AN INTERDISCIPLINARY APPROACH TO DIABETES CARE
DISCLOSURES

Scott Urquhart
- Speaker’s Bureau – Astra Zeneca, Novo Nordisk and Abbott Nutrition
- Advisory Board/Consultant – Intarcia, Sanofi, Novo Nordisk

Tina Copple
- Consultant – Astra Zeneca, Abbott Nutrition, Becton Dickinson, Medtronic, Sanofi Aventis, and Regeneron

Tami Ross
- Consultant – Abbott Nutrition and Mytonomy
LEARNING OBJECTIVES

- Describe the initial testing and treatment of a patient with newly diagnosed type 2 diabetes or prediabetes.

- Identify the critical touchpoints for diabetes self-management, education, and support.

- Identify the roles of different providers in the diabetes care continuum.
**PRESENTING FACULTY**

Scott Urquhart, PA-C, DFAAPA  
Physician Assistant  
Diabetes and Thyroid Associates  
Fredericksburg, VA

Tina Copple, DNP, APRN, FNP-BC, BC-ADM, CDE  
Family Nurse Practitioner  
Diabetes and Glandular Disease Clinic  
San Antonio, TX

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Program Coordinator  
Healthy Living with Diabetes  
Lexington, KY
INITIAL SCREENING, TESTING & TREATMENT

Scott Urquhart, PA-C, DFAAPA
EDUCATION FROM THE OUTSET

- Prevalence
- Risk factors for prediabetes and diabetes
- Dx criteria for prediabetes and diabetes
- Eliminate self blame
- Effective communication and accurate language not “diabetic”
- Pathophysiology of the type 2 diabetes (T2D)

Treatment
  - TLC - What the patient can do, Diabetes Prevention Program (DPP)
  - Medication options – progressive nature of disease “add-on therapy”
  - American Diabetes Association (ADA)/European Foundation for the Study of Diabetes (EASD) and the American Association of Clinical Endocrinologists (AACE) treatment guidelines

- Timely treatment, referral, and follow-up
  - Prevention of complications and improving quality of life
PATIENT-CENTERED COLLABORATIVE CARE

“Patient-centered communication style that uses person-centered and strength-based language, active-listening, elicits patient preferences and beliefs, and assesses literacy, numeracy, and potential barriers to care should be used to optimize patient health outcomes and health-related quality of life.”

(“B” ADA evidence-grading system)
PREVALENCE OF DIABETES AND PREDIABETES IN THE UNITED STATES

**Diabetes**
- 30.2 million adults aged 18 years or older in 2015
- 1 out of 8 (12.2%) of all U.S. adults
- 7.2 million (23.8%) are undiagnosed
- 1 out of 4 (25.2%) among those aged ≥ 65 y.o.

**Prediabetes**
- ~ 84 million American adults
- ~ 1 out of 3 - have prediabetes

RISK FACTORS FOR PREDIABETES AND T2DM: SCREENING

- ≥ 45 y.o. without other risk factors
- First degree relative with T2D
- PMhx of CVD
- Obesity (BMI ≥ 30 kg/m²) > 25 BMI with ≥1 RF
- High-risk ethnic groups
  - Black
  - Hispanic
  - Native American
  - Pacific Islander
  - Asian
  - Indian
- Dyslipidemia (low HDL, high TG)
- Conditions/disorders: PCOS, acanthosis nigricans, NAFLD
- Pre-diabetes (IFG/IGT)
- H/O GDM or baby > 9 lbs at birth
- HTN: ≥ 140/90 or on medication
- Meds: chronic glucocorticoids, atypical antipsychotics, thiazide diuretics, HIV
- Disruptive sleep cycles plus IGT
  - Obstructive sleep apnea
  - Shift workers
  - Chronic Insomnia

Repeat screening every 1-3 years depending on risk factors.

**DIAGNOSTIC CRITERIA: ADA**

<table>
<thead>
<tr>
<th>Glycemic Marker/Value</th>
<th>Prediabetes</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Fasting Plasma Glucose (mg/dL)</td>
<td>▪ 100-125 (impaired fasting glucose)</td>
<td>▪ ≥ 126</td>
</tr>
<tr>
<td>▪ OGTT: 2-HR plasma glucose after a 75 gm oral glucose load (mg/dL)</td>
<td>▪ 140-199 (impaired glucose tolerance)</td>
<td>▪ ≥ 200</td>
</tr>
<tr>
<td>▪ A1c (%)</td>
<td>▪ 5.7 - 6.4</td>
<td>▪ ≥ 6.5</td>
</tr>
<tr>
<td>▪ Random PG (mg/dL)</td>
<td>▪ Non-applicable</td>
<td>▪ ≥ 200, polyuria/dipsia, polyphagia, fatigue, blurred vision, wt. loss</td>
</tr>
</tbody>
</table>

*In the absence of unequivocal hyperglycemia, results should be confirmed by repeat testing.*

American Diabetes Association Standards of Medical Care in Diabetes 2018. *Diabetes Care.* 2018;41 (Suppl. 1)
DIABETES PREVENTION PROGRAM (DPP)

- Objective: prevent/delay development T2DM
- -- 3,234 pts with IFG & IGT randomly assigned to:

1. **Placebo**
2. **Metformin:** 850mg BID
3. **Lifestyle-modification program:**
   - At least 7% weight loss
   - >150 minutes minimum of exercise per week
   - Individual and group education sessions

Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin.

*P<0.001 vs placebo
†P<0.001 vs metformin

Diabetes Prevention Program (N = 3234)

THERAPEUTIC LIFESTYLE INTERVENTION CAN REDUCE INCIDENCE OF T2D BY >50%
FURTHER EVIDENCE TO SUPPORT DPP FINDINGS

- U.S. DPPOS*: 34% reduction at 10 years
- Finnish Diabetes Prevention Study (DPS) : 43% reduction at 7 years

Programs in and Around the Community

- CDC coordinated National DPP (YMCA)
- Medicare DPP (MDPP)

*U.S. DPP Outcomes Study

1. Prevention or Delay of Type 2 Diabetes. *Diabetes Care*. 2016;39(Suppl. 1)S36-S38. doi:10.2337/dc16-S007
2. American Diabetes Association Standards of Medical Care in Diabetes 2018. *Diabetes Care*. 2018;41(Suppl. 1)
Impaired Insulin Secretion

Neurotransmitter Dysfunction

Decreased Glucose Uptake (Insulin resistance)

Islet β-cell

Increased Glucagon Secretion

Increase Lipolysis

Increased Glucose Reabsorption

Decreased Glucose Uptake (Insulin resistance)

Increased HGP


DYSFUNCTION IN ORGAN SYSTEMS CONTRIBUTE TO THE PATHOPHYSIOLOGY OF T2DM AND HYPERGLYCEMIA
CONSIDERATIONS REGARDING MEDICATION SELECTION

- Efficacy – glucose lowering
- Therapeutic goal
- Mechanism(s) of action – address different organ systems
- Safety and tolerability
- Side-effects
  - (weight gain, hypoglycemia, GI, renal, etc.)
- Additional benefits (CV, heart failure, renal)
- Cost/affordability
- Add-on medications when glucose/A1c goal not obtained in 3 months
- AACE - Glycemic Control Algorithm
- ADA/EASD – Guidelines Hyperglycemia in T2D
## NONINSULIN AGENTS AVAILABLE FOR T2D

<table>
<thead>
<tr>
<th>Class</th>
<th>Primary Mechanism of Action</th>
<th>Agent(s)</th>
<th>Available as</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>α-Glucosidase inhibitors</strong></td>
<td>• Delay carbohydrate absorption from intestine</td>
<td>Acarbose</td>
<td>Precose or generic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miglitol</td>
<td>Glyset</td>
</tr>
<tr>
<td><strong>Amylin analogue</strong></td>
<td>• Decrease glucagon secretion&lt;br&gt; • Slow gastric emptying&lt;br&gt; • Increase satiety</td>
<td>Pramlintide</td>
<td>Symlin</td>
</tr>
<tr>
<td><strong>Biguanide</strong></td>
<td>• Decrease HGP&lt;br&gt; • Increase glucose uptake in muscle</td>
<td>Metformin</td>
<td>Glucophage or generic</td>
</tr>
<tr>
<td><strong>Bile acid sequestrant</strong></td>
<td>• Decrease HGP?&lt;br&gt; • Increase incretin levels?</td>
<td>Colesevelam</td>
<td>WelChol</td>
</tr>
<tr>
<td><strong>DPP-4 inhibitors</strong></td>
<td>• Increase glucose-dependent insulin secretion&lt;br&gt; • Decrease glucagon secretion</td>
<td>Alogliptin</td>
<td>Nesina</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linagliptin</td>
<td>Tradjenta</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saxagliptin</td>
<td>Onglyza</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sitagliptin</td>
<td>Januvia</td>
</tr>
<tr>
<td><strong>Dopamine-2 agonist</strong></td>
<td>• Activates dopaminergic receptors, modulates hypothalamic regulation of metabolism</td>
<td>Bromocriptine</td>
<td>Cycloset</td>
</tr>
<tr>
<td><strong>Glinides</strong></td>
<td>• Increase insulin secretion</td>
<td>Nateglinide</td>
<td>Starlix or generic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repaglinide</td>
<td>Prandin</td>
</tr>
</tbody>
</table>

DPP-4 = dipeptidyl peptidase; HGP = hepatic glucose production.

### NONINSULIN AGENTS AVAILABLE FOR T2D (CONT’D)

<table>
<thead>
<tr>
<th>Class</th>
<th>Primary Mechanism of Action</th>
<th>Agent(s)</th>
<th>Available as</th>
</tr>
</thead>
</table>
| GLP-1 receptor agonists     | ▪ Increase glucose-dependent insulin secretion  
▪ Decrease glucagon secretion  
▪ Slow gastric emptying  
▪ Increase satiety          | Albiglutide  
Dulaglutide  
Exenatide  
Exenatide XR  
Liraglutide               | Trulicity  
Byetta  
Bydureon  
Victoza  
Ozempic                  |
| SGLT2 inhibitors            | ▪ Increase urinary excretion of glucose by blocking reabsorption of glucose in the kidney | Canagliflozin  
Dapagliflozin  
Empagliflozin | Invokana  
Farxiga  
Jardiance  
Steglatro                |
| Sulfonylureas               | ▪ Increase insulin secretion                                                                 | Glimepiride  
Glipizide  
Glyburide             | Amaryl or generic  
Gliclira, Glycose, Micronase, or generic |
| Thiazolidinediones          | ▪ Increase glucose uptake in muscle and fat  
▪ Decrease HGP                                  | Pioglitazone  
Rosiglitazone             | Actos  
Avandia                  |

GLP-1 = glucagon-like peptide; HGP = hepatic glucose production; SGLT2 = sodium glucose cotransporter 2.
Glycemic Control Algorithm

**INDIVIDUALIZE GOALS**

**LIFESTYLE THERAPY** (Including Medically Assisted Weight Loss)

**Entry A1C < 7.5%**
- **MONOTHERAPY**
  - Metformin
  - GLP-1 RA
  - SGLT-2i
  - DPP-4i
  - TZD
  - AGI
  - SU/GlN

If not at goal in 3 months proceed to **DUAL THERAPY**

**Entry A1C ≥ 7.5%**
- **DUAL THERAPY**
  - GLP-1 RA
  - SGLT-2i
  - DPP-4i
  - TZD
  - Basal Insulin
  - Clofibrate
  - Bromocriptine QR
  - AGI
  - SU/GlN

If not at goal in 3 months proceed to **TRIPLE THERAPY**

**Entry A1C > 9.0%**
- **TRIPLE THERAPY**
  - GLP-1 RA
  - SGLT-2i
  - TZD
  - Basal Insulin
  - Clofibrate
  - Bromocriptine QR
  - AGI
  - SU/GlN

**SYMPTOMS**
- **NO**
  - **DUAL Therapy**
    - **INSULIN & Other Agents**
  - **TRIPLE Therapy**
  - **ADD OR INTENSIFY INSULIN**
    - Refer to Insulin Algorithm

**YES**
- **DUAL Therapy**
  - **INSULIN & Other Agents**

**PROGRESSION OF DISEASE**

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### Profiles of Antidiabetic Medications

<table>
<thead>
<tr>
<th></th>
<th>MET</th>
<th>GLP-1 RA</th>
<th>SGLT-2i</th>
<th>DPP-4i</th>
<th>AGl</th>
<th>TZD</th>
<th>GLN</th>
<th>COL</th>
<th>BCR-OR</th>
<th>INSULIN</th>
<th>PRAAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypo</strong></td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>to Severe</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Gain</td>
<td>Loss</td>
<td>Loss</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Gain</td>
<td>Gain</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Gain</td>
</tr>
<tr>
<td><strong>Renal/GU</strong></td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>GI</strong></td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Cardiac</strong></td>
<td>Neutral</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td><strong>Bone</strong></td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Legend:**
- Green: Positive benefit
- Yellow: Possible CV benefit
- Orange: May result in dose reduction
- Purple: COX-2 inhibitor
- Red: Not indicated for eGFR < 30 mg/min/1.73 m²
- Blue: Possible benefit of empagliflozin
- Pink: Effective in reducing albuminuria
- White: Neutral
- Purple: Moderate to severe
- Yellow: More hypoglycemia
- Orange: More hypotension
- Red: More hyperglycemia
- White: Neutral

**Notes:**
- Only one column is possible benefit
- Use with caution
- Risk of adverse effects
- Moderate effects
- PND indication not present COX-2 intake in diabetes plus prior CV events

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EXPLORING THE ROLE OF DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (DSMES) FOR ADULTS WITH TYPE 2 DIABETES

Tina Copple, DNP, APRN, FNP-BC, BC-ADM, CDE
THE RECOMMENDATION FOR ALL PATIENTS WITH DIABETES TO BE ASSESSED AND REFERRED FOR CARE IN 3 CORE AREAS COMES FROM:

The American Diabetes Association (ADA) advocates for diabetes treatment that is guided by the Chronic Care Model (CCM)
CCM FOR DIABETES

- Effective framework for improving quality of care in diabetes management/services
- Six core elements
  - Proactive care delivery system
    - Planned visits
    - Coordinated by a team of healthcare providers
  - Self-management and support
  - Evidence based guidelines
  - Clinical information systems
  - Community resources
  - Health system moving toward quality of care culture
CCM DIABETES TEAM MEMBERS

- The patient
  - Patient centered focus care
- Nurses
- Dietitians
- Pharmacists
- Other providers
CCM DIABETES TEAM SUPPORTS HIGH QUALITY DIABETES CARE THROUGH:

- Intensification of lifestyle and/or pharmacological therapy for patients who have not achieved recommendations
- Support patient self-management through high quality DSMES
- Change in the care system utilizing quality improvement
WHEN SHOULD A HEALTH CARE PROVIDER CONSIDER DSMES?

Diabetes Self-management Education and Support in Type 2 Diabetes: A Joint position Statement of the ADA, the American Association of Diabetes Educators (AADE), and the Academy of Nutrition and Dietetics offers guidance applying the Algorithm of Care and Action Steps.
THE ALGORITHM OF CARE RECOMMENDS ALL PATIENTS BE ASSESSED AND REFERRED FOR:

- Nutrition
  - Preferred is a registered dietitian for medical nutritional therapy
- Education
  - Diabetes Self-Management Education and Support
- Emotional Health
  - Mental health professional if needed
FOUR CRITICAL TIMES TO ASSESS, PROVIDE AND ADJUST DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT

Primary Care Providers (PCP), Specialist or Clinical Care Team should evaluate referral for DSMES:

1. At diagnosis
2. Annual assessment education, nutrition and emotional needs
3. When new complicating factors influence self-management
4. When transitions in care occur
WHEN PRIMARY CARE PROVIDER OR SPECIALIST SHOULD CONSIDER REFERRAL

At diagnosis

- All newly diagnosed individuals with type 2 diabetes should receive DSMES.
- Ensure both nutrition and emotional health are appropriately addressed in education or make separate referrals.

AREAS OF FOCUS AND ACTION STEPS

Primary Care Provider, Endocrinologist, Clinical Care Team

- Answer questions and provide emotional support regarding diagnosis
- Provide overview of treatment and treatment goals
- Teach survival skills to address immediate requirements (safe use of medication, hypoglycemia treatment if needed, introduction of eating guidelines)
- Identify and discuss resources for education and ongoing support
- Make referral for DSMES and medical nutrition therapy (MNT)
AREAS OF FOCUS AND ACTION STEPS

Diabetes Education

- Assess the cultural influences, health beliefs, current knowledge, physical limitations, family support, financial status, medical history, literacy, numeracy

- Initial education will include:
  - Medications
  - Self monitoring of blood glucose (SMBG)
  - Physical activity
  - Preventing, detecting, and treating acute and chronic complications
  - Nutrition/carbohydrate food plan
  - Risk reduction-smoking cessation
  - Foot care
  - Developing personal strategies to promote health and behavior change
# MARIO: DIAGNOSED WITH TYPE 2 DIABETES

<table>
<thead>
<tr>
<th>Today</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c</td>
<td>9.5</td>
</tr>
<tr>
<td>Random Glucose</td>
<td>300 c/o night time urination and fatigue</td>
</tr>
<tr>
<td>Other Labs</td>
<td>Renal and liver function in normal range, LDL cholesterol 130</td>
</tr>
<tr>
<td>BMI</td>
<td>31</td>
</tr>
<tr>
<td>BP</td>
<td>Usually 150-160/90s</td>
</tr>
<tr>
<td>PMH</td>
<td>Hypertension treated with lisinopril and metabolic syndrome/prediabetes</td>
</tr>
</tbody>
</table>
MARIO: DIAGNOSED WITH TYPE 2 DIABETES

<table>
<thead>
<tr>
<th>Mario Lifestyle</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home</strong></td>
<td>Married 10 years with 3 small children</td>
</tr>
<tr>
<td><strong>Work</strong></td>
<td>Regional produce manager for a chain of grocery stores</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td>High stress dealing with vendors and employees all day</td>
</tr>
<tr>
<td><strong>Tobacco</strong></td>
<td>Smokes 2 ppd</td>
</tr>
<tr>
<td><strong>Alcohol</strong></td>
<td>2 to 3 beers in the evening while watching television to chill out</td>
</tr>
<tr>
<td><strong>Being Active</strong></td>
<td>Sedentary desk job</td>
</tr>
<tr>
<td><strong>Healthy Eating</strong></td>
<td>No exercise program</td>
</tr>
<tr>
<td></td>
<td>Breakfast is usually Starbucks coffee, pastry and a cigarette</td>
</tr>
<tr>
<td></td>
<td>Lunches are fast food</td>
</tr>
<tr>
<td></td>
<td>Entertains clients for dinner at local restaurant once weekly</td>
</tr>
</tbody>
</table>
MARIO: MEDICAL MANAGEMENT PLAN

The medical clinical health care provider utilizing the ADA Algorithm recommendations of HbA1c 9.5 and glucose of 300 with symptoms:

- Mario was started on metformin XR and titrated up over 2 weeks.
- Due to glucose of 300/symptoms patient was started on low dose basal insulin until his f/u visit.
- He is also started on statin therapy.
- Patient was referred to CDE to start insulin and basic "survival skills" with weekly follow up for DSMES.
WHEN PCP, SPECIALIST OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL

Annual assessment of education, nutrition and emotional needs

- Review knowledge, skills, and behaviors
- Long-standing diabetes with limited prior education
- Change in medication, activity, or nutritional intake
- HbA1c out of target
- Maintain positive health outcome
- Unexplained hypoglycemia or hyperglycemia
WHEN PCP, SPECIALIST OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL (CONT’D)

- Planning pregnancy or pregnant
- For support to attain or sustain behavior change(s)
- Weight or other nutrition concerns
- New life situations and competing demands
# MARIO: FIRST YEAR WITH DIABETES

## Healthy Eating
- Carbohydrate controlled eating plan
- Continues lunch at fast food restaurants however orders salads 2-3x weekly or kids meal
- Lower carb options when entertaining clients

## Being Active
- Treadmill - 15 minutes daily
- Wife is supportive by making sure children are not interrupting the workout
- Limited weight lifting

## Taking Medication
- Rarely misses his metformin XR
- Basal insulin was discontinued due to improvement in lifestyle/behavior and positive cpeptide
- BP medication and statin therapy compliance is fair “feel good”

## Monitoring
- Limited due to “work and stress”

## Healthy Coping
- Job remains stressful
### MARIO: FIRST YEAR WITH DIABETES (CONT’D)

<table>
<thead>
<tr>
<th>Reducing Risks (Tobacco)</th>
<th>Continues to smoke, but has been talking with nurse practitioner about tobacco and diabetes, he has been able to titrate down to 1 ppd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing Risks (Alcohol)</td>
<td>Continues with alcohol but has decreased to 1-2 beers at night</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Using Outlook calendar for medication reminders-as recommended by his CDE</td>
</tr>
</tbody>
</table>
AREAS OF FOCUS AND ACTION STEPS

Primary Care Provider, Endocrinologist, Clinic Care Team

- Assess all areas of self-management
- Review problem-solving skills
- Identify strengths and challenges of living with diabetes
AREAS OF FOCUS AND ACTION STEPS

Diabetes Education

- Review and reinforce treatment goals and self-management needs
- Emphasize preventing complications and promoting quality of life
- Discuss how to adapt diabetes treatment and self-management to new life situations and competing demands
- Support efforts to sustain initial behavior changes and cope with the ongoing burden of diabetes
**MARIO: ANNUAL VISIT**

<table>
<thead>
<tr>
<th>Annual visit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HbA1c</td>
<td>7.5</td>
</tr>
<tr>
<td>BP</td>
<td>130/85</td>
</tr>
<tr>
<td>Lab work</td>
<td></td>
</tr>
<tr>
<td>▪ Renal panel with normal filtration rate however urine micro is mildly positive</td>
<td></td>
</tr>
<tr>
<td>▪ Liver function is slightly elevated and liver ultrasound reveals fatty liver</td>
<td></td>
</tr>
<tr>
<td>▪ LDL is 124 and patient self reports indications missing doses</td>
<td></td>
</tr>
<tr>
<td>Eye exam</td>
<td></td>
</tr>
<tr>
<td>▪ Negative for retinopathy/macular edema</td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td></td>
</tr>
<tr>
<td>▪ BMI decreased to 30 (obese) due to 10 pound weight loss</td>
<td></td>
</tr>
</tbody>
</table>
MARIO: ANNUAL VISIT MEDICAL MANAGEMENT

GLP-1 was added to metformin XR at his annual visit with medical clinical health care provider. Lisinopril was increased to maximum dose. He was counseled on smoking cessation and statin therapy compliance.

Referred to CDE for addition training and re-enforcement in lifestyle modification/behavior, medications and coping skills.
RALLYING THE TEAM FOR A LIFETIME

Tami Ross, RD, LD, CDE, MLDE
WE’RE ALL IN THIS TOGETHER
OPPORTUNITY FOR CHANGE

Only 54.8% of individuals in the US have ever taken a course or class in diabetes self management.

DSMES IMPROVES OUTCOMES!

- Improves A1c by up to 1% (or 1 “point”), which translates into:
  - 25% reduction in diabetes-related death
  - 18% reduction in MI
- More likely to:
  - Receive guideline driven care
  - Take medications as prescribed
  - Use primary care and preventative services or follow-up on treatment recommendations
- More healthful eating patterns and regular activity
- Increased self-efficacy and empowerment
  - Healthy coping
  - Improved quality of life
- Reduced hospital admissions and readmissions
- Reduced healthcare costs

1. Implications of the UKPDS. Diabetes Care 2002 Jan;25(Suppl. 1):s28-232
WHEN COMPLICATING FACTORS INFLUENCE SELF MANAGEMENT

When might that be?
WHEN PCP, SPECIALIST, OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL FOR DSMES

- Change in health conditions
- Physical limitations
- Emotional factors
- Basic living needs

DSMES?


Abbott
### AREAS OF FOCUS AND ACTION STEPS

<table>
<thead>
<tr>
<th>Primary Care Provider, Endocrinologist, Clinical Care Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify presence of factors that affect diabetes self-management and ability to attain treatment and behavioral goals</td>
</tr>
<tr>
<td>• Discuss impact of complications and successes with treatment and self-management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diabetes Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provide support for the provision of self-care skills in an effort to delay progression of the disease and prevent new complications</td>
</tr>
<tr>
<td>• Provide/refer for emotional support for diabetes-related distress and depression</td>
</tr>
<tr>
<td>• Develop and support personal strategies for behavior change and healthy coping</td>
</tr>
<tr>
<td>• Develop personal strategies to accommodate sensory or physical limitation(s), adapting to new self-management demands, and promote health and behavior change</td>
</tr>
</tbody>
</table>

# MARIO: 9 YEARS AFTER DIAGNOSIS

<table>
<thead>
<tr>
<th>Update</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>1 child in college and 2 in high school</td>
</tr>
<tr>
<td>Work</td>
<td>Promotion = stress</td>
</tr>
<tr>
<td>Health</td>
<td>A1c 8-8.5</td>
</tr>
<tr>
<td>Healthy Eating</td>
<td>Still thinks about carbs - tries to keep portions in check</td>
</tr>
<tr>
<td></td>
<td>Less diligent in focus</td>
</tr>
<tr>
<td></td>
<td>BMI 27 (down from 30)</td>
</tr>
<tr>
<td>Being Active</td>
<td>Treadmill on weekend</td>
</tr>
<tr>
<td></td>
<td>Sedentary during week</td>
</tr>
<tr>
<td>Taking Medication</td>
<td>Metformin XR</td>
</tr>
<tr>
<td></td>
<td>GLP-1 once weekly</td>
</tr>
<tr>
<td></td>
<td>Basal insulin</td>
</tr>
<tr>
<td></td>
<td>Statin</td>
</tr>
<tr>
<td></td>
<td>ACE</td>
</tr>
<tr>
<td>Monitoring</td>
<td>None – was referred for CGM study</td>
</tr>
<tr>
<td>Healthy Coping</td>
<td>Stress!</td>
</tr>
<tr>
<td>Reducing Risks</td>
<td>Tobacco – 1ppd</td>
</tr>
<tr>
<td></td>
<td>Alcohol – 1-2 drinks/day</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>No time for that right now!</td>
</tr>
</tbody>
</table>
MARIO: 9 YEARS AFTER DIAGNOSIS (CONT’D)

- ER visit: stroke treated with tPA
- Discharged with mild mobility challenges
- Challenges with stamina, conversation
- Resigned from lifetime career
- Depression and anxiety
WHEN PCP, SPECIALIST, OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL FOR DSMES

- Change in health conditions
- Physical limitations
- Emotional factors
- Basic living needs

BASED ON THE JOINT POSITION STATEMENT AND DSMES ALGORITHM...

**What should the healthcare team do?**
MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE PCP, ENDOCRINOLOGIST, AND CLINICAL CARE TEAM

Address impact of new mobility challenges, stamina, conversation challenges, and emotional factors

Encourage Mario to take statin, antihypertensive, and anticoagulant therapy as prescribed and why

Start antidepressant for depression

Encourage smoking cessation and provide resources and support

Prescription for meter and supplies
Consider CGM

Refer for DSMES due to new complicating factors

Address BG Control (A1c 10.0)
Begin MDI insulin therapy

Other potential referrals:
- Neurologist
- Occupational Therapist
- Physical Therapist
- Exercise Specialist
- Mental Health Counselor
- Social Worker
- Registered Dietitian
- Speech Therapist
- Pharmacy Consult
MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE DIABETES EDUCATOR

Self-care Skill Support

Healthy Eating
- Carbohydrate and portion control

Being Active
- Chair exercises
- Education on MDI
- Injections aids

Taking Medication
- Education on statin, antihypertensive, anticoagulant
- Easy open bottles
- Medication reminders

Monitoring
- How to use meter/supplies; BG targets; pattern management
- CGM introduction

Reducing Risks
- Smoking cessation resources/support
- Hypoglycemia prevention/treatment

Problem Solving
- Collaboratively develop strategies to accommodate limitations, new demands

Emotional Support

Healthy Coping

Assess/refer to counselor for diabetes-related distress and depression

Diabetes support group

Develop and support Mario's strategies for behavior change and healthy coping

MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE DIABETES EDUCATOR (CONT’D)
EVERYONE ON THE TEAM CONTRIBUTES AN IMPORTANT PIECE
WHEN TRANSITIONS IN CARE OCCUR

When might that be?

WHEN PCP, SPECIALIST, OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL FOR DSMES

- Change in living situation
- Change in medical care team
- Change in insurance coverage that results in treatment change
- Age-related changes affecting cognition, self-care etc.

Primary Care Provider, Endocrinologist, Clinical Care Team

- Develop diabetes transition plan
- Communicate transition plan to new health care team members
- Establish DSMES regular follow-up care

AREAS OF FOCUS AND ACTION STEPS (CONT’D)

Diabetes Education

- Identify needed adaptations in diabetes self-management
- Provide support for independent self-management skills and self-efficacy
- Identify level of significant other involvement and facilitate education and support
- Assist with facing challenges affecting usual level of activity, ability to function, health benefits and feelings of well-being
- Maximize quality of life and emotional support for the patient (and family members)
- Provide education for others now involved in care
- Establish communication and follow-up plans with the provider, family, and others

MARIO: 14 YEARS AFTER DIAGNOSIS (CONT’D)

- Experiences a second stroke
- Limited use of dominant right arm
- Inpatient rehab
WHEN PCP, SPECIALIST, OR CLINICAL CARE TEAM SHOULD CONSIDER REFERRAL FOR DSMES

- Change in living situation
- Change in medical care team
- Change in insurance coverage that results in treatment change
- Age-related changes affecting cognition, self-care, etc.

BASED ON THE JOINT POSITION STATEMENT AND DSMES ALGORITHM...

What should the healthcare team do?
### MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE PCP, ENDOCRINOLOGIST, AND CLINICAL CARE TEAM

<table>
<thead>
<tr>
<th>Action Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop diabetes transition plan for Mario from hospital to inpatient rehab facility</td>
</tr>
<tr>
<td>Communicate transition plan to health care team members at inpatient rehab and family</td>
</tr>
<tr>
<td>Include referral / follow-up with neurologist, mental health provider, dietitian, social worker</td>
</tr>
<tr>
<td>Counsel Mario on importance of communication with healthcare team</td>
</tr>
<tr>
<td>Refer for DSMES for regular follow-up care, education and support of new skills/behaviors</td>
</tr>
</tbody>
</table>
MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE DIABETES EDUCATOR

**Self-care Skill Support**

- **Healthy Eating**: Evaluate eating habits and reinforce carb control in coordination with dietitian's recommendations
- **Being Active**: Reinforce physical activity guidelines from provider and PT/OT
- **Taking Medication**: Consider injection aids for Mario to maintain independence as much as possible
- **Monitoring**: Counsel on monitoring benefits; work on adaptations and technique given dominant arm limitations
- **Reducing Risks**: Hypoglycemia prevention and treatment, Alcohol reduction/discontinuation
- **Problem Solving**: Assist with facing challenges affecting usual level of activity, ability to function, health benefits and feelings of well-being
MARIO: AREAS OF FOCUS AND ACTION STEPS BY THE DIABETES EDUCATOR (CONT’D)

- Emotional Support
  - Provide support for independent self-management skills and self-efficacy
  - Consider referral to counselor

- Healthy Coping
  - Maximize quality of life and emotional support for the patient and family members
GREAT COLLABORATIONS SHARE COMMON GOALS!
SUMMARY

- With the high prevalence of prediabetes and T2D, clinicians must be very familiar with the risk factors, know how to screen, and avoid delays in the diagnosis so ideal interventions can begin from the outset to help prevent prediabetes from converting to T2D.

- T2D is a multi-factorial progressive condition, therefore, timely therapeutic decision making is imperative to obtain and maintain ideal glycemic control.

- Diabetes education may help lower A1c and needs to be addressed at 4 critical time periods during a patient's clinical management.

- DSMES improves outcomes, yet is underutilized. The interdisciplinary team should provide DSMES at critical times when new complicating factors influence self-management and during transitions in care.
WHAT’S NEXT?

- To print your certificate of completion, visit [https://anhi.org/education/print-certificate](https://anhi.org/education/print-certificate)
- Following the webinar, you will receive an email with an Event ID code to claim your certificate.
- Coming soon on ANHI.org - New Wellness Toolkit and Diabetes Infographic!
THANK YOU!