Prediabetes Care

Purpose
To promote the early detection and management of prediabetes and prevention/delay of type 2 diabetes for adults.

Defining Prediabetes
Individuals considered as having prediabetes have one of the following:
1. Fasting plasma blood glucose in the 100-125 mg/dl range are considered as having impaired fasting glucose (IFG);
2. Impaired glucose tolerance (IGT) if at two-hours of an oral glucose tolerance test individuals have a blood glucose of 140-199 mg/dl; or
3. Individuals with a Hemoglobin A1c of 5.7 to 6.4%.

Key Messages
- In 2015, 84.1 million Americans age 18 and older had prediabetes.
- Half of all Americans aged 65 years and older have prediabetes.
- Without lifestyle changes to improve their health, 15% to 30% of people with prediabetes will develop type 2 diabetes within 5 years.
- While there are not local estimates about the proportion of the population with pre-diabetes, statewide an estimated 25% have this condition.

Key Recommendations*
Who should get screened:
- Testing to detect type 2 diabetes and prediabetes in asymptomatic people should be considered in adults of any age who are overweight or obese (BMI ≥ 25 kg/m2) or Asian Americans with BMI ≥ 23 kg/m2 and who have one or more additional risk factors for diabetes:
  - Physical inactivity
  - First-degree relative with diabetes
  - Member of a high-risk racial/ethnic group (i.e. African American, Latino, Native American, Asian American)
  - GDM or history of baby ≥ 9 lb
  - Hypertension (≥ 140/90 mmHg or on therapy for hypertension)
  - HDL cholesterol level <35 mg/dL (0.90 mmol/L) and/or a triglyceride level >250 mg/dL (2.82 mmol/L)
  - Polycystic ovarian syndrome
  - A1C ≥ 5.7%, IGT, or IFG on previous testing
  - Other clinical conditions associated with insulin resistance (e.g. severe obesity, arcanthosis nigricans)
  - History CVD

  In those without these risk factors, testing should begin at age 45 years. *(B)*
- Women with a history of Gestational diabetes mellitus (GDM) should have lifelong screening for the development of diabetes or prediabetes at least every 3 years. *(B)*

Testing:
- To test for diabetes or prediabetes, the A1C, FPG, or 2-h 75-g OGTT are appropriate. *(B)*
- If test results are normal, repeat testing at least at 3-year intervals is reasonable. *(C)*

Prevention/Delay of Type 2 Diabetes:
- At least annual monitoring for the development of diabetes in those with prediabetes is suggested. *(E)*
- A variety of eating patterns (including Mediterranean and low-calorie, low-fat eating patterns) are acceptable for persons with prediabetes (B)
- Patients with prediabetes should be referred to an intensive behavioral lifestyle intervention program modeled on the Diabetes Prevention Program to achieve and maintain 7% loss of initial body weight and increase moderate-intensity physical activity (such as brisk walking) to at least 150 min/week. (A)
- Technology-assisted tools including Internet-based social networks, distance learning, and mobile applications that incorporate bidirectional communication may be useful elements of effective lifestyle modification to prevent diabetes. (B)
- Given the cost effectiveness of diabetes prevention, such intervention programs should be covered by third-party payers. (B)

Guidelines are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.
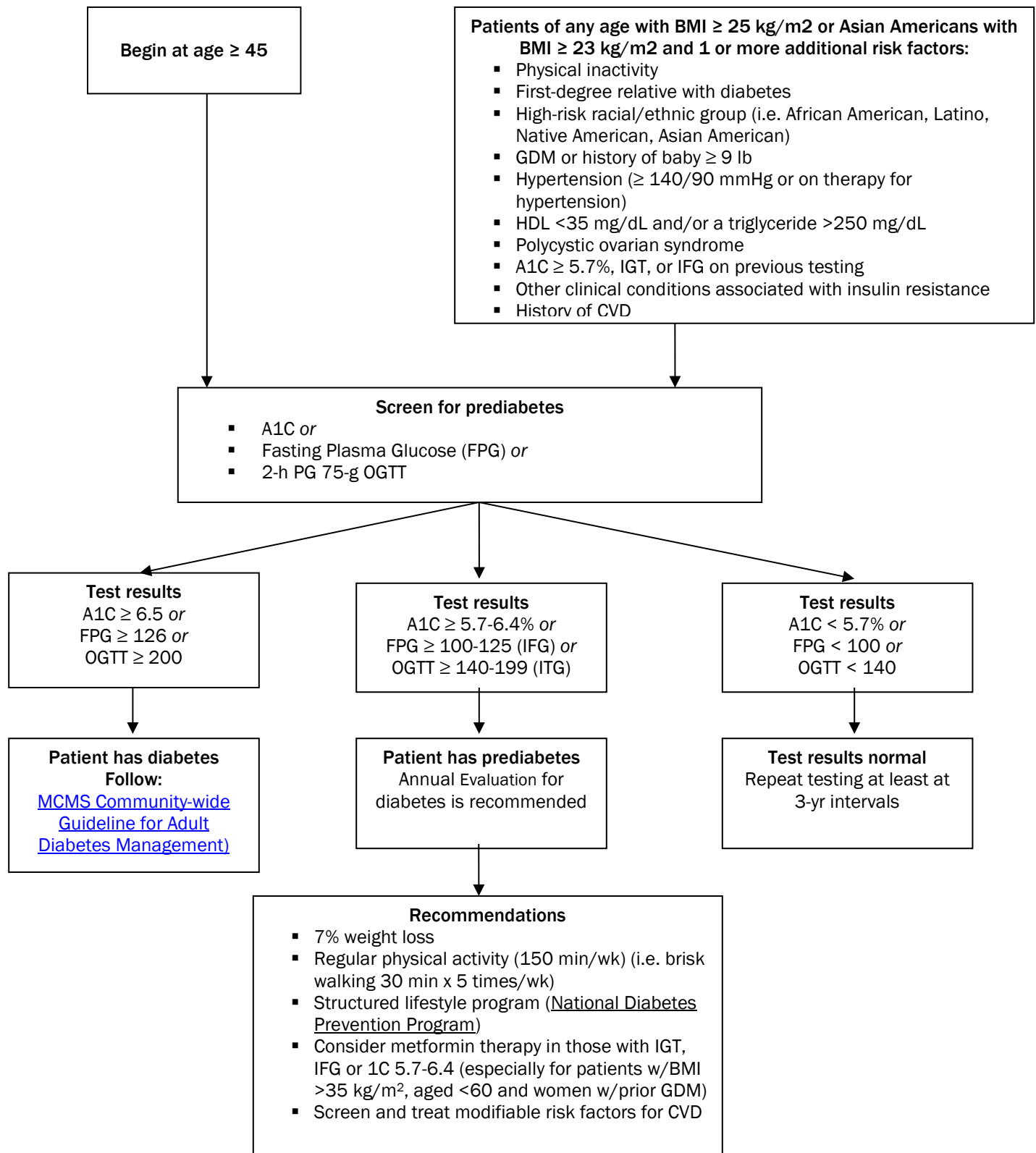
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Treatment Plan:

- Metformin therapy for prevention of type 2 diabetes may be considered in those with impaired glucose tolerance (IGT) *(A)*, impaired fasting glucose (IFG) *(E)*, or an A1C 5.7 – 6.4% *(E)*, especially for those with BMI >35 kg/m2, aged < 60 years, and women with prior Gestational diabetes mellitus (GDM). *(A)*
- Long-term use of metformin may be associated with biochemical vitamin B-12 deficiency, and periodic measurement of vitamin B-12 levels should be considered in metformin-treated patients, especially those with anemia or peripheral neuropathy (B)
- In those identified with prediabetes, identify and, if appropriate, treat other cardiovascular disease (CVD) risk factors. *(B)*
- Screening for and treatment of modifiable risk factors for CVD is suggested. *(B)*
- Individuals who have prediabetes or diabetes should receive individualized medical nutrition therapy (MNT) as needed to achieve treatment goals, preferably provided by a registered dietitian familiar with the components of diabetes MNT. *(A)*
- Among individuals at high risk for developing type 2 diabetes, structured programs that emphasize lifestyle changes that include moderate weight loss (7% of body weight) and regular physical activity (150 min/week), with dietary strategies including reduced calories and reduced intake of dietary fat, can reduce the risk for developing diabetes and are therefore recommended. *(A)*
- Diabetes self-management education (DSME) and diabetes self-management support (DSMS) programs are appropriate venues for people with prediabetes to receive education and support to develop and maintain behaviors that can prevent or delay the onset of diabetes. *(B)*

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Identification and Intervention for Prediabetes in Adults

Begin at age ≥ 45

Patients of any age with BMI ≥ 25 kg/m2 or Asian Americans with BMI ≥ 23 kg/m2 and 1 or more additional risk factors:
- Physical inactivity
- First-degree relative with diabetes
- High-risk racial/ethnic group (i.e. African American, Latino, Native American, Asian American)
- GDM or history of baby ≥ 9 lb
- Hypertension (≥ 140/90 mmHg or on therapy for hypertension)
- HDL <35 mg/dL and/or a triglyceride >250 mg/dL
- Polycystic ovarian syndrome
- A1C ≥ 5.7%, IGT, or IFG on previous testing
- Other clinical conditions associated with insulin resistance
- History of CVD

Screen for prediabetes
- A1C *or*
- Fasting Plasma Glucose (FPG) *or*
- 2-h PG 75-g OGTT

Test results
A1C ≥ 6.5 *or*
FPG ≥ 126 *or*
OGTT ≥ 200

Test results
A1C ≥ 5.7-6.4% *or*
FPG ≥ 100-125 (IFG) *or*
OGTT ≥ 140-199 (ITG)

Test results
A1C < 5.7% *or*
FPG < 100 *or*
OGTT < 140

Patient has diabetes
Follow:
[MCMS Community-wide Guideline for Adult Diabetes Management)](#)

Patient has prediabetes
Annual Evaluation for diabetes is recommended

Test results normal
Repeat testing at least at 3-yr intervals

Recommendations
- 7% weight loss
- Regular physical activity (150 min/wk) (i.e. brisk walking 30 min x 5 times/wk)
- Structured lifestyle program (National Diabetes Prevention Program)
- Consider metformin therapy in those with IGT, IFG or 1C 5.7-6.4 (especially for patients w/BMI >35 kg/m², aged <60 and women w/prior GDM)
- Screen and treat modifiable risk factors for CVD

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Resources for Patients

Diabetes Prevention Programs

American Diabetes Association – Rochester Office
Contact the ADA Rochester office for current information on diabetes prevention programs in the community. Call 585-458-3040.

Resources for Physicians

American Association of Diabetes Educators
Find a diabetes educator

American Diabetes Association – Rochester Office
Provides current information on diabetes prevention programs in the community. Call 585-458-3040
Centers for Disease Control and Prevention
https://www.cdc.gov/diabetes/prevention/index.html
Provides information about the CDC-led National Diabetes Prevention Program, an evidence-based lifestyle change program for preventing type 2 diabetes.

Provides tools to prevent type 2 diabetes
- Resources Available in Spanish
  o Prediabetes screening quiz widget for websites
  o Spanish language resources

National Diabetes Education Program for Healthcare Professionals
Provides clinical practice tools and patient education materials to help identify and counsel patients with prediabetes.

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH) Tools and Resources
Links to diabetes-related topics, patient organizations, related databases, interactive health features and tools, and Government agencies
Resources in Spanish

Weight-Control Information Network
An information service of the National Institute of Diabetes and Digestive and Chronic Kidney Diseases. Provides the general public, health professionals, the media, and Congress with up-to-date, science-based information on weight control, obesity, physical activity, and related nutritional issues.

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Approved Nov. 2020. Next scheduled review Nov. by 2022.   4

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