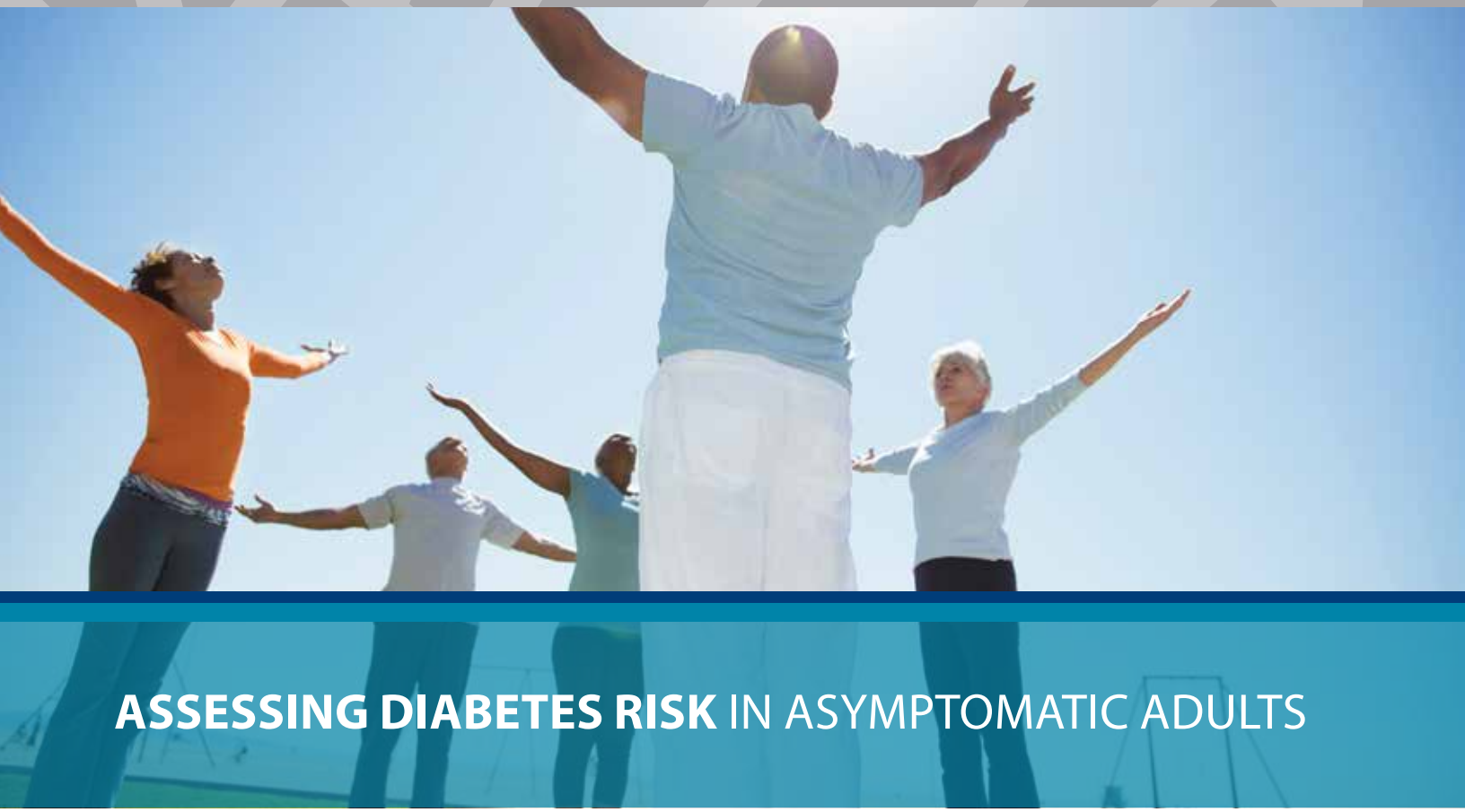
PREDIABETES
TESTING SERVICES

LabCorp



ASSESSING DIABETES RISK IN ASYMPTOMATIC ADULTS

Depending upon population characteristics, up to 70% of individuals with prediabetes will ultimately progress to diabetes at an estimated rate of 5-10% each year.[2]

Prediabetes is characterized as higher than normal glucose levels but not high enough to meet criteria for diabetes. It is not considered a clinical state by itself, but a significant risk factor for diabetes, kidney disease (CKD), and cardiovascular disease (CVD).[3,5] Individuals are often unaware of their prediabetes status because there are no specific associated symptoms. This is important since observational evidence has linked prediabetes with early nephropathy, chronic kidney disease, small fiber neuropathy, diabetic retinopathy, and increased risk of macrovascular disease.[2]

A Pathway for Prediabetes Identification

Testing Criteria

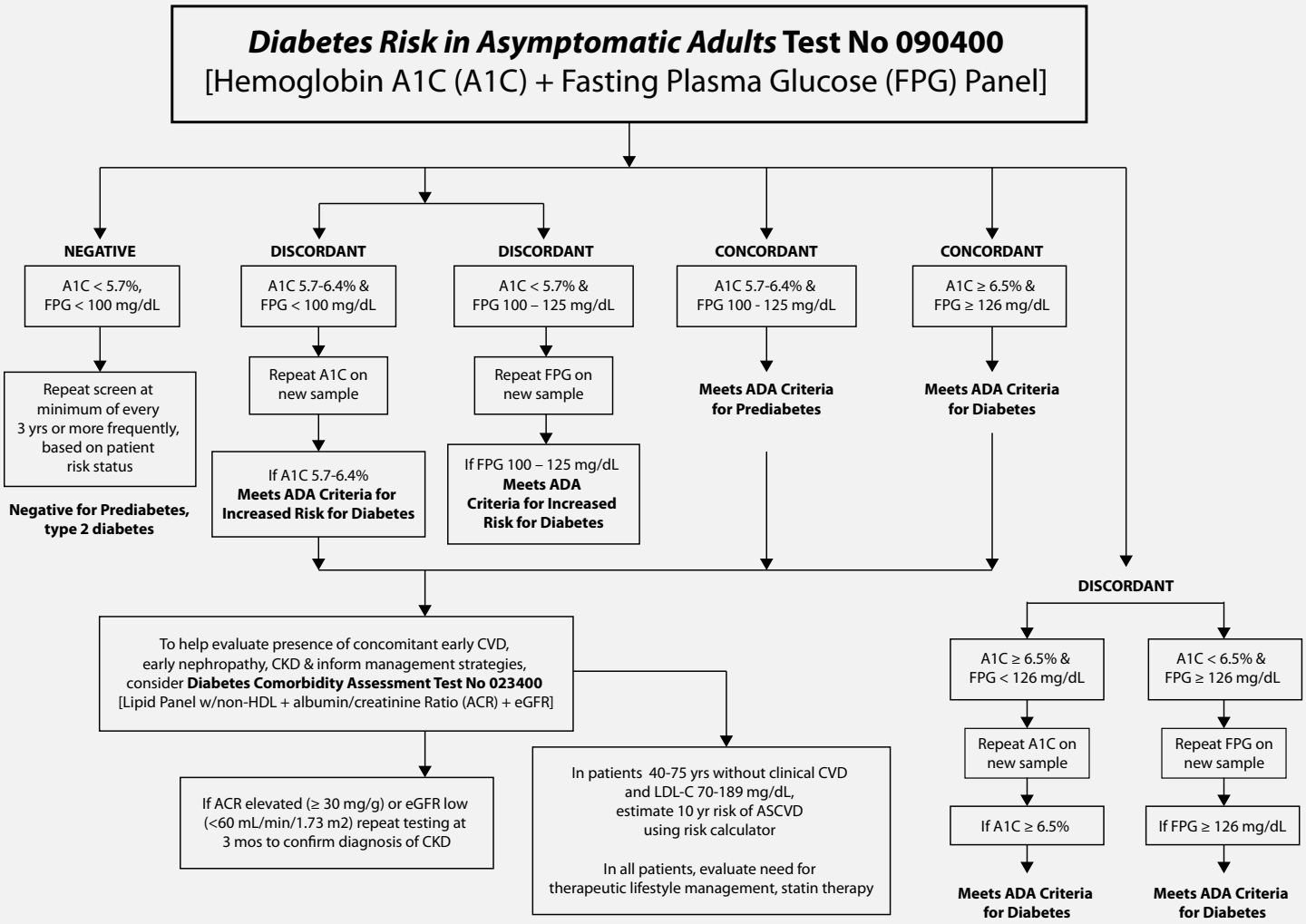
The 2018 American Diabetes Association Standards of Medical Care in Diabetes (ADA standards) established testing criteria to assist clinicians in identifying prediabetes in asymptomatic adults,[3] including the following:

- All patients ≥ 45 years of age
- Consider testing any age > 18 years in overweight or obese individuals (BMI ≥ 25 kg/m2 or ≥ 23 kg/m2 in Asian Americans) with 1 or more of the following risk factors:
  - 1st degree relative with diabetes
  - High risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
  - History of CVD
  - Hypertension or on therapy for hypertension
  - HDL-C value < 35 mg/dL and/or triglyceride value > 250 mg/dL
  - Polycystic ovary syndrome (in women)
  - Physical inactivity
  - Conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigrans)

There are an estimated 84 million adults 18 years and older in the U.S. who are prediabetic or at risk for developing diabetes,[1] and another 7 million with undiagnosed diabetes.[1]

A Suggested Approach to Testing[3,6]

Based on ACC/AHA 2013 Guidelines, 2018 Standards of Medical Care in Diabetes, and general practice standards



Considerations for Patient Follow up

Within the context of clinical judgement, for patients with a confirmed prediabetes status, the 2018 ADA Standards suggestions include:

- At least an annual evaluation for development of diabetes.[3]
- Referral to an intensive behavioral lifestyle intervention program similar to the Diabetes Prevention Program, the goal of which is to achieve and maintain 7% loss of initial body weight and to increase moderate-intensity exercise to at least 150 minutes a week.[3]
- Consider metformin therapy, particularly in patients with a BMI ≥ 35 kg/m,[2] those less than 60 years of age, and women with prior gestational diabetes.[3]
- In cases where metformin is prescribed, note long-term use may be associated with vitamin B deficiency and periodic measurement of vitamin B levels may be needed, especially in patients with anemia or peripheral neuropathy.[3]
- Other CVD risk factors such as hypertension and dyslipidemia often accompany prediabetes. Vigilance in identification and management of these and other risk factors is important.[3,5]

Testing Women Every Three Years

The ADA standards of medical criteria also advocate testing women diagnosed with a history of gestational diabetes every three years for the remainder of their lives.[3]

Dyslipidemia in Prediabetes

Insulin deficiency, insulin resistance and hyperglycemia may trigger lipoprotein metabolism disturbances in patients with prediabetes, type 2 diabetes, and the metabolic syndrome.[5] Dyslipidemia is characterized by:

- Hypertriglyceridemia - triglycerides > 150 mg/dL,
- Low high density lipoprotein (HDL) - ≤ 35 mg/dL, and
- Small, dense low density lipoprotein (LDL) particles which contain less cholesterol per particle.[5]

Traditional low density lipoprotein-cholesterol (LDL-C) is an estimate of LDL quantity based on the amount of cholesterol contained in the LDL particle. However the amount of cholesterol per particle varies between individuals – particularly in patients with type 2 diabetes, metabolic syndrome, or hypertriglyceridemia.[7] Because the per-particle amount of cholesterol varies in these patients, LDL-C may be an unreliable measure of LDL quantity for patient management.[7] Alternatively, the number of LDL particles (LDL-P) can be measured by nuclear magnetic resonance (NMR) or apolipoprotein B (Apo B) immunoassay.[8,9] Importantly, when particle measures and LDL-C disagree, risk for CVD events tracks with particle measure values.[11]

Anemia in Patients with Diabetes

Anemia frequently coexists with diabetes, especially in the presence of albuminuria and reduced renal function. Additionally, patients with diabetes may be more susceptible to the effects of anemia because many also have cardiovascular disease and organ damage caused by reduced blood oxygen. Therefore it may be important to evaluate iron stores in the development and progression of anemia in this patient population.[12]

To assist clinicians with identification and management of prediabetes and diabetes

Test Number	Test Name	Description
090400	**Diabetes Risk Assessment in Asymptomatic Adults**	Hemoglobin A1c and Fasting Plasma Glucose
023400	**Diabetes Comorbidity Assessment**	Assess presence of early CVD and CKD
Other Test Options		
884247	**NMR LipoProfile®**	Lipid panel with lipoprotein particle number measure
884000	**NMR LipoProfile® with IR Markers**	Lipid panel with lipoprotein particle number measure & markers of Insulin Resistance (Large VLDL-P, Small LDL-P, Large HDL-P, VLDL Size, HDL Size) plus IR Score
361946	**Lipid Cascade with reflex to lipoprotein analysis by NMR**	Lipid panel with automatic reflex to lipoprotein analysis by NMR with "normal" LDL-C result < 130 mg/dL
363676	**Lipid Cascade with reflex to Apolipoprotein B**	Lipid panel with automatic reflex to Apolipoprotein B with "normal" LDL-C result < 130 mg/dL
001503	**Vitamin B12**	Vitamin B12
030577	**Anemia Profile A**	Includes CBC with differential and platelet count; iron; iron binding capacity; reticulocyte count

Visit the online Test Menu at **www.LabCorp.com** for full test information, including CPT codes and specimen collection requirements.

Other support services include:

LabCorp Link™

Global patient search feature that allows an authorized physician to access lab results that may have been ordered by other physicians for a referred patient.

This feature allows the physician to:

Search for referred patient's laboratory test with several search parameters

Review results of referred patient for a more complete clinical picture of the patient

Minimize time spent requesting copies of patient lab results (To access the Global Patient Search feature, a physician must have a LabCorp Link™ account, and the physician must agree to the Global Search Terms of Use. Global search is only permitted when the physician is in a treatment relationship with the patient.)

LabCorp Link™ is an online laboratory test ordering and result reporting service that allows clinicians to order tests as well as view, share, manage, and analyze lab results - anytime, anywhere. LabCorp Link™ offers trending and analytic features, including sequential trending and graphic representations to facilitate viewing a patient's results over time, including those tests ordered by other providers, and to help identify important patterns in test results. LabCorp Link™ analytics also allows for population management reports for comparison by patient, by test, by result, or by diagnosis.

Systems integration

Interfaces with more than 700 solutions to connect LabCorp with EMRs.

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