

Putting Prevention into Practice

An Evidence-Based Approach

Screening for Abnormal Blood Glucose and Type 2 Diabetes Mellitus

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► See related U.S. Preventive Services Task Force Recommendation Statement at <http://www.aafp.org/afp/2016/0115/od1.html>.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and the supporting documents on the USPSTF website (<http://www.uspreventiveservicestaskforce.org>). The practice recommendations in this activity are available at <http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/screening-for-abnormal-blood-glucose-and-type-2-diabetes>.

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A collection of Putting Prevention into Practice published in *AFP* is available at <http://www.aafp.org/afp/pip>.

CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz Questions on page 976.

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Case Study

M.A. is a 43-year-old woman with a seven pack-year smoking history. She has no health concerns and has not visited a physician in four years. Her blood pressure and pulse are normal, and her body mass index (BMI) is 27 kg per m². She does not have a family history of diabetes mellitus but notes that her husband was recently screened for diabetes. She asks if she will be screened during today's visit.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF), which one of the following responses is most appropriate for this patient?
 - A. Screening is not recommended because her blood pressure is normal.
 - B. Screening is not recommended because she does not have a family history of diabetes.
 - C. Screening may be recommended in the future if her BMI increases to 30 kg per m² or greater.
 - D. Screening is recommended because she is overweight.
 - E. The evidence is insufficient to assess the balance of benefits and harms of screening in this patient.
2. The patient is screened for diabetes, and her blood glucose level is normal. According to the USPSTF, how often should she be rescreened?
 - A. Annually.
 - B. Every two years.
 - C. Every three years.
 - D. Every five years.
 - E. She should not be rescreened; the USPSTF recommends one-time screening in adulthood.
3. The patient's fasting plasma glucose level is 107 mg per dL (5.9 mmol per L). According to the USPSTF, which of the following next steps are appropriate?
 - A. Screen the patient for other modifiable cardiovascular risk factors and provide interventions as appropriate.
 - B. Order a fasting plasma glucose test for the following week to confirm the diagnosis.
 - C. Refer the patient for intensive behavioral counseling regarding healthful diet and physical activity.
 - D. Prescribe medication to prevent progression to diabetes.

Answers appear on the following page.

Answers

1. The correct answer is D. The USPSTF recommends screening for abnormal blood glucose levels as part of cardiovascular disease (CVD) risk assessment in adults 40 to 70 years of age who are overweight or obese (B recommendation). This recommendation applies to patients who are treated in a primary care setting, have no symptoms of diabetes, and are most likely to have glucose abnormalities that are associated with increased CVD risk (i.e., those who are overweight or obese). These patients can be expected to benefit from primary prevention of CVD through risk factor modification. Clinicians should consider screening at a younger age or lower BMI in persons with one or more risk factors for developing diabetes, such as those with a family history of diabetes; those with a personal history of gestational diabetes or polycystic ovary syndrome; and certain ethnicities, including African Americans, American Indians or Alaska Natives, Asian Americans, Hispanics or Latinos, Native Hawaiians, or Pacific Islanders.

2. The correct answer is C. The USPSTF found that evidence on the optimal rescreening interval for adults with an initial normal glucose test result is limited. However, cohort and modeling studies suggest that rescreening every three years may be a reasonable approach.

3. The correct answers are A, B, and C. Oral glucose tolerance testing, measuring A1C level, and measuring fasting plasma glucose level are all recommended methods of screening for an abnormal blood glucose level. Ideally, diagnosis of abnormal blood glucose (i.e., impaired fasting glucose, impaired glucose tolerance, or type 2 diabetes) should be confirmed, preferably by performing the same test on a different day.

In addition to screening, the USPSTF recommends that clinicians offer or refer patients with abnormal blood glucose levels to intensive behavioral counseling interventions to promote a healthful diet and physical activity (B recommendation). The USPSTF found adequate evidence that intensive behavioral counseling interventions in persons at increased CVD risk (including those who are overweight or obese and have hypertension, hyperlipidemia or dyslipidemia, impaired fasting glucose, or impaired glucose tolerance) have a moderate benefit in reducing CVD risk. In addition, studies have shown that treating patients who have impaired fasting glucose or impaired glucose tolerance with intensive lifestyle interventions has a moderate benefit in reducing progression to diabetes. Lifestyle interventions have been found to have a greater effect on reducing progression to diabetes than metformin or other medications, and the harms of drug therapy for diabetes prevention are small to moderate. Finally, the USPSTF recommends screening and appropriate interventions for other modifiable risk factors for CVD events, including overweight and obesity, physical inactivity, abnormal lipid levels, high blood pressure, and smoking.

The views expressed in this work are those of the authors, and do not reflect the official policy or position of the Uniformed Services University of the Health Sciences, the Department of Defense, or the U.S. government.

SOURCES

U.S. Preventive Services Task Force. Screening for abnormal blood glucose and type 2 diabetes mellitus: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2015;163(11):861-868.

Selph S, Dana T, Blazina I, Bougatsos C, Patel H, Chou R. Screening for type 2 diabetes mellitus: a systematic review for the U.S. Preventive Services Task Force. *Ann Intern Med.* 2015;162(11):765-776. ■