Diabetes Mellitus: A Collaborative Approach to Management

Joshua S. Coren, D.O., MBA, FACOFP
Learning Objectives

• Implement collaboration strategies within respective practice settings to enhance interdisciplinary team management for the patient with diabetes.

• Identify the composition and components necessary for interdisciplinary team care of the patient with diabetes.
Learning Objectives

• Identify changes in the oral cavity and contiguous structures that occur in patients with diabetes mellitus, and how diabetes mellitus can influence the provision of dental care.

• Understand how comprehensive dental care for the patient with diabetes mellitus requires interprofessional collaboration.
245 Billion Dollars

Facility Stays
Office Visits
Supplies
Rx
Inpatient Care

Cost as %

Diabetes Care to Date: “The Hits Just Keep on Coming!” Diabetes Care July 2013 36:1801; 10.2337/dc13-0906

Avg $ Healthcare Spending / Per Diabetic Patient

$13,700 per year

2.3 x higher cost then patient without DM

$7,900 attributed to diabetes

Diabetes Care to Date: “The Hits Just Keep on Coming!” Diabetes Care July 2013 36:1801; 10.2337/dc13-0906

# Diabetes in Pennsylvania

## Rank
5th Worst State in Both Patient #’s and Cost

## Prevalence
7.4%

## Population
954,500

## Costs

<table>
<thead>
<tr>
<th>Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>7.43 Billion</td>
</tr>
<tr>
<td>Total</td>
<td>0.24 Billion</td>
</tr>
<tr>
<td>Indirect</td>
<td>2.81 Billion</td>
</tr>
</tbody>
</table>

Diabetes and the Patient

• 32.5% Non-Compliance
  – 5< Meds Daily
  – Confusion
  – Barriers
  – Health Literacy

Composition of Care for Patient with Diabetes

Patient

Podiatrist

Social Worker

Physician

Ophthalmologist

Allied Health Provider

Physical Therapist

Nurse

Pharmacist

Dentist

Nutritionist

Bariatric Surgeon

Physician

Nephrologist

Cardiologist

Physician

Podiatrist

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Silo Care = Endangered Species

• Challenges
  – Buy in is a Challenge
  – Training Needed
  – Lack of Time
  – Team Dynamics
  – Dinner Manners
  – Professions Built on Competition
  – Fair Compensation
Components Needed for Team Care

- Elements of Collaborative Practice Include
  - Responsibility
  - Accountability
  - Coordination
  - Communication
  - Cooperation
  - Assertiveness
  - Autonomy
  - Mutual Trust
  - Respect
Small Changes = Large Effects

• Change can occur from many small interactions

• This could include phone or secure email communications with area healthcare providers

• May lead to further collaborative meetings on common patients
Interprofessional Education is NOT

• Being cross-trained to perform others roles

• Developing team consensus or thinking alike

• IT IS – Taking responsibility for your own area of practice and coordinating effectively with others as you make decisions about patient management

In your chair or On your Table

- **IPE**
  - Chair = Table in Preventive Care for DM
  - Dentists play crucial role
    - Initial Pick-up of Disease
    - Monitoring of DM
    - Education on Healthy Lifestyle
Who is the Focus?
Components to Care

• Population of Diabetics
  – Run Practice Reports
  – Consider Members at Risk
    • Impaired Glucose Tolerance
    • Metabolic Syndrome
    • Periodontal Disease
  – Case Manager / Care Coordinator
    • Main Contact
    • Monitors Progress
    • Maintains Flow Sheet
    • Concierge
Create Program

• **Include Evidence Based Guidelines**
  – Systematically Developed Statement
  – Assist Practitioner and Patient Decisions
  – Appropriate Healthcare
  – Specific Clinical Circumstances

• **Screen for Complications / Co-morbidity**
  – Use Flow Sheets

• **Personalize the Plan and Set Goals**
Visits

- Designated Diabetic Visits
  - Team Based Visits
  - Sequenced Visits
  - Coordinated Via IPE Collaborators

- Reminder System
  - Case Manager
  - Flow Sheets
  - What Needs to be Done by Team
Flow Sheet for Diabetes Care

- Cardiovascular Complications
- Dyslipidemia
- Obesity
- Dental Disease
- Psychological History
- Retinopathy
- Podiatric Disease
- Nephropathy
- Erectile Dysfunction
- Family History of DM
Patient Education

- Barriers - $ / Health Literacy
- Glucometer
- Symptoms of Concern
- Targets
  - Sugar, Lipids, Blood Pressure, Kidney Function
- Dental / Podiatric / Immunizations
  - Communication on Results and Plan
Nutrition Education

- Portion Control
  - Involvement of Nutritionist / Registered Dietician

- Food / Glucometer Use

- Assessing BMI
Summary

- Identify Patients
- Address Barriers
- Small Steps = Large Effects
- Develop Personalized Care Plans with Goals
- Engage all Stakeholders
- Use Evidence Based Guidelines for Care
Diabetes Mellitus

Oral/dental considerations and the importance of interprofessional care
Classical clinical complications of a vascular disorder

- retinopathy
- nephropathy
- cardiovascular disease
- neuropathy
- poor wound healing
Periodontal Disease

The sixth complication of diabetes mellitus

Harald Löe, DDS

Oral Complications of Diabetes Mellitus:

- Periodontal disease
- Dental caries
- Salivary dysfunction/xerostomia
- Taste and other neurosensory disorders
- Candida infection
- Burning mouth syndrome
- Altered tooth eruption
- Benign parotid hypertrophy/diabetic sialosis
Bidirectional relationship

DM ⇌ PD
Diabetes mellitus promotes periodontal destruction in children

Lalla E, Cheng B, Lal S, Kaplan S, Softness B, Greenberg E, Goland RS, Lamster IB.

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## Estimated Odds Ratio: Cases vs. Controls

<table>
<thead>
<tr>
<th>All subjects (N=700)</th>
<th>OR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 2 teeth with ≥1 site with AL &gt; 2mm and bleeding at same site</td>
<td>2.72</td>
<td>(1.32, 5.60)</td>
<td>0.006</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6-11 year old subjects (N=401)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 2 teeth with ≥1 site with AL &gt; 2mm and bleeding at same site</td>
<td>3.74</td>
<td>(1.23, 11.43)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>12-18 year old subjects (N=299)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 2 teeth with ≥1 site with AL &gt; 2mm and bleeding at same site</td>
<td>2.63</td>
<td>(0.94, 7.34)</td>
</tr>
</tbody>
</table>
Observational Studies

Saremi et al (2005) severe periodontitis $\rightarrow$ ↑ risk (3.2x) of death from cardiac or renal disease

Shultis et al (2007) moderate/severe periodontitis $\rightarrow$ ↑ risk (2.0 – 2.6x) for nephropathy, ↑ risk (2.3 – 4.9x) for end stage renal disease
What Questions Will You Ask?

1. When was DM diagnosed?  
   **DURATION**

2. How is DM managed  
   **TREATMENT**

3. How good is metabolic control?  
   **RECENT HbA1c VALUES**

4. Are there complications?  
   **SEVERITY, FUTURE RISK**

5. Has hypoglycemia (hyperglycemia) occurred?  
   **MOST COMMON ADVERSE EVENT**
HYPOGLYCEMIA

- Dizziness
- Hunger
- Irritable
- Impaired Vision
- Shaking
- Headache
- Sweating
- Anxious
- Weakness, Fatigue
- Fast Heartbeat
Screening for Undiagnosed Diabetes in a Dental Office – A New Paradigm for Dental Practice

Primary Aim:
To develop and evaluate a targeted screening protocol for undiagnosed disorders of glycemia (diabetes & pre-diabetes) in patients presenting at a dental care setting.
Rationale

• Increasing prevalence of DM in the U.S., 25% undiagnosed

• The complication of DM: ↑ morbidity and mortality

• Early diagnosis of DM, with treatment →↓ complications
• Patients with DM have oral complications

• Oral complications of DM occur early

• Successful dental care for patients with DM requires good metabolic control
New dental patients who were
- not previously told they had pre/diabetes and
- over 40 yo if white, or over 30 yo if non-white

Those with **at least one of the following self-reported risk factors**
- family history of diabetes
- hypertension
- high cholesterol or
- overweight/obesity
  continued to receive
- a periodontal examination
- a point-of-care HbA1c test*

1240

1099

All invited to have a blood draw for a diagnostic test
(either returned for FPG test, or on the same day for HPLC HbA1c test)

Identified with potential diabetes or pre-diabetes

70 (5.6%)

430 (35%)

* DCA 2000 Plus, Bayer HealthCare
Conclusion

Appropriate dental care for patients with DM cannot be provided unless there is interprofessional collaboration.