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2011

focus group whitepaper

Oral Health and Prevention

Rebranding the Profession



2011 group #2

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Table of Contents

Introduction.....	2
Panel Presentations:	
V. Kim Kutsch, DMD	4
<i>Saliva Diagnostics</i>	
David Wong, DMD, DMSc	7
<i>Saliva: The New Diagnostic Frontier</i>	
Jessica Y. Lee, DDS, MPH, PhD	9
<i>The Effects of Early Preventive Visits on Use, Costs and Oral Health Status</i>	
Courtney Chinn, DDS, MPH	12
<i>mySmileBuddy: Bio-behavioral Disease Management of Young Minority Children</i>	
Lewis Lampiris, DDS, MPH	15
<i>Prevention and the ADA</i>	

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Introduction

“A common misperception among community health workers [and the public] is that childhood caries is not a problem. They often say, ‘We have a community dental clinic; if we have an emergency, we send kids to you and you see them the same day. As long we get kids to the services they need, that solves the problem, right?’ They don’t understand how important it is to prevent the problem in the first place.”

--Dr. Courtney Chinn

In looking at where disease prevention is in the overall oral health picture, in 2011 the Institute for Oral Health (IOH) is exploring how to “rebrand” the dental profession. During the 1960’s and 70’s, dental care was largely focused on prevention through fluoride use, and has “ridden that wave” for a number of decades. Yet we have come a long way since then, with new dental research and progressive solutions underway across the country that are having a significant impact on dental disease prevention. This year, the IOH is spotlighting some of the best of these efforts and how the dental profession can incorporate new approaches to prevention into everyday dental practice as we look toward the future.

To support our 2011 theme **“Oral Health and Prevention: Rebranding the Profession,”** in March, the IOH hosted the second of two focus groups with expert panel discussions about solutions at the forefront of innovation in health care, aimed to advance how we think about and address dental disease prevention. In follow-up, the IOH will feature special guest speakers to share key findings with a larger audience of critical stakeholders through our annual national conference, to be held October 27-28, 2011 in Chicago, Illinois.

Hosted in San Diego, California on March 10-11, 2011, this focus group was led by IOH Executive Director, Dr. Ron Inge, and featured leading authorities in dentistry and dental research, community oral health programs, and the American Dental Association to discuss innovative approaches to disease prevention to improve oral health for high-risk, underserved populations. The group shared insights on the following key topics:

- **Advancing saliva diagnostics for caries risk assessment** – Increasingly, dental research is pointing to saliva diagnostics as a quick, easy, and accurate method for identifying the oral bacteria that causes caries. While currently results can be used to identify problems and guide treatment decisions, the challenge remains to build scientific evidence on the predictive value of saliva in determining caries risk.
- **Promoting early preventive visits to improve outcomes and costs** – When children receive their first preventive dental services by age one, studies show that the cost of dental care in subsequent years is reduced 50% or more compared with children who have no preventive visits until age three or older. Additionally, preventive care and oral health counseling at an early age helps reduce the number of procedures required and increases continued usage of dental services to prevent early childhood caries.
- **Reducing childhood caries risk by engaging families in behavioral changes** – To improve oral health in low-income, minority children, it is important to recognize the many factors beyond economics –such as societal, social, community, and cultural—that influence how a family attends to health issues. We need to provide supportive, engaging ways to counsel parents about oral health and healthy behaviors that help prevent tooth decay in their children.

- **Increasing prevention awareness through the ADA** – As the nation’s foremost advocate for oral health, the ADA works diligently in the arena of disease prevention such as establishing policies, programs, and public awareness campaigns to advance caries risk assessment and preventive dental care. The ADA also promotes clinical recommendations for evidence-based dentistry, and provides leadership for progressive collaboration across stakeholders for high-risk populations.

Join us for the 2011 Institute for Oral Health Conference

In follow-up to this year’s focus groups, Institute for Oral Health is providing whitepapers and promoting relevant news and research through our website, quarterly newsletters, Facebook, and participation at health conferences around the nation. Culminating this year’s theme is our **5th annual national IOH conference on October 27-28, 2011 in Chicago, Illinois** at the Sofitel Hotel. Learn more and register early for discount rates ~ please visit: IOHWA.ORG.

About the Institute for Oral Health

The Institute for Oral Health is dedicated to improving oral health in America by bridging the gap between research and everyday dental practice. Serving as a central resource for education and collaboration, IOH brings together nationally recognized experts to focus on important themes of concern in oral health care today, and works to promote innovation and adoption of progressive treatment guidelines, dental plans, and delivery methods.

learn more

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Panel Presentations

V. Kim Kutsch, DMD

Practicing Dentist; Board Member, World Clinical Laser Institute; CEO Oral Biotech Companies

Saliva Diagnostics

In private practice for several decades and a consultant for numerous oral biotech firms, Dr. Kim Kutsch has focused heavily on caries risk assessment as a lever for advancing disease prevention. In particular, beyond disease management, his approach centers on diagnosing disease before patients exhibit symptoms, and ways to prevent disease entirely.

Rethinking the Bacteria Model for Caries

For this Institute for Oral Health focus group discussion, Dr. Kutsch explained how dental caries research and the biofilm disease model have advanced in how they identify and interpret the key pathogens that contribute to the development of caries. As a prevention strategy, tracking all bacterial contributors is key to understanding the most effective therapeutic measures.

In recent years, a number of compelling studies are helping to advance our understanding of the cellular factors that drive caries development:

- **Specific caries-related bacteria in older adults** – A September 2010 study of older adults in which salivary Bifidobacteria was targeted as the only pathogen significantly associated with caries.
- **New bacterial strain discovered in children** – A February 2011 study of bacteria contributing to severe early childhood caries identified a new strain of acidic bacteria (*Scandovia wiggisiae*) closely associated with *Streptococcus* that should be tracked as an important disease factor in children.
- **DNA testing reveals new levels of bacteria in the 1,000s** – 2008 study used DNA sequencing to track how bacteria in the mouth replicates on an even more granular level. As a result, the previous understanding of 700-800 bacterial strains skyrocketed to 19,000 when viewed from this perspective.

“Bacteria research is reaching the CSI stage: in the near future, investigators will be identifying perpetrators based on oral bacteria they left behind at the scene of a crime as it is more accurate and more distinctive than a fingerprint.”

– Dr. Kim Kutsch

Dr. Kutsch emphasized that, with these new findings, our previous idea that about 30-40 pathogens drive caries development should now be multiplied exponentially to consider about 600-800 pathogens. Herein lies one of the greatest challenges because as a multi-pathogen disease, we cannot invent a single vaccine to inhibit or prevent caries –biofilm diseases will not respond to it.

- **Taste gene influences caries risk** – A November 2010 study emphasized that a “supertaster” gene, TAS2R38, which influences our sense of bitter and sweet, is particularly strong in children and is significantly associated with caries in primary teeth. The speculation is that these genetic factors play a role in how children select which foods they will eat, avoiding things like bitter vegetables and favoring sweets –which has a direct influence on tooth decay. The sensitivity of this gene decreases with age and our tastebuds evolve, and as a result, the gene appears not to contribute to caries in permanent teeth.
- **Low pH levels contribute to caries** –1989 and 2006 studies tracked how the biofilm that produces dental caries responded to various levels of pH, concluding that it was “the low pH generated from sugar metabolism rather than sugar availability that led to the breakdown of microbial homeostasis in dental plaque.” A follow-up study in 2009 looked at strategies for maintaining neutral pH to help prevent caries development, including oral care products to inhibit acid production; nonfermentable sweeteners in snacks; and stimulation of saliva flow.

The hydroxyapatite chemistry (pH) in our saliva plays a vital role in how our teeth develop and our susceptibility to tooth decay. As Dr. Kutsch explained, *“The body maintains these super-calcified structures [our teeth] by continually bathing them in a super-saturated pH solution [saliva].”* One reason many seniors experience an increase in tooth decay is the mineral loss from having too little saliva, due to medications causing xerostomia. Another challenge is the American diet of foods made with high fructose corn syrup, which fuels biofilm disease.

Dr. Kutsch noted that, in a “healthy mouth” if one has adequate saliva, about 15-30 minutes after eating something like a sweet pastry, the pH in the mouth returns to neutral. While the biofilm on the teeth remains, this balanced pH helps to inhibit decay. He added that, in fact, it is not so much what we eat, but how frequently we eat that creates a problem. He gave the example of eating a chocolate bar in one sitting vs. nibbling on pieces periodically every 15-30 minutes. This frequent intake makes it difficult for the pH levels to rebalance and continually impacts the biofilm on the teeth. With less frequent eating, we can return to a neutral pH level that helps remineralize the teeth, to counter the demineralization caused by the biofilm.

Salivary Diagnostics as a Risk Assessment Tool

“Saliva is a complex liquid with numerous components and functions. It offers the opportunity to measure biometrics as they relate to disease risk,” notes Dr. Kutsch. Research has shown that nearly 40% of disease markers for cancer, cardiovascular disease, and stroke can be found in saliva, so it represents a valuable target for risk assessment. Furthermore, as a diagnostic tool, it is convenient and non-invasive: readily available, easily collected, and easily stored and processed.

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“40% of disease markers are found in saliva.”

– Dr. Kim Kutsch

For nearly 20 years, commercial kits have been available for gathering saliva samples to gauge caries risk; and although none have “high predictive value,” they help to explain changes in caries activity and drive treatment strategies for improving disease prevention. In fact, a 2005 study emphasized that saliva tests are routinely used in determining caries risk, yet conceded that additional research is needed to verify the “true clinical value” of saliva as a “diagnostic fluid” in dentistry.

One problem is the time factor. Lab results often take several days, which is not practical for clinicians. Dentists need immediate answers to support them chair-side with patients. While a variety of commercial applications exist for testing saliva, none of them can yet deliver data that can definitively tie saliva results with caries risk, from a predictive standpoint. As such, Dr. Kutsch and many dental researchers are exploring ways to map salivary pH levels to dental caries to enable dentists to predict disease risk. pH level is quick and easy to test with refined accuracy, so the goal remains to tie it directly to caries incidence for predictive value.

Dentists are now taking advantage of a commercial tool that tracks bacterial activity by monitoring ATP bioluminescence in saliva. The digital readout provides highly accurate ATP levels which are representative of biofilm activity and can be used to establish baselines for patients in determining caries risk. Along those lines, a June 2010 study confirmed that measuring ATP to track levels of bacteria in saliva could serve as a valuable risk assessment tool for caries risk, especially in children.

Looking ahead, Dr. Kutsch emphasized that biomarkers in saliva are already routinely used for diagnostics in major systemic diseases such as cardiovascular disease and stroke, as well as in monitoring responses to breast cancer treatment. The future of salivary diagnostics looks promising for dentistry as well. As studies and chair-side tests advance to strengthen the predictive capabilities, clinicians will be able to more quickly and easily diagnose caries risk, and implement treatment strategies that prevent disease before it happens.

David Wong, DMD, DMSc

Associate Dean of Research, Fillex & Mildred Yip Endowed Professor of Oral Biology, Oral Biology & Medicine, and Director of Dental Research Institute at UCLA School of Dentistry

Saliva: The New Diagnostic Frontier

For the March 2011 Institute for Oral Health focus group, Dr. David Wong brought additional perspectives on the potential of saliva diagnostics as an oral disease prevention tool. He discussed emerging technologies that could enable effective point-of-care diagnostics, and how these diagnostics might translate into improving health outcomes and advancing prevention in oral and systemic diseases. Dr. Wong noted that a current goal set by National Institute of Health is that “by 2013, to determine the efficacy of using salivary diagnostics to monitor health and diagnose at least one systemic disease,” which as a national mandate is a reflection of the growing importance of this technology.

The Role of Salivary Diagnostics in Disease Detection

While research and technologies are advancing for salivary diagnostics, Dr. Wong focused his discussion not on the tools themselves but on how well they are meeting real-time clinical needs in terms of risk assessment and predictive value for disease prevention and early intervention. He highlighted some key examples of how salivary diagnostics could change the face of disease detection:

■ **Oral cancer** – Our nation has 34,000 new cases annually, with a five-year survival rate of less than 50%, a statistic that has not changed in 30 years. A primary problem has been the lack of early screening technologies. The emerging salivary diagnostic tools enable researchers to identify oral cancer biomarkers in saliva, and prioritize their impact on survival rates. Dr. Wong’s UCLA Lab has achieved notable results which help to strengthen the credibility of saliva as a determining factor influencing oral and systemic health.

“In many cases, had Stage 4 oral cancer been detected at Stage 1, it would immediately confer on the patient a 60% increase in survival in five years, immense improvement in quality of life, and a significant reduction in health care costs.”

– Dr. David Wong

■ **Pancreatic cancer** – The National Cancer Institute estimates 30,000 new cases each year and 30,000 deaths per year from pancreatic cancer. Since the 1950’s, the five-year survival rate has remained severely low at about 5%. More than any other cancer, for this disease we are seeing “a soaring need” for advancements in early detection.

A 2010 study by Dr. Wong and his colleagues demonstrated the “predictive power of salivary mRNA biomarkers” for use in detecting pancreatic cancer. In testing with animal models, researchers discovered that when an animal developed a cancerous tumor, there were “robust biomarker changes” in their saliva.

Dr. Wong’s UCLA Lab hosts the Salivaomics Knowledge Base, a user-friendly web-based database of salivary diagnostic research and downloadable data.

Visit: www.skb.ucla.edu

To advance these diagnostics for practical clinical use, Dr. Wong and his associates have developed an innovative chair-side or point-of-care technology prototype that is an “electrochemical sensor for multiplex biomarkers detection.” The device, currently six months away from being manufacturable, delivers in 10 minutes an algorithm for salivary biomarker disease detection.

Engaging Dentists in Medical Disease Detection

Although we often hear about lack of access to dental care and large populations with poor oral health, statistically 72% of Americans see a dentist regularly, while only 43% visit physicians regularly. As such, dentists have a unique opportunity to play a bigger role in the detection of systemic diseases, and salivary diagnostics may be an important part of that.

A 2010 Journal of the American Dental Association (JADA) article noted that nearly 88% of dentists surveyed cited they were willing to collect oral fluids for salivary diagnostics in an effort to help in the detection of diseases such as diabetes and cardiovascular disorders. Looking forward, Dr. Wong recommends that dentists expand their operating “portfolio” beyond their own clinical practice and continuing education to include an investment in procedures such as saliva collection. In this way dentists can help contribute to early detection of serious medical conditions and promote more positive, cost-effective health outcomes. This effort is just one step forward toward integrating dentistry and medicine, and may evolve toward providing medical reimbursements to dental providers.

The Roadmap of Salivary Diagnostics

Dr. Wong’s work centers on building a pathway from research to actual changes in clinical practice and reimbursement models. The “roadmap” includes the following sequence:

1. Research funded in an academic setting by organizations such as the National Institute of Health (NIH), National Institute of Dental & Craniofacial Research (NIDCR), National Cancer Institute (NCI), and others.
2. Validation of salivary biomarker research and development of point-of-care solutions, using “the most rigorous criteria possible.”
3. Corporate partnerships to help bring salivary diagnostic technology to the forefront.
4. FDA regulatory evaluation to confirm the credibility of the technology and help it progress beyond the academic community.
5. Support for reimbursement essential to drive adoption across the dental and medical profession.

To highlight the importance of salivary diagnostics, in 2009 President Obama introduced his “Innovation Strategy” for bolstering the economy and job force. This major national initiative includes a renewed commitment to advancing science and technology to improve health outcomes –including “early detection of dozens of diseases from a saliva sample.” With this high profile goal, salivary diagnostics may play a prominent role in early detection and disease prevention in the years ahead.

The Effects of Early Preventive Visits on Use, Costs and Oral Health Status

As a professor of pediatric dentistry and health services researcher, Dr. Jessica Lee brought valuable perspectives on caries prevention to the March 2011 Institute for Oral Health focus group. She introduced some of the alarming statistics about the prevalence of early childhood caries and related costs, and shared evidence of the positive impact preventive care and early intervention have on improving health outcomes and reducing costs.

The Crisis and Consequences of Early Childhood Caries

Among pediatric dentists it is common knowledge that early childhood caries has reached crisis proportions –but it is important that all oral health providers and other healthcare professionals recognize how severe the problem has grown. NHANES reported that 41% of children aged two to eleven have dental caries, and in children aged two to five, the disease is on the rise, up 24% to 28% in 2004. This notes a 15% increase. Furthermore, for families whose income is below or at 100% of the federal poverty level, nearly 30% of their preschool children have treated and untreated tooth decay. The incidence of disease drops considerably as income levels rise above poverty level, yet the number of young children with caries is still high for this low-income demographic.

Additionally, dental caries in young children creates a ripple effect of other problems. Dr. Lee noted that children with caries are “significantly more likely to weigh less than 80% of their ideal body weight and suffer from failure to thrive.” These children often experience learning and sleep disorders due to distraction from pain and discomfort, and lose hours away from school. Add to that the parents’ lost hours from work and potential risk of losing a job. For low-income, minority, non-insured families, these burdens are “disproportionately” more severe –yet their children may have the greatest need for care. Compared with about 42% of white families, nearly 70% of African Americans and over 60% of Hispanic families reported a need for dental care for their children, which represents a very considerable demand for care. However, many are unable to get dental services for their children based on lack of availability or affordability.

Moreover, low-income families often wait until problems caused by dental disease become too great to ignore, and by that point the costs will be substantially higher with complex restorative work and the need for mild sedation or general anesthesia. Sadly, we are seeing a rising trend in operating room visits for childrens’ dental treatment: in only five years, from 1997-2002, dental surgery visits increased nearly 50%, most notably in children age three and four, with the majority of operating room visits paid by Medicaid or SCHIP. This trend may indicate that dentists have become less willing to take on the risk of sedating children in the dental office, yet with children who require multiple restorations, it may simply be easier to perform procedures with the help of an anesthesiologist. Unfortunately, this approach typically raises the cost of care to \$3,000 - \$4,000 for each hospital procedure.

Dr. Lee emphasized that an important factor in reversing these trends is for dental professionals to engage parents and counsel them about their child's oral health. If parents could gain an understanding about the benefits of preventive dental care, and learn about age-specific dental needs, they could help dramatically improve their children's health outcomes and reduce the cost of care.

Effects of Early Preventive Dental Visits

In 2005, Dr. Lee and her colleagues published a five-year study which explored the impact early preventive dental care could have on preschool children aged one, two, and three, who are at high risk for dental caries. In addition to improving health outcomes for young children, the team looked at whether early dental visits helped influence subsequent use of dental services, and whether preventive care helped reduce Medicaid dental costs.

Ensuring that children see a dentist by age one or two can help reduce the risk of early childhood caries by setting the stage for better oral health. Certainly fewer restorative procedures and hospital visits mean lower dental costs, which is a grave concern for Medicaid as children under age six being treated for caries in a hospital consume 25-45% of the dental resources, even though this population represents less than 5% of the total children receiving dental care.

Early Prevention Reduces Costs

In their study of over 9,000 high-risk, preschool aged children, Dr. Lee found that only 23 children (.24%) had seen a dentist for preventive care by age one, and only 2.7% of two year olds had received dental care. While the numbers increased gradually for children up to age five, they were still very low, never topping 10%. Many more children were receiving other dental services --for existing tooth decay—but alarmingly few were seeking preventive care to avoid the problem.

Yet Medicaid claims data showed that those children under age five --and the earlier the better-- who received preventive dental care had a significant effect on reducing costs. In tracking the high-risk children over five years, those who received their first preventive visit at age three or four had an average cost of care at \$492, whereas children who received their first preventive visit by age one had an average cost of \$262, which underscores the importance of getting children to a dentist at a very early age.

Early Intervention Reduces Disease

Research from the University of North Carolina also showed that for children under age three who received four or more fluoride varnishes, the number of caries-related dental treatments they required dropped considerably --down 17.3%; 259 fewer procedures-- compared to children who did not receive preventive care. In fact, the study highlighted that the odds of having any dental caries were dramatically reduced when children received dental preventive care by age two or younger. Children who never received fluoride treatments and oral health counseling by age five were three times more likely to develop caries and typically had 50% more untreated dental disease.

Prevention Counseling Increases Usage

In Dr. Lee's pediatric dentistry practice and residency training, she has placed a strong emphasis on counseling parents about oral health and early childhood caries, and behavior changes that can help reduce the risk of tooth decay. She noted that dental hygienists often

advocate prevention in terms of a long list of issues to consider, which can be overwhelming for parents. Thus, Dr. Lee recommends guiding parents to first choose only one factor they could try to change in their lifestyle or nutrition and work with that for a few months. As they progress, they can think about introducing another change, but not worry about trying to handle too many issues at once.

It is important for dental providers to recognize the challenges families may face and provide reassuring and encouraging guidance. For example, it may be helpful to tell parents that it is understandable they may feel frustrated by struggling to brush their toddler's teeth, and that there are many parents across the nation with the same problem; yet tooth decay could be very costly to their child's overall health and development. Gradually over time, parents learn to adopt healthier behaviors that reduce the risks of caries in their children. With this added support, children who receive preventive dental care in their early years have shown to be more likely to continue seeking care to maintain better oral health.

mySmileBuddy: Bio-Behavioral Disease Management for Young Minority Children

With the urgent national concern of early childhood caries, approaches to prevention and early intervention need to cover many angles in the patient experience. In the March 2011 Institute for Oral Health focus group, Dr. Courtney Chinn introduced *mySmileBuddy*, an oral health education and risk assessment program, which teaches parents about health factors influencing tooth decay and guides them toward adopting healthy behavior changes for their child.

The Growing Epidemic of Early Childhood Caries (ECC)

The prominence of ECC as a rapidly growing chronic disease in children under age six necessitates changes in our current models for treatment and disease management. To effectively manage this “*aggressive, infectious, diet-dependent disease*,” we need to explore ways to motivate healthier behaviors in families to help prevent lifelong caries risk.

As the incidence and severity of caries increases in children, the costs to a family mount up. Beyond expensive restorative care and medications, there are increased costs for missed days from work, child care, travel to appointments, as well as the added stress of children suffering from eating, sleeping, and learning disorders related to tooth pain. Current studies estimate that 44% of four year olds and 34 percent of three year olds have caries –and even with surgical repair, recurrence of new cavities within two years is 40-60%. These results tell us that fluoride treatments and merely advising children to brush more will never be enough to stem the rising tide of caries.

To motivate behavioral changes, healthcare professionals need to engage families to provide personalized counseling tailored to their child’s risk level, and help families create an action plan for change to improve their child’s health outcome and reduce the many costs of caries.

Understanding Factors that Influence Behavioral Change

In working to drive behavioral changes to improve oral health, it is important to consider the many social factors beyond mere economics that influence family dynamics. As Dr. Chinn noted, “*a tooth fits inside the mouth, which is inside a child. But it doesn’t stop there. The child is within a family, and that family is part of society, so we need to consider a larger context.*” Determinants that may affect how families attend to a child’s health issues span many levels, such as:

- **Societal level** – Race, inequities between economic groups, and access to dental care resources.
- **Community level** – Quality and safety of the family’s home, schools, and social environment; community oral health resources.
- **Family level** – Family composition and culture, economic status, education level of the parents, and parents’ own health status and health behaviors.
- **Child level** – Physical, genetic, and demographic attributes, health behaviors and development, use of dental care and access to dental insurance.

While dentists fit in most directly at the child level, providers have a better chance of influencing oral health behavior changes if they understand the myriad of factors that may need to be considered, and customize their approach for each family’s needs.

Developing a Platform to Drive Behavioral Change

The initiative known as “Bio-Behavioral Disease Management of Young Children,” was developed as an early childhood caries (ECC) management project spearheaded by Dr. Burton Edelstein, founder and chair of the Children’s Dental Health Project. In establishing a platform to engage families with personalized counseling about reducing caries risk, the group determined that the most effective approach should include perspectives from various disciplines across the community including dentistry, public health, nutrition, social work, and education technology.

Key goals

Supported by a grant from the National Center on Minority Health and Health Disparities, the Dr. Edelstein’s group defined two key objectives:

- Develop, pilot test, and refine an electronic interactive, ECC risk assessment tool; and
- Train community health workers to use this tool to help low-income, minority, low-literacy parents understand ECC risks and how to prevent caries.

Benefits of Partnering with Community Health Workers

The target audience for this initiative –low-income, minority families– often have limited access to dental care and little understanding about the importance of maintaining good oral health in young children. Community Health Workers have a greater opportunity to reach parents outside of a dental office, and are trained to communicate medical and dental advice as simple, easy to understand concepts to help promote behavioral changes. These providers seemed an obvious fit for the program –yet they brought even more benefit to the table. Community Health Workers proved valuable in educating the program planners, bringing an outsider’s perspective on how both health workers and low-income families often view dental care. For example, common perceptions include:

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“A common misperception among health workers: ECC is not a problem. We have a community dental clinic; if we have an emergency, we send kids to you and you see them the same day. As long we get kids to the services they need, that solves the problem, right?”
.....

– Dr. Courtney Chinn

- Many dentists are not “child-friendly,” unwilling to treat children either due to inadequate coverage or limitations of their practice.
- Dentists only treat the problem and prescribe medications; they do not educate families on how to prevent dental problems.
- Families are concerned about the “stigma” associated with a dental visit, concerned they will be judged poorly if their child is in pain and ill health.

Community partners admitted they were unaware of the prevalence and severity of the early childhood caries problem, and noted that parents never asked for help with dental issues. As such, this new program played an important role in educating health workers, and sparked their enthusiasm to promote preventive care to improve childrens’ oral health.

Community Requirements for the ECC Risk Assessment Tool

To help ensure the ECC risk assessment tool –known as *mySmileBuddy*-- would be both highly effective and user-friendly, community health workers provided input on basic requirements to drive adoption. Most importantly, given the common misperceptions about the severity of the problem, they insisted the tool needed to provide education about early childhood caries along with steps to prevent it. Additionally, to appeal to the target audience, they recommended the tool be bi-lingual and low-literacy, and visually compelling and entertaining enough to avoid appearing like a complex questionnaire. To help motivate behavioral changes in families, the development team also conducted focus groups with parents to identify words and imagery that would resonate best with them.

Disease Intervention Model for *mySmileBuddy*

Factoring in feedback from health workers and parents, the *mySmileBuddy* tool is being developed in English and Spanish and includes videos and other multimedia to provide a compelling learning tool for parents. On the technical side, *mySmileBuddy* is designed to support a model for risk assessment and disease intervention using the following cycle:

1. **Risk data entry** – Information about children is entered into the tool by the parent and community health worker.
2. **ECC risk assessment** – Based on risk data, the system generates an ECC risk assessment.
3. **Ideal intervention** - System provides a recommended care plan.
4. **Family capacity assessment** - Community health worker counsels the parent to determine their ability to manage the recommended care plan.
5. **Modified intervention** - Community health worker helps adjust the care plan as needed.
6. **Adherence** - Community health worker continues to engage the family to monitor how well they are adhering to the care plan and guide them toward using the ideal care plan.

mySmileBuddy has been designed as an internet-based application backed by a robust database, that provides parents and community health workers anytime, anywhere access to the tool, with simple yet engaging presentations for answering risk assessment questions and learning about oral health issues. The program asks questions that help identify nutritional and lifestyle habits that influence oral health, such as what type of water their children drink (tap vs. bottled) and what types of foods and eating habits the children have.

The Road Ahead for *mySmileBuddy*

As of March 2011, the group has developed a working prototype and is refining the risk assessment algorithm to increase effectiveness and speed up data delivery. As they work to optimize *mySmileBuddy*, they are addressing unique challenges such as trying to integrate valid data collection while simultaneously educating parents, and merging disease risk and family assessment into a single tool.

Initially, *mySmileBuddy* will help facilitate dental screenings at local Head Start and pediatric dental clinics, where community health workers can help parents get started with the risk assessment tool. In follow-up, the development team will conduct feasibility studies, interviewing families and community partners to determine the impact the tool is having and any issues to help improve its effectiveness and ease of use.

Lewis Lampiris, DDS, MPH

American Dental Association - Director, Council on Access, Prevention and Interprofessional Relations

Prevention and the ADA

As the director of the American Dental Association's (ADA's) Council on Access, Prevention and Interprofessional Relations (CAPIR) Dr. Lewis Lampiris helps support CAPIR's mission to improve oral health through recommending policies, developing resources, and building collaborations that support dental professionals and the public. For his presentation in the March 2011 Institute for Oral Health focus group, Dr. Lampiris provided a look into the governance of the ADA and its programs for promoting dental disease prevention.

How the ADA Works

The ADA represents approximately 157,000 member dentists in the United States with almost 70% of practicing dentists being members. In its work to establish oral health policies, the ADA is guided by the work of its Councils, which develop and recommend policies to the House of Delegates, which has top authority to approve policy and is the supreme governing body of the Association. The ADA Board of Trustees manages and implements policy and oversight of the business of the Association.

Helping to drive policy changes, 11 ADA Councils cover the gamut of access and prevention, dental practice, dental benefits, dental education and licensure, member insurance and retirement programs, and more. Overall, ADA governance is complex with the ADA investing in a range of arenas relevant to improving oral health, most importantly ways to advance evidence-based guidelines and a champions programs to motivate adoption of guidelines. Other initiatives include increasing workforce capacity and flexibility, cross-discipline collaboration, ways to replicate effective programs, and education to help raise awareness about the importance of good oral health and caries prevention.

The ADA's Approach to Prevention

As the primary agency within the ADA to promote prevention as "the cornerstone of oral health" and improve access to dental care for underserved populations, the Council on Access, Prevention and Interprofessional Relations (CAPIR) "*plans, develops, implements, and evaluates programs that support the ADA's commitment to optimal oral health for all.*" CAPIR highlights disease prevention as a key to good oral health, and advocates numerous preventive initiatives; for example, community water fluoridation and school-based dental sealant programs, which have proven to be a cost-effective way to deliver preventive services to children at high risk of early childhood caries.

ADA Policies for Prevention

The ADA House of Delegates has adopted more than 35 policies related to prevention. A few highlights include policies to:

- Define the use of fluoride varnishes in school programs;
- Guide operations and recommendations for community-based fluoridated water programs;

- Guide operations and recommendations for community-based fluoridated water programs;
- Integrate oral health and disease prevention into health education curricula and non-dental healthcare training;
- Establish programs for oral health risk assessments in children and initiatives to raise awareness about early childhood caries;

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"The ADA Councils are mission critical for developing policy recommendations for the House of Delegates. We cannot take action on key issues until we have a policy on the books."

.....
 – Dr. Lewis Lampiris

- Promote oral health literacy in the public and support dental providers in understanding how to raise awareness and communicate oral health education to individuals and families;
- Issue public statements about nutrition that supports good oral health such as sugar-free foods, drinks, and medications to promote caries prevention;
- Raise awareness on the role of tobacco use in oral cancer through national action plans for tobacco cessation, and the prevention and early detection of oral cancer.

ADA Disease Prevention Programs

As a policy-driven organization the ADA relies on scientific evidence to advance dental treatment and delivery models to improve oral health. The ADA® Center for Evidence-Based Dentistry™ publishes clinical guidelines and systematic reviews through their website at ebd.ada.org.

- **Clinical Recommendations** - Currently they have released seven clinical recommendations for evidence-based dentistry related to disease prevention, covering a range of issues from the use of topical fluoride and dietary fluoride supplements to dental fissure sealants, screening for oral cancer, and treating tobacco use.
- **Systematic Reviews** – The ADA updates over 1,200 reviews quarterly on numerous arenas such as pediatric, geriatric, and special care dentistry; oral cancer; preventive dentistry; tobacco use and cessation; community oral health policy; and oral health literacy and education.

Additionally, the ADA has developed materials to support prevention in dental practice, including downloadable Caries Risk Assessment forms for children aged zero to six, and for all patients over six years old – available online at:

http://gsa.ada.org/search?q=Caries+Risk+Assessment+Form&site=ADAorg_Collection&client=ADAFrontEnd&proxystylesheet=ADAFrontEnd&output=xml_no_dtd.

Covering an array of additional prevention-related topics, CAPIR manages programs focusing on:

- Access to dental care, community oral health infrastructure and capacity.
- Geriatrics and special needs dental care.
- Water fluoridation and population-based prevention such as tobacco cessation, nutrition, and facial injury prevention.

- Cultural competency and community outreach to improve oral health literacy and raise awareness on early childhood caries with high risk, minority populations.
- Oral health education and promotion such as National Children’s Dental Health Month programs.
- Interprofessional relations including programs on the connection between diabetes and oral health; and an oral health care series for patients with complex medical conditions.
- Community health programs such as Give Kids a Smile, the American Indian / Alaska Native Dental Placement Program and the Community Dental Health Coordinator Pilot Program.

Engaging Community Health Workers in Dental Disease Prevention

Another innovative approach to prevention includes improving oral health across underserved populations thanks to the ADA’s Community Dental Health Coordinator (CDHC) Pilot Program. This initiative was launched in recent years after in-depth analysis of dental workforce needs, and development of an 18-month training program, as well as evaluation guidelines. CDHCs are new members of the dental team with Community Health Worker (CHW) skills and competencies. In the U.S. about 120,000 CHWs are working to serve high-risk populations —helping 71% of the uninsured, 49% of immigrants, 41% of the homeless, and 31% of rural populations. As defined by the Bureau of Labor Statistics, CHWs are “frontline public health workers who are trusted members of [their community] and have an unusually close understanding of the community served.” As such, these providers are in a unique position to raise awareness about oral health where it could do the greatest good.

Through outreach, education, counseling, social support, and advocacy, CHWs support their community through:

- Bridging cultural mediation between communities and health and social service systems, and advocating for individual and community needs.
- Providing culturally appropriate health education in simple, plain language that can be easily understood by the target populations.
- Assuring people get the medical and dental care they need, and providing basic services such as first aid and health screening tests.

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*For every dollar spent on the CHW,
 there is a reduction in health care
 cost of \$2.28*

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*– Journal of Health Care for
 the Poor & Underserved, 2006*

A New Team Member for Dentistry

Unlike many other dental models that focus on drilling and filling the problem after it occurs, these Community Dental Health Coordinators (CDHCs) are dedicated to the primary disease prevention –reaching out to high-risk populations and helping them to understand oral health and adopt healthier behaviors to prevent dental disease, and supporting them in getting dental care. As a community based member of the dental team, CDHCs help people get enrolled in Medicaid and other dental care programs; coordinate dental appointments and transportation; and provide personal support for overcoming language or anxiety barriers.

Additionally, as CDHCs will have completed an 18-month dental training program which includes six months of clinical internship, they are trained to provide basic services under the supervision of a dentist, including conducting caries risk assessments, applying fluoride varnishes and applying dental sealants. A good amount of their training focuses on the prevention of caries, periodontal disease, and oral cancer, as well as screening and classification, palliative care, and dental care financing. CDHCs across the country will be able to provide services in community health and dental clinics, HeadStart centers, schools and social service centers, institutional settings, and other similar locations to reach low-income populations who typically have a high-risk of dental disease. The ADA will seek to determine how well the program contributes to improvements in dental care access, helps improve oral health outcomes, and whether the program is financially sustainable.

Building Collaboration to Improve Oral Health

Since 2007, the ADA has hosted a number of summit meetings focusing on themes such as oral health for American Indians/Alaska Natives; early childhood caries in Native American children; oral health of vulnerable older adults and person's with disabilities; and the *Give Kids a Smile Promising Practices* annual symposium.

In 2009, the ADA hosted the Access to Dental Care Summit in which 144 stakeholders collaborated to find common ground on six key areas of focus in which individuals and organizations could work to improve prevention and treatment of dental disease in high-risk populations. An outcome from the Summit is the creation of a U.S. National Oral Health Alliance.

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[Download proceedings from the 2009 Access to Dental Care Summit > \(pdf\)](#)
Additional proceedings documents are available at ada.org.
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Dr. Ron Inge, IOH Executive Director

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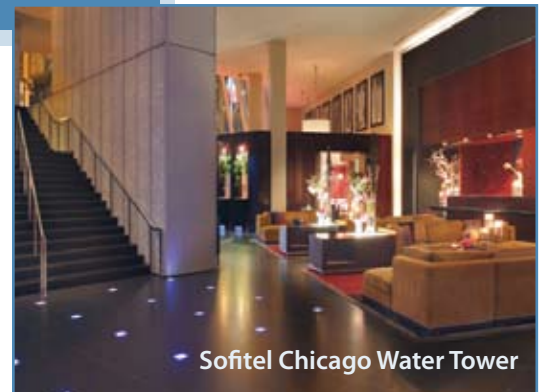
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