistry

Nurse practitioners are registered nurses with additional education and training at the graduate level and have either a master's or doctoral degree.[3] Nurse practitioners can see patients independently and perform histories and physicals, perform lab tests, and diagnose and treat both acute and chronic conditions. Nurse practitioners emphasize health promotion and disease prevention and especially focus on the health of individuals in the context of their families and communities.

Nurse practitioners are credentialed and take a national licensing examination offered by one of three different organizations (depending on the area of specialty). Nurse practitioner scope of practice is defined at the state level by each state's nurse practice act. For example, in New York state, nurse practitioners can write prescriptions but are required to have a collaborative practice arrangement with a physician, meaning that there is a formal written agreement by the physician to be available to the nurse practitioner for questions or to help with quality assurance. These individuals commonly practice in areas where there are fewer health professionals. As such, they may serve as a frontline screening source for oral health and may need increased training and expanded scopes of practice.

Nurse practitioners who specialize in pediatrics have much better education in oral health than nurse practitioners specializing in adult medicine or geriatrics, likely due to the emphasis on preventive care. Instead, these other tracks discuss oral health only in the context of reflecting disease states. Except in pediatrics, most nurse practitioner certification examinations do not include oral health.

New York University Model

In the 2001 report *Crossing the Quality Chasm* (IOM, 2001), the Institute of Medicine called for the facilitation of interprofessional collaboration. As a result,the New York University (NYU) College of Nursing and College of Dentistry worked together to identify similarities, differences, and areas of potential improvement. NYU conceptualized and operationalized a

[3] In 2004, the American Association of Colleges of Nursing recommended the practice doctorate to be the graduate degree for advanced practice nurses, including nurse practitioners (AACN, 2004).

model of multidisciplinary practice between these two colleges. This model has two goals: (1) to develop and evaluate new interdisciplinary practice and education models, and (2) to support interdisciplinary translational research.

The first step was to have visiting professors from one discipline lecture to students of the other discipline. For example, nurses have talked to dental students about health promotion and disease prevention while dental faculty members have taught nursing students about performing oral assessments. A more creative approach has been to have nurse practitioner and dental students receive side-by-side clinical training. Finally, nurse practitioner and dental students work together on other activities such as health fairs and international health care missions.

This collaboration between the two colleges has also led to a fair amount of new research and practice. For example, smoking cessation relates to both professions in terms of oral cancers and smoking prevention. Other areas of shared interest include salivary HIV testing, diabetes screening and early intervention for periodontal disease, and elder abuse screening. Finally, the College of Nursing Family Practice was developed to provide primary care services by nurse practitioners to patients who are accessing dental services at the College of Dentistry clinics. About one-third of the patients coming through those clinics do not have a primary care provider. Previously, practitioners in the dental clinic did not routinely ask patients if they had a primary care physician. These data are now part of the charting system so that these patients are flagged and can be identified as individuals who might need a visit.

Conclusions

As an oral health curriculum is developed, more needs to be done to coordinate with other disciplines to define the competencies and create a core curriculum that goes across the life span. Also, more models are needed for the interdisciplinary education and training of health professions students. Policies need to come into alignment with practice, such as the development and implementation of clinical practice guidelines. Finally, a research agenda is needed to follow the clinical agenda in order to track which interventions are most effective in changing practice patterns.

REACTION AND DISCUSSION

Moderator: Elizabeth Mertz, M.A.
Center for Health Professions,
University of California, San Francisco

Moderator: Daniel Derksen, M.D.
University of New Mexico

Open discussions followed the panelists' presentations. For these sessions, workshop participants were asked to submit cards with comments and questions for the panelists. The following sections summarize the discussion sessions. (See Appendix E for a broader sampling of the submitted questions and comments.)

Workforce Planning

Several specific questions were posed regarding the workforce of dentists. In response to a question regarding the accreditation of foreign dental schools, Valachovic said that unlike

international medical graduates, dental graduates must currently graduate from an American dental school to be eligible for licensure in nearly all states. He said there is some slow movement to consider the accreditation of foreign dental schools so that graduates would be eligible for licensure upon graduation (assuming immigration status). In regards to a question on the effect of the increasing number of women in dentistry, Valachovic said male dentists tend to work many hours early in their careers and then start to diminish the number of hours they work later in their careers while women tend to take time off early in their careers for family-related issues, but then increase their number of hours later in their careers. In fact, he stated, the total number of hours worked by women during the lifetime of their careers may actually exceed the total number of hours worked by men. He added that female dentists may also have the opportunity to consider a variety of practice settings since, on average, spouses of female dentists tend to have higher incomes than spouses of male dentists. In response to a question regarding how to recruit more underrepresented minority students into dentistry, Valachovic said the numbers of applicants are increasing, but still not sufficient. He remarked that the American Dental Education Association (ADEA) has over $30 million invested in projects to increase the number of qualified underrepresented minority applicants. For example, he noted a collaborative effort with the Association of American Medical Colleges to hold a 6-week summer program in the basic sciences for first- and second-year college students with interest in medical and dental careers.

One participant posed a question regarding the status of updated supply requirement models or analysis of the oral health workforce. Mertz said that individual professions often project these needs and that HRSA has funded this type of research, but that many models may be limited since projections are often based on current trends instead of considering any new models of care. Valachovic said the ADEA is trying to look at new models while taking into account newly emerging changes in the applicant pool as well as the number of new schools of dentistry and dental hygiene programs approved by the Commission on Dental Accreditation. Battrell noted that the ADHA has developed a dental hygiene master file to try to analyze the education and workforce trends. She noted that there are six times as many dental hygiene programs as schools of dentistry, but not every dental school has a hygiene program; even when they do, the programs are usually not integrated, so the students do not learn how to work together.

Evidence Base

Several questions were submitted regarding the evidence around direct access to dental hygienists including the effects on access and impact of financing challenges. Battrell said several models of advanced practice in dental hygiene are beginning to collect data, adding that all existing and emerging models should be uniformly examined. Battrell distinguished between being an independently practicing dental hygienist (i.e., owner of the business) and a dental hygienist who provides direct access. She stated that it can be difficult to collect data since due to political pressures, many independently practicing dental hygienists do not want to be publicly identified. In that regard, Battrell advocated for providing safeguards for these professionals so that they can uniformly share their data without fear of retribution. Battrell noted that some evidence does exist on the positive use of the Limited Access Permit legislation in Oregon for dental hygienists (Battrell et al., 2008). One participant asked about the scientific evidence base of various oral health curricula for medical residents. Maier said the main issue is that there is a dearth of such evidence in general, noting there are just a few items each in pediatrics and family medicine that rise to the level of the Cochrane Collaboration or the United States Preventive

Task Force. Second, Maier said there is also little data on whether or how education (in general) produces behavior change. He said, therefore, more evidence is needed both on how to integrate health care as well as whether specific services actually affect health outcomes.

Public Health

Several participants raised questions about how to incorporate public health principles into the fragmented health care system. Hilton said the strength of public health practitioners is in planning, implementation, and evaluation, especially for new models of care including new types of practitioners or new ways to integrate medicine and dentistry. She said that public health workers should be involved in program planning to ensure a built-in evaluation component. Hilton advised that when considering new models, care should be taken to step back and consider a basic needs assessment and resource planning principles. Dorsen said the health system does not financially support strong public health or preventive health care. For example, she said that Chile spends much less on their health care systems than the United States, yet has similar outcomes in terms of morbidity and mortality. Dorsen noted that Chile focuses on prevention, with universal access to vaccines, formula or breast milk, and access to food for older adults. Therefore, Dorsen stated, incorporating public health principles will require a grassroots movement to consider what is important to Americans as human beings and that public health should be thought of as a solution to fixing our broken health care system.

Medical Homes

One participant questioned the need for a separate dental home in light of the existence of a medical home. Maier noted that the medical home model is not comprehensive because it does not include all major categories of health care. He said that community health centers might be the best example of a truly comprehensive health care home because of their provision of medical services, oral health services, and behavioral health services. Krol noted that this is another example of the importance of common nomenclature, and that the *health care home* is the true ideal. He stated that distinguishing the medical home from the dental home is a matter of semantics.

Professional Roles

One participant commented that a joint statement of several medical societies recently stated that the medical home must include a physician-directed team. The participant questioned how and when these organizations would collaborate with other types of professionals and recognize them as equal members of the team. Krol stated that many medical offices use other types of professionals, such as nurse practitioners and physician assistants, and recognize their knowledge and talent. Dorsen stated that professionals need to stop thinking in terms of hierarchies, and think of themselves as being in a circle surrounding the patient. Dorsen added that all types of professionals need to recognize when they have a knowledge deficit or limitation as well as the fact that individual patients may develop better relationships with other members of the team, which only contributes to better outcomes and more personal satisfaction.

Another participant asked if dental hygienists should be able to work with other types of health care professionals, such as pediatricians and family physicians. Krol said that in the spirit of increased collaboration, they should be able to work together, but that state dental practice acts might prohibit such an arrangement.

Another participant asked which health care professionals should be allowed to apply fluoride varnish. Krol stated that nondental professionals are already performing this service. Maier said that professions commonly battle over ownership of services, but that provision of services should be dictated by the competency of the individual and not the professional degree. He noted that the same should be true for who leads a health care team (as mentioned in the medical home model). Shelley said that in her program, as a result of homebound patients requesting oral health services, nurse practitioners reached out to the dental hygiene school to send dental hygiene students out with nurse practitioners to help screen and educate patients. She noted that the regulatory environment may inhibit some of these types of naturally occurring collaborations.

5

Current Delivery Systems

A panel of experts discussed some of the main ways in which oral health care services are currently delivered. Panelists paid special attention to the organization, size, capacity, workforce, financing streams, target populations, and impact of state practice acts for each system of care.

PRIVATE PRACTICE[1]

Wayne R. Wendling, Ph.D.
American Dental Association

The private practice model of care delivery applies to the approximately 92 percent of the 165,000 professionally active dentists who are involved in the private delivery of dental services. As seen in Figure 5-1, the majority of dentists in private practice are sole proprietors.

Independent dentists in private practice typically work 49 weeks annually, and 32 of the 36 hours of weekly practice are devoted to the treatment of patients. These numbers have declined in the last 10 years due in part to the aging male component of the workforce and the greater share of females in the workforce who tend to work 2–3 hours less per week. The typical independent dentist has almost 4,000 patient visits each year, with walk-ins and emergencies accounting for about 6 percent of all visits. About 70 percent of private practice dentists provide charitable care (75 percent among dentists in practice less than 10 years) at an average value of about $13,200.

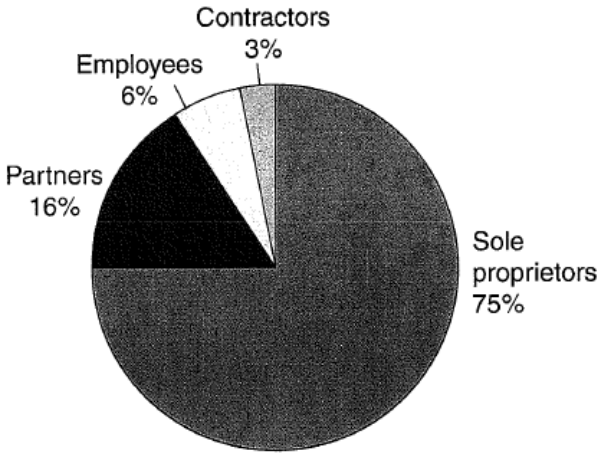

FIGURE 5-1 Employment situation of dentists in private practice, 2005
SOURCE: ADA Survey Center, 2008.

[1] The source for all data in this section is attributable to ADA Survey Center, 2008.

Most dentists (92 percent) are in single-office locations and have at least one staff member (92 percent). The typical dentist has almost five staff members on his team, including chair-side assistants, secretaries, dental hygienists, and other staff members. As seen in Figure 5-2, these dentists see patients across the age spectrum, with 14 percent of patients being over age 65 and 22 percent being under age 18. A little more than half (55 percent) of a private practice dentist's patients are female. The majority of patients (63 percent) are covered by private insurance, and 31 percent of patients are not covered by insurance. Private practices tend to be located in areas that have the population to support them. The typical travel time to a practice is less than 10 minutes for about one-third of the population, 11–40 minutes for about half of the population, and 13 percent travel for more than 40 minutes.

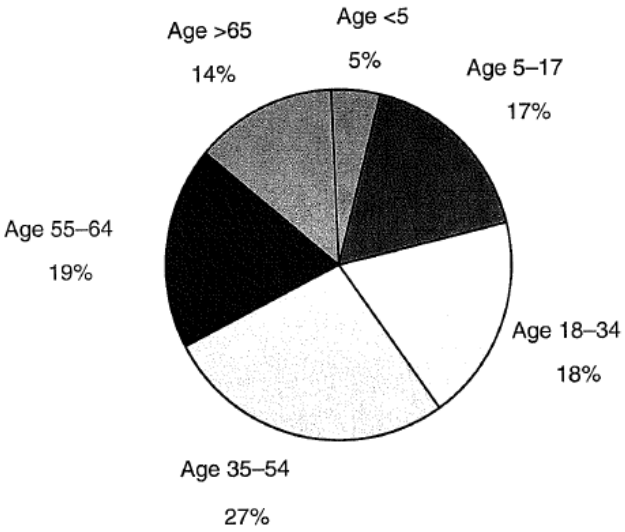

FIGURE 5-2 Age distribution of patients seen by independent dentists, 2006
SOURCE: ADA Survey Center, 2008.

A 2005 survey of new dentists (i.e., dentists in practice for less than 10 years) showed about 54 percent of new dentists start off as employees, but with more years of practice, they are less likely to be employees. As they move out of employee status, they move into partnerships or become sole proprietors. New dentists earned about $86,000 annually, but those in practice for about 10 years earned about $200,000. While the majority of all new dentists go into private practice, a slightly higher percentage of Caucasian new dentists enter private practice than Hispanics, African Americans, and Asians. Among new dental graduates, 70 percent enter private practice while 20 percent go on to graduate studies. The remaining 10 percent go into public health, military, or other areas of the workforce. The majority of dental students (94 percent) graduate with debt, with the average debt being $158,000 in 2006. About 70 percent of graduates carry additional debt with an average of about $89,000.

In conclusion, based on data from the 2000 U.S. Census, there are about 43 million economically disadvantaged individuals (persons at less than 125 percent of the federal poverty level) who make up the bulk of the populations that have difficulties with access to health care services. When considering solutions, more attention needs to be given to the flexibility, capacity, and diversity of the workforce as well as collaboration and efficiency within that workforce.

MEDICAID-FOCUSED PRACTICES

Burton L. Edelstein, D.D.S., M.P.H.
Columbia University

Beneficiaries in the Medicaid program have little access to the primary sources of dental care in the United States. Medicaid-focused practices include private practices, exclusive Medicaid management companies, or public and private safety net programs (other than federally qualified health centers). These practices serve poor children via the Medicaid program and the children of working poor families via the Children's Health Insurance Program (CHIP). Notably, states are not required by either program to provide adult dental coverage. Medicaid and CHIP are publicly funded sources of health insurance and cover 20 percent of the U.S. population, usually the children with the greatest oral health needs, but only account for 5 percent of total U.S. dental financing. In addition, payments from these sources often fall below dentists' overhead rates. To accommodate these challenges, Medicaid-focused practices strive to lower operational costs, increase efficiency, find additional sources of funding (or hybridize their practices with patients with higher-reimbursing payments), and negotiate fees. Medicaid-focused practices often engage staff members who are committed to serving vulnerable populations and maximize the role of each staff member.

Private Practice

The majority of dentists in private practice do not participate actively in the Medicaid program (i.e., bill more than $10,000 annually). Therefore, in the setting of private practice, a small subset of dentists provides the overwhelming majority of care to Medicaid patients. A major challenge to increasing the willingness of dentists to provide these services may be inadequate education and training in the needs of the Medicaid population. Some of the reasons that dentists choose to serve Medicaid populations include their strong sense of social responsibility, their confidence in their clinical abilities, the income opportunity, and a favorable attitude toward the Medicaid program. These practitioners are also willing to stretch social norms—that is, they are willing to redefine what a "successful" practice is, to relocate to areas that are accessible to these populations, to have more flexible schedules, and to lower their income expectations.

Medicaid Management Companies

Medicaid management companies are for-profit practices that are growing rapidly in number. The presence of these practices can lead to dramatic increases in utilization and increase the number of children who receive care. These practices are able to succeed because they have strong control over expenses by locating the practice in areas of low rent (which are often areas more accessible to these populations), by ordering equipment and supplies in large volume, and by having lower staff salaries. Since these practices are typically much larger than the traditional private practice, they can have increased flexibility in scheduling appointments, hire a larger staff, and use each staff member to his or her highest level of ability.

Safety Net Providers

Safety net providers comprise a disparate and numerous group that range widely in their stability and productivity. These providers tend to meet the critical needs of much smaller groups of populations in need. Safety net providers may deliver services through school-based programs, such as sealant programs, prevention programs, and screening and surveillance programs. Other safety net providers deliver services through mobile dental programs, the clinics of dental schools, and voluntary programs.

Conclusions

To expand care to Medicaid populations, new and existing dentists need more experience working with this population. Increased access may also be facilitated by thinking about what types of students are accepted into schools and how they are trained. Pediatric dentists especially need to become more engaged, as they are the best trained to provide the most sophisticated treatment to the children with the greatest need. Other considerations include the provision of incentives to caring for this population and expanding the roles of dental assistants to allow for increased efficiency. Dental hygienists may also be critical to providing oral health services to this population by continuing to expand the out-stationing of dental hygienists in public health-affiliated sites and the ability to pay for their services directly. Finally, more primary medical care providers need to be engaged in oral health care, and true disease management approaches need to be embraced.

COMMUNITY HEALTH CENTERS[2]

Donald L. Weaver, M.D.
Health Resources and Services Administration

Federally-supported community health centers (referred to here as "health centers") include a range of settings including community health centers, migrant health centers, programs that care for homeless persons, and programs that provide primary care in public housing. The mission of these centers is to improve the health of the nation's underserved and vulnerable populations by assuring access to care that is comprehensive, culturally competent, and of the highest quality. Health centers must be located in or serve a medically underserved area or medically underserved population. Health centers are governed by community boards that have fiduciary responsibility for the health centers. More than half of the community board's members must be actual patients of that health center and must be representative of the population served. Health centers must provide comprehensive primary health care services as well as supportive services such as education and transportation. Health care centers need to be tailored to overcome each community's barriers such as geography, personal finances, and cultural and language differences. For example, health centers must see patients regardless of their ability to pay for those services and have sliding scales of payment according to income. Finally, health centers are subject to other requirements related to their administration, financing, and clinical operations.

[2] Data for the following section are based on internal HRSA data (Personal communication, D. Weaver, HRSA. February 9, 2009.)

Over 7,000 health centers exist and are located in every state, the Commonwealth of Puerto Rico, the Virgin Islands, the Pacific basin, and the District of Columbia. Only slightly more than half of health centers are in rural areas. Health centers serve just over 16 million people with 63 million patient encounters. Overall, one in 19 people in the United States receives care at a health center, but this ratio is higher for those who live below the poverty level and uninsured individuals. Annually, health centers see about 1 million homeless individuals, more than 825,000 migrant and seasonal farmworkers, and about 133,000 residents of public housing. While health centers evolved from caring for mothers and children, an increasing number of older patients are being treated at health centers. Medicaid provides 35 percent of the revenue for health centers.

Health centers have over 100,000 staff including almost 6,900 oral health professionals (i.e., dentists, dental hygienists, and dental assistants). The numbers of oral health professionals has been growing consistently in recent years. However, there continue to be a significant number of staff vacancies at health departments, and health centers work with the National Health Service Corps to identify practitioners for these communities. In addition, many centers are becoming more involved with residency programs in general medicine, pediatrics, and dentistry to expose residents to working in health centers.

While health center legislation does not require the provision of comprehensive dental services, many health centers do provide these services, and the number of unduplicated dental visits has been on the rise consistently since 2002. Legislation does, however, require dental screenings in pediatric populations. Since 2002, the percentage of health centers with onsite preventive dental services has remained stable (ranging from approximately 71 percent to 74 percent of all health centers). As funding becomes available, health centers may have the opportunity to expand their services, and the interest level in expansion to include dental services is high.

In conclusion, health centers should be considered a health home that includes medical health, oral health, and behavioral health care. Health centers strive to provide care in a manner that is patient centered, culturally competent, and provided by an interdisciplinary team.

REACTION AND DISCUSSION

Moderator: Marcia Brand, Ph.D.
Health Resources and Services Administration

An open discussion followed the panelists' presentations. For this session, workshop participants were asked to submit cards with comments and questions for the panelists. The following sections summarize the discussion session. (See Appendix E for a broader sampling of the submitted questions and comments.)

Quality of Care

Several participants asked about models to assess the quality of care provided instead of focusing on the person delivering the care or the mode of financing. Edelstein said there is very little information on either quality of care or even on what should be measured to establish quality of care. He noted that the new CHIP legislation does establish a commission to address quality of care and explicitly calls for the development of measures for oral health services.

In response to a question about the quality of care provided by Medicaid management companies, Edelstein said he did not have a basis to evaluate this. He said that quality reviews by state Medicaid authorities and the Medicaid/SCHIP Dental Association do not reveal problems leading to issues around payment for services. Edelstein noted these companies have been subject to a fair amount of controversy but also states that there are some public misapprehensions and misunderstandings about the nature of surgical dental services for children. He said that despite rigorous effort, the companies have often failed to find pediatric dental specialists. He also recognized that some of them have worked hard to develop quality supervision and quality assurance and quality improvement methods. Edelstein said that the wide variety of individual providers and companies does not allow for a conclusion to be drawn about the quality of care provided by Medicaid management companies in general.

Structure of Health Centers

In response to a question about the relative lack of dental hygienists working in health centers, Weaver replied that many centers are looking for them, but may be challenged by more competitive salaries in the private sector. He added that health centers have been encouraged to link with dental hygiene programs just as they do with residencies in dentistry. Weaver noted that several centers have successfully done this, and it seems to improve recruitment. In response to a question about regulation, Weaver said that dental clinics in federally funded health centers still operate under state practice acts.

Another participant commented that the Health Resources and Services Administration (HRSA) used to have regional dental consultants provide technical assistance to health centers and asked what HRSA is currently doing to assist health centers. Weaver stated HRSA has a variety of resources through its support of the National Oral Health Access Group as well as consultants who are available on an as-needed basis to health centers that request technical assistance. Weaver also noted that HRSA is actively working with state primary care associations to ensure they have core abilities to assist people. He also commented that in the last few years, HRSA has been striving to coordinate technical assistance efforts so that if a health center has a particular question, there will be a best practice as to how to answer that question. Finally, Weaver said that they still try to tap into the resources of employees in regional offices.

Financing

One participant asked about the effect of the economic downturn on practice setting (i.e., will dentists favor salaried positions over private practice). Wendling noted that the economic downturn will likely have several effects, including a change in retirement patterns of existing dentists (e.g., they will stay in practice longer) as well as fewer opportunities to work as an employee or independent contractor in private practice. He said, therefore, more opportunities may actually arise in other areas.

6

End-of-Day Discussion: Day 1

Moderator: David N. Sundwall, M.D.
Utah Department of Health

Sundwall remarked that he recently read a report from a 1934 commission on public health that noted difficulties with access, geographic distribution, and provider mix as well as a call for more dentists, more primary care, and more nursing involvement—all the same issues facing the health care system today. He added that in spite of many challenges, including the current economic crisis, this is a time for optimism. He noted that the federal government is investing in health professions education. Sundwall invited members of the planning committee to summarize their perceptions of the themes discussed during the first day of the workshop.

DISCUSSANTS' PANEL

Elizabeth Mertz, M.A.
Center for Health Professions,
University of California, San Francisco

Solutions to challenges in improving access to oral health services require paradigm shifts in the way we think about the workforce, different models of care delivery, and the different responsibilities of the actors within the care delivery system. Moving beyond thinking of dentists having the sole responsibility for oral health care is a complex and multifaceted issue. However, the change in the paradigm of care delivery seems to be toward what most practitioners already know: it takes a team to address these issues and not just one individual practitioner. Other important features of paradigm shifts include considering the nomenclature used for the workforce, identifying all potential members of the oral health team, and how to think about a dental, medical, or health care home.

Another challenge to improving access relates to the model of care delivery, including private practice models, institutionally based models, public health models, and models with dentistry at the center. Strong leadership exists for each of these approaches, and those leaders need to work together regarding how the different models fit together in a broader system of health care delivery. Other considerations include focusing on specific populations, the role of the government, and how what happens within the microcosm of dental care and medical care is a reflection of society more broadly in terms of health disparities and other social pressures.

Finally, more evidence and resources are needed such as the development, standardization, and dissemination of curricula in oral health for nondental professionals. Additionally, there is a lack of performance standards across the oral health system. A better scientific evidence base is

needed so that new models of care and existing models of care can be held accountable to the same standards.

Many people argue that a system of oral health care does not exist. Since the system has failed large portions of society, many people are willing to forego that system and move forward with other solutions outside of traditional dentistry. Dentists are a smart and entrepreneurial group but seem more averse to the use of new types of practitioners (who might be a source of increased revenue and referrals) than the increasing number of dental schools. Organized dentistry, like any other large organization, is not able to change quickly. While many leaders in organized dentistry have great energy and enthusiasm to address access problems, the formal policies remain antiquated. In addition, state practice laws need to be reexamined so that one professional group is not regulating another. More thinking is needed on how to ensure the public is safe with respect to all practitioners. Finally, Gehshan recognized the range of entrepreneurial activity occurring in the dental fields.

Len Finocchio, Dr.P.H.
California HealthCare Foundation

There are many reasons for the irrationality behind how the oral health system evolved. Consideration is needed for how to integrate medical, dental, and public health. Another necessary consideration is how to reorient the delivery of oral health services across different sectors and distribute the delivery of those services using the mix of the workforce in order to optimize oral health outcomes. That is, instead of basing solutions on current scopes of practice, more attention is needed on how to best use each member of the health care workforce to meet the best identifiable public health outcomes. In addition, more attention is needed regarding how to determine if those outcomes have been met. For example, public programs need to become smarter purchasers of oral health services.

Daniel Derksen, M.D.
University of New Mexico

Proposed workforce solutions to improving access to oral health services show great efforts to improve collaboration and respect between oral health disciplines. The current economic crisis acts to exacerbate the loss of confidence in the health care system that is arising in the general public. The United States puts more money into its health care system than any other society, yet does not achieve better outcomes. More needs to be done to assure the quality and value of the health care services delivered. Consideration is needed for the balance of the health care system to ensure that focus is on those services that improve health for both individuals and society as a whole. The professions need to come together to work on these problems to make sure the individuals, communities, and populations are best served by existing resources. Proposed workforce models serve as good starting points and now consideration is needed for the policy recommendations that will move the oral health care system forward as a whole instead of focusing on the interests of individual professionals.

Marcia Brand, Ph.D.
Health Resources and Services Administration

There is an extraordinary amount of innovation in proposed solutions to oral health access challenges, and the federal government may be able to play a facilitative role in improving the oral health system. For example, current health workforce policy work requires a discipline-by-discipline examination in order to answer a single question, and consideration is needed regarding strategies to share information, such as for best practices among disciplines. The Health Resources and Services Administration recently introduced the Health Workforce Information Center[1] to provide a single location for information about the health care workforce, which might be a good place to share best practices. Also, some provider groups have fairly good data about their workforces, and some good data exist regarding demand for oral health services. However, a research agenda is necessary to provide better understanding about the different models of oral health care delivery.

REACTION AND DISCUSSION

Moderator: David N. Sundwall, M.D.
Utah Department of Health

An open discussion followed the discussants' presentations. Audience members were able to give comments and ask questions of the discussants. The following sections summarize the discussion session.

Vulnerable Populations

A participant commented that the prison populations (including residents of federal prisons, state prisons, and detention centers) are vulnerable populations in need of special consideration. He stated that there are over 2 million incarcerated persons in the United States and very little is known about their oral health care. The participant added that other institutional populations in need of attention include residents of mental health facilities and nursing homes. Another participant noted in light of the current mode of practice, little will be done to impact caring for the underserved unless the entire oral health workforce is reorganized. Another participant added that in order to meet the needs of underserved populations, practitioners need to get into the communities to reach people where they live and work to overcome barriers these people face in getting to traditional locations of care.

Public Health

Several participants commented that more attention is needed on the public health dental workforce instead of focusing just on clinical providers of oral health care services. One participant added that public health dentists need to teach dental public health in schools of dentistry and programs of dental hygiene. Public health dentists also need to be conducting public health research to address prevention issues. Another participant commented that as

[1] www.healthworkforceinfo.org

discussions about the economy and health reform go forward, a national plan is needed to promote prevention so that access is less of a problem.

Professional Liability

A participant commented that professional liability needs to be considered because it influences how any new type of model may be arranged. He noted that as the director of a community health center there is substantial responsibility on a daily basis for what happens under the reach of the health center and that level of legal responsibility may lend to the cautiousness of discussions about changing the way services are delivered. The participant said that as new models go forward, consideration is needed for who can be responsible legally, professionally, and ethically. Another participant added that liability does not fall just on one person in situations of collaborative practice. She noted that every licensed professional takes legal responsibility for the services he or she provides.

Learning from the Past

Several participants noted the wealth of history regarding studies on access to oral health services. One participant referenced the Institute of Medicine study *Dental Education at the Crossroads* (IOM, 1995), noting that most if not all of the recommendations have not been acted upon. Another participant urged more consideration of other public health factors, referencing a study done in the 1970s that looked at the oral health workforce in several countries. The study found that the oral health workforce did not show any direct relationship to oral health outcomes. Instead, she said, oral health outcomes were associated with issues of public acceptability, public attitudes, lifestyle practices, socioenvironmental issues, and prevention policies. Another participant noted that in the 1990s, a coalition of organizations worked to ensure oral health was included in health care reform discussions, and that such an opportunity exists again today if all groups work together.

Improving Progress

A participant commented that the talents of all practitioners in the oral health care system need to be recognized and that instead of focusing on hierarchy, more attention needs to be placed on putting the patient at the center of care. Another participant said innovative models are crucial to making progress and that more opportunity for experimentation is needed. The participant stated that all the organized professions need to look objectively at the outcomes of new models of care to consider if there are better models of practice. Another participant stated the board of trustees of the American Dental Association is dedicated to finding solutions to the access-to-care problem. He noted an upcoming summit on access to care and another one on diversity that seek input from all points of view. The participant agreed that more collaboration is needed and suggested the formation of oral health coalitions.

7

Challenges of the Current System

A panel of experts discussed some of the major challenges to the current system of oral health care. These challenges include education and training challenges, regulatory challenges, financial challenges, and challenges in performing quality assessment

CREATING FUTURE LEADERS

Jack Dillenberg, D.D.S., M.P.H.
Arizona School of Dentistry & Oral Health

Many critical challenges face the dental workforce. The practice of dentistry is a privilege that includes an underlying responsibility and expectation to give back to society. To quote from the report of the American Dental Education Association President's Commission,

> Economic market forces, societal pressures, and professional self-interest must not compromise the contract of the oral health provider with society (Haden et al., 2003).

Societal Changes

Many changes affect the way the health care workforce interacts with society. Today, the public is increasingly well-informed about their health care choices, and so professionals need to be aware of the types of information the public has access to, including incorrect information. In addition, today's patients are different in that they want to have more active roles in their own health care. Therefore, everyone (e.g., health care executives, health professionals, legislators, policy makers, and the public) needs to work together to be more responsive to the demands of this well-informed and engaged society. Strong leaders who are humble, compassionate, and confident are especially needed.

This nation is currently undergoing a paradigm shift from primary care to comprehensive care to interdisciplinary care. The focus needs to be on overall health, not just specific disciplines, in order to provide systemic disease prevention and management and to engage patients in healthier behaviors. In that vein, "health homes" should be considered (instead of medical homes or dental homes). Currently, the oral cavity is separated from the rest of the body in many ways, including in the insurance system. Health homes that are accessible, continuous, comprehensive, and family centered are needed. There is more to dentistry than fixing teeth; the whole person must be seen in the context of his or her family and community.

The Arizona School of Dentistry & Oral Health

To address all of these challenges, special consideration is warranted for the recruitment of the next generation of dental students. The Arizona School of Dentistry & Oral Health (ASDOH) focuses on training dental students to become community-based educational leaders for populations in need. In that regard, the school officials think differently about the types of students to accept, looking for students who want to make a difference and are from diverse backgrounds. For example, one of the main criteria of admission is the documented demonstration of previous community service. ASDOH also has the highest number of American Indian dental students in any dental school in the United States.

The modular curriculum allows time for further community service. Grant funding secured the building of a special care clinic that has become the largest provider of special care dentistry in the Southwest. The program has other nontraditional elements. For example, in lieu of a permanent science faculty, renowned educators from around the country come to teach in 1-week modules. There are also a lot of clinics, and in their fourth year, students spend half of their time outside the school including 4 weeks working in sites across the country such as community health settings and Indian Health Service clinics. One-third of the first graduating class and about one-fourth of the second class went to work in community health centers. Finally, every student graduates with a certificate in public health, which is a requirement for graduation. Students can take additional courses online to receive a full master's of public health (MPH) degree. About one-third of the class graduating in 2010 will receive an MPH degree.

The school also has a few unique programs for recruitment of students and placement of graduates. For example, the school reserves dental school spots for students recommended by the Alabama Medical Foundation. Additionally, in an agreement with the National Association of Community Health Centers, the Hometown Project allows community health centers to identify students they want to prioritize for job interviews.

Conclusions

To create the leaders of tomorrow, new and creative thinking is needed when considering the types of students to recruit into dental schools and how to train them. ASDOH works hard to create scholarships students with commitment to communities in need can be trained to go back to those areas. All oral health professionals in the future need to be educated and trained to provide patient-centered, family-centered, comprehensive and coordinated care.

Discussion

One participant raised the issue of the trend toward dental schools not being part of larger academic health centers and wondered where the future evidence will come from in an era of evidence-based dental practice. In response, Dillenberg noted that ASDOH has collaborative agreements with universities around the country and fosters research experiences for interested students. Dillenberg expressed that regionalizing dental education through collaborative agreements is especially useful with the faculty shortages seen at many dental schools.

REGULATORY CHALLENGES

Regulatory Challenges in Health Care

Catherine Dower, J.D.
University of California, San Francisco,
Center for Health Professions

The following discussion of the regulatory challenges is addressed to the health care professions in general.

Challenges

In the United States, the regulation of health professions can impede the delivery of health care services because of three main challenges. First, while the education, training, and testing of most health care professionals and the accreditation of educational programs have national standards, the establishment of scope of practice laws are state based and politically driven processes that result in wide variability and unnecessary limitations on professional practice. One example of the mismatch between what professionals are trained to do and what they are legally permitted to do is the variability in state laws regarding nurse practitioners. State laws vary tremendously regarding whether nurse practitioners can work independently despite the fact that there is no evidence indicating that nurse practitioners do better with physician supervision. There is a similar divergence of practice laws and lack of evidence about patient outcomes when it comes to nurse practitioners' prescription authority. In fact, research now shows that expanded and overlapping scopes of practice are correlated with increased access without compromised quality or safety.

A second challenge in the regulation of health professions is that there are inherent conflicts of interest both with the regulatory oversight of one profession by another profession (as with dentistry and dental hygiene) as well as when a profession self-regulates—that is, when the state regulatory boards are composed primarily of the members of the profession that they are regulating. The state has a legitimate interest in protecting the public, which is the only reason you can interfere with an individual's ability to practice his or her profession. There is self-interest when a profession is regulating itself, and every year state boards are accused of serving their professions rather than serving the public. However, when two professions are at odds with each other over scope of practice, the issues become more complex. The inherent conflict of interest between protecting self-interests of a profession and protecting the public is exacerbated when one profession regulates another. In these cases, the dominant profession may likely have an additional conflict of interest in trying to protect its own scope of practice, putting itself at odds with both the other profession and the public. While society may choose for now to live with the unavoidable conflict within self-regulating professions, it can avoid the additional conflicts of one profession regulating another by permitting each profession to regulate only itself.

The third challenge in the regulation in health care professionals is that health workforce data collection is limited or nonexistent in most states. For example, little is known about how many professionals are practicing or where they are located. While state boards collect some data on licensees, they are quite limited. Short surveys could be tied to the events of initial licensure or

relicensure and would provide useful comparison and trend data such as practice status (e.g., in clinical practice, administration, academia), location of practice, and specialty. These data would help to inform many key workforce decisions (such as the need for new professional schools) and to better identify true health professional shortage areas.

Promising Directions

While these challenges are serious, some promising advances show an increased reliance on evidence and data for regulatory decisions. For example, new state-based models for deciding scope of practice laws have arisen whereby separate advisory committees review all the submitted evidence (both by the profession proposing an extension of scope and the profession opposing that expansion). These committees then submit their recommendations to the state legislatures, which still hold ultimate authority regarding practice acts. These new types of review committees have several factors that contribute to their success including having an advisory-only status, credibility, a patient-focused approach, efficiency, and evidence-based decision making. For example, Figure 7-1 shows an evidence-based pyramid being developed by the University of California, San Francisco, that could be used to prioritize different types of evidence submitted to these committees. As one moves up the pyramid, the evidence has a higher degree of filtering (i.e., it is reviewed by more people) and the quality of the evidence increases. However, there is a lesser amount of this type of high-quality, highly-filtered evidence.

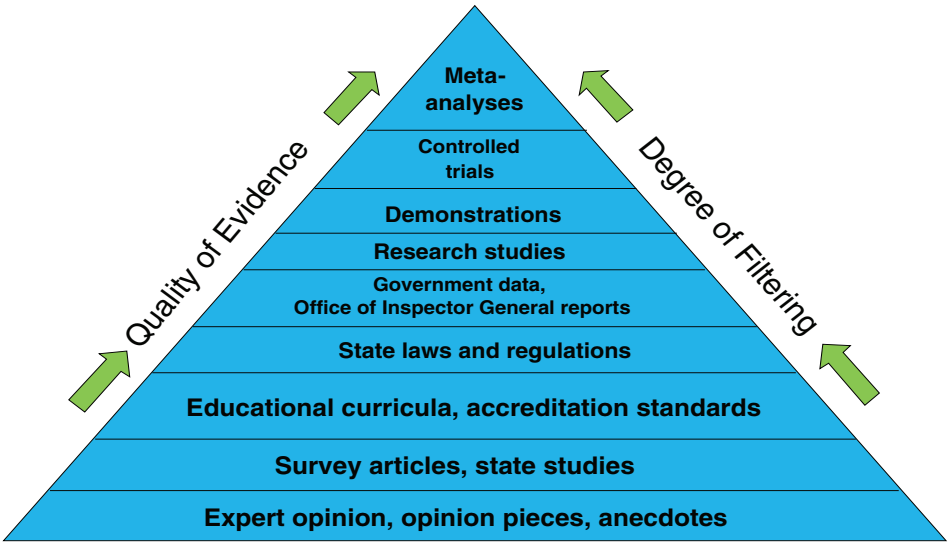

FIGURE 7-1: Pyramid to prioritize evidence
SOURCE: Reprinted, with permission, from Catherine Dower, 2009. Copyright 2008 by UCSF Center for the Health Professions.

There are also trends toward more independent regulatory boards (i.e., less of one profession regulating another profession), increased standardization of administrative functions among the boards, and more coordinated oversight of regulatory boards within each state. To address the lack of health workforce data, three promising directions for data collection are important to note: short surveys can be tied to relicensure; online data collection and management makes most

economic and research sense; and standards across professions and across states would be most valuable and provide the most useful comparison and trend data.

Competition and Consumer Protection

Gustav P. Chiarello, J.D., M.P.P.
Federal Trade Commission[1]

The Federal Trade Commission (FTC) is charged with preventing unfair methods of competition and unfair and deceptive acts or practices in or affecting commerce (15 U.S.C. §45) including the enforcement of antitrust laws and other basic consumer protection laws. As a general concept, competition in any industry spurs innovation, lower prices, and higher quality, but competition should not create an unequal balance of power or occur through improper means. In the United States, professions are subject to laws and regulations, such as who may enter a profession, what types of minimal competency requirements must be satisfied for licensure, and what services they may provide. State legislators and professional boards often ask the FTC to consider these and other regulations (e.g., rules on advertising for professions). Aside from these issues, the FTC also does a significant amount of work for consumer protection related to fraud in advertising, especially false claims of the health benefit of products.

Both the FTC and the Department of Justice advocate against the acts of professions that limit or prevent competition for the delivery of health care services by another profession (e.g., scope of practice laws or licensure restrictions) without providing counterveiling consumer benefit. That is, if the provision of simpler services is restricted to more highly trained professions, demand will increase, prices will rise, and access will decrease. Therefore, a good reason must exist as to why competition is constrained in a particular area of practice.

As the FTC often does not have institutional expertise in specific professions, it provides guidance but leaves ultimate decision making to legislators and others to determine proper constraints on competition. The FTC suggests a four-part test for legislators to use in assessing their regulations. First is whether the regulation restricts competition. In the case of scopes of practice, this will likely be true since there will always be individuals just outside a specific scope of practice. Second is whether the restriction benefits consumers in a way that would not exist if not for the regulation. This often relates to consumer safety in that the restriction might prevent incompetent individuals from providing services. Third is consideration of the costs versus benefit to the consumer. That is, would the consumer gain more if restrictions were removed, such as through increased provider access. Finally, is the consideration of whether there is a less restrictive way to achieve the same goal. For example, is foreclosing competition to a certain group of professionals less or more restrictive than changing the competency requirements of that profession? These decisions should be based on evidence, including the opinions of the consumers themselves.

Recently, the FTC has been involved in advocacy for such areas as limited-service clinics and the requirement to hire attorneys for real estate closings. In both cases, the FTC argued to find alternative solutions to proposed or existing regulations so competition would not be hindered. Between the 1980s and the early 2000s, the FTC was involved in advocacy directly related to oral health. These cases related to scope of practice and advertising issues. For

[1] Mr. Chiarello noted that his comments were his own and did not reflect the views of the Federal Trade Commission or any individual commissioner.

example, the South Carolina legislature expanded the scope of practice of hygienists to allow cleanings to be provided in school settings without the direct presence of a dentist. The state board of dentistry passed an emergency regulation in opposition to this, and the FTC subsequently brought an antitrust action against the board for reasons of unfair competition that would lead to the loss of preventive services for thousands of children.

FINANCING CHALLENGES

Craig W. Amundson, D.D.S.
HealthPartners

Multiple challenges exist in the financing of oral health care in the United States. One such challenge is the budget crisis at the state level. Many states struggle to meet their budgets, and dental benefits are increasingly becoming optional for many people. A second major challenge relates to the cost of dental care. Dental care is very expensive, and if arrayed against specialty areas of medical care would be one of the most expensive areas of care. At the same time, compared to some other medical specialties, very little has been done to decrease these costs by targeting effective preventive and disease management measures that might mitigate the need for high-cost services. In the commercial world of health care, large amounts of money are at risk if patients have complications; for example, if diabetic patients do not control their disease well, they will likely incur large costs due to hospitalization and other services. However, in dentistry, most employers have a very limited benefit, so they don't have as much vested interest to become engaged in oral health disease management. Another challenge is that the dental inflation rate exceeds the inflation rate for most other aspects of society, which can make negotiation difficult. In fact, in 2008, dentistry was identified as the industry with the highest profit margin (almost 17 percent) (Triangle Business Journal, 2009).

Strategies

The health care system can be envisioned as having four components: health promotion, care delivery, administration, and financing. The key to success is how well we integrate across those four areas. In the dental economic model, there is no association between the health care strategies and financing strategies. The first step to overcoming financing challenges is to craft a care strategy that is supported by the financing system, rather than just adjusting the financing system in a piecemeal manner. For example, one strategy is to think about population health and the health continuum, including the range of risk status and level of clinical intervention needed at each stage (see Figure 7-2)

The dental benefit industry and dental professionals tend to focus on clinical procedures, namely, treatment and salvage interventions, rather than focusing on identification of risk or prevention. In addition, the dental office system is often poorly equipped to efficiently deliver the advice and lifestyle-changing education needed to reduce patient risk for oral health disease. More collaboration is needed with individuals who are more experienced with changing health behaviors.

Within the world of finance, several strategies are worthy of exploration to address these challenges. First is to think broadly about care model design and redesign instead of focusing strictly on access to the current system that often fails to meet patient's needs. Second is to

understand the importance of allocating resources to public health disease management and disease risk-reduction strategies as a financing activity independent of invasive dental care. Another strategy is to look for alternative activity-based financing systems for specific dental care that gets away from the perverse incentives that are built into the current fee-for-service payment system. Finally, the integration of medical and dental funding is critical in the context of shared risk, and more improvements are needed for efficiency and effectiveness in the delivery of oral health care services.

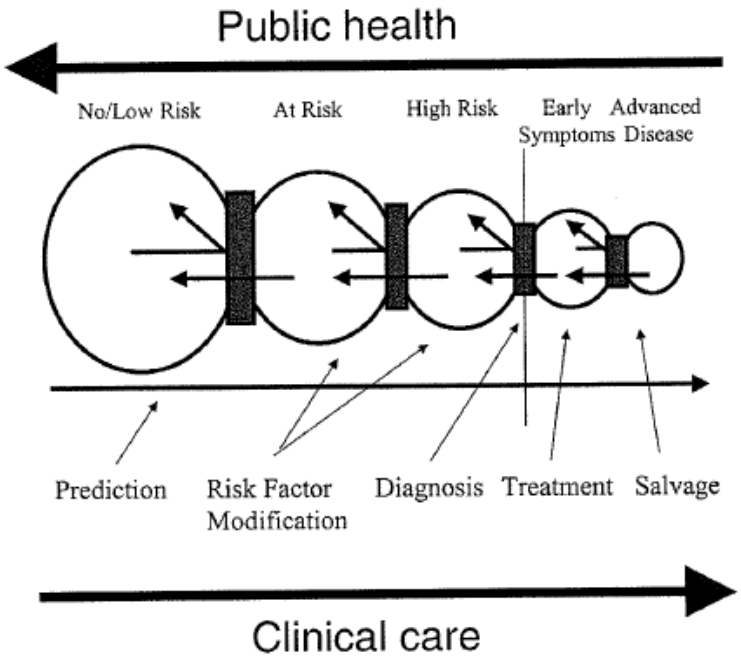

FIGURE 7-2: Risk status and range of clinical interventions along the health care continuum
SOURCE: Amundson, 2009.

Discussion

In response to a question about HealthPartners' ability to get medicine and dentistry to work together in clinics, Amundson responded that the programs have been various and variable. He noted that there have been successful projects to identify high-risk children in the pediatrics department. Amundson added the presence of both medical and dental electronic health records has been of great benefit to patients, but the current economic environment of health care makes it difficult to get attention on integrating across areas of practice.

CHALLENGES IN QUALITY ASSESSMENT IN PRIVATE PRACTICE

James D. Bader, D.D.S., M.P.H.
University of North Carolina

Quality assessment in dental care may be defined as the evaluation of patient care provided by a dental care plan or delivery system for the purposes of comparing one plan or system to another. Understanding the challenges in quality assessment in dental care requires examining the limited scope of quality assessment measures in general use for dentistry today, exploration of why quality assessment is limited in dentistry, and consideration of possible solutions.

Quality Assessment Measures in General Use[2]

No general standards exist for the quality assessment of dental care. Today, four types of measures are generally available. First are measures of technical excellence in individual restorations, which are applied soon after the service is performed and are not strongly associated with long-term outcomes. The collection of data for these measures is labor intensive and expensive. In addition, the criteria for judgment of technical excellence tend to be subjective and therefore make standardization and comparison difficult. A second set of measures are measures of patient satisfaction. While many patient satisfaction instruments exist, most are psychometrically weak, tend to be applied to biased samples (i.e., long-term patients), and are difficult to compare. These survey instruments also tend to be very short and are imprecise at determining the source of expressed dissatisfaction.

A third type of available measures is measures of service use (i.e., procedures). These measures may be used to answer specific access questions such as the proportion of a population that receives a dental service or to determine individual styles of practice for purposes of comparison. These measures may also be used to evaluate adherence to evidence-based treatment guidelines; however, few guidelines exist. Service use measures may be used to determine outliers of service providers, but since diagnostic information is not inherent in service use measures, effectiveness of treatment cannot be evaluated. Even the comparison of two practitioners is difficult because the service use measures need to be risk adjusted for the possible differences in the patient populations being compared, but there are no well-accepted case mix adjustors in dentistry.

The last group of measures in general use in private practice today includes structure and process measures (aside from service use measures). These measures are generally determined in the context of accreditation of a plan or practice. Structural measures include evaluations of facilities, equipment, and personnel administration. While these are considered to reflect good practice and may have some basis in regulation (e.g., shielding around X-ray equipment), very little evidence supports their relative importance to specific treatment outcomes other than protection of patient health. Process measures include assessment of such functions as infection control, imaging, diagnosis, and treatment planning. Again, very little evidence supports the importance of these measures to the outcomes of care, but they are assumed to reflect good practice.

Overall, quality assessment in dentistry today is relatively weak, and does not assess either the appropriateness or effectiveness of care. The only clinical outcome measure is technical excellence, which is not related to long-term outcomes. The only patient-oriented outcome measured is patient satisfaction, which is inherently flawed and unable to effectively compare delivery systems.

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[2] A variety of specialized delivery systems have superior administrative data systems and can do more assessment than the typical private practice. However, this section focuses on the private practice system of dentistry.

Reasons for Limited Performance of Quality Assessment

In part, quality assessment for dentistry is limited due to some of the typical characteristics of traditional dental practice. First is the absence of diagnosis codes. The introduction of coding systems in and of itself would be challenging due to the existing technological infrastructure and proprietary concerns, yet only with these codes can outcomes of treatments for specific conditions be accurately determined. Second, the dental profession sprang from an apprentice-based movement and in the past has been concerned almost exclusively with extremely short-term outcomes such as pain relief and technical excellence, at the expense of concern over longer-term outcomes. In addition, dentists have traditionally practiced in professional isolation, which leads to a stronger sense of autonomy, together with limited opportunities for comparison to the outcomes of other practitioners and alternative treatments.

Quality assessment in dentistry is also limited due to the absence of a strong evidence base for most dental treatments and therefore, a lack of evidence-based guidelines. Dental research is challenged in part by the lack of the financial resources needed to perform expensive clinical trials. In addition, because of the typical practice design, it can be difficult to obtain outcomes data due to the need to gather data from multiple practices through chart extraction. In fact, the majority of systematic reviews reported to date have been unable to provide unequivocal answers to the research questions. These challenges combined with organizational resistance lends to a vicious cycle as the lack of evidence-based guidelines causes dentists to rely on expert opinion, reinforcing the tradition of autonomy. However, many dental specialty societies have embraced the development of evidence-based guidelines.

Potential New Measures

To consider new measures of quality, one needs to redefine quality assessment as the evaluation of the *outcomes* of patient care provided by a dental plan or dental care delivery system. Under this definition, three sets of measures could be rapidly introduced to improve quality assessment in dentistry: patient experience measures, oral health-related quality-of-life measures, and effectiveness of care measures. First, under patient experience measures, the Agency for Healthcare Research and Quality developed Consumer Assessment of Healthcare Provider Systems (CAHPS) measures, a standardized set of survey instruments that includes a dental plan survey. This survey asks the patient about his or her regular dentist (e.g., does the dentist provide explanations for the care, listen to the patient, show respect), about the care received (e.g., waiting time, presence of emergency access), and about the dental plan itself (e.g., customer service, comprehensiveness of coverage, breadth of choice). The CAHPS plan survey is ready to be used immediately in dentistry.

Second, there are a few well-developed sets of measures that can be used to evaluate oral-health related quality of life, such as the Oral Health Quality of Life and the Oral Health Impact Profile. These measure sets have been validated with reasonably good associations between score levels and other clinical indicators of oral health. These instruments have also been specifically adapted for special populations including young children and geriatric patients. Therefore, entire populations may be examined longitudinally to see the effect dental care plans have on outcomes.

Finally, for several years, measures have been available to look at the effectiveness of care. These measures are risk adjustable, population based, patient centered, and modeled after accepted Healthcare Effectiveness Data Information Set measures. Four basic outcomes measures examine outcomes associated with dental caries and periodontal disease for a reporting

year, including the percent of enrollees in a plan or practice that experience new caries or the loss of one or more teeth and the percent of enrollees experiencing improvement or deterioration in periodontal health. In addition, three evidence-based process measures address the practice's or care plan's emphasis on prevention and maintenance of oral health by examining the percentage of enrollees receiving a disease assessment (for caries and periodontal disease), the proportion of those who are at risk for caries receiving appropriate preventive therapy, and the proportion of those who have periodontal disease receiving appropriate maintenance therapy. These measures may be applied to separate groups and stratified by level of disease in order to perform risk-adjusted comparisons. Several elements are needed in order to use all these measures, including an administrative data system, diagnostic codes, and periodontal probing information (or surrogate measures that can be approximated via chart audits).

Conclusions

True quality assessment will not happen until the dental professions fully adopt diagnostic codes. As the value of dental care is becoming an increasingly important concept, purchasers need to demand proof of value and design care benefit plans around existing practice guidelines. More outcomes research is needed because without evidence, practice guidelines cannot be established.

Discussion

In response to questions about the value of an electronic dental record in quality assessment, Bader said a properly designed electronic patient record that records diagnoses could automatically generate practitioner or plan-level performance measures. The record, he said, would provide information on outcomes and appropriateness since the diagnosis could be compared to the chosen treatment. Bader noted that firms are starting to recruit dental offices to submit the entire contents of their electronic record systems each evening in return for practice analysis feedback. This will eventually enable a large-scale assessment of the quality of practice, he said, but the growth towards electronic records has been very slow.

8

The Ethical Principles and Obligations to Increasing Access

Brian Dolan, Ph.D.
University of California, San Francisco

Concern over access to oral health care services may be articulated as a problem of professional ethics and moral responsibility. Dolan proposed three basic questions to provide a framework for considering the ethical principles and obligations to increasing access: what is the problem or who are you concerned about, what defines the basic standard of care, and whose responsibility is it to provide access to oral health care services?

WHAT IS THE PROBLEM?

From a practitioner's view point, the issue of access can be defined in many ways. First, as an economic problem, many professionals carry burdensome debt and cannot afford to provide voluntary services. In part, the use of other types of health care professionals to improve access also has an economic basis but also raises questions of professional boundaries. Access may also be defined as a technological problem. For example, the Internet was envisioned as a breakthrough that would provide free knowledge to everybody, yet not every person has a computer to access that information, showing the unequal distribution of resources provides "free" knowledge to only a select few segments of society. In a similar fashion, teledentistry is perceived as one solution to improve access to oral health care services for remote populations. However, teledentistry also raises ethical and legal questions relating to jurisdiction and patients' preferences for interacting with health care professionals.

In general, the question of access to care is usually conceptualized from the practitioner's point of view (i.e., how professionals can offer services) rather than from the patient's point of view (i.e., how are patients most comfortable in receiving these services).

> The biggest flaw with volunteer efforts is that the arrangements for and type of care provided are practitioner driven and not necessarily responsive to patient or population needs (Mouradian, 2006).

WHAT DEFINES THE BASIC STANDARD OF CARE?

There is no standardized definition of oral health that can be used to determine if oral health needs have been met. The 2000 surgeon general's report states that oral health is more than healthy teeth but might also include the prevention of the self-consciousness and embarrassment that can ensue with poor appearance or the ability to speak, smile, taste, and chew, "the essence

of our humanity" (HHS, 2000). Translating this principle in to a standard of care, however, is challenging due to the breadth of this concern as well as the need to consider the patient's point of view on the importance of social functions. For example, ethnic and cultural backgrounds may shape one's definition of a good smile, and so desired outcomes may not be universal.

WHOSE RESPONSIBILITY IS IT TO PROVIDE NEEDED SERVICES?

The main ethical concern in dentistry appears to be instilling a sense of moral responsibility to provide services that will increase access. In the early twentieth century, oral health was already seen as a gateway to general health, and the development of public health dentistry served in part as an economic good to rebuild trust between the dental profession and the public. Throughout the 1900s there were repeated expressions of the need to educate students about their professional responsibilities. In 2006, the *Journal of Dental Education* devoted a special issue to the ethics of access to oral health care services (Catalanotto et al., 2006) in which the argument is made that while many stakeholders might take it for granted that the health professions have an ethical responsibility to provide services to improve the health of the population, the general public may not share that view:

> I believe that most people in our society view the professional ethics of physicians or dentists in a much more limited way, namely, within the context of the one-on-one relationship with their professional caregiver. But if I have a toothache and am without insurance and the means to pay for needed dental services, I believe most Americans, would not expect a dentist to feel obligated to take care of me. I would be grateful if the dentist felt this way, but I would understand the provision of free services to be a matter of charity and not something that I have a right to, of "going above and beyond the call of duty," and as a reflection of his or her own personal values rather than any kind of professional obligation required of all dentists everywhere (O'Toole, 2006).

The best way to engage stakeholders in wider public health debates and to foster collaboration may be to begin at academic institutions, the point where all professional stakeholders are physically the closest together. However, this engagement should not simply place pressure upon students to serve but should include demonstration by educators of how to work together and navigate the health care system. Today's students are frustrated by the problems of the health care system that are beyond the skills they have acquired with technical training; their sense of moral responsibility to volunteer may become overwhelmed by feelings of helplessness.

While fostering subspecialized expertise is necessary, schools also need to commit to raising the profile of discussions about shared responsibilities and to defining the place of all stakeholders in the social contract of health. Schools also need to do a better job in training students to see health care problems through the eyes of their patients. In addition, health care professionals need to engage more with social scientists, historians, anthropologists, and patients themselves to better understand the social and cultural beliefs and priorities of different populations in order to determine the types of interventions that have the greatest chance of success. Therefore, students need to better understand how science and society are

interdependent. Instead of focusing solely on scientific results, students need to learn more about how the context of a patient's life (the community in which he or she lives) affects care.

CONCLUSIONS

The ethical questions that face the dental professions lie less with a diminished sense of moral responsibility to help the underserved and more with the need to provide education about how to engage in community service. Ethical debates need to move away from general propositions about social justice and toward the importance of community-focused education. In 1992, Beverly Entwistle considered the question, "Are we creating socially responsible dental professionals?", wondering if students were willing to learn about the reality of poverty, homelessness, disability, illiteracy, and ethnic diversity (Entwistle, 1992). The importance of an ethical framework to define professional responsibility endures. However, this responsibility might be better defined as a responsibility to provide dental students with innovative, interdisciplinary, and practical instruction on how to think about and interact with different populations in need.

REACTION AND DISCUSSION

One participant expressed concern about the mindset of dental students in which they are focused on scientific and technological issues as well as the ability of schools to fit societal-related issues into their curricula. Dolan remarked that one challenge may lie within the admissions process, which might consider including assessment of the individual's commitment to community service. He added that schools need to create opportunities for students to be more socially active. In addition, Dolan stated that the need for sociological education is not solely the responsibility of dental schools, but should be included more at the undergraduate level.

In response to a question about data collection during the admissions process (regarding an individual's history of community service), Dolan expressed concern about trying to predict future behaviors based on previous experience. He said that even though some students may not, based on their history, seem geared toward community service, opportunities should be provided that would allow that individual to learn about this potentially rewarding career opportunity. Dolan added that to foster more collaboration, professionals in the social sciences also need to learn more about the practical realities of the clinical health professions.

One participant stated that students often have great commitment to social issues but lack demonstration of a similar commitment by their role models, the older generation of oral health professionals. Dolan agreed. The participant added that students who graduate with enormous debt may question why they should be committed to their communities if the profession as a whole is not embracing this commitment. Dolan also agreed with a participant that it is a breach of ethical principles and obligations for professionals to refuse to treat certain subsets of the population.

9

The International Experience

A panel of experts discussed the workforce strategies of other countries to care for the unmet oral health needs of their populations.

CHILDREN'S ORAL HEALTH: INTERNATIONAL SUCCESSES

David A. Nash, D.M.D., M.S., Ed.D.
University of Kentucky

Dental therapy is becoming more popular around the world due to the inadequacy of the current dental workforce to provide access to oral health care services for all populations. Many countries around the world provide noteworthy lessons on how to address children's unmet oral health needs.

New Zealand

In the early 1920s, New Zealand began the training of school dental nurses. Now called dental therapists, these practitioners transformed the oral health of the children in New Zealand. The dental therapist curriculum requires 2 academic years after high school followed by a 1-year preceptorship with a school dental therapist. Today, dental therapists care for virtually all of New Zealand's children in school-based programs. Dental therapists practice with general (indirect) supervision of a district dental officer and provide basic care including diagnosis, education, treatment planning, preventive therapies, restorations, and the extraction of primary teeth. A recent report documented that at the end of any given school year, none of New Zealand's children had untreated tooth decay. This school-based model has spread to many other countries.

Malaysia

In 1949, Malaysia established the Malayan School for Dental Nurses, patterned after the New Zealand program. In Malaysia, health care for elementary school children is provided through a network of public and school clinics that employ dental nurses. The implementation of school-based dental programs has shown dramatic improvements in children's oral health, reaching 96 percent of all elementary school children and 67 percent of secondary school children (Ministry of Health Malaysia, 2005). In Malaysia, dental nurses also treat toddlers and preschool children.

Australia

In 1965, Australia approved the practice of school dental nurses (now called dental therapists), largely in response to the success of the program in New Zealand. Today, the overwhelming majority of dental care for children in Australia is provided by dental therapists. Recently, the training of dental therapists and dental hygienists has been merged.

Canada

In 1972, a dental nurse program was established in Canada's Northwest Territories under the guidance of the dental faculty at the University of Toronto. In that same year, the province of Saskatchewan began to train school dental nurses and provide dental services to children. A few years later, the province of Manitoba established a school-based program and contracted with Saskatchewan to train the school dental nurses. By the mid-1980s, the Saskatchewan Dental Service had enrolled almost all of Saskatchewan's children, and school dental nurses examined and treated almost all of these children annually. Despite broad public support, there was opposition to these programs by dentists in both provinces that led to both programs being transferred to private practice. Saskatchewan's program was less successful under the fee-for-service basis and was eventually eliminated

The National School for Dental Therapy in Saskatchewan continues to train about 20 dental therapists annually in a 2-year curriculum to care for the Indian and Inuit populations on reserves and in the Northern Territories. Today, about 300 dental therapists practice in Canada, primarily in Saskatchewan, Manitoba, and the Canadian north (Nash et al., 2008). About half the dental therapists in Saskatchewan practice alongside dentists in private offices.

Great Britain

Great Britain began training dental nurses in the 1960s and has continued to expand their numbers. Today, about 200 students are accepted annually into 15 programs, most of which are affiliated with (or part of) dental schools or dental teaching hospitals (Nash et al., 2008). In the mid-1990s, a combined dental hygiene and dental therapy curriculum was introduced. Today, most programs offer a combined program ranging from 2 to 3 academic years (depending on the degree offered). The curriculum is governed by Britain's Dental Council and includes training in traditional dental hygiene skills as well as instruction in restorations and procedures for primary and permanent teeth, including stainless steel crowns, pulp therapy, and extraction on primary teeth. Today about 700 dental therapists practice in a variety of settings across Great Britain and are considered full members of the dental team. A 2003 survey found that 70 percent of dentists regarded dental therapists as valued members of the dental team (Gallagher and Wright, 2003).

Conclusions

Many lessons may be learned from looking at the international experience in caring for children's oral health. First, dental therapists provide quality care for children. This is especially seen through the nearly 90 years of success of the New Zealand school-based dental programs and multiple studies evaluating their competency (Ambrose et al., 1976; Nash et al., 2008; Riordan et al., 1991).

Second, dental therapists can be effectively trained to provide competent care in a 2-year program. Dental therapy programs emphasize caring for children's oral health and provide comparatively more hours of training in pediatric dentistry than the typical general dentistry curriculum. Internationally, the model for training dental therapists is similar to the 2-year dental hygiene programs in the United States; therefore, a 2-year dental therapy curriculum could be developed and offered alongside associate degree dental hygiene programs, allowing flexibility in choice of study and offering efficiency in that no new infrastructure would be needed. Alternatively, curriculum could be designed to combine the skills of dental therapists and dental hygienists, as has been seen in other countries.

Third, placing dental therapists in school-based programs effectively addresses access concerns. By going where the children are located, these programs help overcome some of the social, cultural, and educational barriers that prevent children from being brought to a dentist's office or other clinical setting to receive oral health services.

Finally, dental therapists provide cost effective, economical care. The typical child does not require the level of expertise of a general or pediatric dentist in order to receive basic preventive and restorative care. Instead, a lesser trained and lower-salaried individual can provide competent care safely for many basic procedures, reserving dentists for those problems that can only be managed by a dentist.

DENTAL AND ORAL HEALTH THERAPISTS IN AUSTRALIA

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Melbourne Dental School, University of Melbourne

In Australia, dental therapy preceded dental hygiene as a profession, and in New Zealand dental therapy is nearly as old as dental hygiene in the United States. In fact, in Australia, the first dental hygienists did not begin training until the early 1970s, and many states did not legalize the profession until the year 2000. In 1965, Australia first replicated the dental therapy model that had been implemented in New Zealand for decades, but the profession has evolved significantly to the dental therapy practitioner seen today.

Dental Therapy in Australia

About 90 percent of children and adolescents in Australia receive care once every 2 years and the caries-free rate is just over 50 percent (Armfield et al., 2007; Ellershaw and Spencer, 2006). The caries rate has decreased significantly in the past few decades due to many factors including water fluoridation and improved quality of life. However, about 10 percent of children have higher caries levels, usually children from disadvantaged populations (e.g., low-income children, aboriginal children, new migrants, disabled children). Overall, the regular contact that children and their parents have had with school dental services has created a culture that emphasizes the importance of oral health. Participation rates in school-based programs vary greatly depending on the state due to factors such as resource allocation to the programs, presence of copayments, and workforce shortages.

Since their inception, dental therapists have practiced autonomously, including diagnosis, treatment planning, care provision, and referrals to dentists as appropriate. Health promotion and disease prevention forms the basis of dental therapy, but dental therapists also provide restorative care including pulpotomies, and they extract teeth. Today, dental therapists tend to extract mostly deciduous teeth because the need for permanent extractions has decreased. Until the year 2000, dental therapists were public-sector employees, tied to school-based programs, restricted to treating patients up until the age 18 and licensed but exempt from the regulatory process (e.g., not registered or represented on dental boards). Since the year 2000, legislative changes in all states in Australia and in New Zealand have required the registration of all dental therapists and hygienists, representation of dental therapists and hygienists on dental practice boards, and

removal of employment limits. In some states, dental therapists and hygienists may own dental practices, but may not practice independently.

A great deal of research was carried out in the 1970s and 1980s that demonstrated that the quality of care provided by dental therapists for the services they provide is equivalent to that of dentists. Today's research has focused more on the role of dental therapists in providing care to adults as well as the effect of moving dental therapists into the private sector. These changes have allowed dentists and dental therapists to become more collaborative, but there are still political disagreements about their roles in some areas.

Dental Therapists and Dental Hygienists

Today, Australia has a population of approximately 21 million, with about 1,800 dental therapists and 1,000 dental hygienists. Generally speaking, dental hygienists tend to focus on periodontal disease whereas dental therapists tend to focus on caries. However, the two professions are quite similar in their preventive approaches, health promotion philosophy, and minimal intervention. When dental therapists were limited to school-based, public-sector employment, there were greater differences in the professions due to the dental therapists' being located in schools treating children whereas dental hygienists were in private practice treating people of all ages. After the legislative changes, the differences became less clear. For example, some states now allow dental therapists with additional training to treat adult patients. Courses for this additional training are not yet available, although in New Zealand there are a number of therapists registered with adult scope of practice based on a grandfather clause in their act arising from the removal of age limits in 1988. This is an issue of innovation in service provision that is one of the newer directions for dental therapy practice in our countries, and the educational models are still under discussion.

The Oral Health Therapist

With the distinction between the two professions becoming more blurred, the solution has been to combine the practitioners (dental hygienists and dental therapists) into a new type of practitioner—the oral health therapist. Oral health therapists are primary oral health care professionals who focus on primary oral health care, promotion, prevention, assessment (including diagnosis and treatment planning), treatment, and referral to higher-level practitioners when needed. These practitioners are generalists with the capacity to focus on specific areas or populations in need (e.g., older adults, aboriginal populations, disabled populations). Oral health therapists provide both complementary and substitute services for dentists.

Currently, about 300 practitioners in Australia are qualified as oral health therapists. Oral health therapists are educated in 3-year bachelor's degree programs in both Australia and New Zealand, usually within a dental or health sciences faculty in a university and now represent the vast majority of graduates.

Conclusions

Many of the same regulatory debates exist in Australia as in other countries regarding the use of other types of oral health practitioners, such as the oral health therapist. However, in 2004, Australia's National Advisory Committee on Oral Health (established by the Australian Health Ministers' Conference) declared that regulations should "not impose barriers to the full use of the skills of the whole dental team (general and specialist dentists, dental hygienists, dental therapists, oral health therapists, prosthetists, dental assistants) in the provision of high-quality,

accessible, and affordable dental care for the whole community" (National Advisory Committee on Oral Health, 2004).

ORAL HEALTH CARE PROFESSIONS IN THE NETHERLANDS

Jos. van den Heuvel, D.D.S.
Netherlands Institute for Health Services Research (NIVEL)

In the 1970s, the Netherlands experienced a heavy rate of caries combined with a significant shortage of dentists. As a result of the experiences in New Zealand and Australia, the dental school at the University of Amsterdam started a project that provided additional training to dental hygienists for simple restorative treatments, exemplifying a strong tenet that some parts of dental care do not need academically trained personnel. This new style of dental hygienist was a harbinger of the changing scene of oral health professionals due to continued shortages in the oral health workforce.

Over the last decades, instead of educating more dentists, the Netherlands has tried to fundamentally modernize the oral health workforce not simply by increasing the numbers of professionals but by removing barriers between the traditional professions and changing the skills mix to develop a more efficient and effective workforce based on a team approach. Objectives of these changes have focused on access to care, quality of care, and labor satisfaction rather than cost reduction.

Many societal trends are affecting the dynamics of the oral health professions. First, there has been a growing trend toward evidence-based dentistry; however, a lot of evidence is lacking and so there is still a place for the "art" of dentistry. There is also a deepening awareness of the relationships between oral health, general health, quality of life, and demographic changes in both the patient population and the workforce. Finally, there continue to be rapid changes in technological advancements that affect the dynamics of the professions.

As a result of all these considerations, the Netherlands recognized that traditional professions need to change within the scope of a dental team that would be interrelated with and communicate with each other. In that vein, the professions were engaged in discussions regarding the professional autonomy and responsibility of each member of this team. All of these changes are difficult and require strong leadership of government due to the conflicting interests of stakeholders and requirements for legislative change. In the modern system of the dental team, dentists focus on the general diagnosis and care coordination of a patient's treatment, treating those with the most complex problems. Dental hygienists focus on prevention (primary, secondary, and tertiary), screening and monitoring, and the delivery of basic dental services. Dental assistants focus on primary prevention, organizing the practice, and assisting dentists and dental hygienists. Finally, clinical dental technicians (denturists) focus on the field of removable prosthodontics. In this new system, patients have free access to dental hygienists for traditional preventive care, but require orders from a registered dentist to access their expanded duties for the treatment of the tertiary prevention of caries, including administration of local anesthesia and drilling of cavities.

To promote this team-based approach, legislative change was the key to success. Legislation affected education by legally describing the competencies of each member of the dental team. As a result, a new curriculum for dental hygienists developed that requires 4 years of training leading to a bachelor's degree. Subsequently, the dentists' curriculum changed from 5 to 6 years

leading to a master's degree. Additionally, courses were extended for dental assistants to allow them to perform some preventive tasks. To date, a gradual evolution is occurring among the dental professions with more team-based care, more structured collaboration, and larger practice organizations.

To address workforce planning for the future, the Ministry of Education and Ministry of Health installed a political committee that estimated that the Netherlands would need less dentists in the future, but more dental hygienists, leading to a reduction in dental school intake. Today, more detailed research is being performed to determine future workforce needs. These estimates depend largely on several assumptions, including labor time reduction and job delegation. Due to the wide variety of assumptions about oral health care in the future, workforce planning in the Netherlands and around the world continues to be a major challenge.

REACTION AND DISCUSSION

An open discussion followed the panelists' presentations. For this session, workshop participants were asked to submit cards with comments and questions for the panelists. The following sections summarize the discussion session. (See Appendix E for a broader sampling of the submitted questions and comments.)

Moderator: Shelly Gehshan, M.P.P.
Pew Center on the States

Implementing the Dental Therapy Model in the United States

Several participants submitted questions regarding how to implement the dental therapy model in the United States. Nash said a demonstration project should be done wherein an institution integrates their dental hygiene curriculum to include dental therapy. Nash asserted that there is a lot of overlap of these two professions and that it would not take much to add dental therapy to the dental hygiene program, creating an oral health therapist. Van den Heuvel noted that in the Netherlands, legislators resisted the creation of a new profession in oral health therapy due to its similarity to dental hygiene. As a consequence, the new type of dental professional kept the protected title of *dental hygienist*. Satur added that legislative protections are necessary with any new professional model because the public deserves and trusts in that process. She added the need to recognize that the therapist is a bachelor degree-level practitioner who must think critically, appraise evidence, and make treatment decisions.

Overcoming Opposition

Several participants submitted comments and questions related to how to overcome the opposition in the United States to the use of dental therapists. Participants also asked if there was any evidence of the economic impact of the use of dental therapists on dentists. Satur stated that she did not have evidence, but she expressed an impression that there is so much dental disease and unmet need for care that the use of therapists and hygienists would likely not have any impact on dentists' income. She added that one successful element is that in Australia, students of dentistry and oral health therapy are integrated during the final year of both programs. For example, these students work together to provide services to patients in rural areas in which they are required to collaborate on care planning and delivery. Satur added comments about the long-standing practice of dental therapists in New Zealand referring patients beyond their scope to

local dentists (in private practices) that has reinforced the integrated nature of the model and enhanced acceptability by dentists.

Nash pointed to research in the United Kingdom that demonstrates that dentists' opposition to dental therapy markedly decreased after dental schools began educating dental therapists alongside dentists. Nash said all members of the dental team should be trained and educated together to encourage appropriate understanding of role relationships and collaboration. However, Nash noted that in the United States, dental programs and dental hygiene programs are usually not located within the same institution. Nash also said that dentists might become more amenable to the use of therapists once they understood the profitability of such a collaboration.

Educational Model

Several participants submitted questions about the dental therapy educational model, including the costs. Van den Heuvel said the total cost of training of dental hygienists is less than half the total cost of training of dentists. Satur commented that the Melbourne Dental School offers a number of programs under a global budget (based on a fee scale set by the government); she said oral health therapy students are charged the same tuition fees as dental students, but their programs are shorter. Nash added that many international programs are 3-year bachelor's degree programs, and in the United States, dental hygiene directors are considering adding a third year to dental hygiene programs, possibly in collaboration with larger universities.

Dental Referrals

Participants submitted questions regarding the process of referral to a dentist by a dental or oral health therapist. Satur stated the therapist has a duty of care that requires collaboration and referrals when needed. She said the therapist acts as a primary care provider and identifies problems that are beyond his or her scope. In the school-based dental programs, a dentist usually has regular visitation to that program, so the therapist will book a child to be seen by the dentist on that particular day. Satur added that the therapist and the dentist will confer about the patient, including the reason for referral, and discuss what each of them will do in the team-based treatment plan. Satur said that in the private-practice setting, dentists have a similar relationship with therapists as they do with dental hygienists.

10

Workforce Strategies for Improving Access

A panel of experts presented examples of established and evolving models of care that aim to increase access to oral health services through workforce strategies in the United States.

COMMUNITY DENTAL HEALTH COORDINATOR

Jane S. Grover, D.D.S., M.P.H.
Center for Family Health, and
American Dental Association

Today, many children are not having their oral health needs met. As the number of oral health programs in community health centers increases, there is a corresponding increase in demand for efficient strategies to maximize the use of the existing infrastructure of these centers. Various types of community health workers are already prevalent in many health centers. These individuals are valuable because they work within the community to provide leadership and peer education; to integrate health information into the community's culture, language, and value system; and to promote oral health literacy to facilitate decision making.

The American Dental Association (ADA) has developed a model for oral health care that envisions oral health assessment in an integrated care system centered on improving access to dental services and reducing oral health disparities. The workforce team has the dentist at the head of a team of workers, including lab technicians, office support staff, dental hygienists, dental assistants, and a new member of the dental team known as the community dental health coordinator (CDHC).

The CDHC is located in various community locales (e.g., schools, Head Start programs, nursing homes, walk-in clinics) working under the remote supervision of a dentist. The CDHC focuses on health promotion and behavioral change including clinical duties such as risk assessment, education, and radiographic and photographic screening, when needed. Assuming an electronic dental record, the entire team may access this information to determine the level of care needed. In addition, the CDHC could place sealants and temporary restorations (in preparation for permanent restoration by a dentist).

The ADA has funded the development of a new curriculum to train the CDHC, consisting of a number of modules, many of which may be completed online (e.g., advocacy, communication, effective interviewing skills, teaching skills). The curriculum also includes dental skills modules (e.g., introduction to dentistry, screening, and classification) and a community-based internship. Potential sources of CDHCs include people who are already members of the local community. CDHCs must be high school graduates and may already be oral health professionals or acting as a general community health worker, providing assistance with health education, translation, and transportation.

As the CDHC model enters pilot testing, outcomes will need to be evaluated, such as how often patients follow through on referrals by the CDHC, improvements in untreated disease among CDHC patients, and increases in the number of patients seen in clinics by CDHCs. Other considerations include evaluation of the costs and benefits when using CDHCs as well as their patients' satisfaction with their services.

Conclusions

The CDHC curriculum has been developed and funded, and the pilot projects are currently being tested. The ADA is looking to the CDHC to act as a community-based link to the dentist and to expand and increase the efficiency of the existing community health center infrastructure. The educational component of the CDHC will strive to elevate the public's oral health literacy and help ensure oral health integration into total patient care.

DENTEX: THE DENTAL HEALTH AIDE THERAPIST IN ALASKA

Ruth Ballweg, M.P.A., PA-C
MEDEX Northwest, University of Washington

The DENTEX project in Alaska is a partnership between the Alaskan Native Tribal Health Consortium, MEDEX Northwest of the University of Washington (a physician assistant program), and the Yuut Dental Training Clinic in Bethel, Alaska. A large group of philanthropies have come together to fund the project, which aims to create a new profession, the dental health aide therapist (DHAT). DHATs are a part of the Community Health Aide Program which was originally established in the 1950's to serve remote Alaskan bush communities. DHATs are at highest level of dental providers in the health aide system; along with prevention-based dental health aides, they provide a range of oral health services.

To create a new profession, one needs to concentrate on creating a collaborative model rather than just focusing on the training program. The training should be based on competency wherein you first determine what you want the practitioners to do and work backwards to develop the program. In that same vein, accreditation, licensing, evaluation, and reimbursement of the new profession needs to be determined first. Models for new types of practitioners should focus on community-specific recruitment and structured deployment to facilitate retention. Finally, other professionals that will be working with these new practitioners need to be involved in training and supervision.

Special Needs of Alaska Natives

Special concerns exist for the oral health of Alaska Natives. There is a subsistence lifestyle with low socioeconomic status. Transportation is difficult due to high costs and widely dispersed villages (many of which are off the road system). Tribal systems are divided into Native Health Corporations that provide care, each with its own administration, budget, and advisory board. Due to its extreme rural characteristics, Alaska is in many ways like a developing country. Therefore, the format for health care should look different, and duplication of services is not going to work. For example, years ago, villages picked one individual responsible for the daily disbursement of tuberculosis medicines, forming the model for the modern community health worker. Finally, Alaska Natives suffer from caries rates that are several times higher than the

national average and, largely due to the geographic concerns described, it is difficult to have dentists or dental hygienists visit each village at the necessary intervals.

Training Program and Practice Model

Dental therapy models have a long-standing history worldwide and an exceptional safety record; the DENTEX training program is based on those models. The 2-year certificate program is specifically designed to prepare professionals to treat rural populations in bush Alaska. Therefore, the program focuses on dental disease prevention and preparing practitioners to provide competent care under remote dental supervision in rural practice locations. To apply for the program, individuals must have at least a high school education and have the support of their tribal group. Prior medical or dental experience is preferred. The DENTEX curriculum overall is intended to be culturally respectful and sensitive and focused on prevention strategies, including behavior change, motivational interviewing, risk assessment, and triage. The first year (in Anchorage, Alaska) concentrates on general science and basic skills, including modules of lectures from faculty of multiple dental schools; the second year (in Bethel, Alaska) increases clinical instruction and includes rotations in various villages.

Ultimately, the DHAT practice model involves an individual who lives and practices in a village (or several small villages), working regionally with all members of the health care team (e.g., dentists, dental hygienists, nurse practitioners, physician assistants) to provide continuity of care. The legal basis for the accreditation and practice of the DHAT falls under the rules and regulations of the federally recognized and funded Community Health Aide Program. Under these regulations, DHATs must complete preceptorships with the dentists they will work with, and their scopes of practice will be based on their skill level as well as the individual village's needs.

Conclusions

The community basis of the DHAT is essential—it is about recruiting students from specific communities who will return to these villages to practice. Second, concerns about supervision need to be allayed. Instead, supervision should be considered as in the physician assistant profession—supervision should occur prospectively (e.g., discussing treatment plans in advance), concurrently (e.g., direct observation), and retrospectively (e.g., chart review). Finally, as seen in other midlevel models, these types of professionals have economic benefit, are adaptable, and have strong patient acceptance.

ORAL HEALTH PRACTITIONER

Colleen M. Brickle, Ed.D., RDH
Normandale Community College, and
Metropolitan State University

In Minnesota, there has been increased interest in examining oral health workforce needs. Challenges related to access to dentists include inadequate numbers, lack of presence in rural areas and community centers, and the aging of current professionals.

Defining the Oral Health Practitioner

In 2008, the Minnesota legislature passed a statute recommending the exploration of a new type of professional, the oral health practitioner (OHP). The resultant statutory language authorized licensure qualifications and conditions, including a collaborative management agreement with a dentist and completion of an accredited OHP educational program. To prepare for proposed 2009 legislation, the statute charged the formation of a workgroup to provide evidence-based recommendations for strategies to improve access to care, to preserve quality of care, and to protect patients from harm.

The workgroup came to many conclusions regarding the recommended practice of an OHP (Minnesota Department of Health and Minnesota Board of Dentistry, 2009). They stated that OHP practice should be limited to underserved populations including low-income populations, uninsured populations, and residents of dental health professional shortage areas. Currently, dental hygienists in Minnesota, under a collaborative agreement with a dentist, may practice in community settings such as hospitals, nursing homes, and Head Start schools. OHPs are also proposed to practice in these and other community settings, including assisted living facilities, Veterans Administration settings, patient homes, and certain clinics. When considering scope of practice, the workgroup considered many different services in the realms of prevention, primary diagnosis, education, palliation, therapy, and restoration. The workgroup considered each service individually, including the level of supervision, and based recommendations on the majority vote for each service. Overall, the workgroup recommended maintenance of the collaborative agreement with a dentist. The final report details 20 components of the collaborative management agreement, including protocols for standing orders, referral pathways, specialty care, and the documentation of professional liability for both practitioners.

For purposes of evaluation, the workgroup's final report identified that the Minnesota Department of Health and the Minnesota Board of Dentistry would examine data such as the number of new patients served, the types of services provided, and the impact on emergency room visits. The educational programs will also be evaluated to ensure graduates meet the outlined competencies and to improve the educational programs themselves. Two educational programs have arisen—one resulting from a collaboration between the Metropolitan State University and the Normandale Community College and another with the University of Minnesota School of Dentistry. These programs have some differences; for example, the Metropolitan State University requires applicants to be registered dental hygienists.

The success of the OHP will be challenged by several factors. First, like many other states, Minnesota is facing an economic climate of cost containment—state residents are losing jobs, becoming uninsured, and straining the safety net clinics. Second, this new type of practitioner and model of care may not be accepted by current dental professionals. In addition, educational institutions need to form partnerships to create cost-effective programs. Finally, new payment mechanisms are needed to recognize and pay for these new professionals.

Conclusions

Solutions to oral health access problems need to focus on the patients, especially those people who are underserved. Solutions need to rely on an evidence base of research and experience. Finally, the key to overcoming many barriers include education and communication with all stakeholders, funding support for students and educational programs, and continuous communication, education, and collaboration.

REGISTERED DENTAL HYGIENISTS IN ALTERNATIVE PRACTICE AND VIRTUAL DENTAL HOMES

Paul Glassman, D.D.S., M.A., M.B.A.
University of the Pacific School of Dentistry

In this country, resources need to be aligned with health promotion and disease prevention. As seen in Figure 10-1, public health factors such as health behavior patterns and social circumstances have greater impact on early death in the United States than shortfalls in medical care. In addition, a large number of populations (e.g., diverse populations, those with complex medical and social situations, economically disadvantaged populations) are not well served currently. Also, traditional dental offices are not designed for and do not operate under an economic model that supports health promotion activities. In California, two different models seek to overcome some of the barriers patients face in accessing dental services: the Registered Dental Hygienist in Alternative Practice (RDHAP) and the Virtual Dental Home.

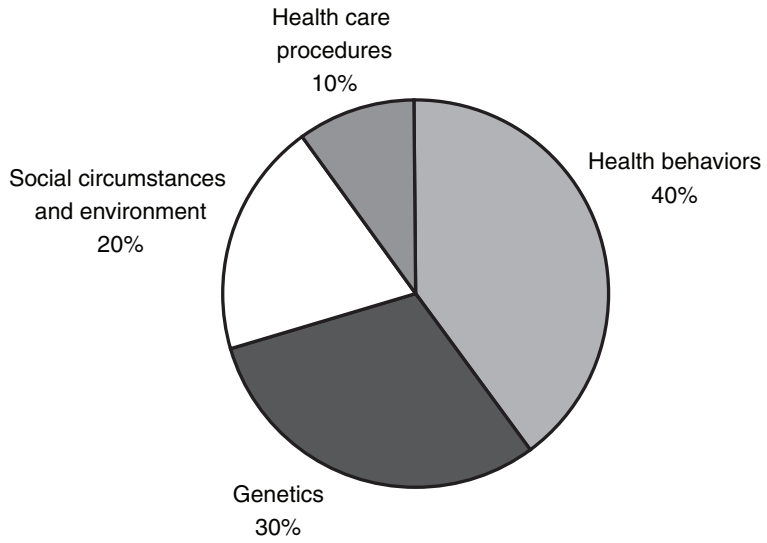

FIGURE 10-1: Population-based determinants of early death
SOURCE: McGinnis et al., 2002.

Registered Dental Hygienists in Alternative Practice

The RDHAP model began in California in the 1980s with the Health Manpower Pilot Project (now the Health Workforce Pilot Project). However, the California legislature did not delineate requirements for a RDHAP license until 1997. In addition, the first license was not issued until 2003 due to the lack of a dental board-approved curriculum, a requirement of licensure. Training programs to allow individuals to meet the requirements for licensure began in 2003 and currently, there are over 200 RDHAPs in California. Under California law[1], requirements for licensure include a bachelor's degree (or equivalent); 2,000 hours of clinical practice in the

[1] *California Business and Professions Code*, Section 1774, 1775.

immediately preceding 36 months; a current California dental hygiene license; and the completion of a 150-hour dental board-approved course. RDHAPs may work in patients' homes, schools, residential facilities and other institutions, and dental health professional shortage areas.

The use of RDHAPs has special importance to communities. Oral health care services in this country are primarily delivered in dental offices, safety net clinics, and hospitals. To better accommodate all members of society, services need to be delivered in community locations where people work, live, play, and attend school. Delivery of many oral health services do not require a fully equipped dental operatory such as screening, triage, preventive education, and the application of sealants and fluoride varnish. Even minor dental procedures can be done in community settings.

Virtual Dental Home

Community-based case management models have had much success, often through integration of dental hygienists and dental assistants with social service agencies to provide health promotion, triage, and referral services in local communities. The evolution of direct access dental hygiene practice has contributed to the success of community-based care management, although fragmented care still exists and much more collaboration is needed. As technology has advanced, the idea arose to use teledentistry to foster this needed collaboration between community-based oral health professionals and dentists in dental offices and clinics. Simultaneously, the concept of the medical home model (or health home model) has focused attention on care management over time; health promotion; access to complex services when needed; and, for pediatric models, early intervention. Together, these developments led to the development of the virtual dental home.

Currently, if a community-based oral health professional such as an RDHAP is cleaning a patient's teeth at home, he or she cannot address more complex problems that are identified. Under the proposed virtual dental home model, the RDHAP can collect a full set of digital records including X-rays and other information and enter these into an electronic medical record that can be examined by a dentist remotely. This dentist may then make a diagnosis and create a treatment plan in consultation with the community-based oral health professional who is familiar with the patient, their health history, consent information, and resources and may help coordinate needed services.

A demonstration of the virtual dental home model is currently funded, and the infrastructure is being built, including the establishment of training systems and agreements with community-based settings. This year will involve a proof of concept demonstration. Future work will allow for long-term assessment of health improvement, economic modeling, and regulatory reform to enable widespread adoption.

Conclusions

Many things can be done in the community setting including care management over time, preventive education, teeth cleaning, medical model prevention treatments, and minor dental procedures. Because of this, many more people will be able to remain healthy in community-based settings without the need to visit a dental office. And, when more complex services are needed, the referral is much more likely to be successful due to the community oral health professional's familiarity with the patient and coordinating role over time as well as the dentist's virtual familiarity with the patient. While many different models are being proposed, there is not enough information at this time to predict which models will work best in which situations, and

so a lot of experimentation is necessary. In fact, multiple models and collaborative agreements are likely needed due to the differing needs of various locations and populations. As new types of workers are developed, consideration is needed for how those professionals will fit into a broader health care system that is integrated with social service and general health systems.

ORAL HEALTH IMPACT PROJECT

Lawrence B. Caplin, D.M.D., CCHP
Oral Health Impact Project

The Oral Health Impact Project (OHIP) is a patient-focused, self-sustaining public health care model that focuses on perpetual practitioner development. Today there are three main barriers to accessing oral health care services: transportation, education (both of children and parents), and access to quality professionals (the willingness of practitioners themselves to care for populations in need). In light of this, the OHIP model was designed to overcome all of these barriers and is based in part on a project done in the 1970s wherein the K–6 school curriculum was infused with oral health education and mobile vans were used to bring services to the children in need. As a result, disease was eradicated, all children were treated, and the children changed their behaviors through curricula changes. Families became more engaged as the families of the children in the project had an increase in oral health service utilization. An unexpected result of the project was that a disproportionate number of children in the project went into careers in oral health.

Designing the OHIP Model

Several necessary characteristics were identified in the process of designing the OHIP model: it had to be self-sustaining, comprehensive, compassionate, and culturally sensitive. In addition, it needed to be coordinated and continuously accessible with data to track the results, so a comprehensive digital record with digital radiography is used that allows for a centralization of the patient records that are retrievable from any location. This record also allows for epidemiological data collection to facilitate the measurement of services provided, evaluation of outcomes, and longitudinal tracking of children even when they change schools. OHIP addressed the educational barrier by changing the curriculum within the school districts of Philadelphia to include early and positively reinforced oral health education. In addition, every time a child is seen, the professionals deliver needed services and also discuss careers in oral health care to plant the seeds for careers in oral healthcare.

Encouraging Careers in Oral Health

In the city of Philadelphia, OHIP created an Oral Health Academy in conjunction with the school district of Philadelphia. This is a 4-year, merit-based program beginning in September 2009. The program will include 24 children of various backgrounds who will spend all 4 years of high school involved in oral health care, including exposure to all career options. Upon graduation from the academy and high school, the participants will have a certificate in dental assistance. Most of the participants will be from minority populations, which will help address some of the disparities currently seen in our oral health workforce. OHIP is currently approaching universities about the possibilities of the students doing their basic science courses

at the universities through dual-enrollment. This will increase their exposure to and comfort with college settings while attaining up to 20 college credit hours during their high school years. In addition, there are two dental schools in Philadelphia, and OHIP is working to create a mentorship program with dental students and various internships and externships programs throughout the entire city.

As a part of the larger project, CF Charities, a not-for-profit organization, was established to provide scholarships for graduates who want to pursue higher or continued education for any career in oral health. These scholarships require the students to perform public health dentistry upon graduation by providing care in the military, the Public Health Service, the Indian Health Service, in a federally qualified health center, or in the school-based program. This will foster the repopulation of our public health professionals pool and reintroduce a new set of mentors and leaders in oral health.

Conclusions

OHIP is a 20-year commitment to these children from age 5 through age 25. At ages 5–9, children are getting clinical care, oral health education, nutrition education, and instruction in oral hygiene. From ages 10–13, the care and education continues. In high school, 14–18, the care continues and the students may also apply to enroll in the Oral Health Academy, which provides leadership skills and exposure to all oral health careers in the frame of public health dentistry. The economic support through CF Charities for higher education from 19–25 continues the commitment and initiates the graduate's commitment to public health dentistry. Instead of just focusing on getting care services to people, OHIP is a model for transforming the lives of youth by changing their expectations for their own oral health care, and their career opportunities. It is getting people interested in providing care where it is needed most.

HEALTH COMMONS

Daniel Derksen, M.D.
University of New Mexico

The health commons model in New Mexico is a medical home that emphasizes the importance of an interdisciplinary model that brings together oral health, behavioral health, and physical health with necessary social services that address social determinants. Health commons may also include other special services to address the needs of the specific populations served. In times of scarce resources, health commons provides a comprehensive model for bringing together the needs of a population in a single community-based setting.

New Mexico's Unique Challenges

New Mexico has unique health care challenges because of its rural nature and prevalence of medically underserved areas. New Mexico has a population of approximately 2 million and ranks 43rd of the 50 states in income (U.S. Census Bureau, 2007a) and has the second highest rate of uninsurance (Kaiser Family Foundation, 2007). In total, more than half of the population is either on Medicare or Medicaid or is uninsured (Kaiser Family Foundation, 2007). New Mexico's population is 44 percent Hispanic and 10 percent Native American (U.S. Census Bureau, 2007c) and the population density is the sixth lowest in the country (U.S. Census Bureau, 2000).

Virtually all of the counties in New Mexico are designated as health professional shortage areas for primary care, dental care, and mental health. In fact, New Mexico ranks 49th of the 50 states in per capita dentists (HRSA, 2000), in part due to the lack of a dental school in the state. In spite of raised Medicaid payments, too few of the existing dentists participate in the Medicaid program.

Health Professions' Training

It is difficult to convince the state legislature to spend more on health professions since three-quarters of the medical school graduates leave New Mexico. However, decentralized residency programs have had better success in the retention of graduates. In family medicine, the model includes having the first year spent at an urban tertiary facility (e.g., University of New Mexico at Albuquerque) with the second and third years being spent largely in community-based settings like community health centers. In dentistry, residents participate in community-based rotations around the state. As a result of these types of programs, more than half of the residents end up staying to practice in New Mexico. In addition, more than half of residents are from underrepresented minority groups. Dental residents are trained alongside other practitioners in training, including family medicine residents, nurse practitioners, social workers, and pharmacy students.

South Valley Health Commons

Derksen noted his employment at the South Valley Health Commons, which he described as a 40,000-square-foot facility that provides comprehensive health care services with some wrap-around social services. In terms of oral health, he said this particular facility has 5 dentists, 1 dental resident, 3 dental hygienists, 14 dental assistants, and 16 operatories. Last month, he said, they had 1,500 visits and have an annual goal of 16,000 visits. Derksen noted that New Mexico's Medicaid program pays about 85 percent of the usual and customary fee, so it generates a significant amount of revenue that helps cross-subsidize other services that enable the care to be coordinated and comprehensive, including behavioral health and social work services. The design of the facility itself and scheduling encourages interaction among the different types of professionals.

Conclusions

One of the biggest barriers to providing health care services to underserved populations results from the pipeline of professionals. Statistically, both family medicine and dental residents who grew up in rural areas or are from underrepresented minorities are more likely to serve those populations in the future. The health commons model provides a unique solution to providing comprehensive care to underserved communities, especially due to its physical design that facilitates interdisciplinary care and pipeline in the training of many types of professionals.

PEDIATRIC ORAL HEALTH EDUCATOR[2]

Burton L. Edelstein, D.D.S., M.P.H.
Columbia University

Oral health, as opposed to dental health, is acquired primarily through health behavior change. In part, the difficulty may be in the attempt to tie these principles to the delivery of dental treatment services. By the time many children are seen for the first time, they already have an active caries process. Therefore, behaviors need to be addressed even before these children ever reach a dental office. The theoretical concept of a pediatric oral health educator (POHE) targets parents with young children who already have an active disease process for early childhood caries. This model is distinctively different from a public health intervention such as education, community water fluoridation, or a new attempt to deliver oral health services, as those services address the entire community.

The POHE focuses on disease management, which is distinctly different than prevention because it focuses on what you have to do after the disease is already present. True disease management is an individual patient intervention based on the chronic disease model. The POHE could be integrated with traditional oral health care professionals, either through colocation or referrals. Disease management is important because once the disease process is arrested, traditional dental repair will be more likely to succeed. The POHE model is based on four concepts: (1) the nature of the disease itself, (2) lessons from medical care, (3) biobehavioral approaches, and (4) wellness management.

First, a distinction needs to be made between the underlying disease process itself (caries) and the holes in the teeth (cavities) that the disease causes. This disease is established very early in life and is chronic, progressive, diet dependent, and is either exacerbating or correcting itself. However, traditional dental treatment is surgical and instructive rather than engaging families in health behavior changes. This approach is costly and ineffective in both the short term (e.g., high rates of recurrence) and long term (e.g., early childhood caries is the best predictor of long-term disease). Instead, the disease process must be addressed first.

The second key concept in the development is to look at lessons learned from medicine. In many medical disciplines, different practitioners manage the medical and surgical aspects of care (e.g., cardiologist and cardiac surgeon). In this same manner, the POHE could provide individualized medical management of pediatric caries disease while the pediatric dentist provides the treatment intervention. In addition, medicine has successfully developed and utilized the certified diabetes educator, a licensed professional (e.g., nurse, dietitian, physicians assistant) with specific training and certification in disease management to work directly with patients and their families to address the diabetes disease process at its root causes. The POHE could operate in a similar manner. However, currently we have neither the skills to engage families nor the protocols to deal with oral disease in a way that will turn it off.

In conclusion, the POHE has the potential to fulfill many roles in the care of the pediatric population including

[2] The Pediatric Oral Health Educator is a theoretical model and has not been developed into practice.

- counseling families,
- employing theory-based education and communication approaches,
- engaging peer counselors when needed,
- developing and implementing individualized care plans,
- seeking to control caries activity, and
- connecting the patient to traditional treatment sources for definitive repair.

Ultimately, the goal of the POHE is to arrest the active caries disease process so that definitive dental repair is successful in both the short and long terms.

REACTION AND DISCUSSION

Moderator: Len Finocchio, Dr.P.H.
California HealthCare Foundation

Moderator: Daniel Derksen, M.D.
University of New Mexico

Open discussions followed the panelists' presentations. For these sessions, workshop participants were asked to submit cards with comments and questions for the panelists. The following sections summarize the discussion sessions. (See Appendix E for a broader sampling of the submitted questions and comments.)

Scopes of Practice

One participant questioned the ability of the high school-educated CDHC to place temporary fillings when dental hygienists may not perform this service. Grover said the CDHC will be able to work to the level of the competencies that they can demonstrate while under the supervision of a dentist. She said that this function would be only one part of the responsibility of the CDHC, who would then refer the patient to a dentist for a permanent restoration filling.

In response to a question about the difference in scope of practice between the OHP and the dental therapist, Brickle stated the two scopes were fairly equivalent. Brickle stated they explicitly looked to other countries' scopes of practice in the development of the OHP and that focus should remain on the ability of a practitioner to meet service needs rather than the exact name.

Finally, a participant asked about the potential for changing licensing requirements to take advantage of foreign-trained dentists who are already in the United States but currently unable to practice. Grover said that licensing continues to be a challenge and notes that there is great potential for the use of foreign-trained dentists, especially through their involvement in Advanced Education in General Dentistry programs.

Financing

Several questions arose regarding the financing of new models. Funding sources included private contributions, grant funding, partnerships with other entities (e.g., social service agencies, school systems), and income from billings for qualified patients. Other questions focused on cost-benefit analyses of these new models. Edelstein noted that very few medical-surgical intervention opportunities actually produce a true cost-benefit analysis since the intervention

itself can be very costly; therefore, an intervention that prevents surgical treatment can cover the cost of medical management. Glassman noted that for some of the models based on the community-based approach, increased interaction between professionals allows for better communication and more effective treatment in the most appropriate setting, thus reducing costs. In addition, keeping people healthy in community settings using effective prevention and care management strategies reduces costs incurred from operating room and emergency room use.

Several participants asked about the costs related to the training of new types of practitioners. Ballweg said that like the international models, it is difficult to tease out these costs for DHATs due to global project budgets. She said the information should be better after graduating more classes of students. For the OHP, Brickle stated the proposed curriculum includes 44 semester hours at $350 per credit. Other considerations, she said, include cost efficiencies due to use of the dental hygiene program infrastructure.

Speakers also commented on the need to change payment models. Derksen asserted that the current fee-for-service payment system encourages increased volume of services, provides greater reimbursements for subspecialty practices and procedures than for primary care services, and lacks any consideration for the quality or outcomes of those services. Payment for the coordination of services also needs to be considered, Derksen said, especially how that payment could be disbursed as care changes to a team-based approach. The Centers for Medicare and Medicaid Services medical home demonstration project may be able to provide some lessons for these challenges.

Related to payment issues, one participant posed the question of where CDHCs will refer patients as they identify more and more needs in the community setting if dentists refuse to care for Medicaid patients. Grover said the CDHC can screen and triage patients, deciding who can wait for care, and that dentists who don't formally accept Medicaid will respond to a child in need. Grover stated the CDHC model is about building relationships in the community and helps to coordinate and navigate care.

Creating Dual Strategies

Speakers addressed approaches to interweaving prenatal and infant oral health care. Edelstein remarked that a dual strategy may be a medical-dental or community-dental approach. As the main disease process is overwhelmingly preventable, strategies need to be addressed by focusing on social, behavioral, and environmental determinants using the known tools of social and behavioral science. Caplin commented on the need to combine treatment with education so that patients and their parents have different expectations about oral health. For example, in some communities, Caplin stated, there is no expectation for tooth retention. By changing perceptions, especially of young mothers, their behaviors may change for the benefit of their children as well as for their future pregnancies.

Improving Outcomes

The speakers discussed the evidence that indicates that newer workforce strategies to improve access lead to improved outcomes. Edelstein commented that this evidence is not robust and often preliminary, but in individual projects they seem to demonstrate a culture change toward disease management as well as long-term improvements in caries incidence. Glassman stated that many models have not been fully implemented and therefore cannot yet be fully assessed, but they are often based on other successful models. For example, he noted the long-term experiences in integrating oral health professionals into social service systems in

community settings. Newer models, he said, often add components to these previously successful models, such as expanded scopes of practice and expanded collaboration, and so expectations are for similar or even better results. Caplin commented on early assessments, such as the numbers of completed cases as well as utilization rates, which indicate early successes in some of these programs. For example, he stated that future planned analyses of OHIP include pre- and posttesting in educational interventions and posttreatment surveys of the members of the oral health team.

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End-of-Day Discussion: Day 2

Moderator: David N. Sundwall, M.D.
Utah Department of Health

Sundwall remarked that the presentations of the second workshop day showed extraordinary creativity, an incredible number of models and potential members of an oral health team, much energy and altruism, and interest in service and community collaboration. In this session, members of the planning committee were invited to reflect on the themes they perceived during the second day of the workshop.

DISCUSSANTS' PANEL

Len Finocchio, Dr.P.H.
California HealthCare Foundation

The future vision of the delivery of oral health care services has many characteristics. One characteristic of this vision is the community orientation of optimizing oral health by managing limited private and public resources to purchase a range of affordable, evidence-based, high-quality oral health services that focus on prevention from interdisciplinary teams in accessible community settings. This vision includes financing and payment incentives that prioritize education and prevention, at-risk populations, coordinated care, and disease management. It also includes integration between sectors using information technology (e.g., the virtual dental home), interdisciplinary collaboration and co-location (e.g., the health commons), and reliance on scientific method and performance in outcomes measurement. Finally, there should be some rationality to the regulation of professions.

Another consideration for the future is what defines success for new workforce models. All models should be tested and compared based on evidence of success. The success of these models could include cost-effectiveness and contribution to addressing challenges in oral health care. Another element of success includes leadership accountability, integrity, and collaboration. Success also means improved public knowledge and practices for oral health. Finally, other successes may include caries-free children and youth, the elimination of oral health disparities, and harmony within and among the members of the oral health workforce.

Elizabeth Mertz, M.A.
Center for Health Professions,
University of California, San Francisco

The many challenges in the oral health care system also provide many opportunities to improve oral health. One opportunity relates to evidence-based practice and design. More scientific evidence is necessary to support the rationale behind many basic oral health procedures and approaches in order to determine the effectiveness of these services as well as define which practitioners are able to provide those services. Also, as a better oral health care system is designed, alignment with the financial system needs to be ensured. For example, a fee-for-service system may actually create incentives for continued focus on salvage procedures instead of encouraging prevention, education, and coordination of care.

Another opportunity is the use of information technology to enhance collaboration. When considering community-based care delivery systems, information technology may be especially useful to support the necessary collaboration as well as to expand the definition of an oral health system. Electronic medical records are an obvious key element for improving care coordination.

Regulatory and licensing reforms also provide opportunities for improving the delivery of oral health care services. This is a basic issue of competition and the ability to test potentially improved models of care. Current licensing and regulatory systems are not based on competency and may prevent some practitioners from providing the services they have demonstrated they are able to provide safely and effectively. International models are especially good examples of how services can be provided effectively and rationally.

Finally, the concept of a health system approach to oral health care is needed to improve the delivery of oral health services. In this approach, the patient is placed at the center of the care system and collaboration occurs in a systemic fashion, instead of focusing on individual disease data. To make this happen, redesign is needed for regulatory models, business models, education models, and care delivery models. These changes are occurring on a number of fronts in very interesting and exciting ways and are at various stages of development. Taking a systems perspective allows one to identify the institutional constraints that prevent creative system redesign rather than focusing on conflicts between the professions. Many new models map out the routes to change. However, as system redesign begins, consideration is needed to ensure that such reforms enable future innovations to occur as well.

Shelly Gehshan, M.P.P.
Pew Center on the States

The challenges of improving access to oral health services reflect a shared responsibility among all stakeholders and are not caused by the actions of any single profession. One challenge is the financing of care. There is a real tension between dentistry as a business and dentistry as a healing profession, including issues of money, control, and respect. However, as opportunities for national health care reform become possible, the diversity of the oral health community will only help to ensure oral health care is included in those discussions. Oral health needs to be included in this reform, especially for adult care, as many workforce models rely heavily on Medicaid. In the Medicaid program, adult dental benefits are slowly disappearing and therefore some workforce experiments will become unsustainable. Much more research and policy work is

needed on the economics of dental practices and safety net practices to ensure better understanding of how to use providers, what their efficiencies are, and how they would be most effective with different populations.

Another challenge is the need for more planning and evaluation. Legislators and purchasers often have to make decisions with very little supportive data. Today, very few states have explicit workforce planning efforts, and more effort is needed to translate this data into effective information for use by policy makers. Finally, this research should also consider the needs and preferences of the patients themselves.

Finally, oral health access is confounded by regulatory barriers. Every provider group has unique challenges since they have different regulatory requirements, often varying by state. As consideration of new practitioner types moves forward, a national standard of care should be created to eliminate confusing and conflicting requirements by state. More consideration is also needed for competency-based licensing and regulation in order to make the decision-making process more evidence based.

Daniel Derksen, M.D.
University of New Mexico

Discussions of improving access to oral health care services may fit into a framework of *metanoia*, meaning that change needs to come from within. The professions need to come together, for when groups are in unison, it is easier for policy makers to act. More attention is needed on the areas where the professions have shared interest and values. The oral health workforce is currently at a crossroads, and the time for action has come.

REACTION AND DISCUSSION

Moderator: David N. Sundwall, M.D.
Utah Department of Health

An open discussion followed the discussants' presentations. Audience members were able to give comments and ask questions of the discussants. The following sections summarize the discussion session.

Engaging Legislators

A participant commented on the need to include oral health in the larger health care reform debates, stating that oral health represents only a very small percentage of health care costs and that legislative staff needs to be continuously educated. The participant asserted that Medicaid participation should be a requirement of licensure in dentistry. Another participant stated that universal dental care should be a part of any movement toward universal health care. Another participant commented on the need for dental schools to put together plans and procedures, particularly in the area of workforce diversification, so that state legislators have a sense of the value of their investments in these schools.

Evidence Base

One participant commented on the need to have more standardized evaluations of new workforce models so that common factors would be captured as each model is assessed individually. Some of the outcomes to assess might include outcomes, reimbursement, or policy changes. In this vein, the participant also lauded the theme of thinking on a systems level and encouraged including more people in these discussions, such as engineers who have more experience with systems research. Another participant stated that a barrier to improving access to oral health services includes the inability to include the average practitioner in national discussions. More effort, he said, is needed to disseminate the findings and discussions at national conferences. He added that because the average practitioner is not involved in these discussions, decisions regarding issues such as scope of practice continue to be based on emotion rather than based on evidence.

Oral Health Careers

Another participant commented that many students see the different oral health professions as "stepping stones" to higher levels of responsibility and are accustomed to the idea of having more than one career in a lifetime. However, the participant also noted that this perspective demands consideration of workforce retention issues—that is, what would make these professionals stay in oral health careers when they have opportunities to change direction. The participant noted that competency-based training could encourage practitioners to stay within oral health but perhaps changing careers to a profession with higher levels of responsibility. Another participant commented on the discussions of job delegation and professional pride. The participant asserted that dentists may sense they have limited opportunities for career growth and may therefore be reluctant to relinquish duties, and so more thinking is needed on how to expand the roles and career opportunities for dentists.

Public Health

Several participants commented on the need for more inclusion of public health dentistry in discussions of oral health access. One participant also indicated the need to infuse oral health more broadly into schools of public health. Another participant commented on the number of nonclinicians involved in public health who are eager to help address issues of oral health but are not being approached.

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A Charge to Improve Children's Access to Oral Health Services

Representative Elijah E. Cummings
U.S. House of Representatives

"Our children are the living messages that we send to a future we will never see."

Improving access to oral health care services is a critical matter. Two years ago, in the state of Maryland, a 12-year-old boy named Deamonte Driver died from an untreated tooth infection that spread to his brain, an infection that could have been treated for about $80. How could this happen in the state of Maryland, the wealthiest state in the wealthiest country of the world? Sadly, the answer is all too clear: it was the failure of all adults. Adults have a duty to care for children on this Earth, to provide for and protect children. However, when it comes to accessing dental services, the adults of the United States have failed in these duties.

Deamonte's illness was rare and extreme, but he was by no means alone in his suffering. Nine million children in this country do not have health insurance, and 20 million are without dental coverage (Paradise, 2008). Dental decay is the single most common chronic childhood disease in this country, and it is preventable. The public would not accept this sort of gross negligence for a preventable illness such as tuberculosis or small pox and should not accept it for dental decay. Hundreds of thousands of Deamonte Drivers walk the streets of the United States every day. Many of them will receive the emergency care that will save them from Deamonte's fate, largely due to the efforts of unsung heroes who treat poor children for little or nothing because it is the right thing to do. However, without regular dental visits, they are likely to be back in the dental chair for emergency care several more times in their lifetimes.

Dental health is an integral part of overall health. Lack of treatment for dental disease has the potential to affect a child's speech, nutrition, social development, and quality of life. Children with missing or decayed teeth are more likely to experience poor self-esteem and be reluctant to smile. Pain caused by dental decay affects a child's ability to eat and receive the nutrition necessary for growth and development. Children with oral diseases are restricted in their daily activities and miss over 51 million hours of school each year (HHS, 2000). Oral diseases have also been linked to eye, ear, and sinus infections as well as weakened immune systems, heart disease, and lung disease. Infections of the mouth frequently spread to other organs, causing critical complications for children including blindness and even death. Dental disease is even transmissible—passing from a pregnant mother to a child or even through sharing a drink or food.

Needless suffering occurs because the nation is failing to adequately provide children with access to the dental services they need. In February 2009, President Obama signed the Children's Health Insurance Program (CHIP) into law[1]. The legislation includes several critical provisions to improving children's access to dental services. Specifically, the law guarantees a dental benefit for children that includes preventive, restorative, and emergency dental services; provides dental health education for the parents of newborns; allows community health centers to contract with private dentists for the purpose of providing dental services to these patients; improves access to dental provider information through the Insure Kids Now website and hotline; requires that the Government Accountability Office conduct a study assessing children's access to dental services within 18 months of the bill's enactment; and directs the secretary of Health and Human Services to establish a core set of child health quality measures for assessing states' Medicaid and CHIP programs, including measures for the availability of dental services and the quality of pediatric dental care. The law also includes wraparound dental benefits for children who are eligible for CHIP but have private medical insurance that does not include dental service.

However, much more needs to be done. Comprehensive health care reform must include oral health care. Incentives must be created for dentists to treat low-income and underserved patients by increasing reimbursement rates. Also, heavy investments in public education are needed to ensure that all parents understand the critical importance of oral health and to enhance prevention activities. Finally, the problem of access to oral health care services cannot be addressed without looking at the workforce shortage. Many organizations have been key to helping address workforce shortages in dental professions. The American Dental Association has facilitated the opening of new schools of dentistry and provides loan forgiveness to steer graduating dentists into working in underserved communities; the National Dental Association has historically provided safety nets to underserved populations; the Children's Dental Health Project is the only group advocating exclusively for children's oral health; and the American Academy of Pediatric Dentistry formed a groundbreaking alliance last year with the national office of Head Start to ensure that young children in need are connected with dentists who can treat them. Even with all this effort, a coverage gap still exists that needs to be filled by other types of professionals. More types of practitioners are needed to improve access to needed services.

These problems need to be solved; America's children need to be taken care of. Our children are the living messages that we send to a future we will never see. The question remains, what type of message will we be sending? Members of Congress are not in the business of resolving scope of practice battles as it is the practitioners who are best positioned to make those decisions. However, something needs to be done now. A child died because of the failures of all adults. The Deamonte Drivers of the world are depending on the adults of the world to resolve these issues.

[1] *Children's Health Insurance Act.* Public Law 111-3. 111th Cong. (2009).

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Reframing the System

Two panels of experts discussed the roles of different stakeholder groups effecting change to improve the access to oral health care services. Panelists were asked to discuss opportunities for providing leadership to change the oral health care system, including their leadership imperatives and tools that can move the system forward to serve everyone; to be more affordable, accessible, equitable, accountable, and culturally competent; and to be more integrated and interdisciplinary, recognizing the capabilities of all members of the oral health workforce. These discussions represented the panelists' individual perspectives on how their sectors can provide leadership.

FEDERAL GOVERNMENT

Health Resources and Services Administration

Marcia Brand, Ph.D.
Health Resources and Services Administration

The Health Resources and Services Administration (HRSA) funds health centers, provides grants to support training and health workforce planning, and provides many other grants for maternal and child health and HIV and AIDS workforce issues. There are a number of things HRSA is already engaged in that can be built upon. First, HRSA can continue to promote the health center model that integrates medical and dental homes into a health home. Second, HRSA can encourage interdisciplinary education and training through health education centers and geriatric programs. The new patient navigator program, which helps enable people work through the health care system, may also be of use to the oral health system. HRSA may also be able to tap into its relationships with state offices of rural health and primary care associations to examine what is working at the state level and look at the impact of the economic downturn on access to oral health care services, professional groups, and education and training institutions.

HRSA may have a role in improving access to oral health care services by increasing the amount of available data. Historically, HRSA has done a lot of work with different segments of the health care workforce, and so might be able to engage even more with oral health professionals. In addition, the Health Workforce Information Center provides a single portal for accessing information on the health care workforce and enables different groups to share information on upcoming meetings, funding opportunities, reports, and best practices.

Finally, HRSA has a mediation role. HRSA will be working with the new administration as it engages in health care reform; oral health needs to be kept as a part of that discussion. HRSA may also act as a convener to bring people together to continue to engage in dialogues about improving access to oral health services.

Centers for Medicare and Medicaid Services

A. Conan Davis, D.M.D., M.P.H.
Centers for Medicare and Medicaid Services

The Centers for Medicare and Medicaid Services (CMS) is a partnership between the federal government and the state Medicaid agencies, creating a sharing of responsibilities. The states drive a number of the initiatives that take place in Medicaid to establish eligibility and establish the scope of services to be provided. States also establish payment rates that are then matched by the federal government providing they fit within federal guidelines. CMS has a number of oversight responsibilities from the federal level.

CMS is a payor and must abide by federal guidelines and regulations regarding payment. For example, the Code of Federal Regulations basically defines dental services as being provided by a dentist or someone supervised by a dentist. A number of new programs license other types of professionals to deliver oral health services. When a state licenses a nondentist professional to provide these services, there is a mechanism in the regulations that allows CMS to approve those professionals to be compensated if the State Medicaid Agency chooses to cover them. However, complications can arise. For example, the Early Periodic Screening Diagnosis and Treatment (EPSDT) program requires the provision of dental services to all Medicaid-eligible children, but defines those dental services as being done by a dentist with referral to a dental office. While services can be provided and compensated in alternative settings, the EPSDT requirements are not fully met under these circumstances, and there still need to be linkages back to a dental office or dental clinical facility anyway. The new Children's Health Insurance Program (CHIP) legislation requires coverage for children in that program, so similar complications or issues may arise.[1]

CMS will also be involved in health policy discussions if health care reform is enacted. CMS was integrally involved regarding the Medicare Modernization Act[2] and will surely participate should health care reform be enacted.

CMS has also encouraged the formation of a Dental Quality Alliance by the professional dental organizations to propose dental quality measures development. This alliance will become very useful since the Children's Health Insurance Program Reauthorization Act calls for these measures to be developed soon.

STATE DEPARTMENT OF HEALTH

Amy D. Cober, M.P.H, RD, LD
Florida Department of Health

The Florida Department of Health (FDOH), headed by Florida state's surgeon general, has a mission to promote, protect, and improve the health of all people in Florida. In addition, the surgeon general tasked the FDOH overall to address prevention, preparedness, and personal responsibility. Within oral health, the FDOH has developed a state oral health improvement plan

[1] *Children's Health Insurance Act.* Public Law 111-3. 111th Cong. (2009).
[2] *Medicare Prescription Drug, Improvement, and Modernization Act*. Public Law 108-173. 108th Cong. (2003).

for disadvantaged persons, a comprehensive plan developed through a collaborative process between the public and private sectors that is working towards the development of an integrated, coordinated oral health system.

Florida is unique among states in that local county health departments are a large part of the safety net, providing clinical operations and directly employing dentists, dental hygienists, and dental assistants in operatories throughout the state. Cober stated that the FDOH provides almost one-third of the Medicaid oral health services that are provided in the state of Florida, and these services are primarily for pediatric patients. However, Florida is like many other states in that there are large areas of underserved; for example, only 6 of 67 counties in Florida do not have a dental health professional shortage area designation, and 43 of the counties have the entire county designated as a dental health professional shortage area (FDOH, 2008). The State Health Office is active in promoting and monitoring community water fluoridation. In Florida, 79 percent of the community water systems are fluoridated, and 71 percent of the population has access to fluoridated water in their homes (Personal communication, A. Cober, Florida Department of Health, May 5, 2009).

The FDOH is also involved in improving oral health care through data collection and analysis, looking to Medicaid data, data collected through community dental health projects, and fluoridation data. Additionally, it has a role in the licensing and regulation of numerous health care professions including dental health professions through the Medical Quality Assurance Division.

One of the leadership roles state health departments can provide is to educate legislators, dental organizations, and their boards of dentistry about the specific state-level workforce challenges and opportunities for improving access. For example, the FDOH is looking at statutes and working with state legislative staff on issues such as including data surveys in the licensure renewal process to gain knowledge about the current dental workforce and to design initiatives to assist with recruitment and retention. Second, health departments may facilitate collaboration among disciplines. The FDOH received a HRSA grant to establish the Oral Health Florida Coalition, which has been instrumental in bringing multisector partners together and creating new opportunities. The coalition has work groups in maternal and child oral health, special needs populations, fluoridation, and elder care. The FDOH also encourages and assists the facilitation and development of local coalitions, as there is much important work to be done at the local level. The FDOH is also a leader in piloting new models of service delivery, including a teledentistry pilot project. Finally, the FDOH takes a leadership role in integrating oral health into other state programs, such as chronic disease programs and school health programs.

However, many barriers also face state health departments. Financial barriers prohibit the expansion of existing effective models as well as surveillance activities. Also, many states experience resistance related to changing licensure and scope of practice regulations. Overall, overcoming these barriers requires collaboration among many diverse stakeholders. In Florida, the FDOH works with other public health entities, academia, private foundations, communities, policy makers, industry, and organized dentistry to continue to make progress in oral health.

WORKING WITH STATE LEGISLATORS

Peter C. Knudson, D.D.S., M.S.
Utah State Senate

When working with state legislators, it is important to remember that politics is very often a local issue as well as an art form. The United States has a representative government, and state legislators are often elected to serve a very wide constituency. For example, one district may include constituents ranging from farmers to aerospace engineers. For that reason, legislators need to be informed on a wide variety of issues, and they often are not equally well informed on everything.

Getting to know your local legislators and sharing your concerns on a one-on-one basis is important for making your legislators aware of important issues. This does not necessarily guarantee success, but does get an issue into the proper channels and sets up a relationship for an individual to become a trusted resource when needed. Additionally, because legislators have to work on so many different issues, messages should be clear and distinct. For example, a single sheet with bullet points to highlight the issue is more valuable to a legislator than a large document; this will let the legislator know the key issues, and he or she will certainly know where to go for more information.

The first key element of a successful lobbying effort is to have a presence where the legislation is being passed. This might mean having a presence in Washington, D.C., for issues that need to be decided at the federal level or a presence at the state capital for state-level issues. In both of these cases, lobbyists may be this presence. The second element is that it takes financial resources to fight for an issue. For example, hiring lobbyists costs money, and one's own time has value. Political action committees can help with this. Finally, there must be a very active grassroots level. People need to be working all the time to keep an issue moving forward and in the spotlight.

STATE GOVERNMENT

Tricia Leddy
Rhode Island Department of Health

State governments have multiple roles in improving access to oral health services. As payors, states not only administer Medicaid but are also large employers (of state employees). State oral health professionals have the opportunity to advocate for benefit changes for Medicaid and state employees. As regulators, states have several opportunities to affect oral health policy. States can change professional regulations to improve access. States also regulate health facilities and can change regulatory requirements. In some states, requests by health care facilities to expand, merge, or make other changes are regulated, thus there is the opportunity to add conditions such as providing access to oral health services. Rhode Island often puts conditions on health facility expansion requests to provide a certain amount of primary care to the uninsured. Why not consider requesting the state consider a condition to the establishment of a free dental clinic or the expansion of an existing clinic to include dental services, in coordination with a hospital expansion? Finally, states are involved in public health education, health promotion, professional loan repayment, and many other programs that may be leveraged to improve access to oral health services. Since state budgets are especially tight right now, and oral health care does not easily

allow for budget rebalancing as can be done in medical care (e.g., reinvestment of emergency room savings from reduced utilization into primary care), states particularly need to consider strategies to expand oral health access that do not require new money.

Through the Medicaid program in Rhode Island, the state has provided leadership by moving from a payor role to a purchaser role. In the early 1990s, the state changed the Medicaid program for families to a Medicaid managed care program. At the beginning, there was poor access to dental care services, largely due to resistance from the dental community toward managed care. In 2005, Rhode Island implemented RIte Smiles for children, moving from being merely a payor to being a purchaser by purchasing benefits through a dental benefit manager, which in turn increased fee-for-service rates for primary care dental services. The state was able to specify oral health performance measures and access standards. RIte Smiles resulted in a five-fold increase in preventive and treatment visits and a 10-fold increase in dentists' participation without any investment of new funds. The state received technical assistance from the Center for Health Care Strategies, funded by the Robert Wood Johnson Foundation, regarding how to create an effective purchasing strategy for children's oral health services. This led to a two-fold strategy. The first was to add a utilization review process for approval of orthodontia requests, using national standards. Savings were reinvested into RIte Smiles, toward increasing primary dental care reimbursement rates. The second part of the strategy was to enroll all Medicaid-enrolled children under age 6 in the RIte Smiles dental benefit manager program, and thus improve their access to preventive dental services. This was predicted to result in immediate as well as future savings in dental treatment costs by preventing caries. Children do not "age out" of RIte Smiles. By 2009, 60,000 children under the age of 10 were enrolled in RIte Smiles. As a result, while the number of preventive and treatment visits has increased, the rate of high-cost procedures associated with more complex oral health disease has decreased significantly. In fact, savings from preventing the need for high-cost procedures have been reinvested in preventive services by increasing reimbursement rates as well as increasing utilization.

Finally, Rhode Island has provided leadership in improving access to oral health care services by partnering with private foundations to provide capital investments toward self-sustaining programs. Using these funds, first the state established school-based clinics in underserved areas across the state. Second, Rhode Island increased capacity by funding new full-service dental clinics and expanding existing clinics in underserved areas. Third, the state increased the capacity of two existing dental residency programs. Fourth, the state established a dental assistant training program. This program uses federal job training funds to train mothers who are reaching their time limit on cash assistance to become dental assistants.

States certainly have many opportunities to improve oral health access.

HEALTH POLICY

Howard Bailit, D.M.D., Ph.D.
University of Connecticut

Problem Definition

Bailit stated much of this meeting focused on using midlevel professionals to address dental access disparities. The underlying assumption is a large increase in the supply of a lower-cost practitioner will solve the access problem. This assumption needs to be challenged. All things being equal, the size and composition of the health care workforce has little relationship with

access disparities. This is because the basic problem in dentistry is the demand for care: underserved populations do not have the personal financial means to purchase services, and most of the poor do not qualify for public dental insurance (i.e., Medicaid). Even those covered have difficulty getting treatment because of low Medicaid reimbursement rates. Thus, just increasing the number of dentists or midlevel professionals will not solve the disparities problem. More professionals will not treat the poor; instead, they will locate in middle and upper income areas where they can make a living.

Capacity of Dental System

Questions exist about the chances states will increase demand by expanding the dental Medicaid program to include more of the poor and by making reimbursement rates more competitive. Currently, states do not have the resources to significantly increase their investment in the dental Medicaid program. Also, dentistry is not well positioned to compete with other more politically powerful segments of the health care system (e.g., hospitals, long-term care facilities) lobbying state legislatures for increased Medicaid funding. There is some chance the federal government may take more financial responsibility for dental care for low-income children. The recent passage of an expanded CHIP program is a step in the right direction. Assuming that adequate funds for poor children are forthcoming, there may be several options for increasing the supply of services to treat several million more children.

One strategy is to increase the use of midlevel professionals. In this regard, 1 year from now perhaps three states will legalize the profession of dental therapy with the support of state dental associations. This being the case, the debate about a new type of oral health professional needs to end, even though this is a very politically charged issue in many segments of the dental education and practice communities. Instead of debate, the leadership of organized dentistry and other stakeholder groups need to come together and address the many unresolved issues about the training, supervision, and regulation of dental therapists. The chaos of 50 states making these decisions separately must be avoided. Although dental therapists will become part of the dental workforce, it will take 10 years or more to produce the numbers needed to significantly affect the child access problem. Certainly, the United States cannot wait 10 years to address this issue.

There is strong evidence that the existing system has the capacity to meet the needs of several million more low-income children. First, most dental practices have large numbers of essentially healthy patients who only need maintenance services. Many of these patients can be seen at intervals longer than the conventional 6 months with minimal health risk. By changing visit intervals, practices can treat more new patients. Second, the productivity of dentists can be substantially increased with the more effective use of dental hygienists, dental assistants, and administrative staff. Greater productivity means that more patients can be treated per unit of time. Third, there are opportunities to develop school-based delivery systems for low-income children who, for a variety of reasons, have difficulty accessing the current system of care. In Connecticut, dental hygienist-led teams employed by federally qualified health centers screen and provide preventive services to school children using portable equipment. For the 30 to 40 percent of children who require restorative and other dentist services, most are treated by dentists in schools using portable equipment. Only a small percentage of children have behavioral or other problems that require treatment in a fully equipped dental operatory. Finally, the efficiency of the dental safety net system can be improved with the more effective use of conventional allied dental health personnel (e.g., dental assistants). The bottom line is that the current dental delivery system has the capacity to care for several million more children from low-income

families if the Medicaid and CHIP programs are adequately funded. Underserved populations do not have to wait until dental therapists are available.

Workforce Planning and Education

A rapid expansion of the dentist workforce is now underway. Since 2000, 12 new dental schools have started or are in the planning stage, and many existing schools are expanding enrollment. Bailit expressed concern for the large numbers of new dentists entering the system at the same time as hundreds or thousands of dental therapists. While the supply of services is expanding, the rate of increase in demand is slowing due to continued improvements in the population's overall oral health. This country needs to develop a long-range plan for the dental workforce. Several European countries have addressed this issue and have decided to reduce the number of dentists trained and to upgrade dental education, so dentists are better prepared to care for more dentally and medically complicated patients. While this solution may not make sense for the United States, this issue needs to be addressed.

DENTAL EDUCATION

Frank Catalanotto, D.M.D.
University of Florida College of Dentistry

The existing dental education system is, in part, to blame for many of the problems faced in improving access to oral health services including the lack of practitioner participation in the Medicaid program, the opposition of organized dentistry to new workforce models (except their own), and the restrictive dental practice acts of many state boards of dentistry. Change can be very difficult for dental educators as well, but change is necessary to solve current problems. Academic excellence must be at the forefront of developing and evaluating new models of education and models of care delivery, and attempts to block demonstration projects in academic dental institutions should be regarded as a breach of academic freedom.

First, much more collaboration and integration is needed. The dental health care education system and the patient care system need to be integrated at all levels of the oral health team and within the overall health care system. Interdisciplinary teams are necessary to address the health care needs of the public, including its oral health. However, if we expect oral health professionals to work in a more collaborative manner with each other and other health professionals, they must be educated and trained together. New academic dental institutions should be built in collaboration with medical schools and academic health centers to foster interdisciplinary education.

Second, clinical education needs to be improved. Better education and training is needed regarding the care of special populations including children, patients with special care needs, older adults, and other vulnerable populations. More attention is also needed on the cognitive or behavioral skills of dentists, including more emphasis on ethics, professionalism, cultural competency, and the value of evidence-based approaches to oral disease management.

Third, more attention is needed regarding the types of students recruited for careers in oral health. There is growing evidence that recruiting students from diverse racial, ethnic, and socioeconomic backgrounds produces professionals who pay special attention to those populations. Catalanotto stated that his own unpublished research shows that while only 5 percent of American families have incomes over $185,000 annually, more than one-third of first-

year dental students at the University of Florida come from such families. These students may not be able to relate to the patients who are in the most need of care.

Finally, academic dental institutions have expertise in many areas and should provide that expertise wherever possible. For example, the new CHIP legislation calls for an evaluation of the oral health status of children. Departments of public health and epidemiology within dental schools can provide expertise on how to design surveys. Overall, all members of the dental team need to be integrated into the health care system, involving the need for difficult but necessary changes in the education of all types of dental professionals.

ADVOCACY

Advocacy and Policy Makers

Bruce Lesley
First Focus

Changing public policy requires both knowledge and will. For example, the U.S. surgeon general's report on oral health provided a lot of information about tooth decay, noninsurance, and the unmet oral health needs of children, but many policy makers remain unaware of these facts (HHS, 2000). In addition, oral health advocates need to take advantage of windows of opportunity to make policy change, such as the tragic death of Deamonte Driver that made headlines across the country and paved the way for the passage of CHIP legislation. One factor that stalls efforts to create new policies during these windows of opportunity is dissention among professional groups. When stakeholders come together, it is much easier to create legislation around shared public policy interests. Stakeholders need to stop complaining about the current system and work together to improve it.

Advocates need to continue to work to create a system of care for all children through both public and private strategies. The passage of CHIP is significant for several reasons. First, the legislation legally requires states to provide dental coverage and services for CHIP beneficiaries. Second, it allows states to provide dental wraparound coverage for privately insured children who lack dental coverage. (Previously, children had to drop their medical coverage to get CHIP benefits.) Third, states must report on dental performance. In the next round of expansions, more effort is needed to assure dental capacity in the community health centers that currently do not provide dental services. In addition, more can be done to provide dental screenings in schools, just as is routinely done for vision and hearing screenings. Other health professions need to be engaged in oral health care; for example, pediatricians should be including oral health as a part of their prevention and disease management strategies. Finally, more investment and attention is needed to increase the cultural competence and diversity of the dental workforce.

Advocacy and Coalition Building

Michael Scandrett
Halleland Health Consulting— Minnesota Safety Net Coalition

The Minnesota Safety Net Coalition (MSNC) is a group of safety net providers including community clinics and health centers, dental clinics, safety net hospitals, home- and community-based providers, and advocates who share a common interest in serving low-income, uninsured,

and disadvantaged patients who face multiple barriers to accessing health care services. Three years ago, the MSNC identified dental access as its top issue. Mental health clinics found dental health was the second highest concern among patients with serious and persistent mental illness. The safety net hospitals noted dramatic numbers of people with serious dental problems coming to emergency rooms and receiving stopgap treatments (e.g., pain medication and referral), only to return when the pain medication runs out because there is nowhere to go with the referral. The home- and community-based providers noted that homebound patients often have no one willing or able to come see them in the home setting, and they face multiple challenges trying to leave the home to receive treatment.

As a result, the MSNC formed an oral health committee sponsored by the United Way. One of the first strategies to arise was the concept of a new type of advanced professional, called the oral health practitioner (OHP). When a group of people have a wide variety of perspectives on an issue, they are often able to come together and reach agreement if they are truly willing to listen to each other, learn about each other's perspective, and accommodate legitimate concerns. However, in the case of the OHP, some stakeholders were unwilling to sit down and discuss areas of disagreement. As a result, the MSNC made this issue a top priority and invested in lobbying and staffing to advance this as an access issue, proposing a bill for the new oral health practitioner. Several professionals in the community admitted they had been subject to threats and intimidation for their support of the bill. Some stakeholders presented legislators with personal opinion in opposition of the bill, disregarding a wealth of evidence, and the MSNC spent much of its time explaining to legislators how this information was inaccurate. This type of dissension does not allow for fuller discussion of the issues that might lead to conditions amenable to all stakeholders.

No single strategy is going to solve the problems of access to oral health care services. For example, aside from Medicaid and the traditional systems of care, Minnesota uses multiple strategies including critical access payments, collaboration with dental hygienists, expanded functions for dental assistants, legislative changes to include community health workers in dental care, and grants and loan forgiveness programs. To solve these problems, stakeholders need to come together, through coalitions or other means, so legitimate concerns can be heard and broad support for solutions to challenges can be created.

MEDIA

Mary Otto
Street Sense

Poverty, homelessness, health care, housing, and social issues are usually not high-profile stories. Some people will say that is because poor people don't read the newspaper, and the issues aren't glamorous. However, real stories about real people combined with careful journalism can help address the larger social issues that surround these people's lives and struggles. Such is the case of Deamonte Driver.

Laurie Norris from the Public Justice Center in Baltimore contacted Otto, then a staff writer with the *Washington Post*, about a homeless mother in Maryland, Alyce Driver, with five sons. Alyce Driver had held a series of jobs, none of which provided health insurance. When they finally qualified for Medicaid, they were challenged to find a dentist to treat them. Ms. Norris and her staff made dozens of calls to find someone to care for one of Alyce Driver's sons. In the meantime, another one of her sons, Deamonte, fell ill. In January 2007, Deamonte came home

from school with a progressively worsening headache, eventually found to be related to sinusitis and a dental abscess. Deamonte's condition declined, necessitating emergency brain surgery. The nidus of the infection, the infected tooth, was finally removed and Deamonte began his long journey to recovery. However, in February 2007, Deamonte suddenly succumbed to the brain infection that had never totally cleared.

The story of Deamonte Driver's life and death, as well as the many stories to follow, fostered a personalization of the barriers faced by poor families including systemic problems of the Medicaid system as well as personal obstacles such as transportation, transience, and erratic phone and mail service—things that do not challenge middle-class families. Low-income parents, just like other parents, often lack awareness about the importance of dental care, but this is more significant when a child does not get routine oral health visits. Also, this is not just an urban issue. In rural areas, a clinic might serve children living 2 or 3 hours away because no other practitioner will serve Medicaid children. It is also not just a Maryland problem—while Maryland's Medicaid reimbursement rates were among the lowest in the nation, Congressional hearings revealed similar challenges exist across the United States.

Federal lawmakers seized this window of opportunity to pass the CHIP legislation. In addition, Maryland's governor ordered an examination of the entire state's Medicaid system and in spite of budget challenges, implemented the first phase of an effort to increase reimbursement rates and increase provider participation in the Medicaid program. Additional funding was allotted to support clinics and redesign the infrastructure of the Medicaid program.

In conclusion, the media can use personal stories to initiate and sustain attention to an issue like oral health. This can only be done with the participation of advocates, professionals, and others who give their time to explain the issues to the media. Stories open people's eyes, and it is up to the media to continue to cover these stories and help the public understand the complexity of these issues.

REACTION AND DISCUSSION

Moderator: Len Finocchio, Dr.P.H.
California HealthCare Foundation

Moderator: Elizabeth Mertz, M.A.
Center for Health Professions,
University of California, San Francisco

An open discussion followed the panelists' presentations. Audience participants were able to give comments and ask questions of the panelists. The following sections summarize the discussion session.

Changing Regulations

One participant asked about establishing reimbursement to physicians for early childhood preventive procedures in the minority of states that do not already do so. Davis said that while the American Academy of Pediatrics has encouraged this, it is a state-based Medicaid decision and so would have to occur on a state-by-state basis. Cober added that state agencies can be helpful, such as by securing grant funding to provide education and training for nondental

professionals. Leddy noted that not all dentists agree with allowing nondental professionals to deliver these types of services.

Several participants asked about making changes to the EPSDT program. In response to a question about requiring physicians to provide these dental services, Davis said it would require a legislative change and while there have been some discussions, there is no official action yet. In a point of clarification, Davis noted that regulations do allow for these services to be provided by other unspecified types of licensed practitioners, which CMS has determined allows for the direct reimbursement to dental hygienists in states where their license allows them to practice in that manner.

Several participants commented on the challenges of reimbursing oral health professionals aside from dentists. Brand and Davis agreed legislative change is often needed to give this authority.

Engaging Stakeholders

One participant suggested considering collaboration with nontraditional partners. Cober agreed collaboration with multiple partners is essential, noting Florida's oral health coalition involves over 300 different individuals and organizations with a range of backgrounds. Leddy added as public servants, state workers act on behalf of citizens, and so it is much easier to take action when there is broad consensus as well as a champion. Brand agreed, noting stakeholders from the grassroots level and advocacy groups are often very effective in acting as the face of issues. She said partners who don't necessarily benefit directly from proposals can often present the most compelling argument. Mertz suggested partnering with nontraditional advocates such as those working on childhood obesity issues who might have a shared interest in the relationship between sugar products and obesity and dental disease. For example, she noted the role of warnings on tobacco products to help reduce the rate of smoking. Lesley commented on the intense opposition by industry to these types of preventive measures.

Other participants recognized the importance and efforts of multiple dental associations such as the American Association of Public Health Dentistry, the Association of State and Territorial Dental Directors, and the American Association of Community Dental Programs in working together at the state, local, and national levels to improve access and share best practices. Another participant added these associations along with the American Public Health Association should take the lead in addressing issues surrounding access to oral health for underserved populations.

Another participant commented on the need for all stakeholders to recognize shared and differing challenges, that they have all failed collectively, and that everyone needs to come together to solve these problems that have not changed in many years of discussion. Another participant noted many oral health professionals hesitate to become more engaged due to fears of retribution by other professionals or even their own associations.

One participant specifically thanked Mary Otto for treating the Driver family with respect and compassion and for telling Deamonte's story in such a compelling way that the country and world could not ignore the problem. She encouraged all participants to continue their passion and commitment to keep working in collaboration and to keep extending the circle of people involved in creating solutions. Lesley agreed Otto's coverage was crucial to creating an opportunity for the nation to come together.

Recognizing Public Health

Participants commented on the importance of the role of public health dentistry. One participant who referenced Brand agreed, adding public health dentistry has been significantly underresourced. Others participants said the dental public health infrastructure needs to be strengthened and public health dentists need to become even more engaged in national debates.

Another participant remarkedpublic health professionals have the competencies for data collection and assessment, but fewer and fewer of these professionals are working in government. The participant added concerns about who will be making policy decisions around issues that require these types of skills. Finally, the participant said public health is a common theme that can bring many types of health professionals together.

Targeting Underserved Areas

One participant noted the decreasing numbers of National Health Service Corps (NHSC) scholarships and loan repayment programs for dentists to serve in HPSAs, stating the government should prioritize these types of programs for oral health professionals. The participant commented on other possible strategies for targeting oral health in underserved areas by financing and paying for services rendered by dental hygienists independently from dentists as well as the use of dental residents to serve in community health centers as part of their training. Brand said the HPSA definition needs to be revisited, but efforts to do so in the past have not yielded much success. She added HRSA is making efforts to increase NHSC placements, but noted these types of programs can take several years to have any effect because of the length of time to train some of these professionals (in the case of scholarships). Brand added limited resources can challenge the administration and expansion of these programs (as well as dental and public health residences). A participant added dental placement and career guidance might be better strategies to getting dentists into underserved areas, and those funds for loan forgiveness and scholarship programs could be better used in other ways.

One participant referenced the Healthy Kids program in Michigan in which dental hygienists and dental assistants are allowed to perform expanded duties, and participants in the Delta Dental Plan are automatically eligible to treat underserved patients. The participant attributed some of the success of the program to the effective use of a state-based lobbyist and annual legislative visits at the state and national levels, but recognized the challenge of budgetary limitations.

Creating National Goals

A participant said a national conceptual framework is needed to link four factors: financing, workforce, partnerships, and education. The participant asserted without a national set of goals, many people will be working on multiple little projects without making any major strides. Brand added a fifth consideration: she said there is no major national organization to speak for people with dental disease as there is for other diseases such as diabetes (i.e., the American Diabetes Association). She added these types of organizations are enormously strong and effective, especially at the grassroots level. She said there needs to be a movement in gaining parity for oral health just as others are working for parity in mental health. Cober said in Florida, that void was filled by creating the statewide oral health coalition. She said this coalition has been effective in bringing together those additional needed voices.

Other participants commented on the need for federal agencies to do more through their oversight capacity to promote oral health strategies and the need for national leaders to foster academic curiosity.

Training and Practice Patterns

In response to a comment about the need for significant and innovative efforts to train large numbers of students from various ethnic communities, Brand noted a lack of federal resources for many of these types of innovations and that more recognition is needed that these challenges require investment over time. Another participant commented on the need for improving the quality of dental education and considering creating an oral physician. One participant clarified dental hygiene no longer has any 2-year programs. Another participant advocated for raising all dental hygiene programs to the level of a bachelor's degree and the need to create more career ladders, especially as new types of practitioners evolve.

Several questions arose about the effect of changing demographics on career patterns. Regarding a question about the impact of dual-career marriages on dentists' choice of location, Brand said more data is needed regarding driving factors in career choices. In response to a question about the effect of the increasing number of female dentists, Brand reflected on the presentation of a previous speaker indicating the practice patterns seem to show that male dentists may work more hours in the beginning of their careers while women work more hours later in their careers. Regarding concerns about the changing practice preferences of dental and medical students (i.e., decreased willingness to work long hours), Brand said this lifestyle change is common to all professions, including nonhealth professions.

One participant commented private practice patterns will not change to become more efficient because dentists like the traditional slow pace of private practice. Another participant stated the nation cannot wait for the productivity of private practice dentistry to change. A participant stated all models of care should be tested and evaluated to determine the most effective ways to improve the delivery of and access to oral health care services.

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Concluding Remarks

In this session, members of the planning committee reflected on the overall themes they perceived during the workshop.

David N. Sundwall, M.D.
Utah Department of Health

Extraordinary efforts are underway to improve access to oral health services for many populations including children, adults, rural populations, and specific ethnic groups. The workshop provided a menu of opportunities to address the challenges of access to oral health care services. These and other options not discussed should be adopted immediately. Sundwall thanked the audience for being active, engaged, and forthcoming.

Marcia Brand, Ph.D.
Health Resources and Services Administration

HRSA has been interested in examining the adequacy of the oral health workforce for quite some time. Brand remarked that as a sponsor of the workshop, she was pleased to bring together people with different viewpoints to talk about the adequacy of the workshop, the challenges, and the opportunities for partnerships with HRSA that can continue in the future. Brand thanked the participants for their passion, scholarship, and dedication to these issues.

Shelly Gehshan, M.P.P.
Pew Center on the States

When approaching solutions to oral health access, all types of professionals need to remember that change often requires a legislative process. To help legislatures make these decisions, professionals need to help the legislators sort fact from fiction, especially by countering anecdotes with evidence. Expressing beliefs or opinions is valid, but should not be presented as facts.

Another point to consider is the economic crisis that is creating a situation in which much less money is available than is needed. However, this may help foster the creation of more innovative solutions. States are especially good at being innovative when faced with insufficient budgets. Along with this creativity, though, data needs to be gathered to create an evidence base.

Two of the continuing debates in the new models of care are responsibility for restorative care and levels of supervision, much of which will need to be defined by an evidence base. As these issues are explored, more attention is needed for communication and messaging, especially

in the consideration of terminology. Oral health professionals need to be come more skilled at strategic messaging. For example, *irreversible procedures* can mean nothing to a policy maker or may imply a negative connotation that is not warranted. Communication within the professions is key to moving forward.

In conclusion, there are great grounds for optimism. Oral health stakeholders need to enter into creative partnerships and reach out to nontraditional practitioners to move forward on a number of different solutions.

Elizabeth Mertz, M.A.
Center for Health Professions,
University of California, San Francisco

Many of the solutions to improving access to oral health services require developing a framework that includes new ideas, new ways to think about old problems, and ways to reframe current problems The health care delivery system accounts for only a very small percentage of health outcomes, yet most of the money and debate centers around that part of the equation. More attention is needed on how to affect the social and behavioral environments, but the current health care delivery system has little capacity to address those broader issues. This lends to the importance of bringing all stakeholders together to determine shared goals and outcomes in areas of financing, education, and regulation. More evidence is needed to inform these decisions and therefore curiosity and innovation should be fostered. Without evidence, threats and fear will continue. To create this framework, stakeholders need to consider the tools and processes at their disposal to overcome barriers and create a ripple effect of change. Moving ahead also requires recognition of a call to action. Many people are frustrated that the same discussions are taking place today that took place decades ago. In conclusion, solving these challenges requires consideration of new ideas, recognition of available tools, and acceptance of the call to action.

Len Finocchio, Dr.P.H.
California HealthCare Foundation

It is not unethical to not be charitable. That is a personal choice. However, it is unethical for individuals or groups to unjustifiably and selfishly stand in the way of dedicated and capable professionals caring for persons and groups that other professionals are not serving. Health professions should be judged and, in part, regulated by how it stewards limited resources to best meet public needs. Students today need not only to have some idea of their professional responsibility to be a good clinician, but also about how the decisions they make affect the way resources are distributed to take care of public needs.

Daniel Derksen, M.D.
University of New Mexico

Stakeholders need to move past talking and recommending and need to overcome their differences. There are many people who have been fighting these issues in the trenches for many years. This passion needs to continue in legislative offices, in universities, and in communities to make change a reality. More students from rural areas and underrepresented minorities need to be recruited into health professions, because they will be the ones most likely to practice in areas that serve the populations with the greatest needs. Finally, more recognition is needed for the power of a good story. The only way change will happen is if individuals take the courage to move their personal convictions into action within their institutions, their communities, and at the state and national levels.

References

AACN (American Association of Colleges of Nursing). 2004. *AACN position statement on the practice doctorate in nursing*. http://www.aacn.nche.edu/DNP/DNPPositionStatement.htm (accessed May 1, 2009).

ADA Survey Center. 2008. *2006 survey of dental practice.* Chicago, IL: American Dental Association.

AHDA (American Dental Hygienists' Association). 2009a. *Direct access in some settings outside the dental office*. http://www.adha.org/governmental_affairs/downloads/Direct_Access_Map.pdf (accessed June 18, 2009).

ADHA. 2009b. *Direct access states*. http://www.adha.org/governmental_affairs/downloads/direct_access.pdf (accessed June 18, 2009).

ADHA. 2009c. *Education and careers*. http://www.adha.org/careerinfo/dir_education.htm (accessed June 18, 2009).

ADHA. 2009d. *States which directly reimburse dental hygienists for services under the Medicaid program*. http://www.adha.org/governmental_affairs/downloads/medicaid.pdf (accessed June 18, 2009).

Ambrose, E. R., A. B. Hord, and W. J. Simpson. 1976. *A quality evaluation of specific dental services provided by the Saskatchewan dental plan: Final report*. Regina, Saskatchewan: Saskatchewan Dental Plan.

American Cancer Society. 2008. *Cancer facts & figures 2008.* Atlanta, GA: American Cancer Society.

Amundson, C. 2009. *Financing challenges.* Presentation at Institute of Medicine Workshop on the Sufficiency of the U.S. Oral Health Workforce in the Coming Decade, Washington, DC. February 10, 2009.

Armfield, J. M., G. D. Slade, and A. J. Spencer. 2007. *Water fluoridation and children's dental health: The child dental health survey Australia.* Canberra, Australia: AIHW DSRU.

Bailit, H., T. Beazoglou, N. Demby, J. McFarland, P. Robinson, and R. Weaver. 2006. Dental safety net: Current capacity and potential for expansion. *Journal of the American Dental Association* 137(6):807-815.

Battrell, A. M., C. C. Gadbury-Amyot, and P. R. Overman. 2008. A qualitative study of limited access permit dental hygienists in Oregon. *Journal of Dental Education* 72(3):329-343.

BLS (Bureau of Labor Statistics). 2007a. *Occupational outlook handbook, 2008-09 edition, dental assistants*. http://www.bls.gov/oco/ocos163.htm (accessed April 28, 2009).

BLS. 2007b. *Occupational outlook handbook, 2008-09 edition, dental hygienists*. http://www.bls.gov/oco/ocos097.htm (accessed May 1, 2009).

BLS. 2007c. *Occupational outlook handbook, 2008-09 edition, dentists*. *http://www.bls.gov/oco/ocos072.htm* (accessed May 1, 2009).

Brown, E., and R. J. Manski. 2004. *Dental services: Use, expenses, and sources of payment, 1996-2000.* Rockville, MD: Agency for Healthcare Research and Quality.

Caspary, G., D. M. Krol, S. Boulter, M. A. Keels, and G. Romano-Clarke. 2008. Perceptions of oral health training and attitudes toward performing oral health screenings among graduating pediatric residents. *Pediatrics* 122(2):e465-e471.

Catalanotto, F. A., D. E. Patthoff, and C. F. Gray. 2006. The ethics of access to oral health care: An introduction to the special issue. *Journal of Dental Education* 70(11):1117-1119.

Colorado Health Institute. 2008. *2008 rural dentist survey: Preliminary findings and overview of data*. http://www.coloradohealthinstitute.org/Documents/2008_Presentations/RD_2008.ppt#256,1,2008 Rural Dentist Survey (accessed April 17, 2009).

DANB (Dental Assisting National Board). 2009. Measuring dental assisting excellence: Recognition through DANB certification. http://www.danb.org/PDFs/MeasuringExcellence.pdf (accessed May 4, 2009).

Douglass, A. B., M. Deutchman, J. Douglass, W. Gonsalves, R. Maier, H. Silk, J. Tysinger, and A. S. Wrightson. 2009. Incorporation of a national oral health curriculum into family medicine residency programs. *Family Medicine* 41(3):159-160.

Dye B. A., S. Tan, V. Smith, B. G. Lewis, L.K. Barker, G. Thornton-Evans, et al. 2007. Trends in oral health status: United States, 1988–1994 and 1999–2004. National Center for Health Statistics. *Vital Health Statistics* 11(248).

Ellershaw, A., and A. J. Spencer. 2006. *Access to dental care among Australian children and adults.* South Australia: Australian Institute of Health and Welfare, Dental Statistics and Research Unit.

Entwistle, B. A. 1992. Are we creating socially responsible dental professionals? *Journal of Dental Education* 56(2):109-111.

El-Solh, A. A., C. Pietrantoni, A. Bhat, M. Okada, J. Zambon, A. Aquilina, and E. Berbary. 2004. Colonization of dental plaques: A reservoir of respiratory pathogens for hospital-acquired pneumonia in institutionalized elders. *Chest* 126(5):1575-1582.

Florida Department of Health (FDOH). 2008. Health professional shortage areas: Dental. http://www.doh.state.fl.us/Workforce/recruit1/PDFFiles/DentalHPSAMapLegend08.pdf (accessed June 19, 2009).

Freed, G. L., K. M. Dunham, K. E. Switalski, M. D. Jones, and G. A. McGuinness. 2009. Recently trained general pediatricians: Perspectives on residency training and scope of practice. *Pediatrics* 123(Suppl 1):S38-S43.

Gallagher, J. L., and D. A. Wright. 2003. General dental practitioners' knowledge of and attitudes towards the employment of dental therapists in general practice. *British Dental Journal* 194(1):37-41.

Haden, N. K., F. A. Catalanotto, C. J. Alexander, H. Bailit, A. Battrell, J. Broussard, Jr., J. Buchanan, C. W. Douglass, C. E. Fox 3rd, P. Glassman, R. I. Lugo, M. George, C. Meyerowitz, E. R. Scott 2nd, N. Yaple, J. Bresch, Z. Gutman-Betts, G. G. Luke, M. Moss, J. C. Sinkford, R. G. Weaver, and R. W. Valachovic. 2003. Improving the oral health status of all Americans: Roles and responsibilities of academic dental institutions: The report of the ADEA president's commission. *Journal of Dental Education* 67(5):563-583.

HRSA (Health Resources and Services Administration). 2000. *The New Mexico health workforce: Highlights from the health workforce profile*. http://bhpr.hrsa.gov/healthworkforce/reports/statesummaries/newmexico.htm (accessed April 29, 2009).

HRSA. 2007. *Government performance and results act (GPRA): 2006 national summary.* Rockville, MD: Department of Health and Human Services.

HRSA. 2009a. *Dental HPSA designation*. http://bhpr.hrsa.gov/shortage/dental.htm (accessed April 29, 2009).

HRSA. 2009b. *Designated health professional shortage areas (HPSA) statistics*. http://ers.hrsa.gov/ReportServer?/HGDW_Reports/BCD_HPSA/BCD_HPSA_SCR50_Smry&rs:Format=HTML3.2 (accessed April 29, 2009).

IHS (Indian Health Service). 1999. *An oral health survey of American Indian and Alaska Native dental patients: Findings, regional differences, and national comparisons.* Rockville, MD: Department of Health and Human Services.

IOM (Institute of Medicine). 1995. *Dental education at the crossroads: Challenges and change.* Washington, DC: National Academy Press.

IOM. 2001. *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.

Jones, A. 2002. *The national nursing home survey: 1999 summary.* Hyattsville, MD: Center for Disease Control and Prevention.

Kaiser Family Foundation. 2007. *Health insurance coverage of the total population, states (2006-2007), U.S. (2007)*. http://www.statehealthfacts.org/comparetable.jsp?ind=125&cat=3&sub=39&yr=85&typ=2&o=d (accessed April 29, 2009).

Kaste, L. M., R. H. Selwitz, R. J. Oldakowski, J. A. Brunelle, D. M. Winn, and L. J. Brown. 1996. Coronal caries in the primary and permanent dentition of children and adolescents 1-17 years of age: United States, 1988-1991. *Journal of Dental Research* 75(Special issue):631-641.

Manski, R. J., and E. Brown. 2007. *Dental use, expenses, private dental coverage, and changes, 1996 and 2004.* Rockville, MD: Agency for Healthcare Research and Quality.

Manski, R. J., and E. Brown. 2008. *Dental coverage of children and young adults under age 21, United States, 1996 and 2006.* Rockville, MD: Agency for Health Care Research and Quality.

McGinnis, J. M., P. Williams-Russo, and J. R. Knickman. 2002. The case for more active policy attention to health promotion. *Health Affairs* 21(2):78-93.

Ministry of Health Malaysia. 2005. *Oral healthcare in Malaysia*. http://ohd.moh.gov.my/uploads/oral_healthcare_in_malaysia_05.pdf (accessed April 30, 2009).

Minnesota Department of Health, and Minnesota Board of Dentistry. 2009. *Oral health practitioner recommendations: Report to the Minnesota legislature 2009*. http://www.health.state.mn.us/healthreform/oralhealth/FinalReport_OHP.pdf (accessed April 1, 2009).

Mouradian, W. E. 2006. Band-aid solutions to the dental access crisis: Conceptually flawed--a response to Dr. David H. Smith. *Journal of Dental Education.* 70(11):1174-1179.

Nash, D. A., J. W. Friedman, T. B. Kardos, R. L. Kardos, E. Schwarz, J. Satur, D. G. Berg, J. Nasruddin, E. G. Mumghamba, E. S. Davenport, and R. Nagel. 2008. Dental therapists: A global perspective. *International Dental Journal* 58(2):61-70.

National Advisory Committee on Oral Health (NACOH). 2004. *Healthy mouths healthy lives; Australia's national oral health plan 2004-2013.* South Australia: Australian Health Ministers Council, South Australian Department of Health.

O'Toole, B. 2006. Promoting access to oral health care: More than professional ethics is needed. *Journal of Dental Education* 70(11):1217-1220.

Paradise, J. 2008. *Dental coverage and care for low-income children: The role of Medicaid and SCHIP.* Washington, DC: Kaiser Family Foundation.

Riordan, P. J., I. Espelid, and A. B. Tveit. 1991. Radiographic interpretation and treatment decisions among dental therapists and dentists in Western Australia. *Community Dentistry and Oral Epidemiology* 19(5):268-271.

Section on Pediatric Dentistry. 2003. Oral health risk assessment timing and establishment of the dental home. *Pediatrics* 111(5):1113-1116.

Section on Pediatric Dentistry. 2008. Preventive oral health intervention for pediatricians. *Pediatrics* 122(6):1387-1394.

Triangle Business Journal. 2009. *Sageworks: Dentists posted highest profit margin in 2008*. http://triangle.bizjournals.com/triangle/stories/2009/01/26/daily23.html (accessed April 30, 2009).

U.S. Census Bureau. 2000. *United States - states and Puerto Rico: Population, housing units, area, and density: 2000*. http://factfinder.census.gov/servlet/GCTTable?_bm=y&-ds_name=DEC_2000_SF1_U&-CONTEXT=gct&-mt_name=DEC_2000_SF1_U_GCTPH1_US9&-redoLog=false&-_caller=geoselect&-geo_id=&-format=US-9|US-9S&-_lang=en (accessed April 29, 2009).

U.S. Census Bureau. 2007a. *Personal income per capita in current dollars, 2007*. http://www.census.gov/statab/ranks/rank29.html (accessed April 29, 2009).

U.S. Census Bureau. 2007b. *Population by sex, age, Hispanic origin, and race: 2006*. http://www.census.gov/population/socdemo/hispanic/cps2006/2006_tab1.1a.xls (accessed May 1, 2009).

U.S. Census Bureau. 2007c. *State & county quick facts: New Mexico*. http://quickfacts.census.gov/qfd/states/35000.html (accessed April 29, 2009).

U.S. Census Bureau. 2008. *Hispanic population in the United States: 1970 to 2050* http://www.census.gov/population/www/socdemo/hispanic/hispanic_pop_presentation.html (accessed May 1, 2009).

U.S. Department of Health and Human Services. 2000. *Oral health in America: A report of the Surgeon General.* Rockville, MD: National Institute of Dental and Craniofacial Research.

APPENDIX A

Workshop Agenda

THE U.S. ORAL HEALTH WORKFORCE IN THE COMING DECADE: A WORKSHOP

FEBRUARY 9-11, 2009
EMBASSY SUITES CONVENTION CENTER
900 10TH ST., NW
WASHINGTON, DC

DAY ONE (2/9)

9:00-9:20 **Welcome and opening remarks**
David N. Sundwall, Utah Department of Health and Planning Committee Chair
Marcia Brand, Health Resources and Services Administration (Project Sponsor)
Len Finocchio, California HealthCare Foundation (Project Sponsor)

9:20-9:50	**KEYNOTE: The Connection Between Oral Health and Overall Health and Well-Being**

Caswell A. Evans, Jr., University of Illinois at Chicago, College of Dentistry

9:50-11:30	**Current Oral Health Needs and the Status of Access to Care**

Panel moderator: *Shelly Gehshan, Pew Center on the States*

- ***Early Life Cycle:***
  - *Shelly Gehshan, Pew Center on the States*
- ***Older Adults and Disabled Persons:***
  - *Michael J. Helgeson, Apple Tree Dental*
- ***Rural Populations:***
  - *Diane Brunson, University of Colorado, School of Dental Medicine*
- ***Indian Health Service:***
  - *Patrick Blahut, Indian Health Service, Division of Oral Health*
- ***African American Populations:***
  - *Hazel J. Harper, National Dental Association*
- ***Hispanic Populations:***
  Francisco Ramos-Gomez, UCLA, School of Dentistry

12:00-2:30	**Current Demographics and Future Trends of the Oral Health Workforce**

12:00-1:00 **The Dental Workforce**

Panel moderator: *Beth Mertz, Center for the Health Professions, UCSF*

- ***Dentists:***
  - *Richard W. Valachovic, American Dental Education Association*
- ***Dental Hygienists:***
  - *Ann Battrell, American Dental Hygienists' Association*
- ***Dental Assistants:***
  - *Cathy J. Roberts, American Dental Assistants Association*

1:00-2:30 **The Non-Dental Health Care Workforce**

Panel moderator: *Dan Derksen, University of New Mexico*

- ***Integration with Non-Dental Health Care Providers:***
  - *Irene V. Hilton, San Francisco Department of Public Health*
- ***Medicine – Pediatrics and Family Medicine:***
  - *David M. Krol, University of Toledo*
  - *Russell Maier, Central Washington Family Medicine*
- ***Nursing:***
  - *Caroline Dorsen, New York University College of Nursing*
  - *Donna Shelley, New York University College of Dentistry*

3:00-4:15	**Current Delivery Systems**

Panel moderator: *Marcia Brand, Health Resources and Services Administration*

- ***Private Practice:***
  - *Wayne R. Wendling, American Dental Association*
- ***Community Health Centers:***
  - *Donald Weaver, Health Resources and Services Administration*
- ***Medicaid-Focused Practices:***
  - *Burton L. Edelstein, Columbia University*

4:15-5:00	**PLANNING COMMITTEE OPEN DISCUSSION**

Planning committee members will reflect on the day and engage in discussion with the audience.

Panel moderator: *David N. Sundwall (Chair), Utah Department of Health*

- *Marcia Brand, Health Resources and Services Administration*
- *Dan Derksen, University of New Mexico*
- *Len Finocchio, California HealthCare Foundation*
- *Shelly Gehshan, Pew Center on the States*
- *Beth Mertz, Center for the Health Professions, UCSF*

DAY TWO (2/10)

8:30-8:45 **Overview of Day**
David N. Sundwall, Utah Department of Health and Planning Committee Chair

8:45-11:00	**Challenges of the Current System**

8:45-9:15 **Education/Training Challenges:**
Jack Dillenberg, Arizona School of Dentistry & Oral Health

9:15-10:00 **Regulatory Challenges:**
Catherine Dower, Center for the Health Professions, UCSF
Gustav P. Chiarello, Federal Trade Commission

10:00-10:30 **Financing Challenges:**
Craig W. Amundson, HealthPartners

10:30-11:00 **Quality Assessment Challenges:**
James D. Bader, University of North Carolina

11:00-11:30	**KEYNOTE: What are the ethical principles and obligations to increasing access?**

Brian Dolan, University of California, San Francisco

12:00-1:15	**Learning from the International Experience**

Panel moderator: *Shelly Gehshan, Pew Center on the States*
- *David A. Nash, University of Kentucky*
- *Julie Satur, University of Melbourne*
- *Josephus L. M. van den Heuvel, Netherlands Institute for Health Services Research (NIVEL)*

1:15-4:00	**Increasing Access Through Workforce Strategies**

1:15-2:15 **Panel moderator:** *Len Finocchio, California HealthCare Foundation*
- ***Community Dental Health Coordinator:***
  - *Jane S. Grover, American Dental Association*
- ***Dentex: The Dental Health Aide Therapist in Alaska:***
  - *Ruth Ballweg, MEDEX Northwest, University of Washington*
- ***Oral Health Practitioner:***
  - *Colleen M. Brickle, Normandale Community College and Metropolitan State University*

2:45-4:00 **Panel moderator:** *Dan Derksen, University of New Mexico*

- ***Registered Dental Hygienists in Alternative Practice (RDHAPs) and Virtual Dental Homes:***
  - *Paul Glassman, University of the Pacific School of Dentistry*
- ***Oral Health Impact Project:***
  - *Lawrence B. Caplin, Oral Health Impact Project*
- ***Health Commons:***
  - *Dan Derksen, University of New Mexico*
- ***Disease Management:***
  - *Burton L. Edelstein, Columbia University*

4:00-4:30	**PLANNING COMMITTEE OPEN DISCUSSION**

Planning committee members will reflect on the day and engage in discussion with the audience.

Panel moderator: *David N. Sundwall (Chair), Utah Department of Health*

- *Marcia Brand, Health Resources and Services Administration*
- *Dan Derksen, University of New Mexico*
- *Len Finocchio, California HealthCare Foundation*
- *Shelly Gehshan, Pew Center on the States*
- *Beth Mertz, Center for the Health Professions, UCSF*

4:30-5:00	**KEYNOTE: Representative Mike Simpson (R-ID 2nd) (invited)** **U.S. House of Representatives**

DAY THREE (2/11)

8:30-8:45 **Overview of Day**

David N. Sundwall, Utah Department of Health and Planning Committee Chair

8:45-9:15	**KEYNOTE: Representative Elijah E. Cummings (D-MD 7th) (invited)** **U.S. House of Representatives**

9:15-12:00	**Reframing the System: Who will provide leadership?**

9:15-10:30 **Panel moderator:** *Len Finocchio, California HealthCare Foundation*

- *Marcia Brand, Health Resources and Services Administration*
- *Amy D. Cober, Florida Department of Health*
- *A. Conan Davis, Centers for Medicare and Medicaid Services*
- *Peter C. Knudson, Utah State Senate (R-UT 17th)*
- *Tricia M. Leddy, Rhode Island Executive Office of Health and Human Services*

11:00-12:00 **Panel moderator:** *Beth Mertz, Center for the Health Professions, UCSF*

- *Howard Bailit, University of Connecticut*
- *Frank A. Catalanotto, University of Florida College of Dentistry*
- *Bruce D. Lesley, First Focus*
- *Mary Otto, former Washington Post staff writer*
- *Michael Scandrett, Halleland Health Consulting – Minnesota Safety Net Coalition*

12:00-1:00	**PLANNING COMMITTEE OPEN DISCUSSION**

Planning committee members will reflect on the day and engage in discussion with the audience.
Panel moderator: *David N. Sundwall (Chair), Utah Department of Health*

- *Marcia Brand, Health Resources and Services Administration*
- *Dan Derksen, University of New Mexico*
- *Len Finocchio, California HealthCare Foundation*
- *Shelly Gehshan, Pew Center on the States*
- *Beth Mertz, Center for the Health Professions, UCSF*

1:00 ADJOURN

APPENDIX B

Planning Committee Biographies

David N. Sundwall, M.D. (Chair)
In January 2005, Dr. David N. Sundwall was nominated by Governor Jon Huntsman Jr. to serve as Executive Director of the Utah State Department of Health (UDOH) and confirmed by the State Senate. In this capacity he supervises a workforce of almost 1,000 employees with a budget of over $2.0 billion. He currently serves as Immediate Past-President of Association of State & Territorial Health Officers (ASHTO), serves on the Executive Committee of ASTHO and chairs their Government Relations Committee. He is a member of the National Governors Association's (NGA) State e-Health Alliance.

Previous positions include President of the American Clinical Laboratory Association (ACLA) 1994-2003, and Senior Scientific and Medical Advisor from 2003-2004. The ACLA is a not–for–profit organization representing the leading national, regional, and local independent clinical laboratories. Prior to his position at ACLA, Dr. Sundwall was Vice President and Medical Director of American Healthcare System (AmHS). At that time, AmHS was the largest coalition of not-for-profit multi-hospital systems in the country.

Dr Sundwall has extensive experience in federal government and national health policy, including: Chairman of the CDC's Clinical Laboratory Improvement Advisory Committee; Chairman of the Council on Graduate Medical Education (COGME); Administrator, Health Resources and Services Administration (HRSA), Public Health Service, U.S. Department of Health and Human Services (HHS); Assistant Surgeon General in the Commissioned Corps of the U.S. Public Health Service; Co-Chairman of the HHS Secretary's Task Force on Medical Liability and Malpractice, and was the Secretary's designee to the National Commission to Prevent Infant Mortality. He has also served as Health Staff Director of the U.S. Senate Labor and Human Resources Committee.

Dr. Sundwall is Board certified in Internal Medicine and Family Practice. He is licensed to practice medicine in the District of Columbia and Utah and currently volunteers weekly at a UDOH public health clinic for the underserved in Salt Lake City. Dr. Sundwall has academic appointments at three medical schools: the University of Utah, Georgetown University School of Medicine and the Uniformed Services University of Health Sciences.

Marcia Brand, Ph.D.
Marcia Brand, Ph.D. is associate administrator for health professions in the U.S. Department of Health and Human Services' Health Resources and Services Administration (HRSA).

From 2001-2007, Brand was director and associate administrator of HRSA's Office of Rural Health Policy (ORHP). In that position she was responsible for health policy, research and grant activities that promote better health care services in rural America.

On July 9, 2007, Brand became associate administrator of the Bureau of Health Professions (BHPr), while continuing in her leadership position at ORHP. On January 31, 2008, she relinquished her ORHP position and retained her position as BHPr's associate administrator. At BHPr, she provides national leadership in the development, distribution and retention of a diverse, culturally competent health workforce that provides high-quality care for all Americans.
Prior to joining ORHP, Brand led efforts to plan and implement the State Planning Grant Program, which helped states explore options in providing health care coverage for their uninsured residents. She also coordinated HRSA's efforts to implement the State Children's Health Insurance Program (SCHIP) and worked on the Secretary's Initiative on Children's Health and the President's Interagency Task Force on Children's Health Insurance Outreach, which aimed to increase enrollment in SCHIP and Medicaid. As senior advisor to the deputy assistant secretary for health in 1997, Brand worked on the Secretary's Initiative on the Future of Academic Health Centers. She served as deputy director of BHPr's Office of Research and Planning for two years prior to that appointment.

Brand earned a doctoral degree in higher education from the University of Pennsylvania, and master and bachelor of science degrees in dental hygiene from Old Dominion University in Virginia.

Daniel Derksen, M.D.
In his role as Senior Fellow for the RWJF Center for Health Policy, Dr. Derksen works with graduate fellows, medical students, and resident trainees to help them better understand health systems and health policymaking at the state and federal levels. In August 2008, Dr. Derksen began his term as President of the New Mexico Medical Society. He sees patients and teaches health professions students and resident trainees at UNM and at the First Choice South Valley Health Commons in Albuquerque, New Mexico.

Dr. Derksen completed a Robert Wood Johnson Health Policy Fellowship with Senator Jeff Bingaman in Washington, D.C. in July of 2008. Senator Bingaman has been in the Senate for over 25 years and is the only Democrat serving on both the Senate Finance Committee and the Health, Education, Labor & Pensions (HELP) Committee. Dr. Derksen worked as staff for Senator Bingaman including work on bills related to the health professions workforce, obesity, oral health, federal entitlement programs, a medical homes pilot project, and other health issues.

Dr. Derksen is a Professor in the Department of Family & Community Medicine at the University of New Mexico (UNM) in Albuquerque. His numerous leadership roles at UNM included Vice Chair of Service, Director of the Office of Health Services where for five years he developed public and private payer contracts on behalf of the UNM Health Sciences Center, served two years as Director of University Physician Associates (the 550-member faculty practice plan) and the TriWest Board of Directors (CHAMPUS managed care).

He served as Director for over 10 years of the UNM Locum Tenens and Specialty Extension Services Programs that provided over 700 days/month of clinical services emphasizing safety net practices in medically underserved areas. He was principal investigator for grant initiatives to improve insurance coverage and access to health care including the Kellogg Community Voices initiative (which helped develop the UNM Care Plan for the county's uninsured, and helped initiate UNM's dental residency) and the state's Area Health Education Center. He served on steering committees for the RWJ Communities in Charge and State Coverage initiatives, which culminated in a CMS HIFA waiver for NM's State Coverage Insurance Plan (a public-private partnership to provide health insurance the state's uninsured working poor).

Len Finocchio, Dr.P.H.
Len Finocchio, Dr.P.H. is a senior program officer for the Foundation's Innovations for the Underserved program, which works to reduce barriers to efficient, affordable health care for the underserved. Finocchio manages projects focused on state and county programs for the uninsured, access to oral health services, public insurance enrollment, health providers' scopes of practice, and children's coverage issues.

Prior to joining CHCF, Finocchio worked as a health policy and research consultant specializing in health services program design and development, particularly for uninsured children. He has worked as associate director at the Institute for Health Policy Solutions in San Mateo, California; as a principal policy associate at Children Now in Oakland, California; and as associate director for state programs at the University of California, San Francisco's Center for the Health Professions.

Finocchio received a doctor of public health, with a concentration in health policy, from the University of Michigan, Ann Arbor, and a master's degree in public health from the University of California, Los Angeles. He received a bachelor's in psychology from the University of California, Davis.

Shelly Gehshan, M.P.P.
Shelly Gehshan, M.P.P. was chosen in 2008 to lead the new Children's Dental Health Initiative at the Pew Center on the States in Washington, DC. She has nearly 20 years of experience working for state policymakers on issues affecting low income women and children. She served as a senior program director for three years at the National Academy for State Health Policy,and as a program director at the National Conference of State Legislatures for nearly nine years. From 2002 to 2008, Ms. Gehshan has served as the vice-chair of the board of directors for the Children's Dental Health Project, a Washington, DC-based group that supports state and local oral health programs for children.

Ms. Gehshan is considered an unbiased source of information for policymakers on sensitive health topics, such as oral health workforce. She has published extensively on oral health topics, including reports on improving access to dental care in Medicaid, racial disparities in oral health, dental workforce issues and community water fluoridation. In 2002, she completed a study for RWJ called "Access to Dental Care for Low Income People: Barriers and Opportunities for the

Robert Wood Johnson Foundation," which has been widely read and quoted. In 2004, she was chosen by the American Dental Association to address their House of Delegates meeting in Orlando, Florida on access issues. In 2006, she was chosen to attend the ADA Advocacy Summit at their headquarters in Chicago. Ms. Gehshan also serves on an Advisory Committee for the ADHA on the development of a new advanced dental hygiene practitioner. She recently assisted the Maternal and Child Health Bureau, Oral Health Policy Center on a project to imporve oral health and school readiness.

Prior to joining NCSL, she served for 6 years as the Deputy Director of the Southern Governors' Infant Mortality Project. She has published and spoken extensively on oral health, health care financing, perinatal substance abuse, and maternal and child health issues. She has a Bachelor's Degree in English from Cornell University and a Masters in Public Policy from the University of California at Berkeley.

Elizabeth Mertz, M.A.
Elizabeth Mertz, M.A. is a program director at the Center for the Health Professions, University of California, San Francisco. As an active part of one of the nation's leading academic health centers, the Center focuses its efforts on understanding the challenges faced by the health care workforce and developing programs and resources that assist in making successful transitions within the emergent health care system. Since joining the Center in 1997, Mertz has researched and published on a broad range of health professions workforce policy and analysis issues, as well managed and taught in a number of leadership training and development courses for health care professionals. She is currently the director of the UCSF Pharmacy Leadership Institute and the principal investigator on a health care workforce research project exploring new care delivery models. She holds a Bachelor's degree from the University of Southern California, a Master's degree from the Humphrey Institute of Public Affairs at the University of Minnesota, and is currently working toward her Ph.D. in Medical Sociology at UCSF.

APPENDIX C

Speakers and Moderators

Craig W. Amundson
HealthPartners

James D. Bader
University of North Carolina

Howard L. Bailit
University of Connecticut

Ruth Ballweg
MEDEX Northwest, University of Washington

Ann Battrell
American Dental Hygienists' Association

Patrick Blahut
Indian Health Service, Division of Oral Health

Marcia Brand
Health Resources and Services Administration

Colleen M. Brickle
Normandale Community College; and
Metropolitan State University

Diane Brunson
University of Colorado, School of Dental Medicine

Lawrence B. Caplin
Oral Health Impact Project

Frank Catalanotto
University of Florida College of Dentistry

Gustav P. Chiarello
Federal Trade Commission

Amy D. Cober
Florida Department of Health

Representative Elijah E. Cummings (D-MD 7th)
U.S. House of Representatives

A. Conan Davis
Centers for Medicare and Medicaid Services

Daniel Derksen
University of New Mexico

Jack Dillenberg
Arizona School of Dentistry & Oral Health

Brian Dolan
University of California, San Francisco

Caroline Dorsen
New York University College of Nursing

Catherine Dower
Center for the Health Professions,
University of California, San Francisco

Burton L. Edelstein
Columbia University

Caswell A. Evans, Jr.
University of Illinois at Chicago, College of Dentistry

Len Finocchio
California HealthCare Foundation

Shelly Gehshan
Pew Center on the States

Paul Glassman
University of the Pacific School of Dentistry

Jane S. Grover
Center for Family Health; and
American Dental Association

Hazel J. Harper
National Dental Association

Michael J. Helgeson
Apple Tree Dental

Irene V. Hilton
San Francisco Department of Public Health

Tricia Leddy
Rhode Island Department of Health

Bruce Lesley
First Focus

David M. Krol
University of Toledo

Peter C. Knudson (R-UT 17th)
Utah State Senate

Russell Maier
Central Washington Family Medicine Residency; and
University of Washington School of Medicine

Elizabeth Mertz
Center for the Health Professions,
University of California, San Francisco

David A. Nash
University of Kentucky

Mary Otto
Street Sense

Francisco Ramos-Gomez
University of California, Los Angeles, School of Dentistry

Cathy J. Roberts
American Dental Assistants Association

Julie Satur
Melbourne Dental School, University of Melbourne

Michael Scandrett
Halleland Health Consulting - Minnesota Safety Net Coalition

Donna Shelley
New York University College of Dentistry

David Sundwall
Utah Department of Health

Richard W. Valachovic
American Dental Education Association

Jos van den Heuvel
Netherlands Institute for Health Services Research (NIVEL)

Donald L. Weaver
Health Resources and Services Administration

Wayne Wendling
American Dental Association

APPENDIX D

Workshop Participants

Stephen Abel
Nova Southeastern University

Folasyo Adunola
University of Maryland

Mert N. Aksu
University of Detroit Mercy

Nancy Alleman
University of Washington

Myron Allukian, Jr.
Massachusetts League on Community Health Centers and Lutheran Medical Center

Mary Altenberg
New Mexico Department of Health

Jay Anderson
Health Resources and Services Administration

Ellen Beaulieu
University of New England

Shirley Beaver
Kennedy-King College at UIC College of Dentistry

Peter Berthold
University of Minnesota

Lynn Bethel
Massachusetts Department if Public Health

Diann Bomkamp
American Dental Hygienists' Association

C. Yolanda Bonta
Hispanic Dental Association

Meg Booth
Children's Dental Health Project

Susan Bordenave-Bishop
Peoria City County Health Department

David Born
University of Minnesota School of Dentistry

Carolyn Brown
The Native American Health Center

Marguerite Buehner
University of Detroit Mercy

Miriam Cabezas
Health Resources and Services Administration

Carol Caiazzo
Maryland Dental Hygienists' Association

Emil Chuck
George Mason University

D. Walter Cohen
Drexel University

Lois Cohen
National Institutes of Health

Amos Deinard
University of Minnesota

Peter DuBois
California Dental Association

Roy S. Feldman
VA Medical Center Philadelphia

Patrick Ferrillo
University of the Pacific, Arthur A Dugoni School of Dentistry

Allen Finkelstein
AmeriChoice

Megan Fitzpatrick
American Dental Hygienists' Association

Christopher Fox
International Association for Dental Research

Ralph Fuccillo
Oral Health Foundation

Raul Garcia
Boston University School of Dental Medicine

Tracy Garland
Tracy Garland Consulting

Gregg Gilbert
University of Alabama at Birmingham

Raymond Gist
American Dental Association

Ruth Glisson

Michelle Goodman
Health Resources and Services Administration

Nancy Gralla
Children's Dental Health Project

Carolyn Gray
Gray Consulting, Inc.

Albert Guay
American Dental Association

James Haner
Health Services and Resources Administration

Maureen Harrington
University of the Pacific, Arthur A. Dugoni School of Dentistry

Kathy Hayes
National Institutes of Health

Allen Hindin
United Cerebral Palsy of Putnam & Dutchess Counties

Alice Horowitz
University of Maryland School of Public Health

Jeanne Huber
Ohio Dental Hygienists' Association

Robert Johns
National Dental Association

Ayah Johnson
Health Resources and Services Administration

Donna E. Johnson
Massachusetts Department of Public Health

Newell Johnson
Griffith University

Renee Joskow
U.S. Public Health Service Commissioned Corps

Jerald Katzoff

Ishmeet Kaur
George Mason University

Lisa Kavanaugh

Kim Kimminau
University of Kansas Medical Center

Dushanka Kleinman
University of Maryland School of Public Health

Richard Klich
United Concordia

Rodney Klima
American Dental Association

William Kohn
Centers for Disease Control and Prevention

Janice Kupiec
American Dental Association

Raymond Kuthy
University of Iowa College of Dentistry

Lewis Lampiris
American Dental Association

Richard Lee
Health Resources and Services Administration

Deborah Lefevers
Catawba Valley Community Center

Janet Leigh
Louisiana State University

Patrick Lloyd
University of Minnesota School of Dentistry

Therese Long
OSAP

Jack Luomanen
Community Clinic/Public Oral Health Consultant

John Luther
American Dental Association

William Maas
Pew Charitable Trusts

Nicholas Makrides
Federal Bureau of Prisons

Daniel Mareck
Health Resources and Services Administration

Donald Marianos
Association of State and Territorial Dental Directors

Sandra Maurizio
Southern Illinois University

Kimberly McFarland
University of Nebraska Medical Center

Monette McKinnon
American Dental Education Association

Chris Miller
University of Pacific, Arthur A. Dugoni School of Dentistry

Vinod Miriyala
University of Detroit Mercy

Anne Missig-Henry
Ohio Dental Hygienists' Association

Mahyar Mofidi
Health Resources and Services Administration

Michael Monopoli
Delta Dental of MA

Mark Nehring
Health Resources and Services Administration

Linda Niessen
DENTSPLY International

Laurie Norris
Public Justice Center

Diane Oaks
Washington Dental Service Foundation

Biyi Ogunjimi
Oral Health Foundation

John O'Keefe
Canadian Dental Association

Kathleen O'Loughlin
United Health/OptumHealth

Darlene O'Neill
Institute for Oral Health

Erica Pearson
Health Resources and Services Administration

Forrest Peebles

Kyle Peplinski
Health Resources and Services Administration

Connie Preiser
Catawba Valley Community College and NCDHA

William Prentice
American Dental Association

Lindsey Robinson
American Dental Association

Elizabeth Rogers
Oral Health America

Jon Roth
CDA Foundation

Margaret Scarlett
SCI

Colleen Schmidt
American Dental Hygienists' Association

James Schmidt
Maine Dental Association

Brian Scott
California Dental Association

Karen Sealander
American Dental Hygienists' Association

Adriana Segura
University of Texas Health Science Center at San Antonio

Robert Sewell
Department of Health & Social Services- State of Alaska

Mark Siegal
Ohio Department of Health

Lilly Smetana
Health Resources and Services Administration

Elizabeth Snow
California Dental Association

Margaret Snow
Association of State and Territorial Dental Directors

Andrew Snyder
Pew Charitable Trusts

Sally Sutton
University of Southern Maine

Jane E. M. Steffensen
University of Texas Health Science Center at San Antonio

Huw Thomas
University of Alabama at Birmingham

Ronald Tankersley
American Dental Association

Frank Torrisi
Drexel University Family Health Services

Scott Tomar
American Association of Public Health Dentistry

Beth Truett
Oral Health America

Sylvia Trent-Adams
Health Resources and Services Administration

Timothy Ward
Department of Veteran Affairs

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Appendix E

Submitted Comments and Questions

For several panels of the workshop, participants were asked to submit cards with questions or comments for the panelists. Moderators chose among these questions and comments to stimulate discussion regarding recurring themes and specific questions. Not all comments or questions could be addressed during the discussion period. Therefore, the questions and comments in this section represent a larger sampling of those submitted by workshop participants.

Panel on Current Oral Health Needs and the Status of Access to Care

1. How can we recruit more Hispanics and African-Americans into dental schools? Is the pool of applicants the same or has it increased? If so, why do we not have more under-represented minority students in our schools at this time?
2. What are the current and expected debt loads for graduating dentists? What is the future projection for this? What is debt doing to career decisions?
3. How do you define "productivity" or "professionally active?"
4. What percentage of practicing hygienists belongs to ADHA?
5. How many future ADHP candidates do you expect?
6. Can we ethically accept "public health supervision" while still demanding direct or general supervision in private?
7. What do studies say about the numbers of dentists in the workforce and access to care for the underserved?
8. What is the impact of more women as dentists on the dental workforce of the future? Will they work longer or more collaboratively to share practices or will there be other models as a result of there being more women in the dental workforce?
9. What is the potential impact of the accreditation of foreign dental schools upon the dental workforce in the U.S.?
10. If the Colorado experience with independent dental hygiene is showing constraints with funding and capitalization, then how will creating a higher level hygienist with a more costly education and demanding higher wages facilitate greater access to care?
11. How effective has direct access been at increasing access to dental hygiene services and at getting people to have access to comprehensive care? What is the evidence base?
12. How many independent practices of dental hygiene are in operation in Colorado/Denver?
13. Explain the financing of Apple Tree. What is the funding source(s)? What role does Medicaid play? Who makes your portable dental equipment?
14. How would you address workforce requirements to deal with the major determinants of oral disease, namely lifestyle and socio-environmental influences? Who will ensure healthy public policy regarding prevention that obviates the need to treatment services?
15. What can be done now to take models like Appletree to scale nationally?

16. How many nursing home residents do not have a responsible party which is a family member and subsequently a state agency makes care decisions? How much longer does it take for them to receive dental care?
17. How safe is the dental loan repayment fund in the current economy?
18. Is the placement of unsupervised dental hygienists into primary care medical practices consistent with Colorado's state dental practice act? If yes, how did you do that?
19. Nationally, while the number of rural applicants to health profession programs has remained stable, the number accepted (for example, medical school) has decreased. How has Colorado been able to prioritize and prepare rural health professions applicants?
20. How has the independent practice of dental hygiene in Colorado (for the past 14 years) increased access to care for the underserved elderly? Any data?
21. What is a reasonable distance for someone in a rural area to have to drive to the dentist?
22. Please define "remote populations."
23. Whose role in the workforce is the responsibility of converting unmet oral health needs to effective demand for services?
24. What is the vacancy rate in the Indian Health Service (IHS)? For dentists? For dental hygienists? Skilled assistants? Is there funding to hire willing dentists?
25. Many tribal governments are choosing their own dentists. How does that impact Indian Health Service plans for the future? Is it true that IHS uniforms are a barrier since this has a negative connotation for those populations?
26. Who applies the majority of the sealants in the IHS clinics?
27. Is teledentistry used in the IHS?
28. Are family medicine physicians more or less accepting of medicine's role in primary caries prevention than pediatricians?
29. How is the National Dental Association working with the National Medical Association?
30. What should follow if the Kellogg/CTI study of the ANTHC/DHAT (therapist) shows highly positive clinical and behavioral outcomes?
31. How is dental training and education changing to meet population needs? In 1995, the IOM identified the need to change an outdated curriculum – what has happened?
32. Preventive oral health care needs to meet people where they are at and provide for their needs with integrity, empathy, and respect.
33. I'm on the Board of the ADA. Why do you choose not to comment on our activities or sensitivities?
34. The discussions so far have involved dental schools, medical schools, and dental hygiene programs. There has been no mention of schools of public health.
35. There is a growing tendency to put Medicaid dentistry into managed care, but there is difficulty getting data about these patients from the managed care companies – is this a potential policy issue as these data are critical in evaluating these approaches?
36. State dental practice acts impede innovation in developing new models of care delivery.
37.

Panels on Current Demographics and Future Trends of the Oral Health Workforce

1. Is the data presented based only on ADA member dentists? What percentage of practicing dentists are ADA members?

2. What percentage of dentists participated in this survey? Where these only members of the ADA or all dentists?
3. What constitutes "charitable care?" Is this care comprehensive?
4. Does "Healthy Kids" reimburse non-dentist providers such as dental hygienists, physicians, and nurse practitioners?
5. Based on hours per week already worked among practicing dentists, how is it likely that 82+ million of the American underserved can be cared for in a comprehensive manner?
6. "Boomers" are reaching retirement – many with little savings – and will depend on Medicare for their medical care. How will oral health needs be provided and funded?
7. Does the ADA data distinguish between "charitable" care and "bad debt?"
8. If dentists want to keep restorative procedures for their own activities, why not expand dental hygiene services to include more periodontal procedures?
9. What is the evidence base and strength of that evidence regarding documentation of the charitable service by dentists?
10. What barriers currently exist to prevent nurse practitioners from applying fluoride varnish in states where they are allowed to (and are paid for)?
11. If the medical home is comprehensive, why do we need a dental home?
12. Why expanded function dental assistants but no expanded function dental hygienists?
13. The ADA proposes expanding functions for dental assistants – do they also propose expanding functions for dental hygienists?
14. Regardless of the addition of other health care providers, how can the production of new dentists ever hope to meet the populations' challenge into the future?
15. The solo dental practice seems like the most expensive, cost-ineffective business model imaginable. Also, has pro bono care increased or decreased from ten years ago?
16. About 35 state Medicaid programs reimburse physicians. What about private insurers?
17. Regarding American Academy of Pediatrics joint projects: where and when will you collaborate with nurses and dental hygienists?
18. Do state AAP chapters get involved with policy debates on children's overall health? Specifically, do they take a stand on dental workforce? Medicaid reimbursement?
19. The dental practice acts could be changed to allow dental hygienists to work for pediatricians. They have already been tested for their dental skills and ability to educate parents on homecare and prevention.
20. Hygienists should be able to work for primary care physicians and pediatricians. Why shouldn't they be able to work in these alternate practice settings?
21. What percentage of family physicians take Medicaid reimbursement?
22. What are the reasons for dropout from hygiene school?
23. Why not encourage the development of dental therapy programs if there are too many dental hygiene programs? Flooding the market with hygienists is not socially responsible.
24. From all the oral health curricula available, what is the consensus of which one is evidence-based and recommended? There are so many of them and all are different.
25. To facilitate medical and dental integration, should we call caries "strep tooth?"
26. Bottom-up change occurs much more quickly since these are the individuals who are directly integrated with the target population – they have first hand knowledge of the needs. Top-down change occurs much more slowly because these individuals are disconnected from the target population. Integration of the medical and dental workforces would allow oral health providers to work alongside other health care providers.

27. One group of professionals that have not been mentioned as partners in this effort are non-clinical public health professionals or health promotion specialists. Another group is the licensed social workers. There are many more groups with which to collaborate.
28. Physical diagnosis instruction during medical school is an appropriate time to teach oral anatomy as students are taking a tongue blade and looking into the oral cavity.
29. The term "medical model" is out of date and implies a treatment approach instead of a preventive public health approach (such as addressing all determinants of public health.)
30. Terminology such as "unsupervised," "auxiliary," and "mid-level practitioner" needs to be modernized.
31. If dental assistants want equal pay as dental hygienists, shouldn't they have equal education requirements?
32. Rather than having to train "non-dental" providers to provide dental assessments and fluoride treatments, wouldn't it make more sense to put dental hygienists to work with pediatric and geriatric offices to provide preventive care rather than training al already-busy nurse or doctor to handle this? This would add to medical-dental integration and coordination as well as provide employment for the glut of dental hygienists that is forecast.
33. This workshop has focused on a range of clinical practitioners, but has completely omitted the public health model and dental public health workforce.
34. It is surprising to me that no updated supply requirements modeling or analysis of the oral health workforce was presented. Has this type of modeling and analysis been ongoing? Who is doing this? What are the results?
35. What is the impact of degree inflation on the cost of health care? (Example – Doctorate of Nursing Practice)

Panel on Current Delivery Systems

1. Why do you not mention empty chair time (use of) as a way to make Medicaid work for the private dentists?
2. The current evidence is that the "dentist-based" delivery system does not work (i.e., so many people can't access care.) On that basis, why should we continue the current system, or why not test other models?
3. What percent of the underserved population is being treated and served by community health centers? How many adults? How many children?
4. Why are there so few hygienists working in public health centers?
5. What are the "vacancy rates" for dental workforce at the community health centers? What are the best ways to address this?
6. What would it take to change the law to ensure that community health centers provide comprehensive oral health care (prevention, treatment, emergency) for all children, adults, and elders?
7. Do HRSA dental clinics operate under state dental practice acts, or are they considered Federal programs?
8. How can tax dollars be spent on an agency that refuses to release data showing utilization and outcomes?
9. How about training general dentists how to deal with the screaming 1-2 year olds?
10. To what extent will the economic downturn serve to drive new dentists away from private practice and towards salaried services?

11. What has been the impact of rising educational debt on dentists' career choices?
12. For Medicaid management companies, any thoughts on quality of care? There's been many TV "on the spot" exposures of these clinics' use of papoose boards, etc.
13. Please discuss intergovernmental transfers (IGT). Is there is a model that has been working whereby the county sends money to the state, which sends money to a contractor nonprofit provider with Federal match. The IGT improves funding for indigent care.
14. What evidence supports various models for delivery of care that assess quality of care rather than who delivers those models? And who pays? What do we know/don't know?
15. By way of promoting the development of a national prevention workforce, how do we unify the disciplines around training, funding, and program implementation of prevention practice that engages patients and communities?
16. Is there agreement on outcomes for oral health populations, especially those who are economically disadvantaged? What are those outcomes? How are they same/different from other paying populations?
17. Community health center physicians provide a significant amount of medical care to Medicaid recipients. Is there a mechanism to mandate that they provide oral health preventive services to these children in those states which allow such reimbursement?
18. What is HRSA doing to assist community health centers to provide optimal services?
19. How can the reported average hours per week be related to demand when there are low-income patients who report that they can't find a dentist willing to treat them?

Panel on the International Experience

1. Regarding dental therapists in Australia: For those students requiring the services of a dentist, how is that referral done and who has the responsibility to follow up?
2. In the New Zealand model, what happens to young adults after graduation in terms of dental utilization and health care outcomes?
3. Since permanent teeth come in well before kids leave school, why can't dental therapists care for adults?
4. If dental therapists were so effective, why are they not placing them as dental hygienists? Can you elaborate on the political issues that influenced that move?
5. Which state shows the most promise in starting a pilot program for dental therapists?
6. Regarding Netherlands, what preventive services will the preventive dental assistants be able to perform? Why has the dental program has been increased to six years?
7. Are there any anticipated difficulties for dental professionals trained outside the U.S. to help fill gaps in workforce or in education? How quickly can we use international "experts" in oral health to practice in the U.S. or pursue a U.S.-based DMD/DDS degree?
8. What is the role of sugared soda pop in the dietary pattern of Australian schoolchildren? Is it present in the elementary schools?
9. In the U.S., there really are no 2-year dental hygiene programs; all have one year of prerequisites. Is that the same for the dental therapy programs?
10. How difficult is it to develop dental therapy programs in high school? Will there be any issues for payment of dental therapists through school systems given the disparate/disproportionate funding of schools?

11. The average "2-year" dental hygiene program is not 2 years – the average hours of an associate degree now is 90 hours. Community colleges are not allowed to offer any degree higher than an associate degree – even 90 hours is pushing it in credit hours and length. Dental hygiene hours, with 90 hours being the average, is only 30 hours away from a bachelor's degree in the U.S.
12. What is the cost of educating dental therapists (2-year program)?
13. How can we reduce opposition to dental therapists in the U.S.? Educate them with dentists? Pay dentists more than therapists? Other ideas?
14. Is there any evidence that dental therapists have adversely impacted the economic well-being of dentists?
15. The international data seem quite clear about the cost effectiveness and safety and efficacy of pediatric dental therapists. Do you know of any states in the U.S. who are considering implementation of this model of care?
16. The New Zealand dental therapist – once registered has complete portability (licensure is accepted in every state). Twenty-five years ago it was determined that lack of license portability would be one of the largest hindrances to access and the workforce. Why do we still employ states rights to scope and portability in the United States?
17. What would it take to implement pilot projects now in the U.S. to educate dental therapists in the New Zealand model?
18. Denturism was a "hot topic" in the 1970s-1990s. No mention was made about them in any of today's presentations. With the burgeoning "baby boomer" cohort entering into retirement age, will this resurface as a workforce issue within the next decade especially as most seniors will lose their dental insurance when they retire?
19. New Zealand is not a model to test any longer but is a proven, viable workforce example that should be copied and implemented.

Panels on Workforce Strategies

1. For OHIP, can you give us an idea of numbers – how long ago did Philadelphia start this? Any students that have actually gone into dentistry, dental hygiene, dental assisting?
2. How is Resilient Public Healthcare funded?
3. For OHIP, how do you address the time the child is away from their studies while they are being treated?
4. How can we develop a dual strategy to address both perinatal and infant oral health?
5. Have you done a cost/benefit analysis of the pediatric oral health educator?
6. You cite the diabetes educator as a model for the pediatric oral health educator. How successful are diabetes educators in the management of diabetes mellitus?
7. Why subsume the pediatric oral health educator under the role of dental therapist? Isn't that what the dental health aide therapist (DHAT) is all about?
8. Do you think the Health Commons approach could survive financially in a non-federally qualified health center? (e.g., private practice, academic practice)
9. All of the models presented today except one require additional education
10. For the DHAT, community dental health coordinator (CDHC), and oral health practitioner (OHP), who will pay for the training and education of students? What are those costs? What is the estimated school debt on graduation?

11. What is the status of drinkable, fluoridated water in the villages of Alaska?
12. What were the specifics of "political" pressures which affected the University of Washington Dental School participation in the DHAT program?
13. How does the scope of practice for the proposed OHP in Minnesota compare to dental therapists or the Australian oral health practitioner?
14. Why did Minnesota opt for an OHP as opposed to a dental therapist?
15. How will we know if these models are "successful" in terms of population outcomes?
16. Can an out-of-state or foreign-trained dentist credential in as an OHP in Minnesota?
17. Regarding evaluation of the OHP, is your institution's Human Research Committee reviewing and approving the project?
18. How does a CDHC address access in areas where there is a significant shortage of providers?
19. In Boise, ID, there are only 2 dentists who will accept new Medicaid patients. How would CDHCs refer those they have examined?
20. Who will hire CDHCs – private dentists, public programs, community health centers? And what are their incentives/motivations to hire?
21. What collaborative partners were involved in the development of the OHP and CDHC?
22. Please define remote supervision.
23. How can a CDHC work with remote supervision when many hygienists can't?
24. Would the CDHC be licensed? Would the CDHC provide irreversible procedures under remote supervision?
25. Why have the dentist (the provider in shortage) supervise the CDHC?
26. Can the CDHC be linked to multiple dentists? To pediatricians?
27. Why can't we incorporate the CDHC as a part of the dental hygiene curriculum?
28. Why if all other models are moving toward a higher degree of learning does the CDHC model have less education?
29. Has the Commission on Dental Accreditation established a way for the CDHC programs to become accredited? Has the ADA requested that CODA investigate this?
30. How would the work of the CDHC be funded and paid for?
31. How will the CDHC be evaluated in terms of an independent evidence-based evaluation? What data base(s) will serve as the "control" or "comparison" experience?
32. How will pilot testing of CDHCs be carried out given state practice act restrictions that limit the provision of many of the clinical skills included in the CDHC curriculum to licensed oral health care providers?
33. How is it possible that someone who only has a high school diploma can place temporary fillings and do assessments in the remote field when a licensed, college-educated dental hygienist is prevented from doing that now?
34. Public health dental hygienists and public health dental assistants are already doing the work described for the CDHC. Why reinvent the wheel?
35. If a dentist cannot change the behavior of a patient to prevent recurring decay one year after restorations are completed, how will a CDHC? What will they know or what special skills will they have that their supervising dentist does not have?
36. Why doesn't the ADA support testing the dental hygienist and dental therapist models?
37. Why are demonstration projects utilizing dental therapists in particular so highly resisted by organized dentistry and dental schools in America despite the evidence of benefit?

38. Are you recommending a second tier of services for the poor and/or underserved? Why is it that we are focused on the access to care solution by recommending dental providers that have fewer qualifications for the high risk populations with huge amounts of disease?
39. Does the supervisory dentist share malpractice liability?
40. Does Medicaid reimburse the OHP?
41. Do the Alaskan DHATs also treat adults?
42. How can we develop a license qualification for foreign-trained dentists who are not able to provide dental services?