



Reconnecting the Head to the Body

Challenges and Solutions for Managing and Preventing Periodontal Disease & Diabetes

Whitepaper

The Institute for Oral Health 2007 Conference
Periodontal Disease & Diabetes: Exploring New Paradigms
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Introduction

“Diabetes is probably the most talked about disease in our health care system today”, noted Dr. Ron Inge, Executive Director of the Institute for Oral Health. Now affecting nearly 21 million Americans, diabetes increases susceptibility to infection, and its complications can be worsened by other chronic infections in the body, most especially periodontal disease. As such, the Institute for Oral Health (IOH) focused its second national conference on the growing concerns of periodontal disease and diabetes, and the need to raise awareness about the connections between oral health and systemic health.

The Institute for Oral Health (IOH), based in Seattle, WA is dedicated to improving oral health in America by bridging the gap between research and everyday dental practice. Collaborating with nationally recognized experts, each year IOH spotlights a new theme of concern in health care today, promoting education to advance innovation and adoption of progressive treatment guidelines and delivery methods.

This year’s conference on Periodontal Disease & Diabetes brought together numerous experts in disease prevention and management, leaders in diabetes education, as well as movers and shakers driving innovative policy changes in the health care system.

The experts highlighted a number of key concerns, including:

- ❑ Diabetes has reached epidemic proportions, with over 21 million Americans affected, many of whom don’t know it yet, and many more who are pre-diabetic. Often diabetes is poorly controlled, creating substantial risk for heart disease and other serious conditions.
- ❑ Diabetics have a significantly higher risk of periodontal disease than non-diabetics, and periodontitis is a key contributor to complications of diabetes. Raising awareness about the correlation between these diseases will need to become an essential part of dental treatment plans.
- ❑ Obesity is a primary risk factor in diabetes and periodontal disease, and with 67% of our nation’s population being overweight or obese, it is imperative for health care providers to promote lifestyle changes as part of disease prevention and management.

The 2007 conference provided a wide array of important evidence and valuable insight into not only the challenges of these diseases, but also the solutions that health care professionals can integrate into their practices, programs and policies. It served as a powerful collaboration to motivate positive steps forward in improving the quality of disease care and management and the efforts toward preventing disease.

Rising Tide of Diabetes: A Global Epidemic

Dr. Jane Kelly opened this year's conference by spotlighting the rising incidence of diabetes worldwide in order to raise awareness about the impact this disease is having on oral health providers, and how they might participate in diabetes control and prevention.

In her work with the National Diabetes Education Program (NDEP), Dr. Kelly is dedicated to promoting prevention and early diagnosis, and improving outcomes for people with diabetes. Her enthusiastic focus on diabetes awareness laid an excellent foundation of understanding to support the rest of the conference.

Getting to Know Diabetes

First, Dr. Kelly provided an overview of the various types of diabetes to help oral health providers understand the differences. She described the primary types of diabetes as follows:

- ❑ **Type 1 Diabetes** – An auto-immune disorder in which the pancreas stops producing insulin and thus, those afflicted must take insulin for life in order to survive.
- ❑ **Type 2 Diabetes** – The most prevalent type (90-95% of all cases), which centers on insulin-resistance in the body, wherein the body can't effectively process glucose and balance energy levels. Most people with Type 2 diabetes are overweight and/or have readily identifiable risk factors.
- ❑ **Gestational Diabetes** – The second most prevalent type, affecting nearly 7% of pregnant women, manifests as elevated blood glucose levels during pregnancy. While this condition typically normalizes again after pregnancy is over, these women have an increased risk of developing Type 2 diabetes. Many women are not aware of this risk, yet 30-50% acquire Type 2 diabetes within 10 years. Their child has an increased risk as well.

The Cause for Alarm

According to recent studies, diabetes has now affected over 21 million Americans. Every 24 hours there are over 4,000 new cases and 810 diabetes-related deaths. Diabetes is the #1 cause of blindness and kidney failure, and a major contributor to heart disease. And there's tremendous economic impact as well... The health care costs of this epidemic are now topping \$132 billion per year.

Obesity Trends & Rising Incidence of Diabetes

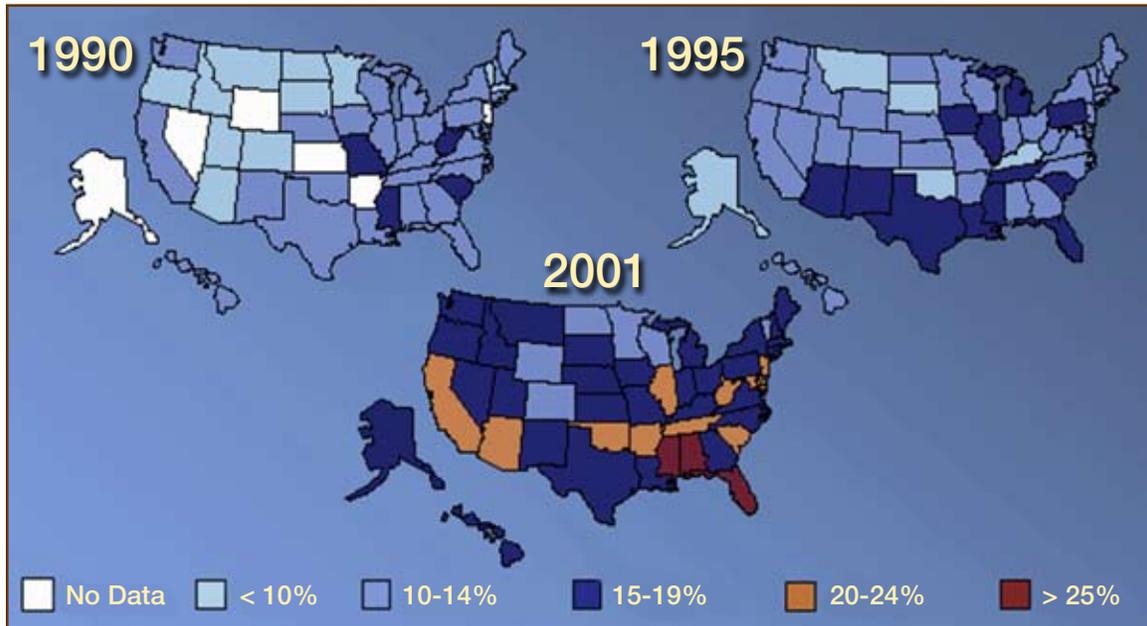
Dr. Kelly suggested that to help affect the "rising tide of diabetes", we need to understand the risk factors, especially for the increasingly common Type 2 diabetes in which the core problem is insulin-resistance. She stated that many factors influence insulin-resistance, for example, natural aging and genetic predisposition. But other key contributors such as obesity and sedentary lifestyle, are modifiable and thus, by improving their lifestyle, people could reduce the risk of Type 2 diabetes.

"A question I'm asked often about diabetes is: Does obesity really have that big a role?"

Yes. The epidemic growth of obesity in the U.S. is paralleling the increasing incidence of diabetes. Since 1991, the prevalence of obesity has increased 61%, with now nearly 2/3 of our nation's population affected by obesity. As average body weight has increased, so has the incidence of diabetes.

Diabetes Trends Among U.S. Adults (1990- 2001)

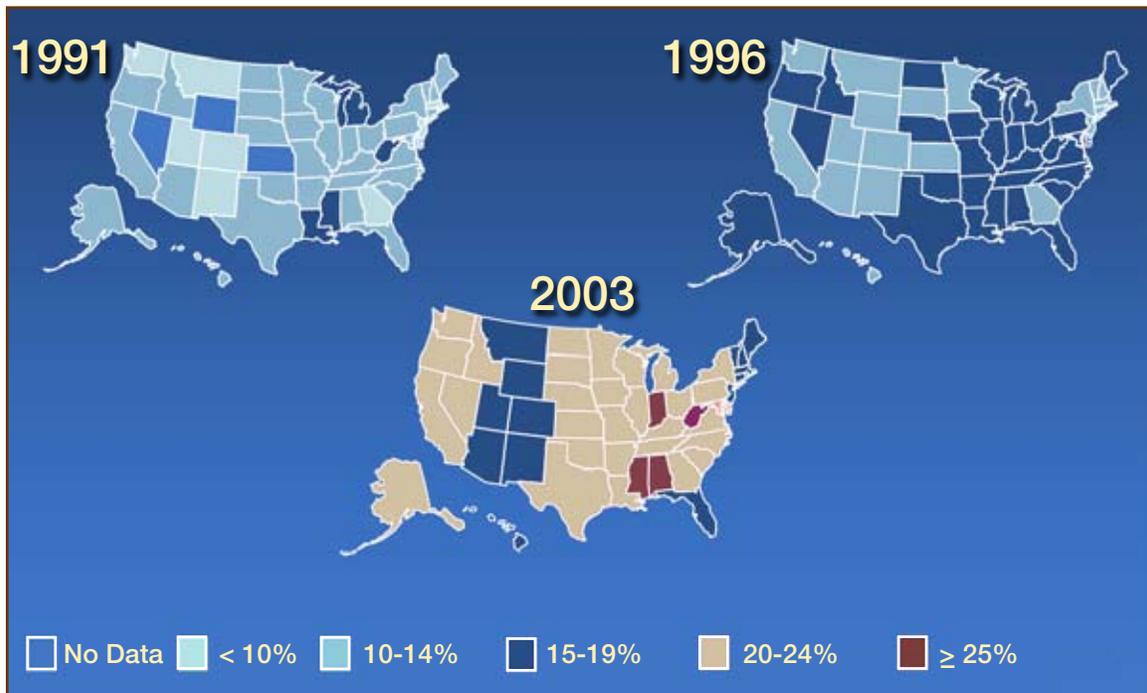
Includes Gestational Diabetes



Source: Mokdad et al, Diabetes Care 200; 23:1278-83; J Amer Med Assoc 2001; 286:10.

Obesity Trends Among U.S. Adults (1991- 2003)

(BMI ≥ 30 or about 30 lbs overweight for 5'4" person)



While it may be socially awkward to discuss weight issues with patients, Dr. Kelly advised that it is crucial for oral health practitioners to find ways to communicate the risks of being overweight, otherwise, they will soon be overwhelmed with diabetics in their practice.

.....
Epidemic growth in obesity is paralleling dramatic increases in the incidence in diabetes.

“If this were an infectious disease, what would we be doing?”
.....

Keys to Control: Landmark Studies

It's important for dental practitioners to be aware of critical factors that aid in preventing diabetes or delaying complications so they can advise their diabetic patients. Some landmark studies that highlight key factors in successfully managing diabetes include:

- ❑ Epidemiology of Diabetes Interventions and Complications (EDIC) study found that intensive glucose control reduced the risk of cardiovascular disease by 57%.
- ❑ The United Kingdom Prospective Diabetes Study (UKPDS) which focused on Type 2 diabetes, found that improved blood pressure control reduced the risk of heart failure 56%, vision loss 47%, and diabetes-related deaths were reduced by 32%.
- ❑ The Diabetes Prevention Program (DPP) studies focused on pre-diabetes patients, with the goal of preventing Type 2 diabetes. By introducing intensive “lifestyle intervention” to reduce fat and calorie intake and increase physical activity, risk of diabetes was reduced by 58% across all ethnicities and ages. The results were even more successful in people aged 60 and over wherein lifestyle changes reduced their diabetes risk by 71%.

The Bottom Line

Dental practitioners will see an increasing number of diabetics in their practice, so they need to begin integrating strategies for diabetes care and prevention as part of oral health treatment plans.

Call to Action for Oral Health Providers

Dr. Kelly emphasized that oral health providers should be prepared for a dramatic increase in diabetic and pre-diabetic patients in their practice. As those on the “front line” of health care, she encouraged oral health professionals to seize the opportunity to advise patients on ways to prevent and/or manage diabetes through healthy lifestyle and proactive education.

Take Advantage of Educational Resources

The National Diabetes Education Program (NDEP) promotes diabetes prevention and management through healthy lifestyle. As a resource for providers and patients, NDEP provides a wide array of free educational materials such as:

- ❑ Prevention tips for high-risk populations and steps for effectively controlling diabetes.
- ❑ Guides that promote collaboration and cross-training between dental care providers and other health care professionals relevant to diabetes treatment.
- ❑ Specialized materials for ethnic groups strongly impacted by diabetes, as well as guidance on integrating use of those materials into health-related incentive programs.
- ❑ Guidelines for diabetics that promote a proactive approach to their overall health care by providing specific points for discussion with their various providers, such as their dentist, podiatrist, general practitioner, etc.
- ❑ Materials tailored to community organizations such as Rotary Clubs, Lions Club, etc.

Additionally, NDEP is active with organizational partners, such as minority communities and health care workgroups, exploring the needs for each constituency to determine the most helpful resources to provide. The NDEP website provides more information: www.ndep.nih.gov.

Dr. Kelly concluded by acknowledging that while periodontal disease is not officially recognized as a risk factor in developing diabetes, the correlation between diabetes and oral health is under-recognized. As such, she encouraged practitioners to take a proactive role in diabetes prevention by engaging patients about diabetes risks and providing resources to help them make healthy changes to promote prevention and delay complications of diabetes.

Epidemiologic Perspectives on the Associations between Periodontal Disease, Glycemic Control & Complications of Diabetes

Dr. George Taylor has a passion for epidemiological research on the relationships between oral disease and systemic disease, and from that perspective, he highlighted the effects of diabetes on periodontal health and key areas of focus for interventional solutions. Dr. Taylor emphasized the importance of periodontal infection on insulin resistance and glycemic control, two conditions central to diabetes complications, and promoted the benefits of periodontal therapy to reduce diabetic risks and even help prevent diabetes.

As a foundation, Dr. Taylor started by explaining the most common forms of periodontal disease as follows:

- ❑ **Gingivitis** – The most common and prevalent condition (over 50% of the U.S. population has gingivitis). This condition is reversible.
- ❑ **Periodontitis** – An advanced form of periodontal disease that often includes loss of connective tissue between teeth and gums, as well as bone and tooth loss. Over 30% of U.S. adults aged 75 years or older suffer from severe periodontitis and over 23% for those aged 65-74.

Key Risk Factors: Inflammation & Insulin Resistance

Dr. Taylor introduced a “conceptual model” he believes is an important way to map the relationship between diabetes and periodontal disease. In simplest terms, the model looks at how one risk factor leads to another: Chronic Inflammation --> Insulin Resistance --> Poor Glycemic Control --> Complications of Diabetes.

With this model, it’s useful to compare diabetes and periodontal disease in terms of the commonalities between the two conditions that hinge on chronic inflammation and insulin resistance. From the diabetes perspective, an increasingly common cause and key risk factor is obesity, which creates chronic inflammation that promotes insulin resistance. From an oral health perspective, periodontal disease is also a condition of chronic inflammation, and when periodontitis bacteria releases into the system, it too increases insulin resistance.

What do we need to know about the correlation between diabetes and periodontal disease? In a nutshell, the two diseases have a very negative impact on each other. Some important studies that highlight this concern include:

- ❑ A landmark University of Buffalo study discovered that in children with Type 1 diabetes there was an unusual prevalence of periodontal disease (10%), whereas in non-diabetic children periodontal disease was quite rare. This study has been used for many years to support the notion that diabetes has an adverse affect on periodontal health.
- ❑ NHANES observational studies found that in U.S. adults aged 45 and older who have severe periodontitis, their glycemic control was reduced 59% over individuals without periodontal disease. Furthermore, in this study as well as some landmark studies with Pima Indians, it was observed that poor periodontal health was a risk factor contributing to poor glycemic control, and that people with periodontal disease were three times more likely to have poor glycemic control.

These studies referenced many characteristics that might influence glycemic control such as medicines, blood levels, age, ethnicity, gender, and visits to dentists and physicians. And they still found that there was “*almost five times higher odds of having poor glycemic control amongst people who had severe periodontitis than those who did not.*”

- Another series of studies examined ways in which periodontal disease increases the risk of complications of diabetes. Diabetics with severe periodontitis were found to be at greater risk of developing conditions related to renal and cardiovascular complications.

Learning from the Evidence

Next, Dr. Taylor posed the obvious question: “*What happens when you treat people with severe periodontitis? Does their glycemic control improve?*” According to Taylor, the results are promising. He highlighted evidence of the positive impact of periodontal therapy, citing increased glycemic control, improved blood cell function and reduced inflammation.

What’s important to note, said Taylor, is that “*any lowering of blood glucose helps to delay the onset and progression*” of diabetes, and as such, that’s enough reason, and a good reason, to employ periodontal therapy.

Inflammatory Pathways in Diabetes Mellitus & Its Impact on Periodontal & Perio-Implant Disease

As an expert in periodontics and a researcher of immunology and microbiology of periodontal diseases, Dr. Thomas Beikler highlighted the impact of diabetes on periodontal disease, and the need for innovative periodontal therapies and proactive solutions in patient care to meet today's growing challenges. In particular, he encouraged oral health providers to promote prevention and better control of diabetes, which can, in turn, reduce the severity of periodontal diseases and provide more efficient and economic health care.

As a starting point, Dr. Beikler illustrated some specific local effects of periodontitis such as severe bone loss, increased inflammation and reduced resistance to infection. In observational studies of diabetics with periodontitis, it was consistently clear that the poorer the control of diabetes, the more generalized the periodontal disease was likely to be.

The Challenges of Perio-Implant Therapy

Dr Beikler introduced that diabetes, in particular uncontrolled diabetes, has a severely negative impact on the success rate of perio-implants, the embedded fixtures designed to restore areas severely affected by periodontitis. Dental implants in healthy patients have a success rate of over 95%. However, in diabetic patients, the success rate drops to 80-85%, with a failure rate of over 2%. This situation is further complicated in patients whose diabetes goes unmanaged. Beikler stated that the "survival rate" of perio-implants in patients with uncontrolled diabetes is very low. Studies found that after only two years the implants had deteriorated greatly and a significant amount of periodontitis had developed.

What this tells us is that oral health providers with diabetic patients can expect to face challenges in both the increased prevalence of periodontal disease and the difficulties of treating it, even in cases involving perio-implants.

Alternative Periodontal Therapy

A key way to meet the challenges of diabetic patients with periodontal disease is to introduce periodontal therapy focused on reducing inflammation. Dr. Beikler cited successful results in such therapy, noting it activated pathways that protected the host from hyperinflammation, controlled apoptosis, and supported tissue repair. Furthermore, anti-inflammation therapy has shown to help reduce oral pathogens.

Managing Rising Costs with Proactive Changes in Patient Care

An additional consideration in treatment, according to Dr. Beikler, is the escalating health care costs associated with diabetes and periodontal disease. There's a real need for new approaches in treatment plans that provide for "*more efficient and economic health care*". In 1999 it was estimated that total spending for periodontal procedures was over \$4 billion, and nearly \$10 billion for preventive procedures. Those numbers have no doubt risen in the past 8 years. Furthermore, the American Diabetes Association projects that health care costs for diabetes treatment will reach \$156 billion by 2010, and increase to \$192 billion by 2020.

To counter these dramatic increases in health care spending, Dr. Beikler evangelized prevention-oriented changes in the patient intake evaluation, encouraging dental practitioners to supplement the traditional health profile summary and treatment plan with:

- ❑ A health risk assessment based on lifestyle, environment, and genetic factors.
- ❑ 1-year health plan and 5-year health plan personalized to each patient's needs to help them effectively manage their conditions over time.

Employing a proactive, risk-assessment approach to patient evaluation can carry important benefits that influence both diabetes and periodontal disease. Performing prevention-oriented evaluations can help to:

- ❑ Promote early detection of diabetes and periodontal disease.
- ❑ Allow for early intervention and effective management of disease.
- ❑ Facilitate individualized health plans for more efficient and economic patient care.

The Changing Health Care Landscape – Impact of Chronic Disease on U.S. Health Care

Dr. Gail Wilensky brought her vast experience with health care reform to spotlight some key problems in health care today. Her perspectives are well grounded in years of work with Project HOPE (an international health education foundation), as well as several decades leading numerous organizations, presidential task forces and congressional committees dedicated to improving health care policies and patient environments. Dr. Wilensky identified today’s primary challenges in the health care system —the unsustainable rampant growth in spending, inadequate patient safety, and low quality of patient care— and introduced proactive solutions that can benefit both patients and health care providers.

Major Challenges in Health Care Today

Dr. Wilensky addressed the key issues confronting the health care system today, highlighting the following concerns:

- ❑ **Spending** – Total health care spending in the U.S. is now topping \$2 trillion. This aggressive growth in health care spending has been 2 to 2.5% faster than the economy. In recent years, 3% of the increases in health care spending were attributed to diabetes, which has gained in prevalence by 64% compared to a decade ago.

Additionally, the past 20 years have seen an epidemic rise in obesity, increasing almost 15%. If obesity rates were at the same levels as they were in 1987, health care spending would decrease by \$200 billion.

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“If we don’t begin to curtail health care spending, we’ll see enormous problems for the rest of the economy.”
.....

- ❑ **Patient Safety** – The Institute of Medicine reports that about 100,000 patients die each year due to medical errors and related complications.
- ❑ **Quality of Patient Care** – Studies indicate that the average person in a hospital visit will receive only about 55% of the care that’s clinically appropriate. Furthermore, the increase in health costs is not translating to a higher quality of health care.

How Can Providers Make a Difference?

Dr. Wilensky stressed that in order to better this situation, “*we need to approach it in a more systematic way.*” Health care providers need to focus on solutions that allow for more efficient cost management while facilitating higher quality patient care. As examples, Dr. Wilensky suggested a variety of smart strategies, including:

- ❑ **Learn to “spend smarter”** – Be more prudent with investments in technology advances and procedures; target spending on resources that promote prevention and early detection of chronic diseases; and demand accountability around spending by developing clinical guidelines and clearly defining what you’re getting for your money.
- ❑ **Learn to “treat smarter”** – Be more proactive and innovative with chronic disease treatment; invent better care management strategies for patients with multiple chronic diseases.

- ❑ **Learn to “measure better”** – Use a scorecard to rate the quality, efficiency, and the “patient-centeredness” of care. As a model, Dr. Wilensky cited the successful efforts of Integrated Health Care Association (ICA), the largest P4P in the U.S. with 35,000+ physicians and over 6 million HMO enrollees. ICA helps manage costs and quality with a “uniform performance measurement set” that covers clinical quality, patient satisfaction and effectiveness of IT solutions. Some of the positive results include a decrease in diabetes-related hospitalizations and an increase in proactive cancer screenings.
- ❑ **Implement better information systems** – Balance sophisticated and costly medical procedures with more sophisticated systems for acquiring, managing, and sharing information.
- ❑ **Innovate better incentives** – For providers, reward those delivering high quality, cost-efficient, coordinated care; for consumers, reward healthy lifestyles and introduce value-based insurance.
- ❑ **Focus on prevention and obesity reduction** – Promote healthy lifestyle changes.

Dr. Wilensky encouraged everyone to think about all the areas that need change, the opportunities to make improvements in patient care and clinical outcomes, and ways to moderate spending. These changes will substantially benefit both patient care and our economy.

Ending on a thought-provoking note, she added, *“At the end of the day, it’s going to be all about leadership. So the question is: Can we step up to the plate and make that happen?”*

A Diabetic Triangle: The Relationship Between Diabetes, Obesity and Periodontal Disease

For over three decades, Dr. Robert Genco has focused on research into the causes, prevention and treatment of oral diseases, as well the risk factors connecting periodontal disease and systemic diseases such as diabetes. Dr. Genco emphasized the importance of determining and analyzing risk factors that increase susceptibility to periodontal disease in order to provide effective intervention and prevention.

Dr. Genco opened his discussion with a plea to the dental profession:

“Make sure we are a full partner in the management of periodontal disease as well as the management of diabetes. We see patients probably as often, if not more often than physicians. We can have a major effect on the management of diabetes. It’s not practicing medicine, it’s practicing good dentistry.”

Identifying Key Risk Factors

According to extensive research, two primary risk factors for periodontal disease are diabetes and obesity, with complications increasing substantially when diabetes and oral health are both very poorly managed.

First, looking at diabetes as a risk factor, Dr. Genco cited several landmark studies (1997 Erie County Study; 1991 Pima Indians study) in which diabetes was identified as a key indicator for periodontal disease, with diabetic individuals exhibiting tooth bone loss of 25% or more over non-diabetics. Additionally, as the research tracked new cases of periodontal disease among diabetics, they noted that while the early baseline showed little or no evidence of oral disease, less than two years later, most of the people with uncontrolled diabetes had very severe periodontitis. To punctuate the concern, Dr. Genco added that, *“You note we don’t talk about those over 45. Why? Because among the diabetics there were so few; they had died of the disease.”*

The second critical risk factor, obesity, is well documented as a contributor to diabetes. But what about periodontal disease? Is obesity a risk factor? Dr. Genco admitted that, for years, he didn’t believe it. But then Harvard studies identified that certain tissues present in obese individuals are “like a toxic organ” that lead to hyperinflammation, and can, in turn, promote the onset of periodontal infection. Dr. Genco now concedes that the connection between obesity and periodontal disease is real, in fact, representing about a 40% increase in risk.

For oral health providers, these risks present real cause for concern. Across the U.S., every state now has at least 15-20% of its population affected by obesity. And as obesity fuels the diabetes epidemic, there will be considerable increase in periodontal disease. As such, dental professionals face an immediate necessity to employ intervention therapies for diabetic patients as well as promoting prevention strategies such as lifestyle changes in diet and activity levels.

Periodontal Treatment: Medically Necessary Dental Therapy

Of course, there are other risk factors for periodontal disease as well, including genetic predisposition, bone deficiencies, even stress, which means that most individuals have at least one risk factor and, as such, Dr. Genco advised that, *“you really need to be dealing with risk-factor modification in dealing with periodontal disease.”*

In patients with Type 2 diabetes and periodontal disease, the risks of each condition are amplified against each other, so it's important to focus treatment on modifying or eliminating those risks. For example, the hypoglycemia of diabetes results in increased inflammation, which makes periodontal disease worse in diabetics. In turn, periodontal disease contributes to systemic inflammation, creating, as Dr. Genco puts it, "*a vicious cycle.*"

Taking an inventive approach to periodontal therapy is the most effective strategy for reducing the complications of both diabetes and periodontitis. A comprehensive intervention therapy should consider a "treatment triad" that includes:

- ❑ Anti-infective therapy
- ❑ Risk modification
- ❑ Regenerative therapy

Treatment strategies should include a focus on the diabetic risks that are modifiable such as obesity and periodontal infection. In many diabetics, their condition is poorly controlled, which not only escalates their health risks, but also indicates that you may face challenges in trying to encourage those patients to adopt lifestyle changes to modify those risks.

But it's worth doing because it works. Dr. Genco's research has found that including risk modification in periodontal treatment has helped improve glycemic control and reduce other diabetic complications. He encouraged practitioners to consider periodontal treatment as "*medically necessary dental therapy*", and seize the opportunity to promote these health benefits throughout their practice.

Dental Considerations for the Optimal Medical Management of People with Diabetes

“I spend an awful lot of time convincing physicians and laypeople that without good oral health you are not healthy. In many respects, people consider their head disconnected from their body.”

To introduce the focus of her discussion, Dr. Maria Ryan quoted a colleague, noting that, like him, she spends a lot of time helping people “*reconnect that head to the body.*” Dr. Ryan has devoted nearly two decades to research on the connection between oral health and systemic health, and the need for prevention and early detection of periodontal diseases. She emphasized the correlation between periodontal diseases and increased risks in systemic health, and identified the challenges in treatment and the growing need for proactive prevention.

Oral Health and Systemic Health: A Two-Way Street

Along with all the medical evidence, Dr. Ryan noted that even the Guinness Book of World Records now cites periodontal disease as the most common chronic infection in the world. Although it is progressive and incurable, periodontal disease can be treated and possibly prevented if dentists learn how to identify high risk patients.

Like many of her colleagues at this conference, Dr. Ryan cited three dominant non-microbial risk factors that amplify a person’s response to periodontal disease: **genetics, diabetes, and obesity**. Immune system disorders, hormone imbalance, smoking and stress are also contributors. In other words, many individuals are highly susceptible to periodontal disease. And yet, Dr. Ryan claimed, quite often dentists “*don’t present the treatment and management of periodontal disease much differently than they do for tooth whitening.*”

But there is a critical difference here; we’re not talking about something cosmetic. In order to protect systemic health, the oral infection must be treated. If those patients are diabetic or at high risk to become diabetic, it is critical to mitigate oral infections in order to avoid further complications in systemic health.

Proactive Tools: Risk Assessment & Risk Reduction

Oral health professionals are now challenged with a growing urgency for early diagnosis and effective treatment that supports improvements in both oral health and systemic health.

Carefully assessing a patient’s risk factors across all aspects of their health can help practitioners develop more comprehensive, holistic treatment strategies. Additionally, having a thorough understanding of a patient’s risk factors can help explain “*variability in therapeutic responses.*” Patients with multiple risk factors may not respond as well to therapy, and a thorough risk assessment can provide guidance on alternate strategies for modifying treatment over time.

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“Risk assessment is crucial. The more risk factors a patient has, the more likely they are to have very severe and aggressive periodontal disease.”
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The next proactive step is risk reduction. Many oral health providers are introducing innovative strategies to encourage healthier lifestyle as part of their treatment plans. For example, beyond basic advice about oral hygiene, some practitioners are now modifying their office environments to include space for a psychologist, nutritionist, even massage therapists. While dentists may not directly provide the counseling or therapies patients need for adopting certain lifestyle changes, dentists can partner with other health care specialists who can help. For example, instead of simply telling a patient they need to quit smoking, a dentist could refer them to a physician for treatment and also to a psychologist for help with stress management. This cross-discipline collaboration is a good way for dentists to become more actively involved in risk reduction for their patients.

Risk Reduction Through Diabetes Awareness

As incidence of diabetes is reaching epidemic proportions, and diabetes is a key contributor to periodontal disease, there exists a very real danger of an epidemic in periodontal disease as well.

A practice of 2000 dental patients might include nearly 140 diabetics, and yet only half of those people may be aware of their condition. There may also be a considerable number of patients who are pre-diabetic, i.e. strongly predisposed to acquiring diabetes.

Given the prevalence of risk factors across our nation's population, dental practitioners must ensure they're doing the appropriate risk assessments and diagnostic procedures for early detection of periodontal disease. But that's not enough. Dental practitioners should also become familiar with diabetes, learning how to identify both the risk factors and symptoms, and promoting diabetes education to their patients.

- ❑ Learn to identify classic signs, symptoms and oral manifestations of diabetes.
- ❑ Conduct patient risk assessments and interviews, and refer patients to physicians.
- ❑ Perform preliminary diagnostics such as non-fasting/fasting plasma glucose tests.

Another critical step in risk reduction is to collaborate with physicians to learn more about diabetes and help to innovate procedures and therapies that benefit diabetic patients. This step is especially valuable as it provides dental practitioners the opportunity to educate physicians about periodontal disease and the ways in which it can manifest in diabetics, particularly those with poorly controlled diabetes. Many physicians are under-informed about periodontal disease, so getting the word out is a crucial proactive step.

Proactive Strategies: What Else Should We Do?

So, is that enough? Definitely not, according to Dr. Ryan, who passionately outlined many more proactive changes that could aid in the detection, management and prevention of both diabetes and periodontal disease. In particular, she highlighted the following ideas:

- ❑ "The two ADAs should get together" (American Dental Association and the American Diabetes Association) to develop best practice guidelines for treating diabetic patients.
- ❑ Establish oral health as a core element in any program for diabetes management, and inversely, integrate diabetes education into all dental school programs and continuing education.
- ❑ Advance information systems to allow for shared electronic records between dentists and physicians.
- ❑ Develop diabetes risk assessment and surveillance tools to provide ready-made resources for dentists.

- ❑ Incorporate medical reviews into dental exams, such as patient medical history, last exam, and level of glycemic control. It may also be helpful to call physicians to confirm patient status, as people often don't know how to communicate the specifics of their condition.
- ❑ Encourage diabetics to seek dental care and educate them on the signs and symptoms of periodontal disease. It's also important to inform people on what to expect in a periodontal exam, and advise them to ask for one if their dentist isn't doing it already.

“The group practice of the future is the dentist working with the physician,” noted a colleague of Ryan's. Indeed, any advances in cross-discipline collaboration will represent a major leap forward in the cohesive management of oral health and systemic health.

Steven Aldana, Ph.D.

Founder & President, Lifestyle Research Group

10-20 Years of Extra Life: The Choice is Yours

Dr. Steven Aldana is passionate about healthy lifestyle and he believes everyone should be. Why? Because we can't afford not to be, literally.

To set the stage for his presentation, Dr. Aldana explained his rigorous lecture schedule of meeting week after week with numerous large employers who can no longer afford to pay for health care. These employers face grave concerns about employee health and productivity, and are looking for solutions to prevent and manage chronic disease in the workplace.

Bringing over 20 years of experience in researching the correlation between lifestyle and longevity, Dr. Aldana spotlighted alarming statistics about our nation's declining state of health, and emphasized how positive lifestyle changes are essential to actively preventing disease and extending lifespan.

Health Care Spending: Why Aren't You Getting Your Money's Worth?

Health care represents 15% of our nation's overall spending; double the amount spent in many other nations. That means U.S. employers pay premiums twice as high as their colleagues in other countries. In theory, this should be buying employers "the Cadillac of health care" as Dr. Aldana puts it. "Wouldn't you expect to have the best health outcomes if you're paying double, in some cases ten times the rest of the world?"

Unfortunately, even with this excessive spending, the U.S. has a shorter average lifespan than many other countries. In fact, statistically the U.S. is 43rd on the list; even many African countries have a longer average lifespan than Americans, which seems absurd given we pay ten times more for our health care.

Dr. Aldana posited that what the U.S. is really doing is "disease care" focusing mainly on treatment and early detection. While that is vitally important, it is not prevention in the truest sense. Prevention is real "health care", that is, taking proactive care of one's health on a daily basis.

How Obesity is Killing Us, Sooner

When talking about prevention, it's impossible to ignore one of the most dominant health problems in the U.S. today, one that is, for most people, entirely preventable: obesity. It's now estimated that two-thirds of U.S. adults are overweight or obese, and that 29% of the increase in health care costs is attributed to obesity. If this current trend of unhealthy lifestyle persists, the near future may see over 81% of our nation's population suffering from obesity.

According to Dr. Aldana, there's a "penalty" associated with obesity: you die sooner. In the U.S., average lifespan for healthy individuals is about 74-80 years, whereas for overweight individuals the average lifespan is only 71-76 years, and for obese individuals it's only 67-73 years. That means a life cut short by up to 7 years, all for something that is preventable.

Compounding this issue is the epidemic of diabetes, which can further shorten lifespan. Research estimates that people who develop diabetes near age 40 have an average lifespan of 62-66 years, nearly 12-14 years less than healthy individuals.

Now consider that obesity is widely recognized as a key contributor to diabetes. Individuals with a high BMI (body mass index) are estimated to be 38 times more likely to develop Type 2 diabetes than those with low BMI. If we're doing the math, it means obesity is also a key factor in the prevention of diabetes.

Preventing Disease Through Healthy Lifestyle

Just how essential is a healthy lifestyle in preventing disease and extending lifespan? To address this, Dr. Aldana noted one of his favorite studies, which gathered all recent epidemiologic and clinical trial data across the U.S. and averaged it out to determine the top risk factors for the most dominant diseases. The answer? Tobacco use, lack of physical activity, and poor diet. Those three factors are attributed to 71% of all cancers, 82% of all heart disease cases, and, most alarmingly, 91% of all Type 2 diabetes cases.

Another important fact is that diabetics who lead a healthy, low-risk lifestyle have an average lifespan of up to 88 years, nearly 20 years longer than diabetics who live an unhealthy, high-risk lifestyle. The Diabetes Prevention Program (DPP) studies found that pre-diabetics who integrated positive lifestyle changes reduced incidence of diabetes by 58%, and a further 71% for those aged 60 and over. That's a very substantial win. So why aren't more people doing it?

Winning the David vs. Goliath Battle

We can substantially reduce risks through healthy nutrition and active lifestyle. And yet, for many people it's not that simple. We are a culture of convenience, and yet many of those conveniences are killing us. Consider our choices about the following:

.....
“What we do with our lifestyle is a big predictor in the diseases and outcomes that we ultimately have in our life.”
.....

❑ **Food** – When time is short and money is tight, fast food often seems like a reasonable solution. Health care professionals strive to counter this by promoting healthy lifestyle, but they face very stiff competition. The marketing machine behind the fast food industry really knows how to influence and change behavior of the average American. Furthermore, many people don't understand the nutritional guidelines on food packaging, so it may be hard for them to know how to make healthier choices.

Add the fact that while the fast food industry represents billions of dollars in junk food, vending machines and other concessions, they also stay strong by securing partnerships with organizations such as schools, sports affiliations, and the TV and film industry, all of whom have a vested interest in supporting their “sponsors.”

❑ **Everyday Tasks** – As technological advances make common tasks quicker and easier (consider the transition from a push lawn mower to a riding mower with a cup holder), so-called improvements often change our eating behaviors and activity levels. As such, advances intended to make life easier are also making it more dangerous healthwise.

❑ **Urban Space** – World population has nearly doubled since the 1960's; cities now have fewer areas where people can comfortably walk or ride a bike. As urban sprawl has become the norm, most people rely on cars or public transportation to get around. This model alone is having a big impact on our health, and, Dr. Aldana stressed, we need to promote state policy changes in order to course-correct it.

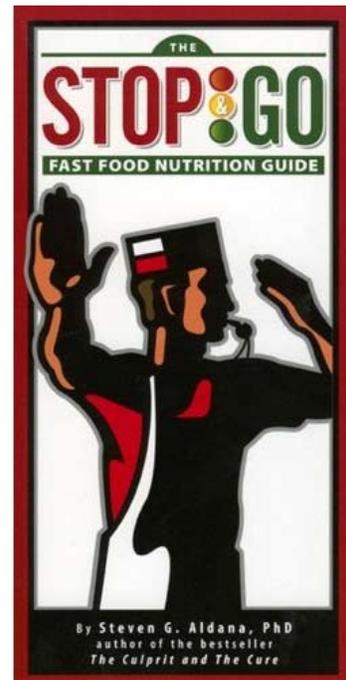
It's a classic David vs. Goliath scenario. The marketing media influences people by playing on a fundamental human need: we all need to feel good about ourselves. Thus, goods are promoted mainly in terms of how happy or sexy we will feel; how we'll be a winner – ideas that resonate with most people.

Why isn't the health care industry more successful in changing behavior? Because what they're saying is not resonating. Perhaps the messaging sounds too academic or clinical, so people don't understand what to do or can't discern the value.

For the health care industry to have any hope of winning this lifestyle battle, they need to get more inventive about how they reach people. What does that look like? Creative solutions that nurture positive changes in daily habits using common, familiar models people can easily relate to. As a good example, Dr. Aldana promoted his newest book, *The Stop & Go Fast Food Nutrition Guide*, which provides a simple, color-coded guide for making healthier food choices. Not only available to the general public, employers can order this guide customized with their company branding, using the book as part of their own workplace wellness program.

Dr. Aldana's other book, *The Culprit and The Cure* highlights the benefits of healthy lifestyle for preventing disease and increasing lifespan.

It all comes down to this: What's in it for you? A higher quality of life right now, and 10-20 more years to enjoy it.



Integration of Medical and Dental Benefits for Improved Overall Health

After years as a dentist and successful entrepreneur, Dr. Errante now brings his entrepreneurial spirit to his leadership role in Blue Cross, promoting innovative strategies for creating more cost-effective and “member-centric” health care. His research has focused on the need to integrate oral health and overall health to more effectively improve outcomes, both physically and financially.

According to Blue Cross, there are significant differences in medical costs and health risks between individuals who access dental treatment and those who don’t. The surprising fact is that the ratio of access and non-access was about 50/50. Everyone was covered by insurance, so it wasn’t a cost issue; it was more likely a lack of concern. However, some of the most prevalent medical conditions present substantially higher risk when oral health is compromised at all, so the average dental patient really needs a wake-up call. Some key examples include:

- ❑ **Diabetes** – Blue Cross claims data shows that medical costs for diabetics who accessed dental care for prevention and periodontal services averaged \$558/month, while medical costs for diabetics who didn’t get dental care were about \$702/month.
- ❑ **Heart Disease** – Highlighting the correlation between periodontal disease and cardiovascular disease in financial terms, insured individuals with cardiovascular diseases who accessed dental care had lower medical costs, in fact, \$238/month lower than people who did not seek dental treatment.
- ❑ **Pre-Term Low Birth Weight Babies** – Over 12% of all births in the U.S. are delivered pre-term, with many infants at risk of birth defects. The risk of premature birth is 7 times higher in women with periodontal disease. Yet, with dental care intervention by the second trimester, this risk is reduced by 70%. As such, it’s essential that dental practitioners evangelize regular dental care to their (relevant) female patients as a proactive measure in ensuring a healthy pregnancy.

Why don’t people go to the dentist if they’re insured? Sometimes people don’t know where to go, or they have trouble making or getting to appointments. Blue Cross has created outreach programs to address these concerns. A more prominent reason, however, is lack of awareness about the importance of regularly maintaining good oral health.

There’s also the cost issue. The annual allowance in most dental premiums isn’t enough to cover extensive procedures or ongoing care for periodontal disease. Thus, too often people are not getting the appropriate treatment when they need it most. Dr. Errante is trying to change all that.

.....
Why don’t people go to the dentist?
A primary reason is that they don’t recognize the need for regular dental care, and have no idea that their oral health is affecting their overall health.
.....

The Call to Action for Better Health

75% of Americans will develop periodontal disease by the age of 35 or older, which means the majority of our population will have increased risks to their systemic health as well. Blue Cross has recognized this situation as a major call to action and thus, now invests considerable effort into focused outreach and health plans that educate the public, employers, policy makers, even groups with Blue Cross about the necessity to care for oral health along with their medical health.

The Dental Blue program, part of the Blue Cross Proactive Health Management initiative, focuses on an integrated approach to health care with the following goals:

- ❑ Proactively identify health risks that span medical and dental concerns.
- ❑ Innovate smart strategies that yield the greatest health gains.
- ❑ Facilitate lifestyle changes through education, outreach, and individualized treatment plans.
- ❑ Improve overall health and productivity, thereby lowering lifetime health care costs.

With this proactive approach, Dr. Errante hopes to see changes in health care that reduce the cost impact and increase the focus on improving quality of life.

Calls to Action

The Institute for Oral Health 2007 conference focusing on periodontal disease and diabetes brought to light many valuable insights and went a long way to raise awareness across an audience from all walks of the health care industry.

Key takeaways that everyone agreed upon included the following calls to action:

- ❑ **Promote education** about the connection between oral health and systemic health across practitioners and the public, employers and policymakers.
- ❑ **Expand the scope of patient care** to include more focus on overall health, and raise patient expectations about how their dentist can support them.
- ❑ **Define the value proposition** of integrating dental and medical care to motivate paradigm shifts in health care practices and policies.
- ❑ **Motivate the public to drive change** in health care delivery by educating them on the benefits of integrated care from their dentist and physician. Public demand for cross-discipline treatment plans can provide incentive that drives change in the health care system.
- ❑ **Make people want what they need.** Patients are more concerned with cost than value, and too often forego needed services for that reason. Oral health providers need to be innovative and creative in communicating with patients, motivating them to embrace what's really important.
- ❑ **Introduce more periodontal care** into daily dental practice so providers increase their expertise in preventing, detecting and managing periodontal disease. Additionally, this can help patients learn the importance of preventive care and how to recognize concerns that may need prompt attention.
- ❑ **Promote disease prevention** by recognizing the lifestyle risk factors that contribute to periodontal disease and diabetes, and support patients in making healthy lifestyle changes.

Closing on an inspiring note, the conference raised many provocative questions that can motivate health care professionals to innovate and promote changes that move the system forward in a positive way.

For more information on the Institute for Oral Health, please visit: www.iohwa.org.