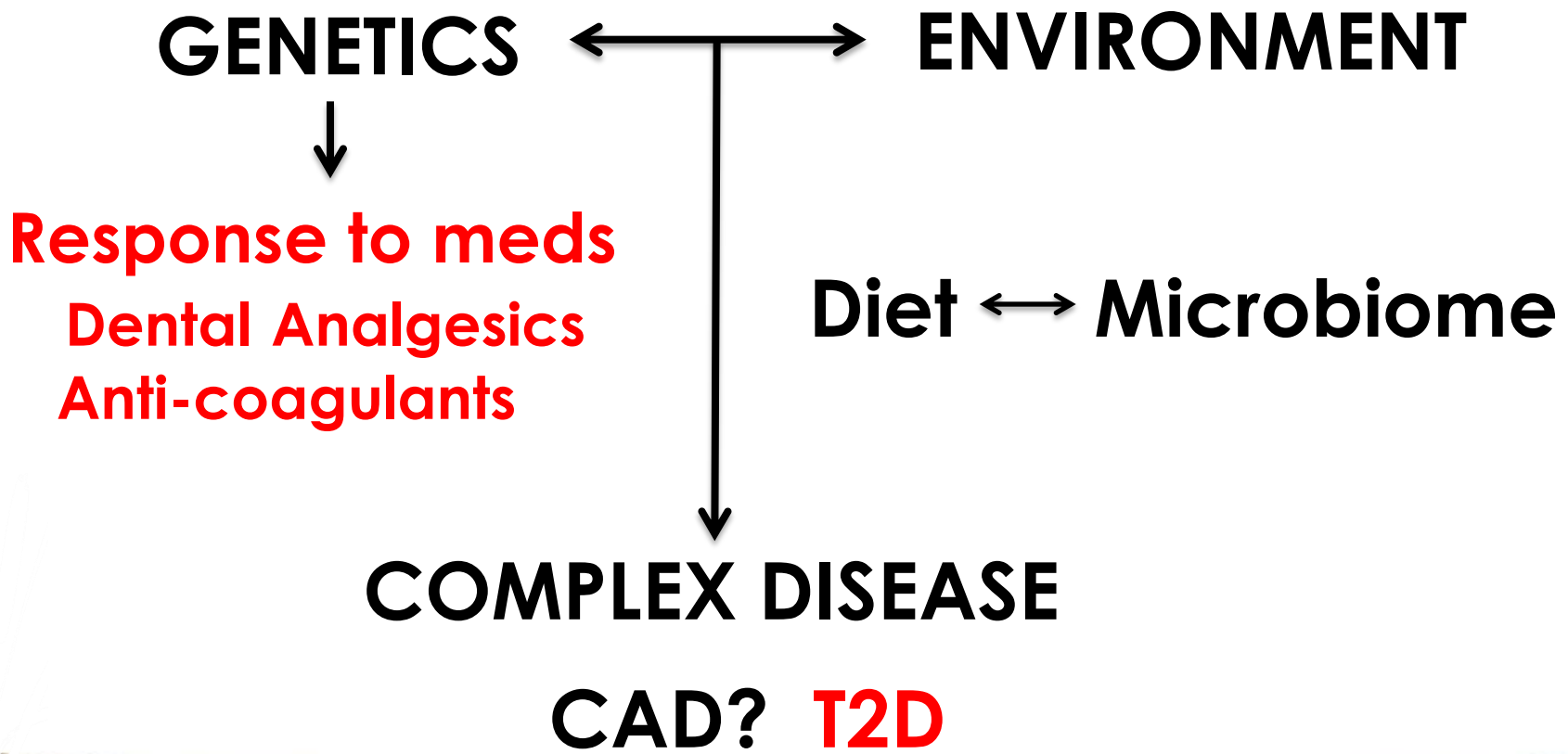


Periodontal Microbiome Working Group



Periodontal Microbiome Working Group

Goal: To establish an Oral/Systemic Health Research Network

Aim: Share/pool patients and data across network to advance Translational Medicine and Dental Care

Process: Institute standards and best practices

Periodontal Microbiome Working Group

Progress to date

Two teleconferences: January 25th and February 24th, 2012

Reps: Geisinger Health System

Morehouse School of Medicine

Mount Sinai School of Medicine

National Human Genome Research Institute

Ohio State University Medical Center

University of Medicine and Dentistry of New Jersey

University of North Carolina

University of Pennsylvania

University of Pittsburgh

University of Illinois at Chicago



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- **Inclusion/Exclusion criteria**
- **Expected sample size**
- **Periodontitis case definition**
- **Types of oral samples to be collected**
- **Number of oral samples to be collected per patient**
- **Timing of collection of samples**
- **Ability to follow-up patient after initial sample collection**
- **Method for identifying microbial species present in the oral samples**
- **Method for collection of oral samples**
- **Method for extraction of nucleic acids from oral microbiome samples**
- **Other types of biological samples to be collected**
- **Other primary phenotypes of interest**
- **Methods for determining other primary phenotypes**



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Inclusion/Exclusion criteria

- **Age ≥ 45 years**
- **Place of residence ≤ 60 miles from the dental clinic**
- **No routine dental visit for cleaning and examination in the past 365 days**
- **Has at least 1 each of incisors, cuspids, and bicuspids, and 2 molars on each side of the mouth**
- **Has used Marshfield Clinic as the system of care at least once during the past 3 years and has a primary care provider within Marshfield Clinic**
- **No antibiotic treatment in the past 3 months**



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Periodontitis case definition

CDC/American Academy of Periodontology case classification system; these two organizations participated in a working group that developed case definitions for use in population-based surveillance of periodontitis

AHA Statement on Periodontal Disease and ASVD

Lockhart, et. al., Circulation, 2012

Present studies (observational) to date support association with Atherosclerotic Vascular Disease, but does NOT support a causal relationship.

Does not take into account microbiome variation

However, Short term PD Rx does lead to:

- 1) Decreased systemic inflammation
- 2) Decreased endothelial dysfunction

Diabetes and periodontal diseases: interplay and links

Lakschevitz et al., Curr Diabetes Rev, 2011

Present studies (observational) to date support association with Atherosclerotic Vascular Disease, and supports a bidirectional causal relationship.

Treatment of PD benefits metabolic control in T2D pts.



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Demonstration Project:

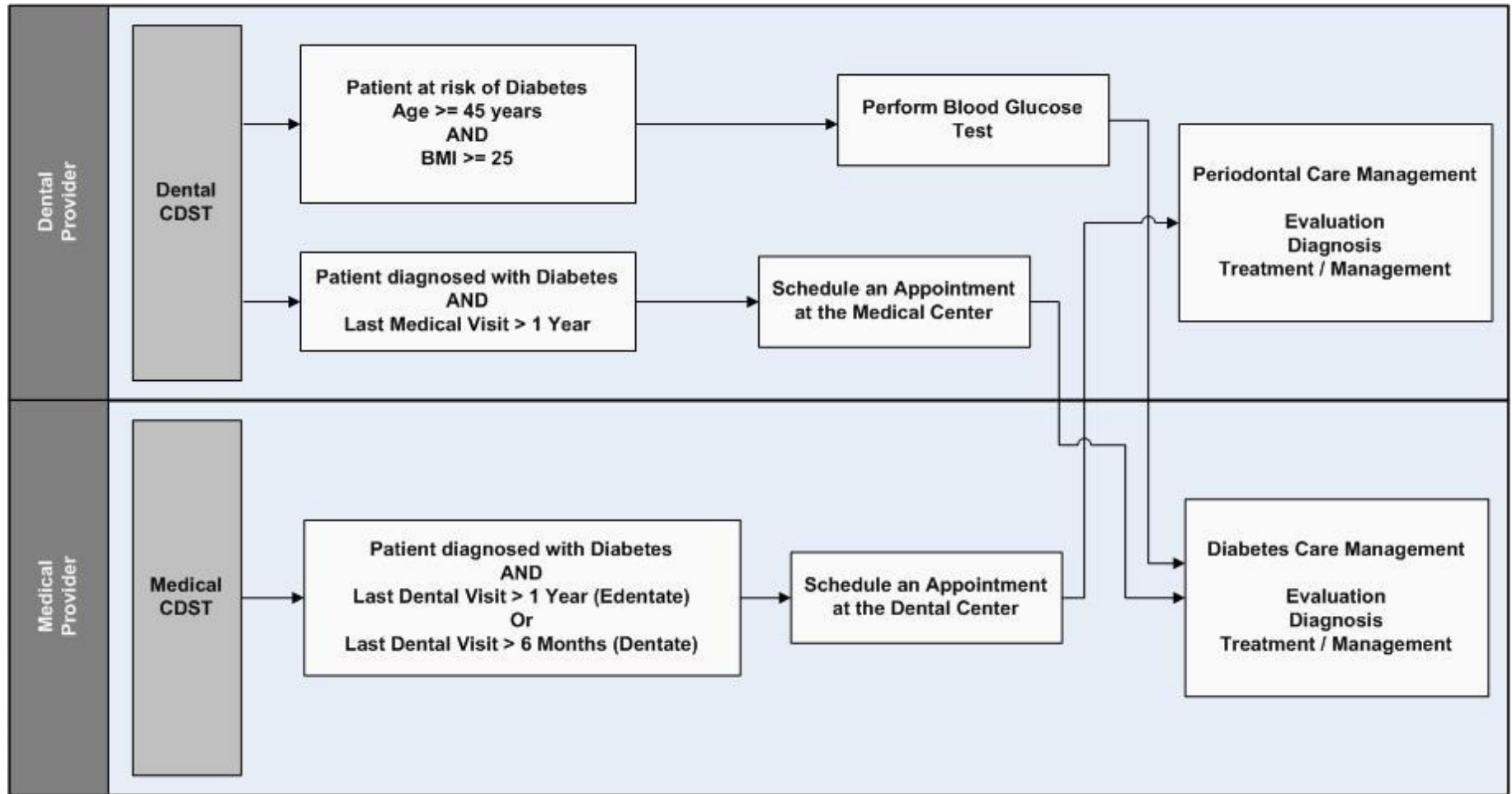
Management of Patients with Diabetes & Periodontitis

We have 47,247 unique patients with both dental and medical data within the Integrated Medical-Dental Data Warehouse.

- **8851** moderate to severe periodontal disease within 47,247 unique patients
- A total of **2752** diabetic patients within this group who had visited a medical provider within the last three years.
 - **1858** Diabetics have had a dental visit in the last 1 year, however **894** diabetics have not had a dental visit within the last 1 year

Management of Patients with Diabetes & Periodontitis

CDS tools within the iEHR to support cross disciplinary care management



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Demonstration Project: PGx - Dental Patients

Pain management

Coagulation management

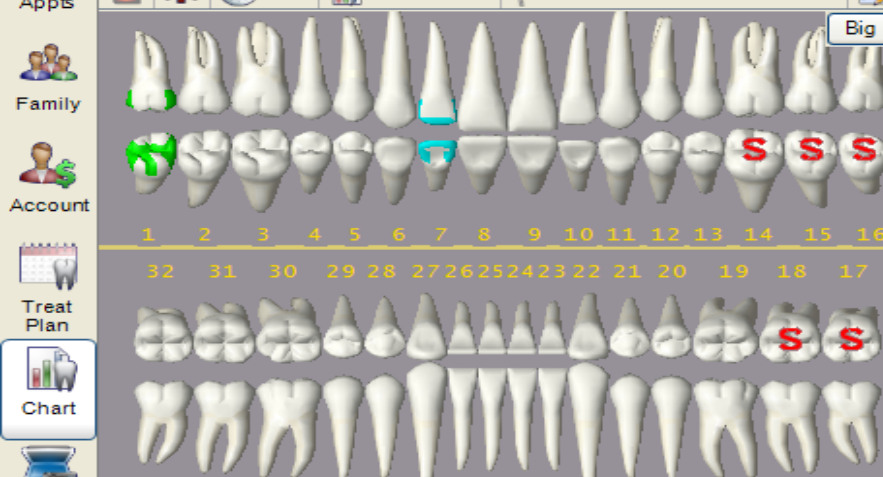
PGx panel for dental patients

CDS tools – tailored to Dental Meds in iEHR



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patient is a gagger

Dental Alerts

None

Active Medications

Last Updated
 02/02/10 **Acetaminophen**
 02/02/10 **Acetaminophen-Codeine** 300-30mg Tablet 1 or 2 Tab...
 01/14/10 **Amoxicillin** 125mg/5 mL Suspension for Reconstitution ...
 01/14/10 **Fluoride (Sodium Fluoride)** 1 (2.2)mg Tablet, Chewa...

Allergies/Adverse Reactions - Clinical Alerts

Drug (Verified 01/07/2010 By Gargulak, Michelle R)

Amoxicillin: Diarrhea / as child
Amoxicillin/Clavulanic Acid (Augmentin®)
Benzocaine (local caines anesthetics): Reaction unknown by patient / as
Penicillin

Non-Drug (Verified 02/02/2010 By Gargulak, Michelle R)

No Known Non-Drug Allergies/Adverse Reactions (NKND A)

Clinical Alerts

None

Enter Treatment Primary Planned Appointment Show Tooth Chart Legend

Add Procedure
 Category: **Dentist**
 Procedure: **Root Canal**

Diagnosis
 Caries,into pulp
 Attrition,pulp
 Abrasion,pulp
 Erosion,pulp
 Resorption,intem
Cracked tooth
 Pulpitis
 Pulp,necrosis
 Pulp,degeneration
 Pulp,calcification
 Acute apicl perio
 Peri absc,no sinu
 Peri absc,sinus

Secondary Provider
 Surfaces: B/F V M O/I D L Add Clear

Attributes
 Supernumerary
 Attach to Referral

Commit Treatment
 TxPlan Comp. Refer Existing

Progress Notes

Date	Th	Surf	Code	Description	Stat	Amount
02/02/2010	7	MID	D2160	•Amalgam - Three Surfaces, Primary or Permanent Referred To: Haack, James By: Provider: Dental Center, Park Falls (0200)	RC	\$0.00
awsdfasdf						
02/02/2010	1	MODL	D2161	Provider: Dental Center, Park Falls (0200) •Amalgam - Four Or More Surfaces, Primary or Permanent	EO	\$0.00
02/02/2010			Zreferral	Referred To: Miles, Michael By: Provider: Dental Center, Park Falls (0200)	R	\$0.00
zdsfsdfasdf						
02/01/2010	14		D1351	Provider: Dental Center, Park Falls (0200) •Sealant - Per Tooth	TP	\$42.00
testing						
02/01/2010	15		D1351	Provider: Dental Center, Park Falls (0200) •Sealant - Per Tooth	TP	\$42.00
testing						
02/01/2010	16		D1351	Provider: Dental Center, Park Falls (0200) •Sealant - Per Tooth	TP	\$42.00
testing						
02/01/2010	17		D1351	Provider: Kronberger, Tresa RDH (133437) •Sealant - Per Tooth	TP	\$42.00
02/01/2010	18		D1351	Provider: Kronberger, Tresa RDH (133437) •Sealant - Per Tooth	TP	\$42.00

INVITED MEDICAL REVIEW

The oral-systemic personalized medicine model at Marshfield Clinic

I Glurich¹, A Acharya^{2*}, SK Shukla³, GR Nycz⁴, MH Brilliant³

¹Office of Scientific Writing and Publication, Marshfield, WI, ²Biomedical Informatics Research Center, Marshfield, WI, ³Center for Human Genetics, Marshfield Clinic Research Foundation, Marshfield, WI; ⁴Family Health Center, Marshfield Clinic, Marshfield, WI, USA

Genome technologies and personalized dental medicine

G. Eng, A. Chen, T. Vess, GS Ginsburg

Institute for Genome Sciences & Policy, Duke University, Durham, NC 27708, USA.

Oral Diseases 2012



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NIDCR just awarded a \$66.8 million, seven-year grant towards a National Dental Practice Based Research Network (NDPBRN) to Dr. Greg Gilbert at University of Alabama at Birmingham School of Dentistry.

Marshfield Clinic supported this application and will join the NDPBRN (Midwest Regional Node).

We will continue efforts to form a national network of like-minded institutions across the country to establish a large and diverse cohort of dental/medical patients with EHRs, EDRs and oral microbiome samples.

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