



The Oral Systemic Connection

A New Collaboration Between
Medicine and Dentistry

Diamond Age Systems
2009

A collection of recent announcements from the medical profession pertaining to the collaborative partnership between physicians and dentists relative to the Oral Systemic Connection and its impact on patient health.

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Introduction

Since Donna Shalayla's announcement from the surgeon general's office in the year 2000 stating;

“The terms oral health and general health should not be interpreted as separate entities. Oral health is integral to general health; this report provides important reminders that oral health means more than healthy teeth and that you cannot be healthy without oral health”.

studies have demonstrated an association between periodontal diseases and diabetes, cardiovascular disease, stroke, and adverse pregnancy outcomes; hundreds of research papers have appeared in dental and medical literature connecting periodontal disease to systemic disease.

Only recently, however, have major non-dental entities, representing the insurance industry, cardiology and diabetes actually taken the stand that physicians should evaluate gum conditions and discuss visiting the dentist with their “at risk patients” and that dentists should discuss related systemic illness with their patients. These announcements are included here for your reference.

Summary of Key Points

The following is a summary of the key points of the papers:

1. An Examination of Periodontal Treatment and Per Member Per Month (PMPM) Medical Costs in an Insured Population, BMC Health Services Research, August 16, 2006.
 - a. “Yet, at least 20 percent of an at-risk population is not getting regular preventive dental treatment. This number rises to 35 percent in older populations.”
 - b. “At-risk members are identified as those with diabetes, heart disease and pregnant women who have not seen a dentist in 12 months or more.”
 - c. “Aetna refers 67,000 at Risk Patients to dentists”- The Aetna Dental Medical Integration Program

- d. Aetna-Columbia Study showed perio patients treated earlier had lower systemic health costs- for Cardio/Diabetes related illnesses.
- e. Aetna Internal Analysis show results have been sustained.
- f. DMI Program- 67,000 medically at risk- members defined as Cardio/Diabetes/Pre-Term Birth
- g. Aetna DMI program motivates At Risk members to seek dental care!

2. Healthy Gums and a Healthy Heart: The Perio Cardio Connection

PublicRelations@perio.org [mailto:PublicRelations@perio.org] **On Behalf Of**
American Academy of Periodontology; Tuesday, June 02, 2009

- a. Consensus Paper-American Journal of Cardiology- reaches 30,000 Cardiologists
- b. Inflammation is a major risk for heart disease and Periodontal Disease may increase the inflammation level throughout the body
- c. Physicians should evaluate the mouth for signs of periodontal disease
- d. Dentists should discuss heart health and family history

3. The Mission of the American Diabetes Association: **Embargoed until:** Friday, June 6

- a. American Diabetes Association States that Periodontal Disease Causes Diabetes
- b. American Diabetes Assn. Annual Session 2008
- c. Severity of periodontal disease is associated with higher levels of Insulin Resistance
- d. Intensive Periodontal Treatment reduces A1c
- e. 51% of Insulin Resistant Patients genetically susceptible to hi inflammatory response
- f. Type II Diabetics have a 3 times greater mortality rate if they have Periodontal disease
- g. Physician should ask patients if they have seen their dentist- if they have had perio treatment.

- h. “In an analysis of the National Health and Nutrition Examination Survey of the U.S. population data from 1988-94, we recently found that people with periodontal disease were twice as likely to have insulin resistance as those without such disease,” said Dr. Taylor.

An Examination of Periodontal Treatment and Per Member Per Month (PMPM) Medical Costs in an Insured Population, BMC Health Services Research, August 16, 2006

Aetna's Integrated Dental Medical Program Motivates Nearly 67,000 Medically at-Risk Individuals to Seek Preventive Dental Care

--20 Percent of Working Population with at Least One Chronic Condition Still Skipping the Dentist Every Year--

HARTFORD, Conn.--(BUSINESS WIRE)--Aetna (NYSE: AET) has been aggressive in supporting not only the clinical connections between oral and systemic health but also member awareness, education and outreach in order to motivate members with chronic conditions to seek appropriate dental care. Last year Aetna's Dental/Medical Integration (DMI) program became a standard offering at no additional cost for plan sponsors with both dental and medical benefits with Aetna. In 2008, nearly 67,000 medically at-risk members sought dental care after being enrolled in Aetna's Dental Medical Integration program. At-risk members are identified as those with diabetes, heart disease and pregnant women who have not seen a dentist in 12 months or more.

"The association between oral health and systemic health is consistently demonstrated in clinical studies, and the findings are positively impacting the treatment and management of patients," said Mary Lee Conicella, DMD, national director of clinical operations for Aetna Dental. "Yet, at least 20 percent of an at-risk population is not getting regular preventive dental treatment. This number rises to 35 percent in older populations."

Aetna Dental launched its DMI program in 2006 following a published research analysis it conducted with Columbia University College of Dental Medicine which found that high-risk individuals that sought earlier dental care lowered the risk or severity of their condition and subsequently, lowered their overall medical costs. A 2008 internal analysis performed by Aetna proved that these results have been sustained.

"It is the right combination of automation and education that enabled us to impact such a significant number of members," said Alan Hirschberg, head of Aetna Dental. "Aetna's technology makes it possible for us to automatically identify members by condition, gender and age. With that information we can make our educational outreach relevant and meaningful. We know the program will only work if our members take advantage of it."

The Oral Systemic Connection

Aetna's DMI program is offered at no additional charge to all plan sponsors with an existing Aetna medical plan in conjunction with any of Aetna's dental plans (DMO, DPPO, or Dental Indemnity). Aetna has also incorporated educational content into existing disease management programs for chronic conditions.

** Based on 2008 DMI dental PPO and DMO activity. At-risk is defined as members with heart disease, diabetes and pregnancy who have not recently seen a dentist.*

About Aetna

Aetna is one of the nation's leading diversified health care benefits companies, serving approximately 37.2 million people with information and resources to help them make better informed decisions about their health care. Aetna offers a broad range of traditional and consumer-directed health insurance products and related services, including medical, pharmacy, dental, behavioral health, group life and disability plans, and medical management capabilities and health care management services for Medicaid plans. Our customers include employer groups, individuals, college students, part-time and hourly workers, health plans, governmental units, government-sponsored plans, labor groups and expatriates. For more information, see www.aetna.com and Aetna's Annual Report at www.aetna.com/2008annualreport.

Healthy Gums and a Healthy Heart: The Perio-Cardio Connection

Newly released clinical recommendations encourage cardiologists to examine the mouth and periodontists to ask questions about heart health

From: PublicRelations@perio.org [mailto:PublicRelations@perio.org] On Behalf Of American Academy of Periodontology
Sent: Tuesday, June 02, 2009 1:38 PM
To: PressReleases@lists.perio.org

CHICAGO – (June 1, 2009) – Cardiovascular disease, the leading killer of men and women in the United States, is a major public health issue contributing to 2,400 deaths each day. Periodontal disease, a chronic inflammatory disease that destroys bone and gum tissue s that support the teeth affects nearly 75 percent of Americans and is the major cause of adult tooth loss. And while the prevalence rates of these disease states seems grim, research suggests that managing one disease may reduce the risk for the other.

A consensus paper on the relationship between heart disease and gum disease was recently published concurrently in the online versions of two leading publications, the American Journal of Cardiology (AJC), a publication circulated to 30,000 cardiologists, and the Journal of Periodontology (JOP), the official publication of the American Academy of Periodontology (AAP). Developed in concert by cardiologists, the physicians specialized in treating diseases of the heart, and periodontists, the dentists with advanced training in the treatment and prevention of periodontal disease, the paper contains clinical recommendations for medical and dental professionals to use in managing patients living with, or who are at risk for, either disease. As a result of the paper, cardiologists may now examine a patient's mouth, and periodontists may begin asking questions about heart health and family history of heart disease.

The clinical recommendations were developed at a meeting held earlier this year of top opinion-leaders in both cardiology and periodontology. In addition to the clinical recommendations, the consensus paper summarizes the scientific evidence that links periodontal disease and cardiovascular disease and explains the underlying biologic and inflammatory mechanisms that may be the basis for the connection.

According to Kenneth Kornman, DDS, PhD, Editor of the Journal of Periodontology and a co-author of the consensus report, the cooperation between the cardiology and periodontal communities is an important first step in helping patients reduce their risk of these associated diseases. "Inflammation is a major risk factor for heart disease, and periodontal disease may increase the inflammation level throughout the body. Since several studies have shown that patients with periodontal disease have an increased risk for cardiovascular disease, we felt it was important to develop clinical recommendations for our respective specialties. Therefore, you will now see cardiologists and periodontists joining forces to help our patients."

For patients, this may mean receiving some unconventional advice from their periodontist or cardiologist. The clinical recommendations outlined in the consensus paper advise that periodontists not only inform their patients of the increased risk of cardiovascular disease associated with periodontal disease, but also assess their risk for future cardiovascular disease and guide them to be evaluated for the major risk factors. The paper also recommends that physicians managing patients with cardiovascular disease evaluate the mouth for the basic signs of periodontal disease such as significant tooth loss, visual signs of oral inflammation, and receding gums.

While additional research will help identify the precise relationship between periodontal disease and cardiovascular disease, recent emphasis has been placed on the role of inflammation - the body's reaction to fight off infection, guard against injury or shield against irritation. While inflammation initially intends to have a protective effect, untreated chronic inflammation can lead to dysfunction of the affected tissues, and therefore to more severe health complications.

"Both periodontal disease and cardiovascular disease are inflammatory diseases, and inflammation is the common mechanism that connects them," says Dr. David Cochran, DDS, PhD, President of the AAP and Chair of the Department of Periodontics at the University of Texas Health Science Center at San Antonio. "The clinical recommendations included in the consensus paper will help periodontists and cardiologists control the inflammatory burden in the body as a result of gum disease or heart disease, thereby helping to reduce further disease progression, and ultimately to improve our patients' overall health. That is our common goal."

To learn more about gum disease, locate a periodontist, or to find out if you are at risk for periodontal disease, visit perio.org or call (800) FLOSS-EM (800/356-7736).

PERIODONTITIS ASSOCIATED WITH DEVELOPMENT OF TYPE 2 DIABETES AND ITS COMPLICATIONS

ORAL DISEASE TREATMENT CAN HELP CONTROL HIGH GLYCEMIC LEVELS

The Mission of the American Diabetes Association

Embargoed until: Friday, June 6

Contact: Diane Tuncer, (703) 299-5510

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4:15 pm PDT NEWS ROOM: June 6-10, 2008:

Room 250, Moscone Convention Center

(415) 978-3508; Fax: (415) 978-3524

San Francisco, CA (June 6, 2008) – Critical links between periodontal (gum) disease and the development of type 2 diabetes, as well as the development and progression of its complications, were reported here today in the first ever symposium presented by dentists to diabetes experts at the American Diabetes Association's Annual Scientific Sessions at its 68th such event.

"One of the many complications of diabetes is a greater risk for periodontal disease," said Maria E. Ryan, DDS, PhD, Professor of Oral Biology and Pathology, and Director of Clinical Research, School of Dental Medicine, Stony Brook University, New York, in a recent interview. "If you have this oral infection and inflammation, as with any infection, it's much more difficult to control blood glucose levels." Intensive periodontitis treatment significantly reduces levels of A1C, a measure of glucose control over the prior two to three months. These links between oral and systemic health may start even before clinical diabetes begins. "We have found evidence that the severity of periodontal disease is associated with higher levels of insulin resistance, often a precursor of type 2 diabetes, as well as with higher levels of A1C, a measure of poor glycemic control of diabetes," she said.

The importance of these findings were emphasized by her colleague, George W. Taylor, DrPH, DMD, Associate Professor of Dentistry, Schools of Dentistry and Public Health, University of Michigan. "Several recent studies have shown that having periodontal disease makes those with type 2 diabetes more likely to develop worsened glycemic control and puts them at much greater risk of end-stage kidney disease and death," he reported.

"Given the numerous medical studies showing that good glycemic control results in reduced development and progression of diabetes complications, we believe there is the potential that periodontal treatment can provide an increment in diabetes control and subsequently a reduction in the risk for diabetes complications," said Dr. Taylor.

Nearly 21 million Americans have diabetes, a group of serious diseases characterized by high blood glucose levels that result from defects in the body's ability to produce

and/or use insulin. Diabetes can lead to severely debilitating or fatal complications, such as heart disease, blindness, kidney disease, and amputation. It is the fifth leading cause of death by disease in the U.S. Type 2 occurs mainly in adults who are overweight and ages 40 and older.

Periodontal (gum) disease is an infection and chronic inflammatory disease of the tissues surrounding and supporting the teeth. It is a major cause of tooth loss in adults. In periodontitis, unremoved plaque hardens into calculus (tartar), gums gradually begin to pull away from the teeth, and pockets form between the teeth and gums. However, people often do not know they have periodontal disease because it is usually painless.

Periodontitis Associated with Insulin Resistance and Diabetes Severity

“In an analysis of the National Health and Nutrition Examination Survey of the U.S. population data from 1988-94, we recently found that people with periodontal disease were twice as likely to have insulin resistance as those without such disease,” said Dr. Taylor. This result was found after controlling for other characteristics that would be associated with insulin resistance, such as obesity, lipids, exercise, and other markers of inflammation, such as CRP, and whether or not they had diabetes. In an unpublished study at the General Clinical Research Center at Stony Brook University, a group of individuals who were by one measure – RD values (a measure of glucose uptake and insulin sensitivity) – insulin resistant, and likely had pre-diabetes, also had their oral health assessed. Their degree of insulin resistance directly correlated with the severity of their periodontal disease.

“The inflammation from the oral cavity may be contributing to the insulin resistance in this patient population,” said Dr. Ryan.

“Also measured in this group were levels of cytokines, such as IL-1 beta, which are pro-inflammatory mediators involved in the long-term diabetes complications. **“Genetic testing revealed that 50% of the insulin resistant patients had an IL-1 polymorphism – in contrast to 20% in the overall population,** meaning that they are genetically susceptible to an excessive inflammatory response, and this 50% was the group that had high levels of insulin resistance and more severe periodontal disease,” she said.

The presence of the IL-1 polymorphism fits with one theory of how periodontitis worsens glycemic control in type 2 diabetes.

“We think periodontitis may adversely affect glycemic control because the pro-inflammatory chemicals produced by the infection – such as IL-1-beta, IL-6, and TNF-alpha – could transfer from the gum tissue into the bloodstream and stimulate cells to become resistant to insulin,” said Dr. Taylor. “Then insulin resistance prevents cells in the body from removing glucose from the bloodstream for energy production.”

Periodontitis Associated with Diabetes Complications

Dr. Taylor reported on studies at the University of Michigan and elsewhere demonstrating the association between periodontitis and the complications of type 2 diabetes.

“A recent set of observational studies of the Pima Indians in the Southwest, a population with a very high rate of type 2 diabetes, investigated whether those with periodontitis are more likely to develop poorer glycemic control,” said Dr. Taylor. “We found that those with periodontitis were more than four times as likely to develop worsened glycemic control after two years of follow-up.”

Studies of Pima Indians published by others have shown a higher risk of diabetes complications in those with periodontal disease. For example, one showed that residents of the Gila River Indian Community with severe periodontal disease were at more than **three times the risk of death** due to diabetic nephropathy or ischemic heart disease than those with no, mild, or moderate periodontal disease over 11 years.

Periodontal Treatment Can Improve Diabetes Control

“Just as periodontal disease makes diabetes worse, the reverse also appears to be true, with improvements in periodontal disease benefiting diabetes control,” said Dr. Taylor. “We conducted an NIH-funded, randomized clinical trial in 46 people with type 2 diabetes and, 15 months after routine periodontal treatment, found a statistically significant **reduction of 0.67%** in A1C levels,” said Dr. Taylor.

“We recently published a randomized, placebo-controlled, 30-patient study done at the General Clinical Research Center at Stony Brook University showing that a sub-antimicrobial dose of doxycycline, during and after root planing, as part of a 9-month course of treatment, significantly **reduced A1C by 1%** and also reduced proteinuria, a marker of diabetic kidney disease, and CRP, a marker of inflammation,” said Dr. Ryan. “It also significantly reduced pocket depths associated with periodontitis and enabled gains in clinical attachment, while reducing signs of inflammation, such as bleeding upon probing or brushing.” Two confirmatory 3-month studies of this program developed at Stony Brook have been conducted, at Columbia University and Buffalo University with 150 patients, and presented at International Association for Dental Research meetings.

“When glycemia has been difficult to control, the physician might consider asking patients when they last saw their dentist, whether periodontitis has been diagnosed and, if so, whether treatment has been completed,” said Dr. Ryan. “A consultation with the dentist may be appropriate, to discuss whether periodontal treatment has been successful or whether a more intensive approach with oral or sub-antimicrobial antibiotics is in order because, just as it is difficult to control diabetes while the patient has an infected leg ulcer, the same applies when there’s infection and inflammation of the gums.”

The American Diabetes Association is the nation's leading voluntary health organization supporting diabetes research, information and advocacy. Founded in 1940, the Association has offices in every region of the country, providing services to hundreds of communities. For more information, please call the American Diabetes Association at 1-

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800-DIABETES (1-800-342-2383) or visit www.diabetes.org. Information from both these sources is available in English and Spanish.

Symposium, Friday, 4:15 pm

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The Mission of the American Diabetes Association is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. call 1-800-DIABETES (1-800-342-2383) online www.diabetes.org The Association gratefully accepts gifts through your will. 1701 North Beauregard Street Alexandria, VA 22311 Tel: 703-549-1500
Diabetes Information National Office

NOTE TO EDITOR:

Visit <http://www.diabetes.org/adablog> to read blog posts from the Association's Scientific Sessions from former *USA Today* reporter, Anita Manning.