

## Screening for Preeclampsia: US Preventive Services Task Force Recommendation Statement

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### ABSTRACT

Approximately 4% of pregnancies in the United States are affected by preeclampsia, defined as new-onset hypertension (or worsening hypertension in patients with existing hypertension) after 20 weeks' gestation, combined with either new-onset proteinuria or other symptoms involving multiple organ systems. This disorder is associated with poor maternal and fetal outcomes, including maternal mortality, maternal stroke, low birth weight, and stillbirth. African American women are affected by preeclampsia at a higher rate than are white women and also have higher fatality rates related to preeclampsia, which may be due to unequal access to adequate care.

The US Preventive Services Task Force (USPSTF) accounts for both benefits and harms of preventive care services when making recommendations, but does not consider costs of services. After review of screening and diagnostic methods for preeclampsia, and accuracy and potential harms and benefits of those methods, the USPSTF aimed to update its recommendations on screening for preeclampsia. The USPSTF also reviewed evidence on the benefits and harms of treatment of screen-detected preeclampsia.

The USPSTF found dipstick tests have a low accuracy for detecting proteinuria in pregnancy, whereas blood pressure measurements are accurate in screening for preeclampsia. It was found that well-established treatments of preeclampsia can substantially benefit the mother and child because it can reduce the risk of morbidity and mortality. The potential harm of screening and treatment is no greater than small. With moderate certainty, the USPSTF concludes that screening for preeclampsia carries a substantial net benefit and recommends screening for preeclampsia by obtaining blood pressure measurements at each prenatal care visit during pregnancy.

Screening for preeclampsia with blood pressure measurement throughout pregnancy is recommended. To diagnose preeclampsia, the patient must have elevated blood pressure ( $\geq 140/90$  mm Hg on 2 occasions 4 hours apart after 20 weeks' gestation) and proteinuria or, in the absence of proteinuria, must have thrombocytopenia, renal insufficiency, impaired liver function, pulmonary edema, or cerebral or visual symptoms. After preeclampsia diagnosis, treatment may consist of antihypertensive medications, close fetal and maternal monitoring, and magnesium sulfate. In women with a high risk of preeclampsia, low-dose aspirin is also recommended as a preventive medication after 12 weeks' gestation.

## EDITORIAL COMMENT

(Preeclampsia is a relatively common condition in pregnancy, affecting an estimated 2% to 8% of pregnancies worldwide and responsible for approximately 10% of maternal deaths in the United States. A primary purpose of prenatal care, for the past 100 years, has been the detection of maternal hypertension that suggests preeclampsia (*Public Health Rep* 2001;116(4):306–316). The pattern of prenatal visits, with increased frequency closer to term, was chosen so that women were seen and evaluated more often in the latter part of pregnancy, when the risk of preeclampsia is highest. The primary purpose of such detection, at present, is to allow treatment of maternal hypertension, prophylactic therapy to prevent eclampsia, and monitoring to avoid fetal demise, with delivery of the fetus before the mother has serious, irreversible complications of her preeclampsia and before the fetus suffers intrauterine fetal demise.

In this abstracted article, the authors of the USPSTF provide recommendations regarding screening for preeclampsia. This was an update to a 1996 USPSTF guideline recommending that pregnant women have screening for preeclampsia through measurement of blood pressure. In this current document, they conclude that detection of preeclampsia is important, because it leads to interventions that can prevent maternal and perinatal morbidity and mortality (*Lancet* 2002;359(9321):1877–1890; *Lancet* 2009;374(9694):979–988). Furthermore, they suggest that the best way to screen for preeclampsia is through routine blood pressure monitoring. They are far less sanguine regarding the benefit of risk assessment in early pregnancy to predict risk of preeclampsia.

One could not fault the average obstetrician for saying “you have got to be kidding?” An article published in one of our top journals—*JAMA*—has used 7 pages of space to explain to clinicians that blood pressure is a good test to detect preeclampsia. It is curious to read an entire article focused on something so entrenched in prenatal care as blood pressure screening. However, it is often important to assess and challenge our most basic components of care because these often involve the highest use of resources and may be the most difficult to change. And in fact, the

benefit of blood pressure screening in the office is being challenged—among nonpregnant individuals, the USPSTF suggests that while screening for hypertension can be performed in the office, obtaining measurements outside the clinical setting for diagnostic confirmation should be done before treatment (*Ann Intern Med* 2015;163(10):778–786). We are all very familiar with “white coat hypertension,” a condition that results in substantial use of resources in follow-up and further evaluation. The same approach to home blood pressure monitoring should be investigated in pregnant women.

Recent years have seen tremendous attention turned to early prediction of preeclampsia, and a number of different tests and models have been investigated. This article concludes that 5 of 16 such tests had reasonable detection, although low positive predictive value, but that they generally use serum markers and ultrasound techniques not readily available in primary care settings. There are no studies that compared the effectiveness of screening for preeclampsia on health outcomes in a screened versus unscreened population; such an approach might include fewer visits for patients deemed to be at low risk. The authors of this USPSTF article did describe 1 randomized trial that examined the use of a reduced prenatal visit schedule in low-risk patients and found no safety concerns (*JAMA* 1996;275(11):847–851). Ongoing and recently completed studies have investigated the benefits of a decreased prenatal care delivery schedule, with far fewer visits; it will be interesting to learn of the results of such studies, as the current routine of 14 visits seems excessive for the average low-risk woman.

This article was written before publication of the recent ASPRE trial, which investigated the benefit of early risk prediction of preeclampsia and found that early detection and treatment with prophylactic aspirin decrease the risk of early-onset preeclampsia (*N Engl J Med*, published online ahead of print June 28, 2017). Others have concluded that treatment of high-risk women (based on USPSTF guidelines) with low-dose aspirin is cost-effective, as is universal treatment (*Obstet Gynecol* 2015;126(6):1242–1250). Given

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the very low cost and high safety profile of aspirin, it hardly seems that any screening test is needed, particularly given the complexity and likely expense of using esoteric serum markers and rarely used uterine artery Doppler. At present, in this rapidly evolving field, I think the message for the provider is to keep measuring blood pressure and to

recommend low-dose aspirin in women at risk of preeclampsia based on the American Congress of Obstetricians and Gynecologists or USPSTF guidelines. Routine employment of commercial tests or screening for uterine artery Doppler changes does not seem to add substantial benefit but does definitely add significant cost.—MEN)