

## Success Story: Michigan Department of Community Health

### Accurate Blood Pressure Measurement – The Foundation for Blood Pressure Control

- Blood pressure measurement is rarely performed according to national standards yet results determine if an individual is at risk for a range of chronic diseases or if this risk is adequately controlled and high blood pressure is the most common primary diagnosis in the nation.
- A blood pressure measurement training program was developed on a CD in an interactive, self-paced format and disseminated to health workers in Michigan.
- Over 1,000 CDs have been disseminated and evaluation has shown 87% reported being better able to measure blood pressure according to national guidelines. Other results were of evaluations were favorable.

### Issue

High blood pressure is a key parameter in clinical care. Although it contributes to the development of many diseases such as stroke, diabetes, kidney disease, and heart disease there are few regulations to assure accurate readings. Studies have shown that healthcare providers have limited time spent in training on blood pressure measurement accuracy, many admit not following national guidelines, and many health professionals do not have access to programs that provide a review and update of blood pressure measurement skills and interventions. The average blood pressure measurement error has been reported as 10 millimeters (mm) and it has been reported that when health professionals are taught how to measure blood pressure national standards are not consistently incorporated. Studies show that if stage 1 high blood pressure with risk factors is lowered 12 mm systolic and sustained over 10 years, it could prevent 1 death for every 11 patients treated<sup>1</sup>. The previously reported 10 mm error therefore, can be very significant not only to the health of an individual but also to the health of our population.

### Intervention

To improve the accuracy of blood pressure measurement in Michigan, a self-paced, interactive, comprehensive training program was developed by a nationally known training organization and a team of experts in collaboration with the Michigan Department of Community Health. The program, *Blood Pressure Measurement Quality Improvement Program*, utilized established media and content and was designed for users to complete at their own pace and convenience. The program takes an average of 55 minutes to finish and includes the following topics: 1) preparation of the site, patient and equipment; 2) choosing the correct cuff size; 3) recording blood pressure sounds; 4) initial steps in measuring the blood pressure; 5) measurement procedure in various clinical situations; 6) national and state recommendations for detection and follow-up; 7) evaluation of equipment accuracy; 8) home blood pressure measurement; and 9) tips from experts. The training has pre and post test questions including a number of clinical readings for interpretation. Contact hours were provided if the required evaluation was completed. The program



<sup>1</sup> Chobanian AV, Bakris GL, Black HR; Cushman WC, Green LA, Izzo, Jr JL, et al. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003 Dec;42(6):1206–52.

emphasizes standardized tools and information for healthcare workers to improve their own measurement and reporting accuracy according to national guidelines.

## **Impact**

This training program has been distributed to over 1,000 health workers in Michigan. Some examples of use include continuing education programs in several health systems, WISEWOMAN program staff, local health departments, physician assistant programs, annual meetings of medical assistants, and physician continuing education programs. The program has been incorporated into a *Michigan Core Curriculum on Hypertension* and is currently being considered for use in other state heart disease and stroke prevention programs.

Individual evaluations returned immediately after the completion of the program have shown improvement in understanding of key aspects of accurate blood pressure measurement, improved accuracy of blood pressure interpretation and increased awareness of national guidelines.

An online follow up survey done approximately one year after completion showed:

- 88% strongly agreed or agreed that they learned new information
- 87% reported they were better able to measure blood pressure according to national guidelines
- 79% utilized the information to improve their blood pressure measurement accuracy
- 78% shared the program with others and said they plan to use in the future.
- 66% reported that others within their organization utilized the program
- 47% said there has been a clinical situation where the information obtained from the program improved the care they were giving patients

Quotes from the online survey were as follows:

- “Used throughout the institution – noted improved quality of blood pressure in many sites in our organization”
- “I was not familiar with the specifics of taking blood pressure before utilizing this.”
- “I worked with our medical assistants. Improved the entire practice of the clinic”
- “The CD program was passed among the nurses for blood pressure review and many expressed surprise that their technique wasn’t as good as they thought”
- “I think it should be mandatory every two years for all healthcare professionals to review like we do CPR and Basic Life Support.”

## **Conclusion**

The *Blood Pressure Measurement Quality Improvement Program* has reached a large number of Michigan health workers and results have shown increased understanding of proper technique. The program is currently being updated and streamlined to allow for posting online, and options for selection of module content to reduce the time required for experienced clinicians. Delivering content in this method has been cost efficient and successful. Future studies may look at the impact on blood pressure control.

## **Contact Information:**

Velma Theisen, Manager, Heart Disease and Prevention Unit, Michigan Department of Community Health, [theisenv@michigan.gov](mailto:theisenv@michigan.gov), 517-335-8754, [www.michigan.gov/cvh](http://www.michigan.gov/cvh)

2/17/10