

**Medical Policy**

An Independent Licensee of the  
Blue Cross and Blue Shield Association.

**Title: Ambulatory Blood Pressure Monitoring****Professional**

Original Effective Date: February 2, 1995

Revision Date(s): July 1, 2000;

November 6, 2003

Current Effective Date: January 1, 2004

**Institutional**

Original Effective Date: July 1, 2005

Revision Date(s):

Current Effective Date: July 1, 2005

**DESCRIPTION**

Ambulatory blood pressure monitors (i.e., 24-hour sphygmomanometers) are portable devices that record blood pressure while the patient is involved in daily activities. There are several types of monitors, including:

- fully automated, which inflate at preprogrammed intervals;
- semi-automated, which are patient activated;
- transtelephonic, which allow use of the telephone to transmit measured automatic digital readings to a computer-assisted receiver;
- intra-arterial, which are used exclusively as research tools due to risk of infection or arterial damage and tissue necrosis.

Ambulatory blood pressure monitoring (ABPM), typically done over a 24-hour period with a fully automated monitor, provides the physician with more detailed information on blood pressure. The greater number of readings with ABPM is more representative of the normal circadian rhythm of blood pressure, as compared to the limited number of readings with typical, casual office measurement.

There are a number of potential applications of ABPM. One of the most common is for evaluation of suspected "white-coat hypertension." White-coat hypertension is defined as an elevated office blood pressure with normal blood pressure readings outside the physician's office. The etiology of white-coat hypertension is poorly understood, but may be related to an "alerting" or anxiety reaction associated with visits to the physician's office.

In evaluating patients who have elevated office blood pressure, ABPM is often intended to identify patients with normal ABP readings who, therefore, do not have sustained hypertension. Since this group of patients would otherwise be treated based on office blood pressure readings alone, ABPM could improve outcomes by allowing these patients to avoid unnecessary treatment. Health outcomes will be improved if these patients are not at increased risk for adverse cardiovascular events and do not benefit from treatment with antihypertensive medications.

**POLICY**

Ambulatory blood pressure monitoring: will be allowed for patients with symptoms meeting the following criteria:

1. Failed home blood pressure monitoring
2. Office pressure greater than 180/95 but less than 105 diastolic.
3. Treatment resistant and taking multiple medications.
4. One follow up test will be allowed at least three weeks after initial test for:
  - a. Patients diagnosed with white-coat hypertension or
  - b. Assessment of hypertension apparently resistant to appropriate therapy.

**DOCUMENTATION**

1. There must be documentation of the home blood pressure readings.
2. Multiple medications is three or more antihypertensive medications at therapeutic dose.
3. There must be documentation in the medical record of patients compliance with provider orders.

**CODING**CPT

93784	Ambulatory blood pressure monitoring, utilizing a system such as magnetic tape and/or computer disk, for 24 hours or longer; including recording, scanning analysis, interpretation and report
93786	Ambulatory blood pressure monitoring, utilizing a system such as magnetic tape and/or computer disk, for 24 hours or longer; recording only
93788	Ambulatory blood pressure monitoring, utilizing a system such as magnetic tape and/or computer disk, for 24 hours or longer; scanning analysis with report
93790	Ambulatory blood pressure monitoring, utilizing a system such as magnetic tape and/or computer disk, for 24 hours or longer; physician review with interpretation and report

**DIAGNOSIS**

These diagnoses are otherwise subject to medical policy as stated above

401.0	Essential hypertension, malignant
401.1	Essential hypertension, benign
401.9	Unspecified essential hypertension
796.2	Elevated blood pressure reading without diagnosis of hypertension
796.4	Other abnormal clinical findings

**REVISIONS**

November 6, 2003	Added #4 a and b – "One follow up test will be allowed at least three weeks after initial test for:
------------------	---

	<ol style="list-style-type: none"> <li>a. patients diagnosed with white-coat hypertension or</li> <li>b. assessment of hypertension apparently resistant to appropriate therapy.</li> </ol>
--	---

## **REFERENCES**

1. Addison C, Varney S, Coats A. The use of ambulatory blood pressure monitoring in managing hypertension according to different treatment guidelines. *J Hum Hypertens* 2001; 15(8): 535-8.
2. Appel LJ, Stason WB. Ambulatory blood pressure monitoring and blood pressure self-measurement in the diagnosis and management of hypertension. *Ann Intern Med* 1993; 118(11): 867-82.
3. Aylett M, Marples G, Jones K. Home blood pressure monitoring: its effect on the management of hypertension in general practice. *Br J Gen Pract* 1999; 49(446): 725-8.
4. Fagard RH, Staessen JA, Thijs L et al. Response to antihypertensive therapy in older patients with sustained and nonsustained systolic hypertension. Systolic Hypertension in Europe (Syst-Eur) Trial Investigators. *Circulation* 2000; 102(10): 1139-44.
5. Bjorklund K, Lind L, Vessby B et al. Different metabolic predictors of white-coat and sustained hypertension over a 20-year follow-up period: a population-based study of elderly men. *Circulation* 2002; 106(1): 63-8.
6. Chobanian 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; 289(19): 2560-72.
7. Grandi AM, Broggi R, Colombo S et al. Left ventricular changes in isolated office hypertension: a blood pressure-matched comparison with normotension and sustained hypertension. *Arch Intern Med* 2001; 161(22): 2677-81.
8. Gustavsen PH, Hoegholm A, Bang LE et al. White coat hypertension is a cardiovascular risk factor: a 10-year follow-up study. *J Human Hypertens* 2003; 17(12): 811-7.
9. Hemmelgarn BR, Zarnke KB, Campbell NR et al. The 2004 Canadian Hypertension Education Program recommendations for the management of hypertension: Part I – Blood pressure measurement, diagnosis and assessment of risk. *Can J Cardiol* 2004; 20(1): 31-40.
10. Imai Y, Hozawa A, Ohkubo T et al. Predictive values of automated blood pressure measurement: what can we learn from the Japanese population - the Ohasama study. *Blood Press Monit* 2001; 6(6): 335-9.
11. Khatrar R, Senior R, Lahiri A. Cardiovascular outcomes in white-coat versus sustained mild hypertension: a 10-year follow-up study. *Circulation* 1998; 98(18): 1892-7.
12. Myers MG, Haynes RB, Rabkin SW. Canadian hypertension society guidelines for ambulatory blood pressure monitoring. *Am J Hypertens* 1999; 12(11 Pt 1): 1149-57.

13. O'Brien E, Asmar R, Beilin L et al. European Society of Hypertension recommendations for conventional, ambulatory, and home blood pressure measurement. *J Hypertens* 2003; 2(5) 1: 821-48.
14. Pickering TG. A new role for ambulatory blood pressure monitoring? *JAMA* 1997; 278(13): 1110.
15. Rickerby J. The role of home blood pressure measurement in managing hypertension: an evidence-based review. *J Hum Hypertens* 2002; 16(7): 469-72.
16. Sheps SG, Clement DL, Pickering TG et al. Ambulatory blood pressure monitoring. Hypertensive Diseases Committee, American College of Cardiology. *J Am Coll Cardiol* 1994; 23(6): 1511-3.
17. Staessen JA, Byttebier G, Buntinx F et al. Antihypertensive treatment based on conventional or ambulatory blood pressure measurement. A randomized controlled trial. Ambulatory Blood Pressure Monitoring and Treatment of Hypertension Investigators. *JAMA* 1997; 278(13):1 065-72.
18. Staessen JA, Byttebier G, Buntinx F et al. Antihypertensive treatment based on conventional or ambulatory blood pressure measurement. A randomized controlled trial. Ambulatory Blood Pressure Monitoring and Treatment of Hypertension Investigators. *JAMA* 1997; 278(13): 1065-72.
19. Staessen JA, Den Hond E, Celis H et al. Antihypertensive treatment based on blood pressure measurement at home or in the physician's office: a randomized controlled trial. *JAMA* 2004; 291(8):955-64.
20. Strandberg TE, Salomaa V. White coat effect, blood pressure and mortality in men: prospective cohort study. *Eur Heart J* 2000; 21(20):1714-8.
21. Verdecchia P, Porcellati C, Schillaci G et al. Ambulatory blood pressure. An independent predictor of prognosis in essential hypertension. *Hypertension* 1994; 24(6): 793-801.
22. Verdecchia P. Reference values for ambulatory blood pressure and self-measured blood pressure based on prospective outcome data. *Blood Press Monit* 2001; 6(6): 323-7.
23. Verdecchia P, Palatini P, Schillaci G et al. Independent predictors of isolated clinic ('white-coat') hypertension. *J Hypertens* 2001; 19(6): 1015-20.
24. Weisser B, Mengden T, Dusing R et al. Normal values of blood pressure self-measurement in view of the 1999 World Health Organization-International Society of Hypertension guidelines. *Am J Hypertens* 2000; 13(8): 940 - 943.

### **Government Agency; Medical Society; and Other Authoritative Publications**

1. 1999 TEC Assessment, Tab 8.
2. 2001 TEC Assessment Update (updated for CMS); available at <http://www.cms.hhs.gov/mcac/8b1-e3.pdf>
3. American College of Physicians. Automated ambulatory blood pressure and self-measured blood pressure monitoring devices: their role in the diagnosis and management of hypertension. *Ann Intern Med* 1993; 118(11): 889-92.

4. National High Blood Pressure Education Program Coordinating Committee. National High Blood Pressure Education Program Working Group report on ambulatory blood pressure monitoring. Arch Intern Med 1990; 150(11): 2270-80.

**Web site**

1. Appel LJ, Robinson RA, Guallar E et al. Utility of blood pressure monitoring outside of the clinic setting. Agency for Health Care Research and Quality Evidence-Based Practice Program, Evidence Report/Technology Assessment Number 63, 11/2002, available at <http://www.ahcpr.gov/clinic/epcsums/utlbpsum.htm>