

**Michigan Public Act 493: Decreasing the Availability of Mercury-Based Blood Pressure Manometers**  
*Implications and Resources in Michigan*

Legislation took effect in January 2009 that impacts the type of blood pressure measurement equipment that is used and purchased in Michigan. This new legislation will impact the availability and use of mercury-based blood pressure measurement equipment. The pertinent changes are as follows:

- *Beginning January 1, 2008, selling or receiving mercury manometers will be prohibited in Michigan.*
- *Effective January 1, 2009, mercury manometers will not be able to be used in the State of Michigan except when the blood pressure device was purchased prior to this amendment (before 12/29/06).*
  - ❖ *The mercury manometer can be used in a private residence for assessing blood pressure.*
  - ❖ *The mercury manometer can be used for the purpose of checking the calibration of blood pressure equipment in a healthcare facility. The mercury manometer must be locked in an area not accessible to the public.<sup>1</sup>*

Hypertension experts agree that mercury and its waste are a concern, but would like those concerns balanced with the importance of assuring accurate blood pressure measurements. Mercury-based blood pressure manometers are considered the gold standard by the American Heart Association (AHA) for blood pressure measurement because of their accuracy. The Michigan Public Act 493 does allow their continued use to check the accuracy of non-mercury blood pressure measurement equipment.<sup>2</sup>

The lack of availability of mercury-based blood pressure measurement devices could impact the detection and control of hypertension (HTN), commonly known as high blood pressure because these have been used as an accuracy standard. Despite increased efforts and expanded pharmacotherapy to prevent, treat, and control hypertension, the prevalence of HTN has not decreased and control of the problem remains a national challenge. HTN is an important risk factor for many of the leading causes of death and is the most common primary diagnosis in America. It is estimated to affect over 70 million Americans, or 1 in 3 adults. HTN is also a huge burden on the healthcare system.<sup>3</sup> The 2007 direct and indirect cost of HTN in the U.S. is estimated to be \$66.4 billion and 27.8% of Michigan residents reported having HTN.<sup>4</sup>

The AHA reports that the average error made in obtaining ambulatory blood pressure clinical readings is  $\pm 10$  mm Hg.<sup>5</sup> The benefits of appropriate diagnosis and treatment are significant. Lowering blood pressure by as little as 10 mm Hg systolic or 5 mm Hg diastolic for five years has been shown to lead to 20 percent fewer deaths, 35 percent fewer strokes, and 20 percent fewer heart attacks.<sup>6</sup>

Because of the scope of HTN and knowing that it is asymptomatic, the implications of inaccuracies of blood pressure measurement are cause for concern for all levels of health care professionals. To ensure proper technique is being used, a refresher should be done about every six months. Blood pressure measurement equipment also needs to be checked for accuracy before being put into service and then routinely every six months after. The AHA recommends that electronic devices be validated using the Association of the Advancement of Medical Instrumentation (AAMI) guidelines. Health care organizations and providers must take the personal initiative to assure that blood pressure measurement readings used to diagnose and treat hypertension are as accurate as possible.

### Resources

To download a step-by-step procedure for the measurement of blood pressure and learn more about the correct steps for checking the accuracy of blood pressure measurement devices please visit the Section's website at [www.michigan.gov/cvh](http://www.michigan.gov/cvh) on the Healthcare Page. Self-paced training materials and screening procedures are available.

Developed by the Heart Disease and Stroke Prevention Unit  
Cardiovascular Health, Nutrition & Physical Activity Section  
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### References

1. Legislation related to mercury in blood pressure devices (PA 0493'06) [online] available at: <http://www.legislature.mi.gov/> Related Acts are 172 of 1994 PA 451 (MCL 324. 101-324.90106) and Sec. 17204. THE BAR WITH: SB 0124'05, SB 0186,05, Last Action: 12/31/2006-Assigned PA 0492'06 with immediate effect. [cited 9 July 2007]
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3. American Heart Association Website, Heart Disease and Stroke Statistics 2007 [cited 24 July 2007] <http://www.americanheart.org/presenter.ihtml?identifier=3000090>
4. Cook, ML, EM Garcia, and AP Rafferty. 2007. Health risk behaviors in the state of Michigan:2005 Behavior Risk Factor Survey. Lansing, Michigan. Michigan Department of Community Health, Bureau of Epidemiology, Chronic Disease Epidemiology Section. [http://www.michigan.gov/documents/mdch/38173\\_HealthRisk-LOW\\_194499\\_7.pdf](http://www.michigan.gov/documents/mdch/38173_HealthRisk-LOW_194499_7.pdf)
5. Grim, MD, MS, Clarence, NIH, Natcher Conference Center; Bethesda, MD (4/19/2002), [online] *Importance of Accuracy; Summary Report Working Meeting of the National High Blood Pressure Education Program/ National Heart Lung and Blood Institute & NHLBI and American Heart Association Working meeting on Blood Pressure Measurement*; Available at: <http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.htm>.
6. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. <http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.htm>