PREDIABETES

Strategies for Effective Screening, Intervention and Follow-up
Learning Objectives

- Define prediabetes
- List risk factors and clinical signs in individuals at risk for type 2 diabetes
- Identify interventions to modify risk factors to preventing type 2 diabetes
- Develop a strategic management plan to proactively screen, assess, follow-up, and evaluate patients with prediabetes
- Discuss the benefits of a team-based approach to assist individuals with prediabetes to achieve their target goals and objectives
What is Prediabetes?

Fasting Plasma Glucose

- Diabetes Mellitus
  - Prediabetes Impaired Fasting Glucose
  - Normal

2-hour Plasma Glucose On OGTT

- Diabetes Mellitus
  - Prediabetes Impaired Glucose Tolerance
  - Normal

Hemoglobin A1C

- Diabetes Mellitus
  - Prediabetes Impaired Glucose Tolerance
  - Normal

Any abnormality must be repeated and confirmed on a separate day.

The diagnosis of diabetes can also be made based on unequivocal symptoms and a random glucose >200 mg/dL.
Prediabetes

- An important risk factor for future diabetes and CV disease
- Risk for prediabetes is a continuum
- Important to identify early and begin intervention immediately
- Interventions can reduce the rate of progression from prediabetes to diabetes
  - Healthy diet
  - Physical activity
  - Weight loss

Prediabetes

- Long-term consequences include
  - Hypertension\(^1\)
  - Cancer\(^2\)
    - Risk increased by 15%
    - Stomach/colorectal, liver, pancreas, breast, endometrium
  - Alzheimer’s disease\(^3\)

Impaired Fasting Glucose and Impaired Glucose Tolerance

- Not clinical entities but rather risk factors for diabetes and cardiovascular disease
- Associated with:
  - Physical inactivity
  - Obesity (especially abdominal, or visceral)
  - Dyslipidemia
    - High triglycerides and/or low HDL cholesterol
  - Hypertension
Prediabetes
Centers for Disease Control, 2012

- 37% (86 million) U.S. adults aged 20 years or older have prediabetes\(^1\)
  - Percentage was similar by race
  - 51% aged ≥65 years
- Only 11% were aware they had it\(^2\)
- In adolescents aged 12 to 19 years, prevalence of prediabetes and diabetes increased from 9% to 23%\(^3\)

Projecting the Future Diabetes Population: It Is Growing

- 2020: 20.4%
- 2025: 23.2%
- 2030: 25.6%
- 2035: 28.7%
- 2040: 29.6%
- 2045: 31.4%
- 2050: 32.7%

Determinants of Prediabetes/Type 2 Diabetes: A Call to Action

- There is an association between social and environmental factors and development of obesity and type 2 diabetes
- Better understanding needed
  - Variables that influence behaviors that lead to obesity, prediabetes, and diabetes
  - How to modify these variables
- Perform research conducted on community-level interventions
- Identify individuals at risk

Prediabetes

Process for Diagnosing

S Screen
A Assess and Advise
F Follow-up
E Evaluate progress
S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
Screening for Diabetes

- Be proactive in an effort to improve outcomes
- Find who might have risk factors
- Ask patients to take the ADA Diabetes Risk Test*
- Depending on results, invite them into the office to be tested
- If diagnosed with diabetes/prediabetes
  - Assess and advise
  - Follow-up
  - Evaluate

* Available at: www.diabetes.org/risktest
Criteria for Screening for Prediabetes/Type 2 Diabetes in Asymptomatic Adult Individuals

DIABETES RISK FACTORS
- Physical inactivity
- First-degree relative with diabetes
- High-risk race/ethnicity
- Women who delivered a baby weighing >9 lb or were diagnosed with GDM
- Hypertension (≥140/90 mmHg or on therapy for hypertension)
- HDL-C <35 mg/dL and/or a TG >250 mg/dL
- A1C ≥5.7%, IGT, or IFG on previous testing
- Other clinical conditions associated with insulin resistance, such as severe obesity, acanthosis nigricans, PCOS
- History of CVD

- Consider testing (screening) all adults with a BMI* ≥25 kg/m² and additional risk factors
  - If no risk factors, consider screening no later than age 45 years
- If normal results, repeat testing (screening) at ≥3-year intervals
  - More frequently depending on initial test results and risk factors
  - Test yearly if prediabetes

*At-risk BMI may be lower in some ethnic groups

Adapted from:
<table>
<thead>
<tr>
<th>Non-modifiable</th>
<th>Modifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Physical inactivity</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>Overweight/Obesity</td>
</tr>
<tr>
<td>Gender</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Family history</td>
<td>Smoking</td>
</tr>
<tr>
<td></td>
<td>Abnormal lipid metabolism</td>
</tr>
<tr>
<td></td>
<td>High plasma glucose levels</td>
</tr>
</tbody>
</table>
CHILDREN/ADOLESCENTS

S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
Prevalence of Prediabetes in Children/Adolescents in the U.S.

Screening Children for Prediabetes and Diabetes

Consider for all children who are overweight and have 2 of any of the following risk factors:

- Family history of type 2 diabetes in first- or second-degree relative
- High-risk race/ethnicity
- Signs of insulin resistance or conditions associated with insulin resistance
- Maternal history of diabetes of GDM during child’s gestation

Begin screening at age 10 years or onset of puberty

Screen every 3 years

A1C test is recommended for diagnosis in children

Adapted from:
S Screen
A Assess and Advise
F Follow-up
E Evaluate progress

GESTATIONAL DIABETES (GDM)
With GDM, the risks for abnormal glycemia can persist even after the early postpartum period.

Risk factors included:
- ↑ 3-month postpartum glucose
- ↑ Leptin
- ↓ HDL-C
- ↑ LDL-C
- ↑ Triglycerides
- ↓ Adiponectin
Risk of Prediabetes in Adolescent Offspring of Mothers with GDM

Obese adolescents with normal glucose tolerant (NGT) (N=255)

No Exposure to GDM (n=210; 82.3%)
- 91.4% NGT
- 8.6% IGT/T2DM

Exposure to GDM (n=45; 17.7%)
- 68.9% NGT
- 31.1% IGT/T2DM

Approx 5.75 times increase in risk; p < .001

Adapted from:
**GDM**

**Screening and Diagnosis**

For women not previously diagnosed with overt diabetes: Use 1 of 2 methods

**ONE-STEP (IADPSG)**

Screening (at 24-28 weeks gestation)
- 75-g OGTT in the AM after an overnight fast of at least 8 hours; measure PG during fasting, at 1 hour, and at 2 hours

Diagnosis
- Any of the following PG values are exceeded
  - Fasting: ≥92 mg/dL (5.1 mmol/L)
  - 1 hr: ≥180 mg/dL (10.0 mmol/L)
  - 2 hr: ≥153 mg/dL (8.5 mmol/L)

**TWO-STEP (NIH Consensus)**

Screening (at 24-28 weeks gestation)
- 50-gram non-fasting OGTT with PG measurement at 1 hour (Step 1)
  - If PG level at 1 hour after load is ≥140 mg/dL* (7.8 mmol/L), proceed to 100-gram fasting OGTT (Step 2)

Diagnosis
- 3-hour post-test PG is ≥140 mg/dL* (7.8 mmol/L)

---

*ACOG recommends 135 mg/dL in high-risk ethnic minorities with higher prevalence of GDM

ECONOMIC IMPACT OF PREDIABETES
The Cost of Prediabetes

- National annual medical costs of prediabetes exceeded $25 billion; an excess of $443 per person (average)

<table>
<thead>
<tr>
<th></th>
<th>US Average</th>
<th>Excess Associated with Prediabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>By Service Type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient visit</td>
<td>$215</td>
<td>$67</td>
</tr>
<tr>
<td>Physician office visit</td>
<td>$553</td>
<td>$183</td>
</tr>
<tr>
<td>Medications</td>
<td>$528</td>
<td>$194</td>
</tr>
<tr>
<td><strong>By Complication Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurological symptoms</td>
<td>$16</td>
<td>$5</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>$49</td>
<td>$5</td>
</tr>
<tr>
<td>Hypertension</td>
<td>$74</td>
<td>$57</td>
</tr>
<tr>
<td>Endocrine/metabolic complications</td>
<td>$16</td>
<td>$11</td>
</tr>
<tr>
<td>All other medical conditions</td>
<td>$1,017</td>
<td>$355</td>
</tr>
</tbody>
</table>

Impact of Concomitant Hypertension on Healthcare Costs* in Persons with Diabetes

Adapted from:

* Compared to those without diabetes
# Diabetes Prevention Program 4-Year Cost-Effectiveness

<table>
<thead>
<tr>
<th>Active interventions (vs placebo)</th>
<th>Intensive Lifestyle</th>
<th>Metformin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay onset of type 2 diabetes by</td>
<td>11.1 years</td>
<td>3.4 years</td>
</tr>
<tr>
<td>Reduce incidence of type 2 diabetes by</td>
<td>20%</td>
<td>8%</td>
</tr>
<tr>
<td>Increase life expectancy by</td>
<td>0.5 years</td>
<td>0.2 years</td>
</tr>
<tr>
<td>Cost per QALY</td>
<td>$1,124</td>
<td>$31,286</td>
</tr>
</tbody>
</table>

**Diabetes Prevention Program 10-Year Cost-Effectiveness**

- Lifestyle cost-effective, metformin marginally cost-saving vs placebo
- Investment in lifestyle, metformin interventions for diabetes prevention in high-risk adults provides good value

<table>
<thead>
<tr>
<th>Societal Perspective</th>
<th>Lifestyle vs Placebo</th>
<th>Metformin vs Placebo</th>
<th>Lifestyle vs Metformin</th>
<th>DPP Group Lifestyle vs Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undiscounted</td>
<td>11,274</td>
<td>Cost-saving</td>
<td>44,562</td>
<td>Cost-saving</td>
</tr>
<tr>
<td>Discounted</td>
<td>14,365</td>
<td>Cost-saving</td>
<td>42,753</td>
<td>1,681</td>
</tr>
</tbody>
</table>

Impact of ILI on Cost of Healthcare:

Look AHEAD

Adapted from:

Overall 10-year difference: $5,280 ($3,385, $7,175)
Annual cost per individual: $8,321 (ILI) vs. $8,916 (DSE); p = 0.002

DSE=diabetes support and education; ILI=intensive lifestyle intervention
S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
Assessing Patients With Prediabetes

- **What does the patient already know**
  - Determine what a patient already understands — or misunderstands — at the start of discussions

- **What does the patient want to know**
  - Assess whether the patient desires, or will be able to comprehend, additional information

- **What is of concern/importance to the patient**
  - e.g., for women contemplating pregnancy, uncontrolled glucose levels have been associated with birth defects

- **Tailor information desired level of information**
  - Improves comprehension
  - Limits emotional distress

Assessing Patients With Prediabetes (Con’t)

- Evaluate the spectrum of predisposing risk factors
  - Existence of one may mean others might also exist
- Talk with the patient about their disease
- Involve them in developing a management strategy, especially changes in lifestyle
  - Weight loss
  - Increase activity
  - Healthy eating
- Refer to
  - Other members of the healthcare team
  - Tools and other sources of educational information
MANAGEMENT STRATEGIES

Screen
Assess and Advise
Follow-up
Evaluate progress
Steps for Achieving Treatment Goals

- Assess
- Generate goals
- Record
- Evaluate
- Empower

Steps for Achieving Treatment Goals (Con’t)

- Focus on developing specific objectives
- Let the patient take the lead
- Keep goals/objectives “FIRM”
  - Few in number
  - Individualized
  - Realistic
  - Measurable (frequency and duration)

## Risk Stratification and Management Strategies for Prediabetes

### Risks and treatments

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin A1C, %</td>
<td>5.7–5.8</td>
<td>5.9–6.1</td>
<td>6.2–6.49</td>
</tr>
<tr>
<td>Risk stratification</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>A1C target: &lt;5.7%</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Lifestyle modification, 16-week course</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Lose 7% of body weight if BMI ≥25 kg/m²</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Physical activity ≥150 minutes/week</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Pharmacologic therapy (e.g., metformin)*</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Gastric bypass surgery†</td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

* Consider in low and medium risk if no weight loss after 16-week lifestyle modification course
† BMI ≥40 kg/m² with no risk factors or ≥35 kg/m² 1 or more severe obesity-related co-morbidities and/or if no weight loss after lifestyle modification and/or metformin therapy

Lifestyle Modification

Facilitating Weight Loss

- Initial target: 1-2 pound/week weight loss
- Long-range goal: 7% loss of body weight
- Increase physical activity to ≥150 min/week
- Individualized medical nutrition therapy
  - Provided by a registered dietitian
Lifestyle Modification
Facilitating Weight Loss

- Reduce caloric intake by 500-1000 kcal/day (depending on starting weight)
- Reduce dietary fat
- Limit intake of sugar-sweetened beverages
- Dietary fiber intake of 14 grams/1000 kcal
- Whole grains are 50% of grain intake
- 5-7 servings of fruits and vegetables a day
Achieving Healthy Eating Habits

Plate Method

Non-starchy vegetables
- Spinach
- Carrots
- Lettuce
- Greens
- Cabbage
- Green beans
- Broccoli
- Cauliflower
- Tomatoes

Grains and starchy foods
- Whole grain breads
- Whole wheat or rye
- Whole grain
- High-fiber

Protein
- Chicken or turkey without the skin
- Fish such as tuna, salmon, cod or catfish
- Tofu, eggs, low-fat cheese
- Lean cuts of beef and pork

Adapted from:
American Diabetes Association. Create your plate. Available at: diabetes.org/createyourplate/
## Lifestyle Modification

### Physical Activity

<table>
<thead>
<tr>
<th>Adults with prediabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exercise program should include:</strong></td>
</tr>
<tr>
<td>• ≥150 minutes/week of moderate-intensity aerobic activity (50%–70% maximum heart rate)</td>
</tr>
<tr>
<td>o Spread over 3 or more days every week</td>
</tr>
<tr>
<td>o No more than 2 consecutive days without exercise</td>
</tr>
<tr>
<td>• Resistance training ≥2 times/week (in absence of contraindications)*</td>
</tr>
<tr>
<td>Evaluate patients for contraindications prohibiting certain types of exercise before recommending exercise program</td>
</tr>
<tr>
<td>Consider age and previous level of physical activity†</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children with prediabetes, diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exercise program should include:</strong></td>
</tr>
<tr>
<td>≥60 minutes of physical activity/day</td>
</tr>
</tbody>
</table>

* For adults with type 2 diabetes
† e.g., uncontrolled hypertension, severe autonomic or peripheral neuropathy, history of foot lesions, unstable proliferative retinopathy, peripheral artery disease
Benefits of Physical Activity

- Increased insulin sensitivity
- Improved lipid levels
- Lower blood pressure
- Weight control
- Improved blood glucose control
- Reduced risk of CVD
- Prevent/delay type 2 diabetes
Association Between Insulin Sensitivity and Physical Exercise: The IRAS Study

IRAS=Insulin Resistance Atherosclerosis Study

Any Remission of Diabetes (Partial or Complete)

- Intensive Lifestyle Intervention (ILI)
- Diabetes Support and Education (DSE)

<table>
<thead>
<tr>
<th>Year</th>
<th>Prevalence %</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>2</td>
<td>8.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>3</td>
<td>8.0</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>4</td>
<td>7.5</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Overview of Trials in Prediabetes

**Lifestyle Modification Intervention Study**

- Lifestyle intervention continues to have an effect, even after 20 years

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Intervention</th>
<th>Treatment</th>
<th>Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Da Qing(^1,2)</td>
<td>577</td>
<td>Lifestyle</td>
<td>6 years 20 years</td>
<td>34% - 69%</td>
</tr>
<tr>
<td>Finnish DPS(^3,4)</td>
<td>523</td>
<td>Lifestyle</td>
<td>3+ years 7 years</td>
<td>58%</td>
</tr>
<tr>
<td>Diabetes Prevention Program (DPP)(^5,6)</td>
<td>3324</td>
<td>Lifestyle</td>
<td>3 years 10 years</td>
<td>58% 34%</td>
</tr>
</tbody>
</table>

Pharmacologic intervention provides benefit but with increased adverse effects with some drugs

### Overview of Trials in Prediabetes

#### Pharmacologic Intervention

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Intervention</th>
<th>Treatment</th>
<th>Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Prevention Program (DPP)</td>
<td>IGT</td>
<td>Metformin</td>
<td>3 years</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 years</td>
<td>18%</td>
</tr>
<tr>
<td>DREAM</td>
<td>IGT</td>
<td>Rosiglitazone</td>
<td>3 years</td>
<td>60%</td>
</tr>
<tr>
<td>STOP-NIDDM</td>
<td>IGT</td>
<td>Acarbose</td>
<td>3 years</td>
<td>21%</td>
</tr>
<tr>
<td>ACT NOW</td>
<td>IFG</td>
<td>Pioglitazone</td>
<td>3 years</td>
<td>81%</td>
</tr>
</tbody>
</table>

REIMBURSEMENT

S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
DSME Reimbursement for Cognitive Services

- Part of the Medicare program from CMS
  - Program meets national standards for DSME
  - Recognized by the ADA or other approval bodies
- Covered by most health insurance plans

Diabetes Self-Management Education/Training Reimbursement Toolkit

Toolkit available from CMS to assist in the reimbursement process

# ICD-9 Codes for Prediabetes Testing

<table>
<thead>
<tr>
<th>ICD-9 Code*</th>
<th>Procedure/Documentation</th>
</tr>
</thead>
</table>
| 790.21      | • Impaired fasting glucose/  
              o Has yet to be diagnosed with diabetes |
| 790.22      | • Failed glucose tolerance test/  
              o Has not been diagnosed with diabetes |
| 790.29      | • Evidence of other impairment of glucose metabolism/  
              o Has not been diagnosed with diabetes  
              o Make sure abnormal glucose levels has been documented when using this code |
| 277.7       | • 3 of the 5 components of cardiometabolic syndrome (e.g., obese, hypertension, elevated triglycerides)/  
              o Must report which manifestation of the cardiometabolic syndrome the patient has |

* Will be replaced by ICD-10 codes on October 1, 2015

ICD-10 Codes. Available at: [http://www.icd10data.com/ICD10CM/Codes/R00-R99/R70-R79/R73-/R73.09](http://www.icd10data.com/ICD10CM/Codes/R00-R99/R70-R79/R73-/R73.09)
S  Screen
A  Assess and Advise
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REFERRALS
Members of the Healthcare Team

Healthcare professionals take a team approach to assist patients with diabetes

- Physician
- Nurse practitioner/Physician assistant
- Certified diabetes educator
- Registered dietitian
- Pharmacist
- Exercise physiologist
- Social worker/psychologist

Benefits of DSME and DSMS

- 4-times higher risk of diabetes complications for those who never received DSME
- Shown to positively impact:
  - Diabetes knowledge
  - Self-care behaviors
  - Glycemic control
  - Reduction in emergency department visits and hospitalizations

Benefits of DSME and DSMS

For those with or at risk for diabetes, DSME and DSMS:

- Encourage behavior change
- Maintenance of healthy diabetes-related behaviors
- Address psychosocial concerns
- Are on-going processes

**DEPLOY Pilot Study: Diabetes Prevention in the Community**

- Adults BMI ≥24 kg/m², ≥2 diabetes risk factors, blood glucose 110-199 mg/dL
- Randomized to group-based DPP lifestyle intervention or brief counseling (control)

<table>
<thead>
<tr>
<th>Outcome, 4-6 months</th>
<th>Control (n=38)</th>
<th>Intervention (n=39)</th>
<th>P value (vs control)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% change in weight</td>
<td>-2.0 (-3.3, -0.6)</td>
<td>-6.0 (-7.3, -4.7)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>% change BMI</td>
<td>-2.3 (-3.7, -0.8)</td>
<td>-5.8 (-7.3, -4.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>Change total cholesterol</td>
<td>+6 mg/dL (-2.8, 14.8)</td>
<td>-21.6 mg/dL -29.9, -13.3</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Obese patients achieve, sustain significant weight loss with behavioral interventions

<table>
<thead>
<tr>
<th>2-Year Outcome</th>
<th>Control</th>
<th>Remote Support Only</th>
<th>In-Person Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean change in weight from baseline</td>
<td>−0.8 kg</td>
<td>−4.6 kg*</td>
<td>−5.1 kg*</td>
</tr>
<tr>
<td>% patients losing ≥5% of initial weight</td>
<td>18.8%</td>
<td>38.2%</td>
<td>41.4%</td>
</tr>
</tbody>
</table>

*P<0.001 vs control arm
Diabetes TeleHealth Improves Self-Management

- 1-year remote DSME intervention using a dietitian, nurse/certified diabetes educator
- Improved metabolic control, reduced CV risk

<table>
<thead>
<tr>
<th>Reduction in Glycated Hemoglobin</th>
<th>Baseline</th>
<th>6 Months</th>
<th>12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes TeleCare group</td>
<td>9.4±0.3</td>
<td>8.3±0.3*</td>
<td>8.2±0.4†</td>
</tr>
<tr>
<td>Usual care group</td>
<td>8.8±0.3</td>
<td>8.6±0.3</td>
<td>8.6±0.3</td>
</tr>
</tbody>
</table>

*P=0.003 vs. baseline; †P=0.004 vs. baseline

S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
Follow-up Counseling

- Shown to be important to success
- Provide annual screenings for the development of diabetes
  - Every 12 months for those with prediabetes
  - Every 3 years if screening is negative
- On a regular basis, search EHR to determine who needs to be screened/rescreened
- Continually screen for modifiable risk factors at each interaction

Follow-up Counseling (Con’t)

- Emphasize long-term goals of treatment
  - Monitor weight loss progress
  - Provide ongoing counseling for lifestyle modification
  - Consider pharmacologic therapy (e.g., metformin) if appropriate
    - IGT, IFG and/or A1C of 5.7-6.49%
    - Especially if BMI >35 kg/m²
    - Age <60
    - Women with prior gestational diabetes

- Provide referrals to other members of the healthcare team
S  Screen
A  Assess and Advise
F  Follow-up
E  Evaluate progress
Evaluating Progress
Practitioner/Patient Communication

- An integral part of clinical practice
- “Manner” is as important as “what” is communicated
- Patients who understand are more likely to
  - Acknowledge health problems
  - Understand their treatment options
  - Modify behaviors
  - Adhere to medication schedules
- Non-verbal communication is important

Delamater AM. Clinical Diabetes. 2006;24:71-77.
Evaluating Progress
What to Do

- Assess patient's concerns
- Reconcile their medications and lifestyle
- Revise the management plan as needed
  - If it doesn’t work in the patient’s life, it doesn’t work
- Ask the patient to identify one strategy/goal they would like to accomplish
- Provide information about materials available to achieve goals, such as weight loss or physical activity log

Adapted from:
Funnell M. Role of Diabetes Education in Patient Management. Therapy for Diabetes Mellitus and Related Disorders.
Follow-up Assessment Materials

Documentation Logs

- Use a log to track different parameters:
  - Weight
  - Calorie intake
  - Hours of sleep
  - Exercise time
  - Daily fitness and strength training

Printable Weight Loss Chart. Available at: http://www.vertex42.com/ExcelTemplates/weight-loss-chart.html
Links to Educational Materials for Patients and Healthcare Practitioners
Prediabetes Materials for Patients

- Patient Handouts
  - diabetes.org/toolkit
- Diabetes Risk Test
  - diabetes.org/risktest
- National Diabetes Prevention Program
  - www.cdc.gov/diabetes/prevention/
- My Health Advisor
  - diabetes.org/mha
- CheckUp America
  - checkupamerica.org
- Internet-based and cell phone apps for weight loss
  - Various websites
Prediabetes Materials for Professionals

- ADA Clinical Practice Recommendations
  - Professional.diabetes.org/cpr
- On-line self-assessment programs
  - Cardiometabolic Risk
  - Diagnosing Prediabetes and Lifestyle Modification
  - professional.diabetes.org/ce
- ADA Diabetes is Primary webcasts
  - Professional.diabetes.org/primary
Prediabetes

Conclusions

As a member of the healthcare team, YOU can make a difference

● Only 11% of people with prediabetes are aware they have it

● Identify those at risk for developing diabetes: be SAFE
  ○ Proactively Screen/rescreen
  ○ Assess/advise with management strategies
  ○ Continually Follow-up and Evaluate

● Provide educational tools for success
● Collaborate with other members of the healthcare team
Thank You