

345 Hypertension and Prehypertension

Definition/Cut-off Value

Presence of hypertension or prehypertension diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

Justification

Hypertension, commonly referred to as high blood pressure, is defined as persistently high arterial blood pressure with systolic blood pressure above 140 mm Hg or diastolic blood pressure above 90 mm Hg (1). People with high blood pressure can be asymptomatic for years (2). Untreated hypertension leads to many degenerative diseases, including congestive heart failure, end-stage renal disease, and peripheral vascular disease.

There is a large segment of the population that falls under the classification of prehypertension, with blood pressure readings between 130/80 to 139/89 mm Hg (3). People with prehypertension are twice as likely to develop hypertension (3).

There is no cure for hypertension (2); however lifestyle modifications can prevent high blood pressure and are critical in the management of hypertension and prehypertension (3).

Risk factors for hypertension include (4):

- Age (increases with age)
- Race/ethnicity (occurs more often and earlier in African Americans)
- Overweight or obesity
- Male gender
- Unhealthy nutrient consumption and lifestyle habits (e.g., high sodium intake, excessive alcohol consumption, low potassium intake, physical inactivity, and smoking)
- Family history
- Chronic stress

Management of hypertension includes lifestyle modifications and medication. In prehypertensive individuals, implementing lifestyle changes can prevent or delay the onset of hypertension (3, 5). In hypertensive individuals, dietary intervention is not only effective in reducing blood pressure but also in delaying drug treatment (6).

Lifestyle changes to manage hypertension and prehypertension include:

- Consuming a diet consistent with the Dietary Guidelines for Americans or following the DASH (Dietary Approaches to Stop Hypertension) eating plan, if recommended by a physician
- Limiting dietary sodium
- Engaging in regular physical activity
- Achieving and maintaining a healthy weight
- Smoking cessation

The WIC Program provides fruits, vegetables, low fat milk and cheese, which are important components of the DASH eating plan. WIC nutritionists provide nutrition education and counseling to reduce sodium intakes, achieve/maintain proper weight status, promote physical activity, and make referrals to smoking cessation programs, which are the lifestyle interventions critical to the management of hypertension/prehypertension.

Pregnant Women: Hypertension is the most common medical complication of pregnancy, occurring in 7% of all pregnancies. Hypertension during pregnancy may lead to low birth weight, fetal growth restriction, and premature delivery, as well as maternal, fetal, and neonatal morbidity (7). Hypertensive disorders of pregnancy are categorized as (8, 9):

- **Chronic Hypertension:** Hypertension that was present before pregnancy. It increases perinatal mortality and morbidity through an increased risk of SGA (small for gestational age) infants. Women with chronic hypertension are at risk for complications of pregnancy such as preeclampsia. There is a 25% risk of superimposed preeclampsia and an increased risk for preterm delivery, fetal growth restriction, congestive heart failure and renal failure.
- **Preeclampsia:** A pregnancy-specific syndrome observed after the 20th week of pregnancy with elevated blood pressure accompanied by significant proteinuria.
- **Eclampsia:** The occurrence of seizures in a woman with preeclampsia that cannot be attributed to other causes.
- **Preeclampsia superimposed upon chronic hypertension:** Preeclampsia occurring in a woman with chronic hypertension. It is the major leading factor of maternal and infant mortality and morbidity.
- **Gestational Hypertension:** Blood pressure elevation detected for the first time after midpregnancy without proteinuria. It presents minimal risks to mother and baby when it does not progress to preeclampsia.

The term “pregnancy-induced hypertension” includes gestational hypertension, preeclampsia and eclampsia. For more information about preeclampsia, please see risk #304, History of Preeclampsia.

The following conditions are associated with an increased incidence of pregnancy-induced hypertension (4):

- Inadequate diet
- Nutritional deficiencies, including low protein, essential fatty acid, or magnesium intake

- Inadequate calcium intake in early pregnancy (7)
- Obesity
- Primigravidity
- Age (pregnancy before age 20 or after age 40)
- Multi-fetal gestation
- Genetic disease factors
- Familial predisposition

The impact of hypertension continues after delivery. Special consideration must be given to lactating women with high blood pressure, especially if their care plan includes medication. It is important that the hypertensive lactating woman inform her physician of her breastfeeding status if she is also taking medication to determine whether they pose any risks to the infant. However, hypertension is not a contraindication for lactation. Lactation, as suggested in research, is thought to present some therapeutic advantages in the management of the disease in women (10, 11, 12).

Children: Hypertension during childhood is age-specific, and is defined as blood pressure readings greater than the 95th percentile for age, gender, and height on at least three separate occasions. Blood pressure reading between the 90th and 95th percentile is considered prehypertension (13). Children with high blood pressure are more likely to become hypertensive adults (15). Therefore, they should have their blood pressure checked regularly beginning at the age of three (14, 15).

Epidemiologic data suggests an association between childhood obesity and high blood pressure (16). Blood pressure and overweight status have been suggested as criteria to identify hypertensive children. Weight control decreases blood pressure, sensitivity to salt and other cardiovascular risk factors (13).

Nutrition-related prevention efforts in overweight hypertensive children should aim at achieving a moderate weight loss or preventing further weight gain. Additionally, a decrease in time spent in sedentary activities with subsequent increase in physical activity should be emphasized.

Dietary changes conducive to weight management in children include:

- Portion control
- Decreased consumption of sugar-containing beverages and energy-dense snacks
- Increased consumption of fresh fruits and vegetables
- Regular meals, especially breakfast

The WIC Program provides nutritious supplemental foods and nutrition education compatible with changes needed to promote a healthy weight and decrease the impact of hypertension in children.

References

1. American Dietetic Association. Nutrition Care Manual. Hypertension; 2006. <http://www.nutritioncaremanual.org>. Accessed May 2009.
2. Krummel DA. Medical nutrition therapy in hypertension. In: Manhan LK, Escott-Stump S, editors. Krause's food nutrition and diet therapy. 11th Ed. Philadelphia: Saunders; 2004. p. 901-902.

3. Chobian, AV, Bakris, GL, Black, HR, et al. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure: the JNC 7 report. JAMA, 2003. Downloaded from www.jama.com at the University of Florida on May/2009.
4. National Heart Lung and Blood Institute. www.nhlbi.nih.gov. Accessed May 2009.
5. Chobian, AV. Prehypertension Revisited. Hypertension 2006. Downloaded from hyper.ahajournals.org at Health Science Library on May/2009.
6. Appel LJ, Brands MW, Daniels SR, Karanja N, Elmer PJ, Sacks FM; American Heart Association. Dietary approaches to prevent and treat hypertension: a scientific statement from the American Heart Association. Hypertension 2006; 47:296-308.
7. Roberts JM, Bodnar LM. Report on the WIC nutrition risk criterion for hypertension in pregnancy. July 2007. Unpublished.
8. National Heart Lung and Blood Institute. Report of the working group on research on hypertension during pregnancy, 2001. www.nhlbi.nih.gov. Accessed May 2009.
9. National Heart, Lung, and Blood Institute. Working group report on high blood pressure in pregnancy; 2000 Jul. NIH Publication No. 00-3029.
10. Lawrence RA, Lawrence RM. Breastfeeding a guide for the medical profession. 6th Ed. Philadelphia: Elsevier Mosby; 2005. p. 590.
11. American Academy of Pediatrics and the American College of Obstetricians and Gynecologists. Breastfeeding handbook for physicians. 2006. p. 179.
12. Lee, SY, Kim, MT, Jee, SH, Yang, HP. Does long-term lactation protect premenopausal women against hypertension risk? A Korean women's cohort study. Preventive Medicine, 2005. Available online at www.sciencedirect.com. Accessed May 2009.
13. US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. Revised May 2005.
14. Hassink SG. Pediatric obesity: Prevention, intervention, and treatment strategies for primary care. American Academy of Pediatrics; 2007. p. 179.
15. Luma GB, Spiotta RT. Hypertension in children and adolescents. Am. Fam. Physician 2006 May 6; 73: 1158-68.
16. Committee on Nutrition, American Academy of Pediatrics. Pediatric nutrition handbook. 6th Ed. Elk Grove, Ill: American Academy of Pediatrics; 2009.

Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis ("My doctor says that I have/my son or daughter has...") should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.