An Interprofessional Approach to Diabetes Management

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Learning Objectives
1. Outline the challenges faced by interprofessional teams in successfully delivering high-value integrated and coordinated full-cycle care to patients with diabetes.
2. Relate the complex interplay between abnormal glucose and lipid metabolism and inflammatory dysregulation to the complications of poorly controlled diabetes.
3. Justify the restructuring of health care delivery systems to assure closer collaboration between medical and dental clinical teams to better diagnose and manage patients with diabetes and periodontitis.
4. Justify organizing interprofessional diabetes management teams around a core collaborative therapeutic alliance between the patient, a clinical pharmacist, and a PA care coordinator.
5. Justify designing personalized full-cycle diabetes care plans based on a patient’s specific disease severity and complexity index profile.

Disclosures
• Principal in DiabetesReframed, LLC.
• Inventor of U.S. Provisional Patent Application No. 61/585,483 “METHODS OF USING A DIABETES CROSS-DISCIPLINARY INDEX TO STAGE DIABETES IN A PATIENT”
Diabetes

- Complex interplay between abnormal glucose and lipid metabolism and inflammatory dysregulation
- Multiple organ system complications
- 2x risk of premature death
- US spent $201 billion in 2011
- Major cost driver: lack of control of the ‘ABCs’ (HbA1c, BP, and LDL-C)
- HbA1c ≥7% ↑ risk for hospitalizations and prolonged stay

Diabetes Care

New-patient goals:

1. Detect presence of complications
2. Formulate management plan
3. Provide basis for continuing care
Plan Management

• “…should be formulated as a **collaborative therapeutic alliance** between patient, family, and health care team”

• “Implementation…requires understanding and agreement between patient and care providers, and that goals and treatment plan are reasonable”

**Components of the comprehensive diabetes evaluation**

- Eye care professional for annual dilated eye exam
- Family planning for women of reproductive age
- Registered dietitian for MNT
- DME
- Dentist for comprehensive periodontal examination
- Mental health professional, if needed
- Comprehensive foot examination

**Adults aged ≥18 years with Diagnosed Diabetes Receiving Preventive Care Practices, United States, 2010**

- Annual Dilated Eye Exam
- Daily Self-Monitoring of Blood Glucose
- Annual Foot Exam
- Annual Doctor Visit
- Daily Self-Exams of Feet
- Two or More A1c Tests in Last Year
- Attended Diabetes Self-Management Class
- Annual Influenza Vaccine
- Ever Had Pneumococcal Vaccine

Percentages (Age-Adjusted)

[Graph showing percentages for preventive care practices]

Dartmouth-Hitchcock Diabetes Program
Severe periodontitis and diabetes

- HbA1c ≥9% ↑ risk for severe periodontitis
- Periodontitis increases insulin resistance
- 2x incidence of macroalbuminuria
- 3x increased incidence of ESRD
- 3x higher risk of cardiorenal mortality
Two-way relationship

Periodontitis prevalence at WDI

A total of 22 pilot patients (May 2011-April 2012) were evaluable [mean HbA1c 9.0% (range, 5.3%-17.4%)]
- 17 (73%) had periodontitis
- 5 (23%) were classified as ‘severe’* [mean HbA1c 10.3% (range, 6.6%-17.4%)]
- 5 (23%) as ‘moderate’
- 5 (23%) had ‘no periodontitis’ [mean HbA1c 8.7% (range, 7.2%-11.5%)]

*severe periodontitis was defined as clinical attachment loss (CAL) of ≥5 mm (bone level >6 mm)

Challenges to delivering high-value diabetes care...

- Complex interplay of multiple organ systems
- Incomplete evaluations (~50%)
- 21st-century medical science delivered in 19th-century organizational structure
- Patient compliance (engagement) ~30%
- Providers from disparate disciplines and no common language
- Medical and dental teams rarely collaborative
- Clinically integrated team or collection of fragmented services?
- Need for measurement of full-cycle outcomes and costs
- No composite disease-severity staging index
- No adequate disease registry IT platform EHR

Reframing Diabetes
**PA Care Coordinator:**

- Functions as a member of the CoreCTA to develop a care management plan based on the patient’s DAXF® profile and ensure the patient understands its implications, is committed to the education and other follow-up activities involved in the total care cycle.
- Coordinates patient navigation throughout care cycle including healthy eating habits, physical activity, medication adherence, self-management education classes, referrals, glucose self-monitoring, and goals for HbA1c, blood pressure, and cholesterol levels.
- Identifies obstacles to implementing care plan
- Coordinates care plan with patient’s PCP and provides direct patient care within the context of the integrated practice unit care team.

**PA Care Coordinator:**

- Staffs and co-manages patients with WDI Clinical Pharmacist in the Diabetes Medication Management and Insulin Titration Clinic.
- Reviews patients’ records for efficient drug therapy, drug-drug interactions, adverse reactions, contraindications, allergies, and sensitivities. Follows through with resolving medication therapy issues.
- Enters into, and follows, data through WDI registry/EHR

HbA1c 8.9%
BP 140/90
LDL-C 120 mg/dL
Retina: dot-blot hemorrhages/cotton wool spots
Oral cavity: Severe periodontitis
Feet: + sensory neuropathy
Functionality: modified-independent
eGFR: 95 mL/min/1.73 m²
urinary albumin-creatinine ratio (ACR): 20 mg/g
2-D Echo: MAC, LV hypertrophy and LVEF 55%
Measuring Outcomes

- Mortality
- Severity of end-organ disease complications
- Functional level and degree of independency
- Level of satisfaction with health status
- Time to reaching ABC target goals
- Length of hospital stay, if necessary
- Treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors
- Level of satisfaction of care
- Maintain functional level and ability to live independently
- Maintain glycemic control
- Maintain blood pressure <130/80
- De novo end-organ disease complications
- Recovered end-organ disease complications
- Care-induced illness (e.g., hypoglycemic episodes)
- Mortality (DXDI©)

Diabetes Cross-Disciplinary Index (DXDI©)

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WDI “Cloud”
Summary

1. Organize integrated, interprofessional teams around CoreCTA.
2. PA Care Coordinator is a linchpin for the WDI integrated practice unit.
3. Stratify patients based on a composite disease-severity index.
4. Personalize care plans aligned with patient goals and based on their index profile.
5. Engage all stakeholders (patient, caregivers, providers, and payers).
6. Build and maintain an index-based disease registry IT platform.
7. Measure outcomes and cost across care cycle to keep improving.