



# Measuring Blood Pressure at Home

A guide for healthcare  
professionals

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July 18, 2012

# Disclosures

I have no financial relationships to disclose.

I will not discuss off label use and or any investigational use in my presentation.



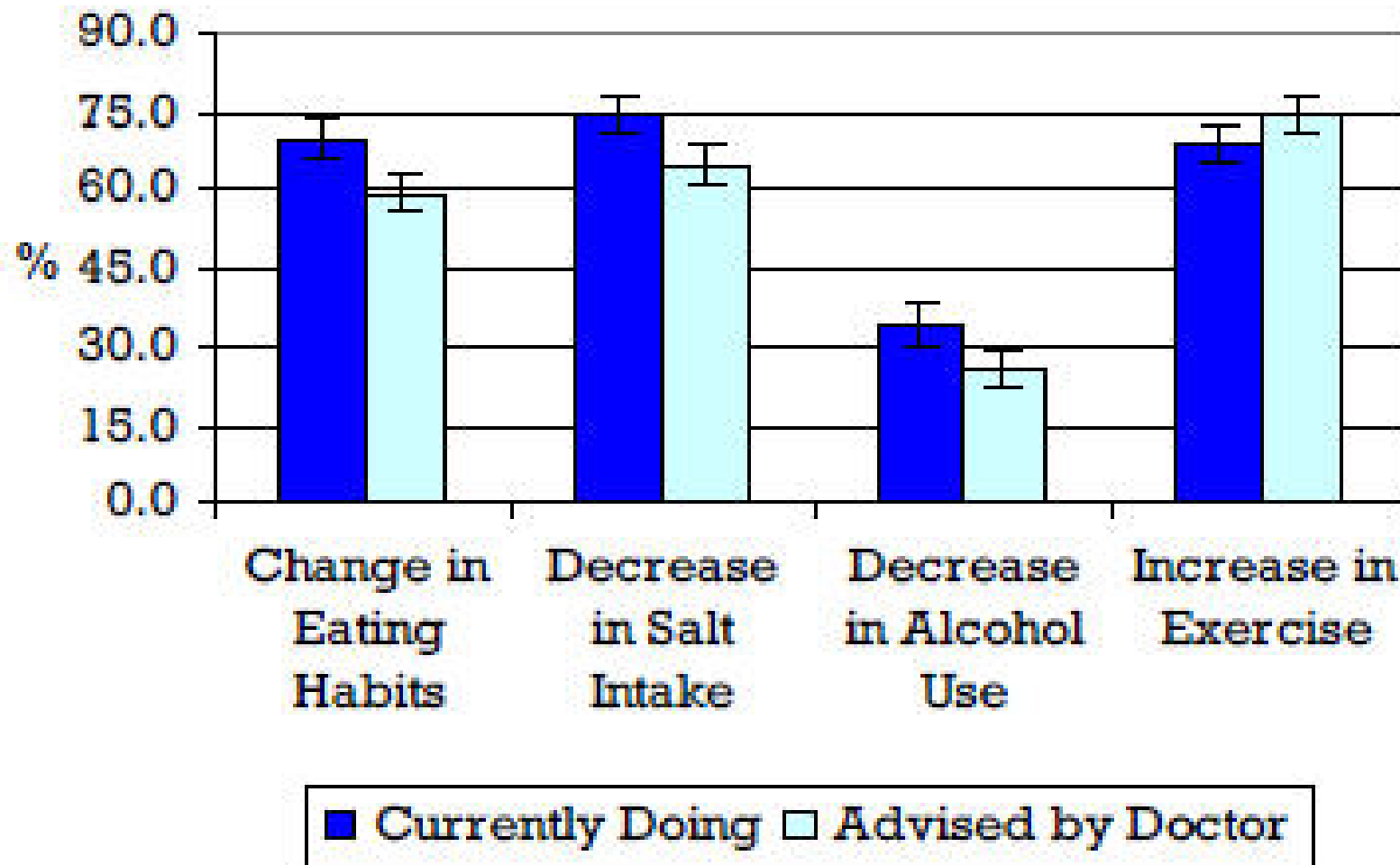
# Objectives

- Rationale for blood pressure monitoring at home
- Equipment
- Patient education
- Home Blood Pressure Values
- Resources

# Rationale

- In 2009 an estimated 29.7% of Michigan adults reported ever being diagnosed with high blood pressure.
- One in two patients have their blood pressure controlled.
- Costs related to hypertension in Michigan are estimated at \$1.5 billion (2007)
- Home blood pressure monitoring (HBPM) can be a significant adjunct to assessment and treatment of hypertension.

**Figure 4. Actions to Control High Blood Pressure  
2009 MiBRFS**



# Support for Home Blood Pressure measurement

- Measurements taken by patients at home are often lower than readings taken in the office and closer to the average blood pressure recorded by 24 hour ambulatory monitors.
- Home BP readings predicts risk better than office BP's
- In a 2005 Gallup poll:
  - 35% of hypertensive patients now check their blood pressure at least once per week
  - 86% of patients who had been advised to purchase a blood pressure monitor had done so.
  - 55% of patients were monitoring their blood pressure an increase of 17 % from 2000.

# Equipment

- Fully automated monitors that use the brachial artery for measurements are the most reliable.
- Documentation can be improved if patients use monitors capable of printing and storing readings.
- Oscillometric devices may not work well with patients who have atrial fibrillation or other arrhythmias.
- Patients monitor should be checked against mercury sphygmomanometer.



# Validated equipment

- An up-to-date list of validated monitors can be found at:

British Hypertension Society

[www.bhsoc.org/blood\\_pressure\\_list.stm](http://www.bhsoc.org/blood_pressure_list.stm)

Dabl Education Trust

[www.dableducational.org.sphygmomanometers\\_2  
sbpm.htm#armtable](http://www.dableducational.org.sphygmomanometers_2_sbpm.htm#armtable)

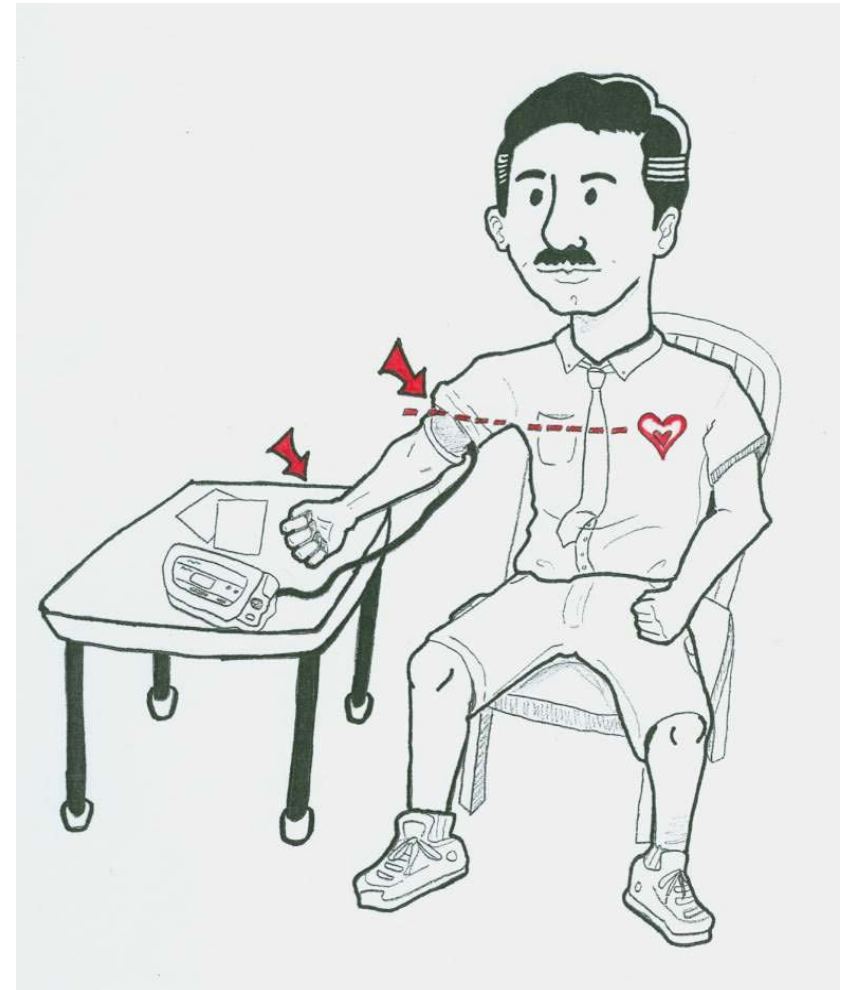


# Help patients determine their correct cuff size

Cuff Name	Bladder Width	Bladder Length	Mid Arm Circumference
Child	8	21	16 to <22cm
Small arm	10	24	22 to <27cm
Average arm	13	30	27 to <33cm
Large arm	16	38	33 to <41cm
Extra Large	17	43	41 to <52cm

# Correct Technique for home blood pressure readings

- Sit calmly with back support, feet flat on floor for 5 minutes before taking a reading.
- Upper arm should be bare.
- When taking a reading the arm with cuff should be supported on a firm surface at heart level.
- Caffeine, smoking, and exercise should be avoided for at least 30 minutes before the reading is taken.
- The cuff should fit snugly.

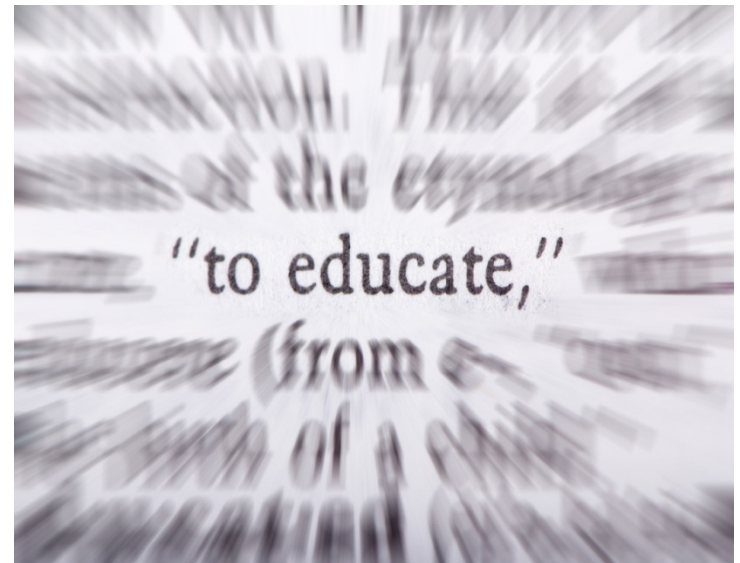


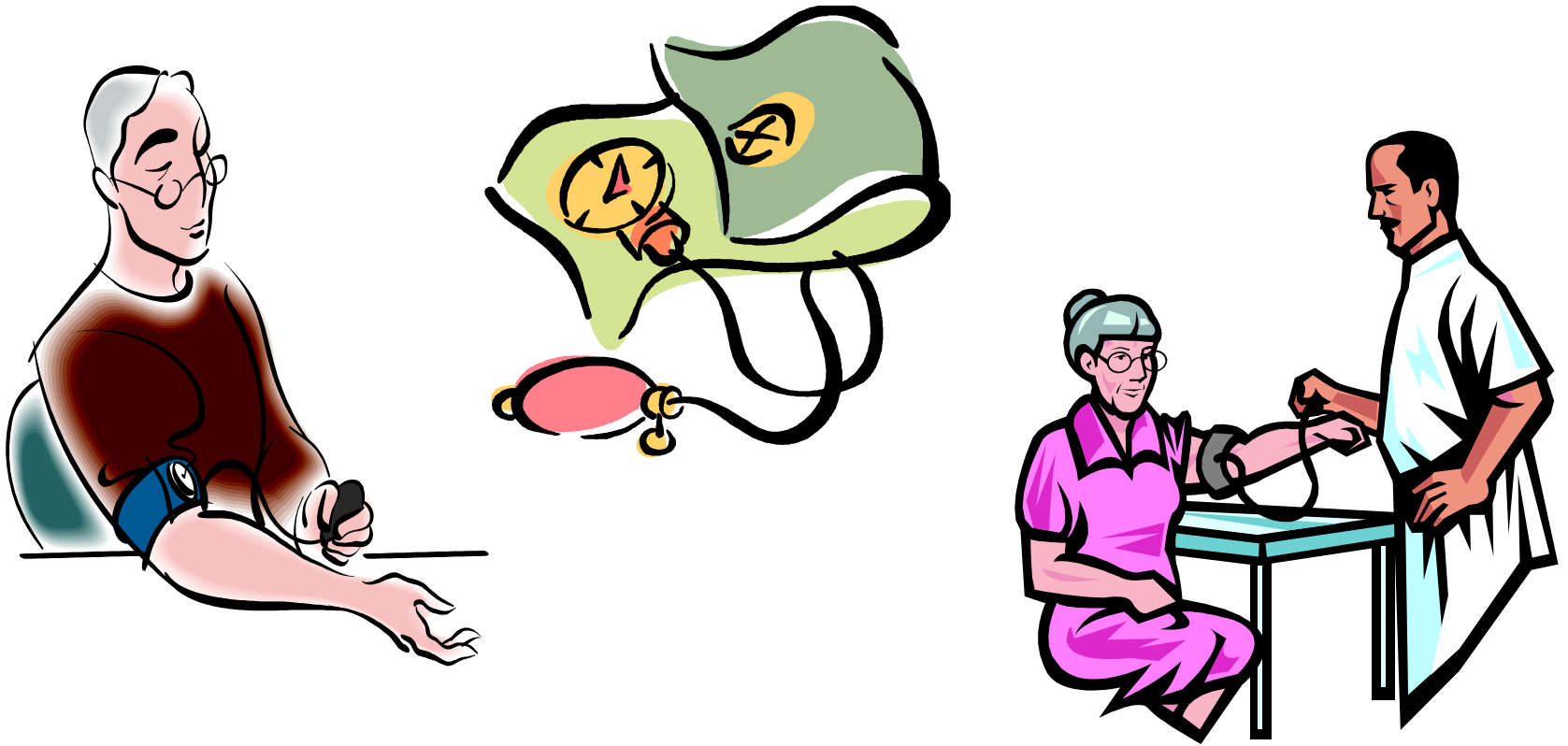
# Readings

- Patients should take at least two, preferably three readings, and record them all. The interval between can be as little as a minute.
- Readings should be routinely taken in the morning (before medication) and at night before bed.
- Patients need to be educated about the variability of readings.
- The recommendation is to take  $\geq 2$  morning readings and 2 evening readings every day for 1 week (discarding the readings of the first day. This gives a total of 12 readings on which to make clinical decisions on.

# Teach back

- Have patients bring in monitor, observe if readings are done correctly
- Confirm monitor is accurate
- Reinforce education regarding timing of readings, risk factor management, accurate recording of blood pressure





The upper limit of normal for home pressure is **135/85 mm Hg**. This corresponds to an office blood pressure of **140/90 mmHg**

# Value of Home Blood Pressure Monitoring

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

# Special populations who may benefit from Home Blood Pressure Monitoring

- Elderly: BP variability tends to be high, and white coat hypertension is common.
- Diabetics: Tight BP control is important and home monitoring may help 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.

# 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 patient should measure BP with an automatic and manual device.
- High Blood Pressure University-[www.michigan.gov/hbpu](http://www.michigan.gov/hbpu) has a range of resources for professional and public on high blood pressure.
- Shared Care Inc.- [www.sharedcareinc.com](http://www.sharedcareinc.com) is a blood pressure training and consultation group who has HBPM training material.



# Summary

- HBPM is very common and beneficial.
- HBPM can assist with diagnosis, management and control.
- HBPM resources fro trainin and program guidance are available
- HBPM has minimal cost, enhances self- care and compliance

Questions?

