

Investment in research saves lives and money



facts about:

Diabetes and Oral Health

Today:

- Individuals with diabetes are two times more likely to develop periodontal disease than those without diabetes.^{**}
- 1 in every 5 cases of total tooth loss in the U.S. is associated with diabetes.^{*}
- 59.7% of African Americans with T2D have periodontal disease.^{^^}
- Individuals with diabetes who are 45 and older with poor control over their blood glucose levels are nearly three times more likely to develop gum disease than non-diabetic individuals. Add smoking into this equation and the likelihood increases to 4.6 times.⁺
- In 2013, diabetes affected more than 385 million people worldwide. If current trends continue, by 2035 there will be nearly 600 million people with diabetes globally.[^]

The Cost:

- 1 in every 5 healthcare dollars spent in the U.S. is on individuals diagnosed with diabetes.[^]
- On average, individuals with T2D and untreated periodontal disease pay \$7,056 annually in direct medical costs, compared to individuals with T2D but with treated periodontal disease, who pay \$4,216.[•]

SAVING LIVES

SAVING MONEY

HOW RESEARCH CAN SAVE LIVES:

- Controlling blood sugar, or glycemic control, is at the heart of diabetes management. Research has shown that not only does controlling blood glucose levels decrease the risk for periodontal disease, but effectively treating periodontal disease can improve glycemic control by 0.4% in people with diabetes. This is significant as a 1% improvement in glycemic control in people with diabetes is associated with a 21% drop in mortality and a 35% reduction in microvascular complications such as kidney, eye, and nerve damage.^{□, v, **}
- Researchers at Columbia University found that the number of missing teeth and percentage of deep periodontal pockets can be used to identify dental patients with unrecognized pre-diabetes or diabetes in 3 out of 4 cases. This is increasingly important because an estimated 30% of people with diabetes are unaware of their diagnosis. This research indicates that dental professionals may have the ability to assume an active role in identifying patients at risk for or impacted by diabetes and to direct them to receive appropriate care, possibly leading to fewer untreated cases of diabetes, and less severe comorbid conditions.^{*+}

HOW RESEARCH SAVES MONEY:

- Researchers at the University of Michigan have found that individuals with diabetes who receive regular dental cleanings pay 14 to 19% less in direct medical costs than those who do not receiving cleanings.[°]
- Research has found that for individuals with T2D, completing treatment for periodontal disease reduces their annual medical costs by 40.2%, or \$2,840 per person on average, and hospital admission rates by 39.4%.[•]

"If you think research is expensive, try disease."

- Mary Lasker 1901-1994

Individuals with Type 1 Diabetes Mellitus (T1D) or Type 2 Diabetes Mellitus (T2D) are at an increased risk for oral health issues, particularly a type of gum infection called periodontal disease. This type of infection can range from simple gum inflammation to major damage to the soft tissue and bone that support the teeth, which can cause tooth loss. Those with poor control over their blood glucose levels, demonstrated by high HbA1c levels, are at the highest risk for developing oral health issues.[•]



researcher:

NAME: Robert Genco, DDS, PhD

TITLE: Vice Provost, Science, Technology Transfer, and Economic Outreach (STOR), Distinguished Professor of Oral Biology, Periodontics, Microbiology at the University of Buffalo, the State University of New York

Robert Genco, DDS, PhD, has spent nearly 30 years researching the interaction between periodontal disease and diabetes. His research identified the relationship between blood glucose control and the increased risk of developing periodontal disease. Additionally, his research found those with both diabetes and periodontal disease are over two times more likely to die from heart or kidney disease. More recently, Dr. Genco identified unique bacteria in the mouths of those with diabetes and periodontal disease which secrete toxins that may increase bad cholesterol, further intensifying comorbid conditions.

Dr. Genco's research suggests the importance of oral health in managing diabetes. Treating gum disease can improve blood sugar control, and controlling blood sugar can reduce the severity of periodontal disease, a relationship Dr. Genco calls a "two-way street." He has devoted time leading courses to educate dentists and physicians about this relationship. Dr. Genco says "it is a wonderful opportunity for dentistry to get involved in screening and detection of diabetes."

While his work shows great promise for diagnosing, treating, and preventing diabetes and periodontal disease, he says more funding is needed. He believes the outcomes would provide a major return on investment: "If you correct for inflation, the NIH budget has declined over the last few years and it has really been a major detriment to research in all areas, including this area. Controlling these two diseases has a high potential for saving lives, for promoting health, and reducing medical costs."

facts about: } Diabetes and Oral Health

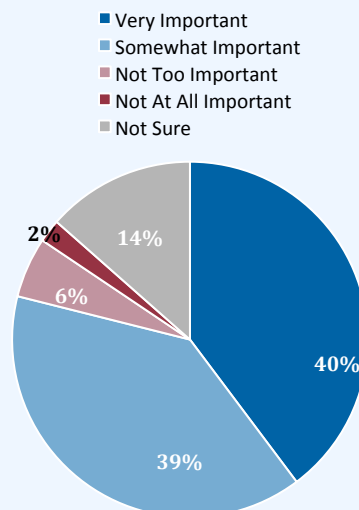
Hope for the Future:

- The Diabetes and Oral Health Research Team at the University of Texas Health Science Center is exploring many different avenues of research including: bone and tissue regeneration in cases of severe periodontal disease in T2D; surgical implants in patients with diabetes to repair existing damage; and phase III clinical trials to determine the effectiveness of non-surgical periodontal therapy at reducing elevated HbA1c levels for individuals with diabetes.
- Scientists at the University of North Carolina at Chapel Hill are conducting an observational clinical trial in collaboration with the National Institute of Dental and Craniofacial Research. The goal is to collect information on the outcomes of dental implant surgery in individuals with diabetes. This study will provide valuable knowledge to inform the recovery process, and researchers hope funding will be deployed to reduce adverse outcomes from the invasive procedure.^x

National Poll: Americans Believe Research is an Investment in the Future

How important is investing in research to job creation, technological breakthroughs and economic growth?

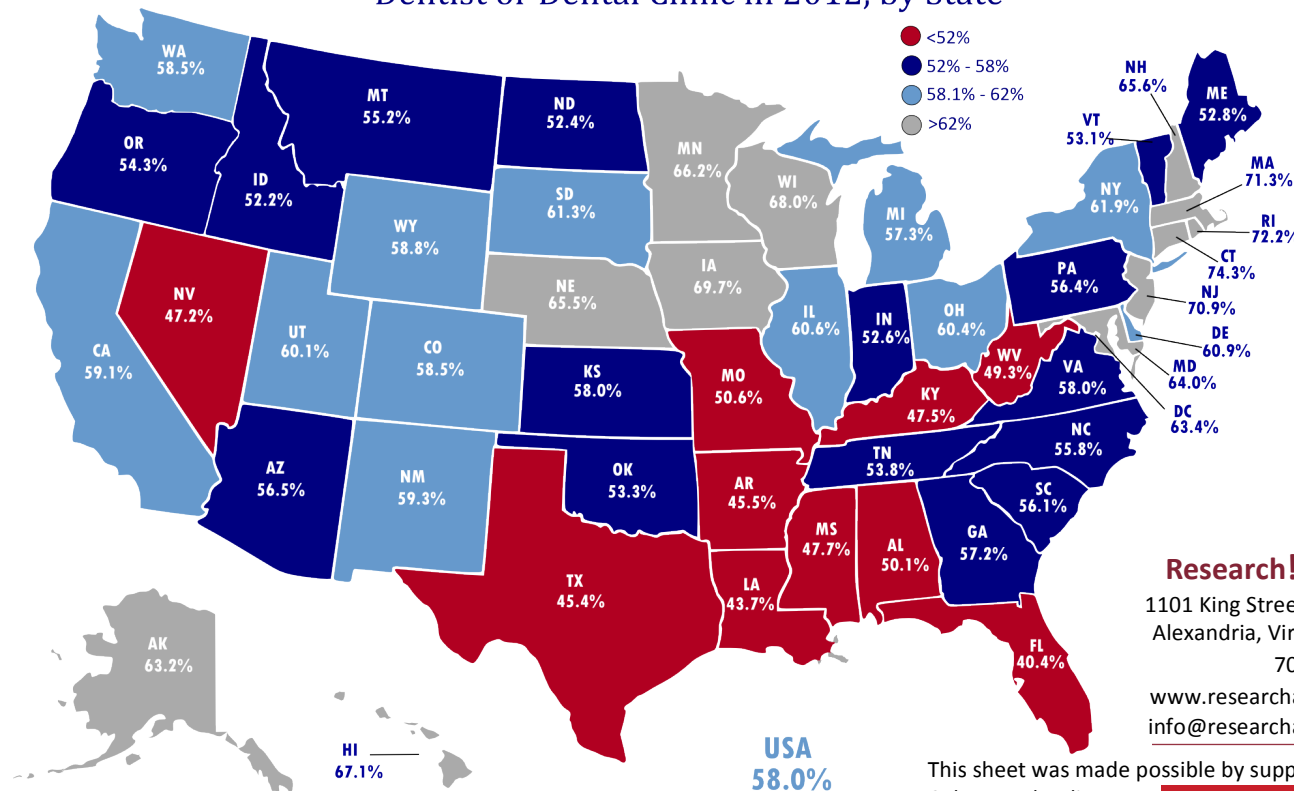
SOURCE: A RESEARCH!AMERICA POLL OF U.S. ADULTS CONDUCTED IN PARTNERSHIP WITH ZOGBY ANALYTICS IN JANUARY 2015.



The Bottom Line:

The oral health of individuals with diabetes is pivotal to their overall health and wellbeing. In some cases, oral health can be a reliable indicator for systemic health. According to the National Institute of Dental and Craniofacial Research daily brushing and flossing, regular dental check-ups and good blood glucose control as the best defense against the oral complications of diabetes. Additional research is needed to further develop tools and resources for dental practitioners to enhance safe and effective oral medical care for patients with diabetes.

Percentage of Adults with Diabetes who Visited a Dentist or Dental Clinic in 2012, by State⁺



Research!America

1101 King Street, Suite 520
Alexandria, Virginia 22314
703.739.2577
www.researchamerica.org
info@researchamerica.org

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For additional information, *National Diabetes Education Program*:
"Working Together to Manage Diabetes: A Guide
for Pharmacy, Podiatry, Optometry, and Dentistry"

The Albert and Mary Lasker Foundation is a founding partner in this series of fact sheets. www.laskerfoundation.org

◆ NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH <WWW.NIDCR.NIH.GOV>

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● JEFFCOAT, M. K. ET. AL. AM J PREV MED, 2014. 47(2):166-174.

^ INTERNATIONAL DIABETES FEDERATION <WWW.IDF.ORG>

▽ BASCONES-NARTINEZ, A ET. AL. AM J DENT, 2014. 27(2):63-67

^^ EKE, P. ET. AL. J DENT RES, 2012. 91(10): 914-920.

++ CASANOVA, L. ET. AL. BRITISH DENT J, 2014. 217: 433-437.

‡ LEITE, R. S. ET. AL. AM J MED SCI, 2013. 345(4):271-273

□ PRESHAW, P. M. ET. AL. DIABETOLOGIA, 2012. 55:21-31

Δ AMERICAN DIABETES ASSOCIATION <WWW.DIABETES.ORG>

× CLINICALTRIALS.GOV <CLINICALTRIALS.GOV>

* AMERICAN DENTAL ASSOCIATION <WWW.MOUTHHEALTHY.ORG>

+ CENTERS FOR DISEASE CONTROL AND PREVENTION <WWW.CDC.GOV>

** AMERICAN DIABETES ASSOCIATION. DIABETES CARE, 2013. 36: 1033-1046.