



The Importance of Public Health Dentistry

By Debra Belt

Conversations with public health dentists encompass the continuum of health, disease and prevention, and plumb the depths of research, programs, services, and policy. Most notably, discussion about the field reveals trends toward collaborative approaches and concrete solutions to

large-scale issues destined to become societal burdens if left unaddressed.

Public health dentists are quick to note their three core functions of “assessment, assurance and policy development” and point out that the profession underlies every aspect of delivery of dental care to the public.

“There is a huge opportunity here in developing policy to achieve better oral health for California’s children,”

Jared Fine, DDS, MPH.

“Public health dentistry is the integration of the art and science of dentistry with the practice of public health to achieve the optimal level of oral health for the population as a whole, as well as to assure care for individuals,” said Jared Fine, DDS, MPH.

Fine, who is a dental health administrator for Alameda County and a board member of the Dental Health Foundation, has worked in the arena of public health dentistry for 30 years. He said the practice requires the ability to address a number of core public health functions and all the surrounding issues. For instance, the basic function of assessment, which includes surveillance, seeks to measure the level of disease in the population, as well as the factors that led to the level of disease. Included in this is the dissemination of information to the public at large, as well as those in the field, and descriptions of the resources to treat or prevent the disease.

Fine referenced the 2005 Oral Health Needs Assessment, a statewide initiative to provide information about the oral health status of California children in kindergarten and third grade as an example of surveillance currently under way.

“We are aware of the great extent of disease in the population,” Fine said. “The assessment will help quantify this and enable the development of resources and policies to address the problem. It’s been 11 years since the last assessment was conducted.”

Results from the assessment are expected this fall.

“There is a huge opportunity here in developing policy to achieve better oral health for California’s children,” Fine said.

“I think of public health dentistry as an integral part of the health system,” said Jennifer Holtzman, DDS, who received her MPH from UCLA in June. As an assistant professor at the USC School of Dentistry, Division of Health Promotion, Disease Prevention and Epidemiology, Holtzman has been actively involved in the core pub-

lic health function of assurance, or providing programs and services that address issues. As director of USC’s Doctors Out to Care and Neighborhood Mobile Sealant Program, she works with freshman and sophomore dental students to provide oral health education, screenings, sealants and fluoride treatments to elementary school-children. These programs are part of a network of services delivered by a range of sources including government programs, nonprofit organizations, and California’s five dental schools.

“Public health dentistry explains and informs what clinical dentists see in practice every day,” said Irene Hilton, DDS, MPH, who works as a clinical dentist for the San Francisco Department of Public Health and at La Clinica de la Raza in Oakland. “Public health dentistry includes interventions such as community water fluoridation and sealants that patients benefit from, analysis and administration insurance programs that pay for services, as well as understanding of factors influencing behaviors that affect oral health, such as why people will or won’t brush their teeth or will or won’t or eat cariogenic foods.”

Public health dentists cite a litany of issues where these core functions apply. Issues such as early childhood caries, oral health care for the elderly, and lack of dental insurance on a national scale are but a few. However, beyond listing the problems, public health dentists offer workable solutions.

Fine referred to examples such as the First 5 California Oral Health Education and Training Program — a joint venture of the CDA Foundation and the Dental Health Foundation to educate health providers, community members, and First 5 Commissions on oral disease prevention for children age 5 and younger. He also emphasized the “real world” impact of the issue if left unaddressed.

“In the example of early childhood caries, kids can suffer immediate as well as long-term effects,” he said. “Children

with untreated dental disease can't eat well, grow, thrive or experience positive self-esteem. They will not be prepared to do well in school or fully participate in their young lives."

Holtzman, who is interested in studying the effect of oral health on academic performance, said public health dentists anticipate being part of a solution to ease the impact of people with oral disease who would end up in hospital emergency rooms.

"So much of disease is preventable; we just need to be able to provide the preven-

tive strategies," she said.

Fine pointed out that public health dentists are in the favorable position of being able to keep preventive strategies on the radar screen of the public, the business community, policy makers, and health professionals.

"One of our advantages in oral health is that there are concrete solutions and answers to oral health problems," said Fine. "We are fortunate that more and more people are willing to sit at a table and talk about unresolved issues and doable solutions."

Aloe Vera Has Healing Properties for the Mouth

Aloe vera, which has been used to heal skin for more than 2,000 years, also can be utilized for oral problems such as canker and cold sores, herpes simplex viruses, gingivitis, and lichen planus, according to an issue of *General Dentistry*, the Academy of General Dentistry's clinical peer-reviewed journal.

"There is good evidence to support using aloe vera for oral health problems," said Kenton A. Ross, DMD, an Academy of General Dentistry's spokesman. "I believe a number of patients will be interested in this inexpensive alternative." Aloe vera, which does not sting or have a bad taste when applied, reduces pain associated with canker sores and speeds healing.



In the article, Richard L. Wynn, PhD, included a study done on a patient with lichen planus, which affects the skin and oral mucus membranes. The patient consumed 2 ounces of aloe vera juice every day as well as applied aloe vera lip balm. The lesions cleared up in four weeks.

Wynn said consuming aloe vera juice and the topical use of the gel are two modes of delivery recognized by the FDA. It is suggested that people interested in using aloe vera for oral health problems should contact their dentist first for proper treatment techniques.



No Difference in Whitening Brands' Effectiveness

Although there were great variations in the amount of time needed for whitening techniques, a recent study, published in the March/April 2005 issue of *Operative Dentistry*, found there was no difference in the efficacy among three types of techniques.

Over-the-counter whitening strips, at-home bleaching, and in-office bleaching all offered patients the same results in terms of whitening, said authors Drs. Thorsten Auschill, Elmar Hellwig, Sonja Schmidale, Anton Sculean, and Nicole Areweiler. Even reported side effects were minimal for all three procedures.

It took 16 days to achieve the desired level of whitening for over-the-counter strips; seven days for at-home bleaching; and one day for the in-office procedure. Patients generally preferred the more time-consuming procedures, the authors wrote, because "it required less chair-time" in the dental office.

Honors



Francisco Ramos-Gomez, DDS, MSc, MPH, an associate professor at the University of California San

Francisco School of Dentistry, has been named a participant in the Department of Health and Human Services' 15th annual Primary Health Care Policy Fellowship, an intensive six-month program that seeks to teach participants about primary health care policy, the legislative process and resource identification.

Rubella Milestone Achieved

The rubella virus, also known as congenital rubella syndrome and a key cause of birth defects such as blindness and deafness, no longer is considered a major public health threat in the United States.

"The elimination of rubella in the United States is a tremendous step in protecting the health and well-being of pregnant women and infants," said Julie Gerberding, MD, MPH, director, Centers for Disease Control and Prevention. "A disease that once seriously harmed tens of thousands of infants is no longer a major health threat, thanks to a safe and effective vaccine and successful immunization programs across the country. We should take pride in this accomplishment, and also recognize that we must maintain our vigilance or we can see a resurgence of disease."

Between 1964 and 1965, there were an estimated 12.5 million cases of rubella and 20,000 cases of congenital rubella syndrome, which led to 11,250

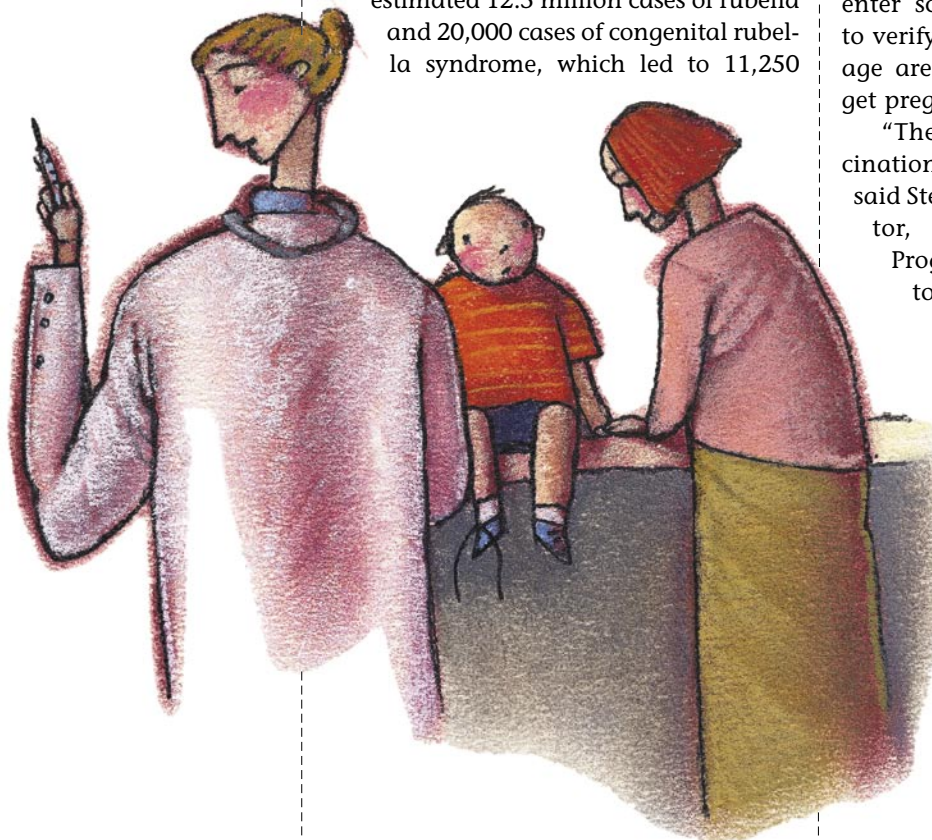
fetal deaths; 2,100 neonatal deaths; more than 11,600 infants born deaf; 3,580 blind newborns; and 1,800 infants born with mental retardation.

With vaccine licensure in 1969 and the development of rubella vaccination program preventing infection during pregnancy, cases dropped sharply in the United States. By 1983, there were fewer than 1,000 cases reportedly annually. Six years later, the CDC established a rubella elimination goal and incidences fell to an all-time low. By 2001, less than 100 cases were reported. As of last year, there were only nine cases in the country.

Currently, about 93 percent of the nation's children younger than 2 are vaccinated against measles, mumps and rubella, according to the CDC's National Immunization Survey. More than 95 percent of the nation's children are vaccinated against rubella by the time they enter school. It is especially important to verify that all women of child-bearing age are immune to rubella before they get pregnant.

"The importance of continuing vaccination cannot be emphasized enough," said Steve Cochi, MD, MPH, acting director, CDC's National Immunization Program. "Cases of rubella continue to be brought into the country by worldwide travelers and because of bordering countries where the disease is active."

Since the mid-1990s, the United States has worked closely with the Pan American Health Organization and Mexico to improve rubella control. The efforts have resulted in notable reductions of rubella in many nations of the Americas. In September 2003, ministers of health of all countries in the Americas resolved to eliminate rubella and congenital rubella syndrome by 2010.



Researchers Solve Enamel Puzzle

In an attempt to grow natural tooth enamel, researchers unlocked one mystery of enamel formation; and it may have long-term applications.

Growing artificial enamel has been a long-time goal among dental science researchers and in the medical device community. It is thought that enamel, as a filling material, could outperform composites and silver-mercury alloys. Medical device developers have long sought durable natural materials to use instead of titanium and plastic parts.

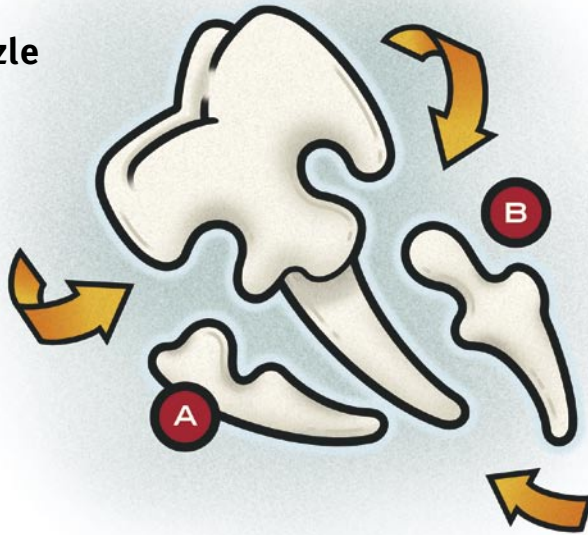
In a recent issue of *Science*, researchers report that they had been trying to study amelogenin, a protein secreted by cells in gum tissue, by crystallizing it. Amelogenin's closest analogue is collagen. But unlike collagen, which remains an important part of bone structure, amelogenin degrades and vanishes during the process of enamel mineral growth. Additionally, by its nature, it cannot form a lasting platform or scaffold for enamel development. Amelogenin's transient role makes study difficult.

After a year, researchers were unable to obtain amelogenin crystals but their efforts did produce what looked like microscopically long, fettuccine-like fibers. The fibers consisted of tiny balls of amelogenin molecules.

Janet Moradian-Oldak, BSc, MSc, PhD, professor at the University of Southern California School of Dentistry and the paper's lead author, called the fibers "micro ribbons" and was struck by the similarity in the structure between the ribbons and the calcium hydroxyl apatite crystals that make up the bulk of enamel.

Oldak wondered if the micro ribbons were the scaffold for which she had been looking. "I think what you need is a bit of imagination to be able to link these things," she said.

When the ribbons were mineralized and dipped into calcium phosphate solution, researchers obtained aligned and organized apatite crystals like those found in enamel. Although the work was done



in vitro, studies of the literature showed observations of similar structures in vivo, including a report of "beaded rows" of amelogenin nanospheres alongside developing crystals in enamel.

"We demonstrate that amelogenin protein has a strong tendency to assemble in linear arrays of nanospheres, and we propose that this property is a key to its function as a scaffolding protein during the early stage of enamel mineralization," the researchers wrote.

Oldak and Chang Du, a USC post-doctoral research associate, collaborated with Giuseppe Falini at the Università di Bologna in Italy. The National Institute of Dental and Craniofacial Research supported the research.

"The in vitro self-assembly system of Du et al. will be a useful guide to the development of biomimetic structures," wrote Arthur Veis, professor of cell and molecular biology at Northwestern University in the perspective companion to the *Science* paper. "Others have shown that minerals can develop within protein and synthetic polypeptide gels, but a scaffold was necessary to provide long-range order. In contrast, Du et al. show that the self-assembly of the amelogenin nanospheres, and their further assembly into nanosphere arrays, forms its own scaffold that can direct the alignment of the mineral crystallites."

**"I THINK WHAT
YOU NEED IS
A BIT OF
IMAGINATION TO
BE ABLE TO LINK
THESE THINGS."**

JANET MORADIAN-OLDAK,
BSC, MSC, PHD

There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.

ALBERT EINSTEIN

Infection Control Supplemented

The Centers for Disease Control and Prevention has supplemented ADA and CDC information on the 2003 Guidelines for Infection Control in Dental Health Care Settings with a 108-slide presentation.

The guidelines identify infection control practices the CDC recommends for all settings where dental treatment is provided. Although CDC recommendations are not regulatory, some practices are mandated by federal, state, or local regulations.

The CDC overview of the 2003 dental-specific guidelines and accompanying speaker notes can be downloaded as a PowerPoint presentation or viewed on the CDC website, www.cdc.gov/oral-health. Some slides update information in the guidelines that were issued Dec. 19, 2003.

The concluding slide directs viewers to periodically check the CDC Oral Health page for infection control updates, additional materials, and other pertinent oral health information.

Upcoming Meetings

2005

Aug. 17-20 Sixth Annual World Congress of Minimally Invasive Dentistry, San Diego, (800) 973-8003.

Sept. 9-11 CDA Fall Scientific Session, San Francisco, (866) CDA-MEMBER (232-6362).

Sept. 25-28 Pacific Coast Society of Orthodontists/Rocky Mountain Society of Orthodontists Joint Annual Session, San Diego, www.pscortho.org.

Oct. 6-9 ADA Annual Session, Philadelphia, (312) 440-2500.

Nov. 4-6 Second International Conference on Evidence-Based Dentistry, Chicago, www.icebd.org.

2006

March 15-18 Academy of Laser Dentistry, Tucson, www.laserdentistry.org.

April 27-30 CDA Spring Scientific Session, Anaheim, (866) CDA-MEMBER (232-6362).

Sept. 15-17 CDA Fall Scientific Session, San Francisco, (866) CDA-MEMBER (232-6362).

Oct. 16-19 ADA Annual Session, Las Vegas, (312) 440-2500.

Dec. 3-6 International Workshop of the International Cleft Lip and Palate Foundation, Chennai, India, (91) 44-24331696.

To have an event included on this list of nonprofit association meetings, please send the information to Upcoming Meetings, *CDA Journal*, 1201 K St., 16th Floor, Sacramento, CA 95814 or fax the information to (916) 554-5962.

Dental Applications for Platelet-Rich Plasma

An increasing number of oral and maxillofacial surgeons are taking advantage of recent advances in the use of autologous platelet-rich plasma, wrote James Papp, DDS, in the January/February 2005 issue of the West Michigan District Dental Society's *Bulletin*.

Often called a platelet gel, it is a concentration of a patient's own platelets developed from a small blood sample.

Papp, whose practice is limited to periodontics and implant dentistry, said the use of platelet-rich plasma has become widespread in plastic, vascular, and reconstructive surgeries, among other fields, adding that it has a number of dental applications. Applications are primarily related to implant site preparation and peri-implant osteogenesis. He noted that studies recently have shown significant benefits in the use of platelet-rich plasma in bone grafts to treat intrabony defects around teeth.

Additionally, when used in conjunction with esthetic soft tissue root coverage, platelet-rich plasma can drastically lower postsurgical swelling, bleeding, and pain, as well as helping to speed wound healing, accelerating the time up to 50 percent.