

Putting Prevention Into Practice

An Evidence-Based Approach

Screening for Prediabetes and Type 2 Diabetes Mellitus

Howard Tracer, MD, Medical Officer, U.S. Preventive Services Task Force
Program, Agency for Healthcare Research and Quality

Sopan Mohnot, MD, Preventive Medicine Resident, Stony Brook Medicine,
Department of Family, Population, and Preventive Medicine

Case Study

A 36-year-old, D.P., presents to your clinic as a new patient for a wellness visit. D.P. has no current health concerns but states that they had gestational diabetes during their last pregnancy three years ago. The patient reports that their father has diabetes mellitus and takes insulin. D.P.'s body mass index is 26 kg per m², and pulse and blood pressure are normal.

Case Study Questions

1. According to the U.S. Preventive Services Task Force (USPSTF) recommendation statement, is screening for prediabetes and type 2 diabetes appropriate for this patient?

- ☐ A. Yes, all adults with multiple risk factors should begin screening starting at 35 years of age.
- ☐ B. Yes, all adults, regardless of risk factors, should begin screening starting at 35 years of age.
- ☐ C. Yes, all patients who have overweight or obesity should be screened starting at 35 years of age.
- ☐ D. No, because this patient has a body mass index less than 30 kg per m², screening should start at 40 years of age.
- ☐ E. No, only patients with symptoms of diabetes should be screened starting at 35 years of age.

2. D.P. completes screening and is found to have prediabetes. Based on the available evidence reviewed by the USPSTF, which of the following statements about interventions for prediabetes are correct?

- ☐ A. Lifestyle interventions and taking metformin are associated with preventing progression of prediabetes to type 2 diabetes.
- ☐ B. Taking metformin has a beneficial effect on cardiovascular disease risk factors, including blood pressure and lipid levels.
- ☐ C. Lifestyle interventions and taking metformin have a beneficial effect on weight.
- ☐ D. Lifestyle interventions have a beneficial effect on cardiovascular disease risk factors, including blood pressure and lipid levels.

3. According to the USPSTF recommendation statement, which one of the following statements about prediabetes and diabetes is correct?

- ☐ A. More than 50% of U.S. adults meet criteria for prediabetes.
- ☐ B. Most people with prediabetes are aware they have it.
- ☐ C. Non-Hispanic White people have the highest prevalence of diabetes in the United States.
- ☐ D. Having overweight or obesity is the strongest risk factor for developing prediabetes and type 2 diabetes in adults.

Answers appear on the following page.

See related USPSTF Clinical Summary at <https://www.aafp.org/afp/2021/0100.od1>.

This PPIP quiz is based on the recommendations of the USPSTF. More information is available in the USPSTF Recommendation Statement and supporting documents on the USPSTF website (<https://www.uspreventiveservicestaskforce.org>). The practice recommendations in this activity are available at <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/screening-for-prediabetes-and-type-2-diabetes>.

This series is coordinated by Kenny Lin, MD, MPH, deputy editor.

A collection of Putting Prevention Into Practice published in *AFP* is available at <https://www.aafp.org/afp/ppip>.

CME This clinical content conforms to AAFP criteria for CME. See CME Quiz on page 15.

Author disclosure: No relevant financial affiliations.

Answers

1. The correct answer is C. The USPSTF recommends screening for prediabetes and type 2 diabetes in all nonpregnant adults 35 to 70 years of age who are overweight or obese and do not have symptoms of diabetes. The USPSTF decreased the age at which to begin screening from 40 to 35 years of age. This change is based on data suggesting that the incidence of diabetes increases at 35 years of age compared with younger ages and on the evidence for the benefits of interventions for newly diagnosed diabetes in reducing all-cause mortality, diabetes-related mortality, and risk of myocardial infarction after 10 to 20 years of intervention.¹ Having overweight or obesity is the strongest risk factor for developing prediabetes and type 2 diabetes in adults. Other risk factors include older age, family history, history of gestational diabetes, history of polycystic ovary syndrome, and dietary and lifestyle factors.

2. The correct answers are A, C, and D. The USPSTF found convincing evidence that preventive interventions in people with prediabetes have a moderate benefit in reducing the progression to type 2 diabetes. Studies included interventions that used lifestyle behavioral modifications focusing on nutrition and/or physical activity and pharmacotherapy interventions that used metformin. Metformin and lifestyle interventions were effective in preventing progression from prediabetes to diabetes.² Lifestyle interventions and metformin were found to have a beneficial effect on weight. Lifestyle interventions were also found to have a beneficial effect on other cardiovascular risk factors by lowering blood pressure, increasing high-density lipoprotein cholesterol levels, and lowering triglyceride levels. Metformin does not appear to affect blood pressure or to consistently improve lipid levels.

3. The correct answer is D. Having overweight or obesity is the strongest risk factor for

developing prediabetes and type 2 diabetes in adults. According to the Centers for Disease Control and Prevention's 2020 National Diabetes Statistics Report, an estimated 34.5% of all U.S. adults (18 years or older) meet criteria for prediabetes, and only 15.3% of adults with prediabetes reported being told by a health care professional that they had this condition.³ American Indian/Alaska Native people have the highest prevalence of diabetes in the United States (14.7%).³

Editor's Note: The American Academy of Family Physicians (AAFP) reviewed the USPSTF recommendation statement and supporting evidence and concluded that the evidence is insufficient to assess the benefits and harms of screening for type 2 diabetes in adults 35 to 39 years of age. The AAFP also disagrees that evidence supports screening for prediabetes to improve patient-oriented health outcomes. The AAFP recommends screening for type 2 diabetes in adults 40 to 70 years of age who have overweight or obesity. See the AAFP recommendation at <https://www.aafp.org/family-physician/patient-care/clinical-recommendations/all-clinical-recommendations/diabetes-screening-adults.html>.—Kenny Lin, MD, MPH, Deputy Editor

The views expressed in this work are those of the authors and do not reflect the official policy or position of Stony Brook Medicine or the U.S. government.

References

1. Davidson KW, Barry MJ, Mangione CM, et al. Screening for prediabetes and type 2 diabetes: US Preventive Services Task Force recommendation statement. *JAMA*. 2021; 326(8):736-743.
2. Jonas DE, Crotty K, Yun JDY, et al. Screening for prediabetes and type 2 diabetes: updated evidence report and systematic review for the US Preventive Services Task Force. *JAMA*. 2021;326(8):744-760.
3. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2020: estimates of diabetes and its burden in the United States. Accessed November 15, 2021. <https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf> ■