JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Screening for Gestational Diabetes
US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE Gestational diabetes is diabetes that develops during pregnancy. Prevalence of gestational diabetes in the US has been estimated at 5.8% to 9.2%, based on traditional diagnostic criteria, although it may be higher if more inclusive criteria are used. Pregnant persons with gestational diabetes are at increased risk for maternal and fetal complications, including preeclampsia, fetal macrosomia (which can cause shoulder dystocia and birth injury), and neonatal hypoglycemia. Gestational diabetes has also been associated with an increased risk of several long-term health outcomes in pregnant persons and intermediate outcomes in their offspring.

OBJECTIVE The USPSTF commissioned a systematic review to evaluate the accuracy, benefits, and harms of screening for gestational diabetes and the benefits and harms of treatment for the pregnant person and infant.

POPULATION Pregnant persons who have not been previously diagnosed with type 1 or type 2 diabetes.

EVIDENCE ASSESSMENT The USPSTF concludes with moderate certainty that there is a moderate net benefit to screening for gestational diabetes at 24 weeks of gestation or after to improve maternal and fetal outcomes. The USPSTF concludes that the evidence on screening for gestational diabetes before 24 weeks of gestation is insufficient, and the balance of benefits and harms of screening cannot be determined.

RECOMMENDATION The USPSTF recommends screening for gestational diabetes in asymptomatic pregnant persons at 24 weeks of gestation or after. (B recommendation) The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for gestational diabetes in asymptomatic pregnant persons before 24 weeks of gestation. (I statement)

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Summary of Recommendations

The USPSTF recommends screening for gestational diabetes in asymptomatic pregnant persons at 24 weeks of gestation or after.	B
The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for gestational diabetes in asymptomatic pregnant persons before 24 weeks of gestation.	I

See the Figure for a more detailed summary of the recommendations for clinicians. USPSTF indicates US Preventive Services Task Force.

See the Summary of Recommendations figure.

Importance

Gestational diabetes is diabetes that develops during pregnancy.[1-3] Prevalence of gestational diabetes in the US has been estimated at 5.8% to 9.2%, based on traditional diagnostic criteria, although it may be higher if more inclusive criteria are used.[4-8] Pregnant persons with gestational diabetes are at increased risk for maternal and fetal complications, including preeclampsia, fetal macrosomia (which can cause shoulder dystocia and birth injury), and neonatal hypoglycemia.[3,9-11] Gestational diabetes has also been associated with an increased risk of several long-term health outcomes in pregnant persons and intermediate outcomes in their offspring.[12-16]

Table 1. Summary of USPSTF Rationale

	Assessment	
Rationale	Pregnant persons at 24 weeks of gestation or after	Pregnant persons before 24 weeks of gestation
Detection	There is adequate evidence that commonly used screening tests can accurately detect gestational diabetes.	There is inadequate evidence that commonly used screening tests can accurately detect gestational diabetes earlier than 24 weeks of gestation.
Benefits of early detection and intervention and treatment	• There is inadequate direct evidence that screening for gestational diabetes improves health outcomes. • There is adequate evidence that treatment of screen-detected gestational diabetes is associated with moderate improvements in maternal and fetal outcomes, including primary (first) cesarean delivery, macrosomia, large for gestational age infants, shoulder dystocia, birth injury, and neonatal intensive care unit admissions.	• There is inadequate direct evidence that screening for gestational diabetes improves health outcomes. • There is inadequate evidence that treatment of gestational diabetes earlier than 24 weeks gestation can improve maternal and fetal outcomes.
Harms of early detection and intervention and treatment	• There is adequate evidence that the harms of screening for gestational diabetes, such as anxiety, depression, and labeling, are small. • There is adequate evidence that the harms of treatment of gestational diabetes, such as maternal hypoglycemia and low birth weight, are small.	There is inadequate evidence on the harms of screening for and treatment of gestational diabetes earlier than 24 weeks of gestation.
USPSTF assessment	The USPSTF concludes with moderate certainty that screening for and treatment of gestational diabetes at 24 weeks of gestation or after has moderate net benefit.	Benefits and harms of screening for gestational diabetes earlier than 24 weeks of gestation are uncertain, and the balance of benefits and harms cannot be determined.

Abbreviation: USPSTF, US Preventive Services Task Force.

USPSTF Assessment of Magnitude of Net Benefit

Pregnant Persons at 24 Weeks of Gestation or After

The US Preventive Services Task Force (USPSTF) concludes with moderate certainty that there is a **moderate net benefit** to screening for gestational diabetes at 24 weeks of gestation or after to improve maternal and fetal outcomes.

Pregnant Persons Before 24 Weeks of Gestation

The USPSTF concludes that the evidence on screening for gestational diabetes before 24 weeks of gestation is insufficient, and the balance of benefits and harms of screening **cannot be determined**.

See **Table 1** for more information on the USPSTF recommendation rationale and assessment and the eFigure in the Supplement for information on the recommendation grade. See the **Figure** for a summary of the recommendation for clinicians. For more details on the methods the USPSTF uses to determine the net benefit, see the USPSTF Procedure Manual.[17]

Practice Considerations

Patient Population Under Consideration

This recommendation applies to pregnant persons who have not been previously diagnosed with type 1 or type 2 diabetes.

Definitions of Gestational Diabetes

During pregnancy, insulin resistance increases, leading to higher glucose intolerance and development of gestational diabetes in some pregnant persons. In the past, gestational diabetes was defined as glucose intolerance discovered during pregnancy; however, this definition does not distinguish between persons with glucose intolerance related to pregnancy and those with preexisting, overt diabetes that was previously undiagnosed.[18] Because of this, several organizations, such as the American Diabetes Association, have updated the definition to specify gestational diabetes as diabetes that develops during pregnancy that is not clearly overt diabetes that developed prior to pregnancy.[2,3] Screening for and treatment of undiagnosed type 2 diabetes in pregnant persons is not part of this recommendation.

Assessment of Risk

Several factors increase a person's risk for developing gestational diabetes, including obesity, increased maternal age, history of gestational diabetes, family history of diabetes, and belonging to a racial/ethnic group that is at increased risk for developing type 2 diabetes (Hispanic, Native American, South or East Asian, or Pacific Islander descent).[4,19,20] Factors associated with a lower risk for developing gestational diabetes include age younger than 25 to 30 years, White race, a body mass index (BMI) of 25 or less (calculated as weight in kilograms divided by height in meters squared), no family history (in a first-degree relative) of diabetes, and no history of glucose intolerance or adverse pregnancy outcomes related to gestational diabetes.[21-23] The risk in different racial/ethnic groups may be due in part to social risk factors such as low socioeconomic status or structural racism, although these associations are not examined in the current evidence. Although a higher BMI increases the risk of gestational diabetes across racial/ethnic groups, the association varies. In Asian American persons, the prevalence of gestational diabetes at a BMI of 22 to less than 25 is similar to the prevalence in Hispanic persons, non-Hispanic White persons, and Black persons with a higher (>28) BMI.[24,25]

Screening Tests

Screening for gestational diabetes in asymptomatic persons involves either a 2-step (screening test followed by a diagnostic test) or 1-step (diagnostic test used for all patients) approach. In the US, a 2-step approach is commonly used.[8,26] A 50-g oral glucose challenge test (OGCT) is performed between 24 and 28 weeks of gestation in a nonfasting state. If the screening threshold is met or exceeded, patients receive the oral glucose tolerance test (OGTT). During the OGTT, a fasting glucose level is obtained, followed by administration of a 75-g or 100-g glucose load, then evaluation of glucose levels after 1, 2, and often 3 hours. A diagnosis of gestational

Figure. Clinician Summary: Screening for Gestational Diabetes

What does the USPSTF recommend?	**Pregnant persons at 24 weeks of gestation or after** • **Screen** for gestational diabetes. Grade: B
	Pregnant persons before 24 weeks of gestation • The evidence is insufficient to assess the balance of benefits and harms for screening for gestational diabetes. Grade: I statement
To whom does this recommendation apply?	Pregnant persons who have not been previously diagnosed with type 1 or type 2 diabetes.
What's new?	This recommendation is consistent with the 2014 USPSTF recommendation.
How to implement this recommendation?	**Screen:** If the person is pregnant and is at least 24 weeks of gestation, screen for gestational diabetes by using 1 of several methods: • A 2-step process that involves a screening test (oral glucose challenge test) followed by a diagnostic test (oral glucose tolerance test). This is the most common approach in the US. • A 1-step process in which the diagnostic test (oral glucose tolerance test) is administered to all patients. • Fasting plasma glucose measurement.
How often?	One-time screening should be performed at or after 24 weeks of gestation. Typically in the US, screening occurs prior to 28 weeks of gestation; however, it can occur later in persons who enter prenatal care after 28 weeks of gestation.
What are other relevant USPSTF recommendations?	The USPSTF has several recommendations related to pregnancy and the prevention of gestational diabetes. This includes recommendations on screening for abnormal blood glucose levels and type 2 diabetes (B recommendation), behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults (B recommendation), and behavioral counseling interventions for healthy weight and weight gain during pregnancy (B recommendation). These recommendations are available at https://www.uspreventiveservicestaskforce.org
Where to read the full recommendation statement?	Visit the USPSTF website to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others.

The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation.

USPSTF indicates US Preventive Services Task Force.

diabetes is made when 2 or more glucose values fall at or above the specified glucose thresholds.[27]

In the 1-step approach, a 75-g glucose load is administered after a fasting glucose level is obtained, and plasma glucose levels are evaluated after 1 and 2 hours. A diagnosis of gestational diabetes is made when 1 or more glucose values fall at or above the specified glucose thresholds.[28]

Screening Intervals

There are limited data on the benefits and harms of screening before 24 weeks of gestation. The American College of Obstetricians and Gynecologists recommends testing between 24 and 28 weeks of gestation.[1] Pregnant persons whose first prenatal visit happens after 28 weeks of gestation (ie, late entry into prenatal care) should be screened as soon as possible.

Treatment and Interventions

Initial treatment generally includes moderate physical activity, dietary changes, support from diabetes educators and nutritionists, and glucose monitoring. If the patient's glucose is not controlled after these initial interventions, clinicians often prescribe medications (either insulin or oral hypoglycemic agents), perform increased surveillance in prenatal care, adopt changes in delivery management, or some combination thereof.[1]

Suggestions for Practice Regarding the I Statement

In deciding whether to screen for gestational diabetes before 24 weeks of gestation, primary care clinicians may consider the following.

Potential Preventable Burden

Between 2006 and 2016, there was an absolute increase of 3.6% in the prevalence of gestational diabetes.[7] Pregnant persons with gestational diabetes are at increased risk for maternal and fetal complications and may benefit from early identification and treatment. They are also at increased risk for developing type 2 diabetes after pregnancy.[29] Pregnant persons who are diagnosed with gestational diabetes before 24 weeks of gestation may be at even greater risk for maternal and fetal complications.[29]

Potential Harms

Potential harms of screening for gestational diabetes include psychological harms (anxiety, depression), intensive medical interventions (induction of labor, cesarean delivery, or admission to the neonatal intensive care unit [NICU]), and negative hospital experiences related to labeling (reduction in breastfeeding and fewer newborns staying in the mother's room) that may be associated with a diagnosis of gestational diabetes. Possible adverse effects of treatment include neonatal or maternal hypoglycemia, increased risk of small for gestational age infants, and maternal stress.

Table 2. Common Screening Strategies for Gestational Diabetes

Screening strategy	Glucose load of OGTT, g	Threshold, mg/dL			
		Fasting	1-Hour	2-Hour	3-Hour
Two-step screening: an initial screening 50-g OGCT is administered. If the OGCT is positive (≥130–140 mg/dL at 1 h), then proceed with OGTT. Diagnosis of gestational diabetes if ≥2 thresholds met on OGTT					
Carpenter and Coustan[35]	100	95	180	155	140
National Diabetes Data Group (NDDG)[36]	100	105	190	165	145
One-step screening: diagnosis of gestational diabetes if ≥1 thresholds met on OGTT					
International Association of Diabetes and Pregnancy Study Group (IADPSG)[28]	75	92	NA	153	NA

Abbreviations: NA, not applicable; OGCT, oral glucose challenge test; OGTT, oral glucose tolerance test.

SI conversion factor: To convert glucose values to mmol/L, multiply by 0.0555.

Current Practice

Although current data are limited, a 2014-2015 survey found that universal screening is the most common practice in the US, with 90% of obstetricians reporting routinely screening for gestational diabetes using a 2-step approach.[26] Other potential (although not widely used) approaches to screening include fasting plasma glucose level, glycosylated hemoglobin (HbA_{1c}) concentration, and risk-based screening tools. Some pregnant persons are screened earlier than 24 weeks of gestation because they have risk factors for type 2 diabetes, such as obesity, family history of type 2 diabetes, or fetal macrosomia during a previous pregnancy. If a pregnant person presents in the first trimester or in early pregnancy with risk factors for type 2 diabetes, clinicians should use their clinical judgment to determine what is appropriate screening for that individual patient, given the patient's health needs.

Other Related USPSTF Recommendations

The USPSTF has several recommendations related to pregnancy and the prevention of gestational diabetes. This includes recommendations on screening for abnormal blood glucose levels and type 2 diabetes (B recommendation),[30] behavioral weight loss interventions to prevent obesity-related morbidity and mortality in adults (B recommendation),[31] and behavioral counseling interventions for healthy weight and weight gain during pregnancy (B recommendation).[32]

Update of Previous USPSTF Recommendation

In 2014, the USPSTF issued a B recommendation for screening for gestational diabetes after 24 weeks of gestation and an I statement for screening before 24 weeks of gestation.[33] This recommendation concurs with the B recommendation for screening for gestational diabetes after 24 weeks of gestation and the I statement for screening before 24 weeks of gestation.

Supporting Evidence

Scope of Review

To update the 2014 recommendation,[33] the USPSTF commissioned a systematic review to evaluate the accuracy, benefits, and harms of screening for gestational diabetes and the benefits and harms of treatment for the pregnant person and infant.[29,34] Pregestational diabetes (undiagnosed type 2 diabetes) is not in the scope of this recommendation.

Accuracy of Screening Tests and Risk Assessment

The USPSTF reviewed 45 prospective studies of fair or good quality that assessed the accuracy of various screening tests for gestational diabetes, including the 50-g OGCT, fasting plasma glucose level, HbA_{1c} concentration, and screening based on risk factors. The reference standard in these studies was the diagnostic OGTT, but the cutoff thresholds used for gestational diabetes varied, with most using criteria from Carpenter and Coustan, the International Association of Diabetes and Pregnancy Study Group (IADPSG), and the National Diabetes Data Group (NDDG) (**Table 2**). In all studies, the entire study population that had a screening test (regardless of test result) was offered the diagnostic OGTT reference standard. The studies were from a range of populations and settings, and the prevalence of gestational diabetes varied from 3.3% to 33%. Data on screening for gestational diabetes before 24 weeks of gestation were limited.[29,34]

Eight studies evaluated the accuracy of a 1-hour 50-g OGCT using a cutoff of 140 mg/dL (7.77 mmol/L) or lower. Gestational diabetes was confirmed by a 100-g 3-hour OGTT using either Carpenter and Coustan (8 studies), NDDG (6 studies), or IADPSG (2 studies) criteria. The 50-g OGCT showed good accuracy (sensitivity, 100%-75%; specificity, 86%-25%) using Carpenter and Coustan criteria and NDDG criteria, with lower thresholds showing greater sensitivity but lower or imprecise specificity.[29,34]

The accuracy of fasting plasma glucose level (using various cutoffs) was evaluated against Carpenter and Coustan (7 studies), IADPSG (9 studies), and NDDG (1 study) diagnostic criteria. For screening using fasting plasma glucose level at 24 weeks of gestation or after, an 85-mg/dL (4.72 mmol/L) or 90-mg/dL (5 mmol/L) cutoff had reasonable accuracy for a diagnosis using Carpenter and Coustan criteria, as did a 90-mg/dL cutoff using IADPSG criteria; values at 80 mg/dL (4.44 mg/dL) or lower appeared useful to rule out gestational diabetes using both criteria.[29,34] Two studies evaluated data for fasting plasma glucose level measured before 24 weeks of gestation; however, findings were inconsistent.[29,34]

Eighteen studies compared HbA_{1c} screening (using various cutoffs) with Carpenter and Coustan , NDDG, or IADPSG diagnostic criteria. Overall, HbA_{1c} concentration was not associated with high sensitivity and specificity at any threshold. Risk-based tools (some in combination with fasting plasma glucose level) were evaluated against Carpenter and Coustan criteria, NDDG criteria, or IADPSG

diagnostic criteria, each in a single study. Overall, these tools may have high enough sensitivity to rule out gestational diabetes (and allow some pregnant persons to avoid the OGCT); however, their specificity was low.[29,34]

Benefits of Early Detection and Treatment

Screening

No randomized clinical trials (RCTs) addressed the direct benefits or harms of screening for gestational diabetes. Four observational studies (1 case-control, 3 retrospective cohort studies) compared screening vs no screening, but results were mixed. Of these, 2 studies included in the previous review found no benefit, and the 2 newer studies (1 study with risk-based and 1 study with universal screening strategies) found benefits in outcomes such as full-term stillbirth and reduced risk of cesarean delivery, birth injuries, and NICU admissions. However, the small number of studies, lack of consistency in effect between the studies, and the use of observational designs (which are susceptible to biases) limit findings.[29,34]

Five RCTs of good or fair quality compared the effectiveness of different screening strategies on health outcomes. Only 1 of these trials evaluated screening before 24 weeks of gestation. Five trials (n = 25 772) compared IADPSG and Carpenter and Coustan screening criteria. Compared with Carpenter and Coustan criteria, screening with IADPSG criteria identified more cases of gestational diabetes. One- vs 2-step screening was not associated with differences in many pregnancy or fetal/neonatal outcomes, including preeclampsia/gestational hypertension, preterm delivery, large for gestational age (LGA) infant, birth injury, neonatal hypoglycemia, or perinatal mortality.[29,34] One study comparing IADSPG criteria with World Health Organization 1999 criteria (n = 502) found no difference in primary cesarean delivery and preterm delivery and imprecise findings for other maternal and fetal outcomes (ie, hypertensive disorders, shoulder dystocia). One study (n = 922) that enrolled women with obesity compared early screening (14 to 20 weeks of gestation) with usual timed screening (24 to 28 weeks of gestation) using Carpenter and Coustan criteria. Earlier screening was associated with an increased risk of preeclampsia, although the finding was not statistically significant. No other differences were found among other maternal or fetal/neonatal outcomes.[29,34]

Treatment

Thirteen trials (11 RCTs and 2 nonrandomized clinical trials; n = 4235) examined the effectiveness of gestational diabetes treatment on intermediate and health outcomes. The studies used a variety of glucose-level inclusion criteria and assessed short- and long-term outcomes in the mother and infant. Interventions included both dietary and medical therapies. Treatment was started after 24 weeks of gestation in 9 trials (n = 3982), although in 2 of these trials, treatment was started earlier in pregnant persons who were determined to be at high or higher risk and screened earlier. The 3 RCTs that contributed most of the data used 2-step approaches for identifying gestational diabetes before enrollment. Four trials (n = 253) included women treated before 15 weeks of gestation. Race/ethnicity was fairly diverse in several studies, although 2 of the largest studies with treatment at 24 weeks of gestation or after enrolled large proportions of White (75%) and Chinese (97%) persons.[29,34,37,38]

Treatment of gestational diabetes at 24 weeks of gestation or after was associated with decreased risk of primary cesarean deliveries (relative risk [RR], 0.70 [95% CI, 0.54-0.91]; absolute risk difference [ARD], 5.3%; 3 trials) and preterm deliveries, although findings for the latter are not statistically significant (RR, 0.75 [95% CI, 0.56-1.01]; ARD, 2.3%; 4 trials).[29,34] Treatment of gestational diabetes was not associated with reduced risk of preeclampsia in the included studies (RR, 0.99 [95% CI, 0.46-2.16]; 6 trials).[29] Additionally, treatment was not associated with reduced risk of gestational hypertension (2 trials), total cesarean deliveries (8 trials), emergency cesarean deliveries (1 trial), induction of labor (5 trials), or maternal birth trauma (2 trials).[29,34]

For fetal/neonatal outcomes, treatment of gestational diabetes at 24 weeks of gestation or after was associated with reduced risk of shoulder dystocia (RR, 0.42 [95% CI, 0.23-0.77]; ARD, 1.3%; 3 trials), macrosomia (RR, 0.53 [95% CI, 0.41-0.68]; ARD, 8.9%; 8 trials), LGA infants (RR, 0.56 [95% CI, 0.47-0.66]; ARD, 8.4%; 7 trials), birth injury (eg, fracture or nerve palsies) (odds ratio, 0.33 [95% CI, 0.11-0.99]; ARD, 0.2%), and NICU admissions (RR, 0.73 [95% CI, 0.53-0.99]; ARD, 2%; 5 trials).[29,34] No association was found for several outcomes, including mortality (stillbirth, neonatal, or perinatal), respiratory distress syndrome, hypoglycemia (any or clinical), and hyperbilirubinemia. There were no observed differences for several outcomes in 1 RCT based on timing of diagnosis, glycemic severity, or Hispanic ethnicity (vs non-Hispanic White).

Few trials examined longer-term maternal or childhood outcomes. One trial found no association between treatment of gestational diabetes and impaired fasting glucose, obesity, the metabolic syndrome, or type 2 diabetes at 5 to 10 years. No study measured the effects of treatment of gestational diabetes on quality of life, cardiovascular outcomes, or mortality or major morbidity from type 2 diabetes.[29,34] For long-term intermediate and health outcomes in children, treatment of gestational diabetes in mothers vs no treatment was not associated with reduced risk of overweight (over 4-10 years), obesity (over 5-11 years), impaired glucose tolerance (at 9 years), or impaired fasting glucose (over 5-11 years). No study measured cardiovascular or neurocognitive outcomes.[29,34] All findings from the 4 small trials of early treatment were imprecise, with wide confidence intervals for point estimates.

Harms of Screening and Treatment

Seven observational studies (n = 166 082) looked at harms associated with screening for gestational diabetes. Three studies provided data on potential psychosocial harms (ie, anxiety, depressive symptoms, or both) from screening, receipt of a positive diagnostic test result, or receipt of a false-positive test result. Three large studies examined hospital experiences related to breastfeeding outcomes in pregnant persons with gestational diabetes, and 1 study examined the likelihood of cesarean delivery as a result of a gestational diabetes diagnosis. There was no increase in anxiety/depression with screening or receiving a false-positive test result and a small, transient increase in anxiety associated with gestational diabetes diagnosis. Diagnosis of gestational diabetes may be associated with lower rates of breastfeeding in the first hour after birth and exclusive breastfeeding in the hospital, and with fewer newborns staying in the mother's room, although confounding factors (eg, breastfeeding intentions, varying hospital policies, and treatment effects) could have affected findings. One study found that gestational diabetes diagnosis and labeling may be associated with higher rates of cesarean delivery.[29,34]

Harms associated with the treatment of gestational diabetes were evaluated in 13 trials (11 RCTs and 2 nonrandomized clinical trials; n = 4235).[29,34] Treatment at 24 weeks of gestation or after was not associated with an increased risk for severe maternal hypoglycemia, low birth weight, or small for gestational age infants. There was no observed difference of small for gestational age infants based on race/ethnicity or glycemic status. Treatment of gestational diabetes was associated with a reduced risk of macrosomia (>4000 g) (RR, 0.53 [95% CI, 0.41 to 0.68]) but no difference in the risk of total number of cesarean deliveries (RR, 0.95 [95% CI, 0.83 to 1.08]).[29,34] This suggests that a small proportion of pregnant persons may undergo cesarean delivery because of gestational diabetes diagnosis alone.

How Does Evidence Fit With Biological Understanding?

Gestational diabetes usually occurs after 20 weeks of gestation, when placental hormones with the opposite effect of insulin increase substantially. Pregnant persons with adequate insulin secreting capacity can overcome this insulin resistance of pregnancy by secreting more insulin to maintain normal blood glucose levels. Pregnant persons who are unable to produce adequate insulin to overcome the increase in insulin resistance seen in pregnancy develop glucose intolerance and gestational diabetes.

Screening for gestational diabetes is generally recommended between 24 and 28 weeks of gestation. Pregnant persons with gestational diabetes are at increased risk for maternal and infant complications. Screening for and detecting gestational diabetes provides a potential opportunity to control blood glucose levels (through lifestyle changes, pharmacological interventions, or both) and reduce the risk of macrosomia and LGA infants. In turn, this can prevent associated complications such as primary cesarean delivery, shoulder dystocia, and NICU admissions.

Response to Public Comment

A draft version of this recommendation statement was posted for public comment on the USPSTF website from February 16 through March 15, 2021. Several comments requested that the recommendation include guidance on which screening test should be used. The USPSTF found that several screening tests (OGCT, OGTT, fasting plasma glucose) and strategies (1- vs 2-step approach) can accurately detect gestational diabetes and does not recommend any single specific test. Based on newer evidence, the USPSTF found no difference between a 1-step and 2-step screening strategy for many maternal or infant outcomes. Comments requested that the USPSTF recommend screening only pregnant persons at increased risk for gestational diabetes to try and minimize false-positive test results and unnecessary labeling of lower-risk patients. The USPSTF found limited data on risk-based screening strategies.

Several comments discussed the potential benefit of screening before 24 weeks of gestation or screening later (at 26 to 28 weeks). The USPSTF found limited data on the benefits and harms of screening before 24 weeks of gestation and is calling for more evidence in this period of pregnancy. The USPSTF wishes to clarify that the recommendation does not preclude later screening; however, other groups (such as the American College of Obstetricians and Gynecologists) recommend screening between 24 and 28 weeks of gestation. The USPSTF updated the Practice Considerations section to clarify this point. Several respondents asked the USPSTF to include guidance on screening for preexisting diabetes and prediabetes in pregnant persons. The USPSTF recognizes the difficulty in distinguishing between gestational diabetes and previously undiagnosed diabetes; however, detection and management of preexisting diabetes during pregnancy is beyond the scope of this recommendation. Clinicians should continue to use their clinical judgment to determine if screening is appropriate for individual patients.

Research Needs and Gaps

The USPSTF identified several gaps in the evidence where more research is needed. These include:

- Studies (specifically RCTs) on the effect of screening for gestational diabetes and health outcomes.
- Studies examining the benefits and harms of screening for and treatment of gestational diabetes in pregnant persons before 24 weeks of gestation.
- Studies reporting on the effects of screening for gestational diabetes on populations defined by race/ethnicity, age, and other relevant socioeconomic factors.
- Studies examining how health outcomes differ by screening strategy (1- vs 2-step testing and various thresholds for gestational diabetes, fasting plasma glucose level, and HbA_{1c} concentration).
- Greater consistency in both the diagnostic criteria and outcome definitions used in studies.
- More studies that report on maternal health outcomes, especially hypertension and preeclampsia.
- Studies focusing on longer-term outcomes (ie, obesity, impaired fasting glucose) for both pregnant persons and children.
- Studies on potential harms of screening and treatment (ie, anxiety, hospital experience, and cesarean delivery).

Recommendations of Others

Major guidelines from organizations in the US generally recommend universal rather than selective/risk-based screening at 24 to 28 weeks of gestation. Guidelines differ with respect to the number of tests and the diagnostic criteria applied. The American College of Obstetricians and Gynecologists and the National Institutes of Health recommend screening all pregnant women for gestational diabetes using a 2-step screening strategy (using either Carpenter and Coustan criteria or NDDG criteria) at 24 to 28 weeks of gestation.[1,39] The American Diabetes Association recommends glucose testing for gestational diabetes in all asymptomatic pregnant women at 24 to 28 weeks of gestation using either 1-step (using IADPSG criteria) or 2-step (using Carpenter and Coustan criteria) screening.[40] The Endocrine Society recommends universal screening for gestational diabetes using the OGTT at 24 to 28 weeks of gestation.[41] The American Academy of Family Physicians endorses screening for gestational diabetes in asymptomatic pregnant women after 24 weeks of gestation. It also concludes that the evidence is insufficient to assess the balance of benefits and harms of screening for gestational diabetes in asymptomatic pregnant women before 24 weeks of gestation.[42]

ARTICLE INFORMATION

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Author Contributions: Dr Davidson had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. The USPSTF members contributed equally to the recommendation statement.

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Disclaimer: Recommendations made by the USPSTF are independent of the US government. They should not be construed as an official position of AHRQ or the US Department of Health and Human Services.

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Additional Information: The US Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of specific preventive care services for patients without obvious related signs or symptoms. It bases its recommendations on the evidence of both the benefits and harms of the service and an assessment of the balance. The USPSTF does not consider the costs of providing a service in this assessment. The USPSTF recognizes that clinical decisions involve more considerations than evidence alone. Clinicians should understand the evidence but individualize decision-making to the specific patient or situation. Similarly, the USPSTF notes that policy and coverage decisions involve considerations in addition to the evidence of clinical benefits and harms.

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