

Why Diabetes?

The CDC refers to diabetes as the “Epidemic of Our Time”

- 25.8 million children and adults in the US with diabetes 8.3% of the total population
- It is estimated that 7 million people have undiagnosed diabetes
- 1.9 million new cases were diagnosed in people ages 20 and older in 2010
- 79 million with pre-diabetes

What is Diabetes?

Diabetes is a disease in which the body cannot produce or use insulin characterized by high levels of blood glucose


- HbA1c \geq 6.5%
- Fasting glucose \geq 126 mg/dl
- 75 gram OGTT 2 hour value \geq 200 mg/dl
- Random glucose \geq 200 mg/dl

Common risk factors:

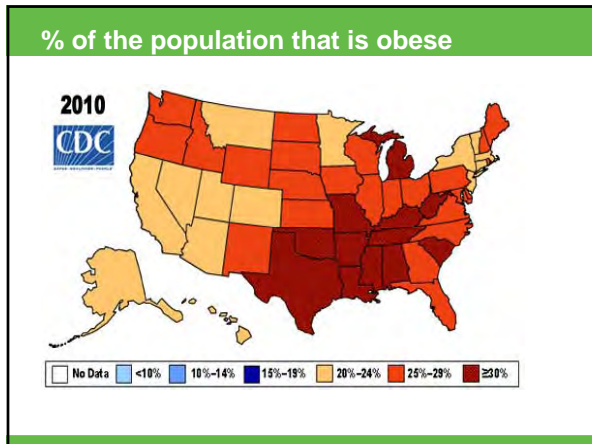
- obese or overweight
- family history
- habitual inactivity

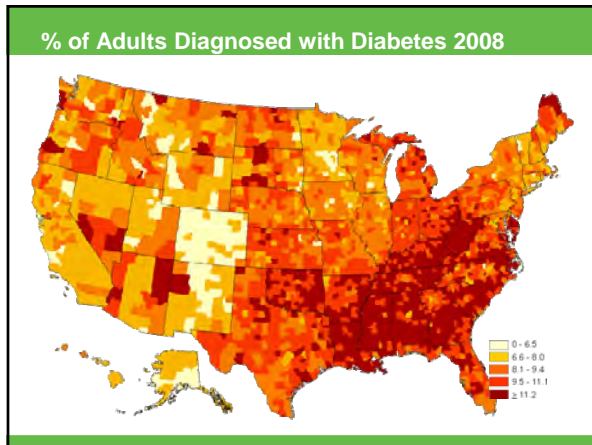
Common symptoms:

- excessive thirst/urination
- frequent infections
- constant hunger
- fatigue



Source: Diabetes Care, Volume 33, Supplement 1, January 2010.





Why Does Diabetes Continue to Command Our Attention?


Because **EVERY 24 Hrs** there are:

- **4,100** New Cases of Diabetes,
- **810** Deaths Due to Diabetes,
- **230** Amputations,
- **120** Kidney Failures
- **55** New Cases of Blindness

Source: NIDDK, National Diabetes Statistics fact sheet. HHS, NIH, 2005.

Estimated Cost of Diabetes in the United States

- **Direct Medical Cost: \$116 billion**
- **Indirect Cost: \$58 billion**
- **Total Cost: \$174 billion**



Approximately \$1 out of every \$10 spent on health care can be attributed to diabetes!

Source: CDC 2007

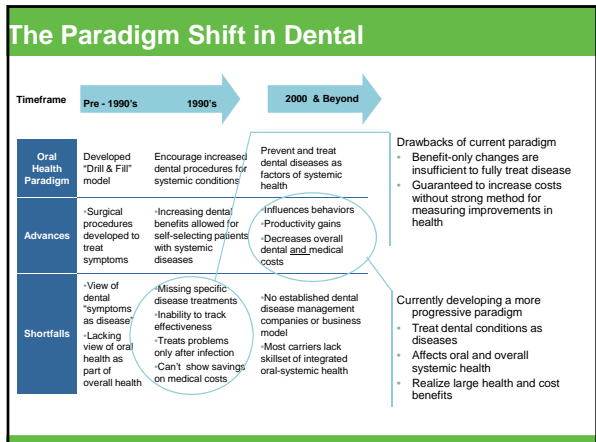
Why Diabetes?

Diabetes now affects more than 600,000 Washington residents:

- Approximately 444,000 people in Washington have diagnosed diabetes.
- More than 162,000 people have undiagnosed diabetes.
- Over 1.4 million people have pre-diabetes.

Diabetes and Periodontal Disease

Exploring New Paradigms




Dental Disease linked to Diabetes

- **Periodontal, or gum, disease is more common in people with diabetes. Among young adults, those with diabetes have about twice the risk of those without diabetes.**
- **Adults ages 45 years or older with poorly controlled diabetes—A1C above 9 percent—were 2.9 times more likely to have severe periodontitis than those without diabetes. The likelihood was even greater—4.6 times—among smokers with poorly controlled diabetes.**
- **About one-third of people with diabetes have severe periodontal disease consisting of loss of attachment—5 millimeters or more—of the gums to the teeth.**

What is Periodontal Disease?

Periodontal (gum) disease, including gingivitis and periodontitis, is a serious infection



Periodontitis


- Bacteria are essential but insufficient by themselves to cause disease:
 - P. Gingivalis
 - T. Denticola
 - B. Forsythus } "Red Cluster"
- The host must be susceptible
- Studies conducted in twins suggests that 1/2 the expression of periodontal disease affecting the population appears to be due to genetic factors

Periodontal Diseases

- Most Common Dental Condition
 - 75% of adults over age 35 will be affected by periodontal disease
- High Morbidity
 - Chronic and Progressive
- No Cure
 - Treatable and Preventable
- Linked to Systemic Health

Warning Signs

- Gums that bleed easily
- Red, swollen or tender gums
- Gums that are pulled away from the teeth
- Persistent bad breath
- Pus between the teeth and gums



People with diabetes and severe periodontitis have:

- 82% have had 1 or more macrovascular complication (heart attack or stroke) vs 21% w/o
- Death rate due to CVD is 2.3 times higher
- Death rate from nephropathy is 8.5 times higher

Disease process

Diabetes Mellitus → Periodontal Disease

Effect of periodontitis on metabolic state

Effect of periodontitis on metabolic state

Periodontal Disease → Diabetes Mellitus

Periodontal Therapy → Improved Glycemic Control

Does Periodontal Disease Affect Glycemic Control?

Intervention study:

- 125 Type 2 DM patients, severe periodontitis, 5 groups
- Periodontal status, HbA1c and pooled subgingival plaque sample at baseline, 3 months, 6 months

Grossi et al. J Perio 1996, 1997

Effect of Periodontal Therapy on HbA1c

Can Periodontal Treatment Affect Glycemic Control?

Treatment Group	Reduction in HbA1c (%)
Water-Doxy	~0.9
CHX-Doxy	~0.5
Iodine-Doxy	~0.5
CHX-Placebo	~0.2
Water-Placebo	~0.3

* p < 0.04

Grossi et al. 1996, 1997

For every 1% reduction in A1c, the risk of microvascular complications (eye, kidney, and nerve damage) can be reduced by up to 40%.

Source - http://www.cdc.gov/diabetes/pubs/pdf/dn1s_2007.pdf


Diabetes Screening by Dentists

Early Detection:

- Periodontal exam: 93% of patients with periodontal disease met the standards for diabetes screening compared to 63% of non-periodontal patients; (Strauss, et al; Journal of Public Health Dentistry)

Glucose Monitoring in the dental office

- **Glucose monitoring device**





Fasting glucose ≥ 126 mg/dl

Random glucose ≥ 200 mg/dl

HbA1c testing in the dental office

HbA1c test kit

- HbA1c value in 5 minutes
- 99% accuracy with laboratory test results

Disease Management Approach

Disease Management Steps	Identification	Enrollment	Intervention	Evaluation
Dental-Only Approach	-Patients self-identify based on pain/discomfort -Only after disease has reached acute stage	-Patients must take the initiative	-Patients given oral hygiene advice by dentist -Check-up every 0-2 times per year, watching for change to condition -Repair condition	-Evaluate progress on restorations, not against disease -Data and lessons not shared nor analyzed at macro level
Dental DM Approach (for Dental Diseases)	-Data analysis of historical dental procedures -Risk assessment performed by dentists -Self-reported behavior assessment	-Patient outreach -Provider outreach	-Ongoing patient and provider communication	-Data analytics on risk categorization, behavior, dental procedures, and outcome -Show benefits of intervention (savings and health)
Dental DM Approach (for Systemic Diseases)	-Integration with existing Systemic DM services to identify those at-risk for, or with, chronic conditions	-Automatic enrollment for systemic DM patients	-Communications through existing systemic DM program channels, as well as the above	-Pull and push data between existing Systemic and Dental DM programs -Evaluate change in medical conditions and correlate with dental events -Show benefits of intervention (savings and health)

Total Health Solution

Total Health
Leveraging analysis of combined dental and medical claims data to create individualized, innovative plans that include tiered engagement strategies focusing on education and outreach to improve the health and productivity.

- Medical + Dental Integrated Solution**
 - Mining of medical & dental claims data
 - PHA data
 - Disease management participation
- Smart Strategies**
 - Identify members with conditions impacted by oral health
 - Identify members with evidence-based need
 - Tracking results
 - Focus resources on members with most to gain
- Behavioral Change**
 - Education
 - Focused Outreach
 - Plan Design
- Improvement in Health and Productivity**
 - Lower cost of care over the life of the member
 - Increased productivity
 - Lower absenteeism
 - High quality, focused care that leads to a healthier life

Dental Disease Management

Dental Disease Management Pilot

- 2003 claims data showed that members that received Dental Prophylaxis and/or Periodontal Treatment had \$144 PMPM lower medical costs than members that did not seek these treatments.
- 2008 claims data showed an \$811 PMPY difference in costs for these two cohorts

Thank you

Questions?
