

HOW TO CHECK A HOME BLOOD PRESSURE MONITOR FOR ACCURACY*

The first step in choosing an accurate monitor is to select one that has been approved under a formal validation protocol; all self-measured blood pressure devices sold in the United States are required to meet Food and Drug Administration standards. However, even a device that has passed an accepted validation test will not provide accurate readings in all patients; the error may be consistently ± 5 mm Hg in many individuals, especially elderly patients or patients with diabetes. For this reason clinicians should encourage patients to bring any home blood pressure monitor they use to their physician's office to measure its accuracy against a mercury sphygmomanometer or comparable device before the readings are accepted. A simple version of the European Society of Hypertension International Protocol has been developed for this purpose and can be done quickly by the physician or other health care clinician and the patient.

The following steps to ensure accuracy take approximately 10 minutes.

1. Have the patient sit down with his or her arm at heart level. The arm should be completely relaxed.
2. Allow the patient to rest for five minutes.
3. Avoid any conversation during the measurements to prevent an increase in blood pressure.
4. Take a total of five sequential same-arm blood pressure readings, no more than 30 seconds apart.
5. Have the patient take the first two readings with his or her own device.
6. Take the third reading, preferably with a mercury sphygmomanometer or comparable device.
7. Have the patient take the fourth reading.
8. The fifth and final reading is taken by the health care clinician.
9. Compare the difference between the readings from the two cuffs.
 - a. BP readings will usually decline over the five measurements. The final systolic blood pressure reading may be as much as 10 mm Hg lower than the first.
 - b. If the difference is 5 mm Hg or less, the comparison is acceptable.
 - c. Do the calibration again if the difference is greater than 5 mm Hg but less than 10 mm Hg.
 - d. The device may not be accurate if the difference is greater than 10 mm Hg.
10. Repeat this procedure annually.

Though there is no established target for how close the readings from the patient's cuff should be to those from the clinician's cuff, the above exercise can provide a general sense of the device's accuracy, which can be taken into consideration for future measurements recorded at home. To further ensure accuracy consider calibrating the clinic and home devices following the National Health and Nutrition Examination Survey (NHANES) Health Tech/Blood Pressure Procedures Manual (the manual can be found at [cdc.gov/nchs/data/nhanes/nhanes_09_10/bp.pdf](https://www.cdc.gov/nchs/data/nhanes/nhanes_09_10/bp.pdf)).

* Adapted from Centers for Disease Control and Prevention. *Self-Measured Blood Pressure Monitoring: Action Steps for Clinicians*. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Dept of Health and Human Services; 2014: 24.