

Measuring Blood Pressure at Home

An Overview of the Benefits and Resources for Implementing a Program

Heart Disease and Stroke Prevention Unit

*Michigan Department
of Community Health*



Jennifer M. Granholm, Governor
Janet Olszewski, Director

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“Call to Action on Use and
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Topics

Why Home Blood Pressure Monitoring (HBPM)?

What Should You Know About HBPM?

What are Some Resources to Train Patients and Families to Use Equipment?

Home BP Monitoring (HBPM) Usage

Growing rapidly: 38% of patients reported using it in 2000, and 55% in 2005.

In 2000, 35% of patients said that a doctor recommended it; 47% in 2005.

35% of hypertensive patients check their BP regularly.

Home readings can improve control of BP.

Why? Use in Diagnosing HBP

Diagnosis may be expedited by including HBPM, particularly when the BP elevation is modest. Some patients may have “white coat hypertension” which can also be confirmed using 24-hour monitoring.

Patients with prehypertension may have elevated BP outside the office (masked hypertension).

Note: the upper limit of normal for HBPM is 135/85.

Patients with clinic BP controlled but whose home BP is high are at increased risk of cardiovascular events.

HBPM in “Masked Hypertension”

Masked hypertension is defined as a persistently normal office BP (<140/90), and an elevated BP at other times (>135/85 during the day).

Often suspected in prehypertension patients (may occur in up to 10% of the population).

HBPM may be useful to diagnose masked HBP, but if it is borderline (between 125/76 and 135/85) 24-hour ambulatory monitoring may be indicated.

CVD risk in masked HBP is relatively high.

The benefits of treating masked HBP are unknown.

HBPM in “White Coat Hypertension”

White coat hypertension is defined as a persistently elevated office BP ($>140/90$), and a normal BP at other times ($<135/85$ during the day).

The cardiovascular risk in white coat hypertension is relatively low.

Patients diagnosed with white coat hypertension may not need drug treatment, but continued home monitoring is advised.

Why HBPM? Predicts Risk

Five prospective studies have compared home and office BP for predicting cardiovascular outcomes.

All 5 found that home BP is a significant predictor, and 4/5 that it is stronger than office BP.

Other studies have shown that home BP predicts target organ damage better than office BP.

Why? Improves Compliance

HBPM is recommended for evaluating the response to antihypertensive treatment.

Patients who monitor their home BP may be more likely to take their medications regularly.

The target home BP is $<135/85$, or $<130/80$ in patients with diabetes or chronic kidney disease.

Readings may need to be taken both in the morning and at night to identify BP fluctuations.

Why? Need in Special Populations

Populations who may benefit from HBPM:

Elderly: BP variability tends to be high, and white coat hypertension is common.

Diabetics: Tight BP control is important and home monitoring may help to achieve this.

Pregnancy: The early detection of pre-eclampsia might be facilitated by HBPM.

Chronic Kidney Disease: BP may fluctuate a lot and home monitors help with management.

Children: White coat hypertension occurs in children, and there are some data on normal home BP levels at different ages.

What Should You Know?

Advice to Patients and Families

Oscillometric upper arm devices (electronic) easiest to use. Evaluate patient for interest, and capacity to do and report the readings.

Patients should be advised to get only brands that have been independently validated according to international protocols. (Check on www.dableducational.org/sphygmomanoters)

Patients should be advised which cuff size they should purchase.

Monitor and records should be established and brought in to check accuracy, patient's technique and ongoing results.

What Should You Know? Costs And HBPM

Home monitors can cost between \$40-\$100.

There is no CPT code but some insurers will reimburse. Medicare might cover the cost.

HBPM has the potential of reducing the number of visits needed, and improvement of BP control.

HBPM has the potential of changing the number of medications required, but the effects of this on costs is not well described.

Overall cost-effectiveness of HBPM is uncertain.

What Should You Know?

HBPM Patient Instructions

No tobacco or caffeine for 30 minutes preceding measurement

Take measurement after 5 minutes rest, arm at heart level, back supported and feet flat on the ground

Take BP on same arm or indicate otherwise (On non-dominant arm or arm with the highest BP)

Take several readings and record all

What Should You Know?

HBPM Tips

Home readings tend to be lower than office readings possibly because of the absence of the “white coat” effect.

HBPMs are more useful because of larger numbers of readings which can be averaged.

Patients do not always keep accurate records of their readings, so devices with memory are ideal.

It is recommended that an average of at least 12 readings be used to make clinical decisions. These would be taken morning and evening over several days.

Training Resources

Online Resources

Americanheart.org - *Every Step Counts* has a HBPM video showing how to measure BP, choose monitors, report results. *Heart 360* has a tracking program for clinical results.

Mayoclinic.com – Has videos on several topics including how patients should measure BP with an automatic and manual device.

High Blood Pressure University – www.michigan.gov/hbpu
A range of resources for professionals and the public on high blood pressure.

Shared Care Inc. A blood pressure training and consultation group who has HBPM training material.
www.sharedcareinc.com

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High Blood Pressure University



The Michigan High Blood Pressure University (HBPU) is a compilation of high blood pressure resources for professionals, patients and community groups. It includes clinical guidelines, training and reference material, office tools and educational handouts. The HBPU offers a cafeteria approach to improving high blood pressure care so each individual can determine which resources are best suited for their interests and needs.

Most of the material can be downloaded and copied free of charge. Some publications may need to be purchased. If you are interested in a large number of copies to distribute in your organization you can order them as described within each listing. If you have questions you can also email us at scottj1@michigan.gov. A [catalog of resources](#) is included for download.

The HBPU is divided into three campuses: 1) Professional 2) Patient and 3) Community. Resources in each campus are tailored to that specific group. To view the available material and learn what each resource offers go to your campus of interest below.



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Summary

HBPM is very common and beneficial.

HBPM can assist with diagnosis, management and control.

HBPM resources for training and program guidance are available.

HBPM has minimal cost, enhances self-care and compliance.