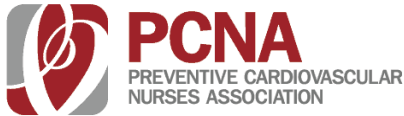




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Dr. Commodore-Mensah's research seeks to reduce the burden of cardiovascular disease using epidemiological (the distribution and determinants of health conditions) and community-engaged methods.



Self-measured Blood Pressure Monitoring: Using a Validated Device is Key to Accurate Measurement

May 4, 2021 | [Yvonne Commodore-Mensah](#)

Using a clinically accurate validated device for blood pressure monitoring is important in the battle against uncontrolled hypertension.

Uncontrolled Hypertension Remains a Clinical and Public Health Challenge

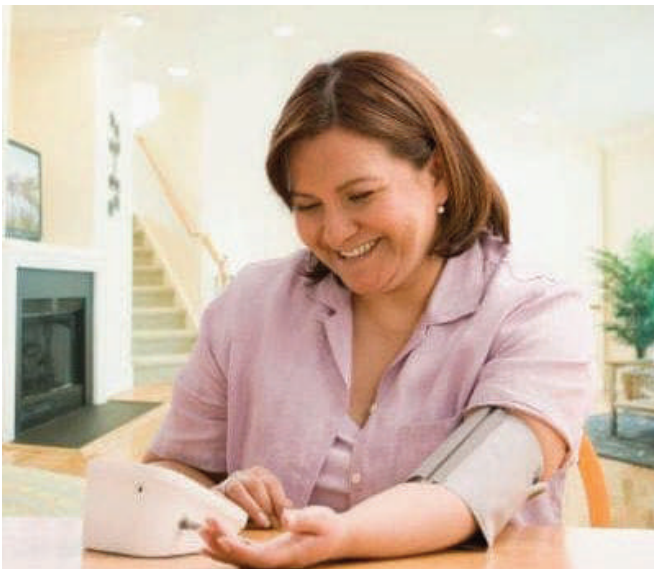
Approximately, 46% of US adults (108 million adults) have **hypertension**, defined as $\geq 130/80$ mm Hg.¹ Of US adults with hypertension, less than a quarter (21.6%) have controlled blood pressure (BP) [$< 130/80$ mm Hg].² Despite the burden and costs associated with uncontrolled hypertension and the availability of effective therapies and evidence-based interventions to control BP, hypertension control ($< 140/90$ mm Hg) has worsened from 53.8% (2013-2014) to 43.7% (2017-2018).³

Self-measured Blood Pressure Monitoring (SMBP) with Clinical Support Improves Hypertension Control

Self-measured blood pressure monitoring (SMBP), also known as home blood pressure monitoring with clinical support, is one of the effective interventions, or “best practices”⁴ to improve hypertension control.^{5,6} SMBP monitoring allows patients diagnosed with hypertension to play an active role in managing their own condition. However, SMBP requires the use of a home BP measurement device by patients in their homes several times a week.

Increasing Demand for Home Blood Pressure Devices

During the COVID-19 pandemic, the demand for home BP devices has never been higher. More patients have been advised by healthcare providers to purchase home BP devices to self-monitor their condition and enhance telehealth visits. Public health and social distancing measures have been recommended to limit the spread of COVID-19. As a result, fewer in-person visits for hypertension assessments are occurring and SMBP that includes clinical support such as web-based services, one-one-counseling, and educational classes delivered remotely can improve hypertension outcomes.⁷ However, cardiovascular nurses and healthcare providers should be prepared to advise patients on selecting validated home BP devices and be aware of other key considerations in the selection of home BP devices.



Importance of Accuracy of Home Blood Pressure Measurement Devices

All BP devices are not created equal. Accurate BP measurement is critical for the diagnosis and management of hypertension.⁸ Obtaining an accurate BP measurement begins with using a validated BP measurement device. Inaccurate home BP devices could result in under- or over-treatment of hypertension.^{9,10} Thus, the proper equipment must be selected to ensure that BP readings reflect a patient's actual BP. Beyond selecting proper equipment, incorrect positioning, where the arm and cuff are positioned above the heart during the measurement may lead to falsely low BP. Conversely, if the arm and cuff are positioned below the heart, BP could be falsely elevated.⁸

Selecting a Validated Device for Blood Pressure Monitoring

The proliferation of different types of home BP devices, including upper arm devices and wrist BP devices, may leave many patients [and clinicians] confused about which devices are validated. Cardiovascular nurses often provide clinical support to patients diagnosed with hypertension, and patients may pose the question: "Which home BP device should I use?" Although local drugstores and online stores sell various brands of BP devices, patients should be advised to select only validated devices for blood pressure monitoring. All devices are cleared by the Food and Drug Administration (FDA) prior to being sold on the US market, but not all are validated for accuracy through an independent review process.

The [US Blood Pressure Validated Device Listing](#) (VDL™) is the first U.S. list of BP measurement devices developed to assist providers and patients in identifying BP devices that have been validated for clinical accuracy. The American Medical Association (AMA) enlisted the National Opinion Research Center (NORC) at the University of Chicago to assist in the design and management of an independent process to determine which BP devices available in the U.S. meet AMA's established criteria ([VDL™ Criteria](#)) to validate clinical accuracy. An Independent Review Committee consisting of physicians with expertise in BP measurement and management assesses whether a BP device meets the VDL Criteria for validation of clinical accuracy, resulting in the VDL—a formal list of validated BP devices, including office, home, ambulatory, and kiosk devices.

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Similarly, [STRIDE BP](#) a joint initiative between the European Society of Hypertension, International Society of Hypertension, and World Hypertension League, is an international scientific non-profit organization that also publishes information on validated BP devices. Devices listed on the STRIDE BP website meet established international protocols.

Other Considerations in the Selection of a Validated Home Blood Pressure Device

Below are some tips that cardiovascular nurses can share with patients:

1. Select an automated monitor, which has a cuff that inflates itself.
2. Select a BP device that goes around the upper arm. Wrist and finger devices are not currently listed on the VDL.
3. Ensure that the cuff fits the arm. Review the device for information on the range of the cuff size before purchasing the device. If the cuff of the BP device is too small, the BP reading will be overestimated. Likewise, if the cuff is too large, BP readings will be underestimated.
4. Select a device that is easy to use. Look for a BP device with a digital readout that is large and bright enough for you to see clearly, and one that also shows your pulse rate. In the case of visual impairment, select a device that has voice commands.
5. Select a Blue-tooth enabled BP device which can be synced with a smartphone to transfer the BP readings or to an electronic health record system.

Hypertension Resources

Using a validated device for blood pressure monitoring is important, but PCNA also has clinical or patient education resources to help you with blood pressure control.

- Blood pressure patient education booklet: [How Do you Measure Up?](#)
- [Measuring Tape for Blood Pressure Cuff](#)
- Patient education fact sheet: [High Blood Pressure](#)
- Free on-demand CE course: [New Hypertension Guidelines: Matching Risks and Treatments](#)

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