



## BLOOD PRESSURE (BP) MEASUREMENT DEVICES

August 2021

Contributing author on behalf of the Heart Healthy Ohio Initiative:  
Jackson T. Wright Jr., MD, PhD, Case Western Reserve University

There are two major types of blood pressure (BP) measurement devices, aneroid and oscillometric. Mercury devices are no longer acceptable for office measurement due to risk of leakage and resulting mercury toxicity. Aneroid devices, while still available, require calibration every 6 months for wall-mounted and every **2 to 4 weeks** for handheld or portable devices to ensure accuracy<sup>1,2</sup>. Thus, in selecting devices for home or office BP measurements:

1. If aneroid devices are still being used, a plan for calibration of the devices at appropriate intervals should be incorporated into the office workflow.
2. If oscillometric BP instruments are used, one validated by the Association for the Advancement of Medical Instrumentation (AAMI) or the British Hypertension Society and the European Society of Hypertension (BHS) protocols should be selected and calibrated in accordance with manufacturers' specifications. Fully automatic oscillometric BP monitors allowing BP measurements programmed at specified intervals in presence or absence of a primary care team member in the room are preferred<sup>1,3,4</sup>. A list of validated automated devices is available at:
  - British Hypertension Society: <https://bihsoc.org/bp-monitors/for-home-use/>
  - Canadian Hypertension Society: <https://hypertension.ca/hypertension-and-you/managing-hypertension/measuring-blood-pressure/devices/>
  - STRIDE BP: <https://stridebp.org/bp-monitors>
  - U.S. Blood Pressure Validated Device Listing: <https://www.validatebp.org/>
3. Only validated oscillometric devices should be used for home BP measurements. Devices should have memory capability in addition to proper cuff size. Procedures for ordering can be found at: <https://www.cardi-oh.org/best-practices/hypertension-management>

### References

1. Muntner P, Shimbo D, Carey RM, et al. Measurement of Blood Pressure in Humans: A Scientific Statement From the American Heart Association. *Hypertension*. 2019;73(5):e35-e66. doi:10.1161/HYP.0000000000000087
2. Turner MJ, Speechly C, Bignell N. Sphygmomanometer calibration--why, how and how often?. *Aust Fam Physician*. 2007;36(10):834-838.
3. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines [published correction appears in *Hypertension*. 2018 Jun;71(6):e140-e144]. *Hypertension*. 2018;71(6):e13-e115. doi:10.1161/HYP.0000000000000065.
4. Carey RM, Wright JT Jr, Taler SJ, Whelton PK. Guideline-Driven Management of Hypertension: An Evidence-Based Update. *Circ Res*. 2021;128(7):827-846. doi:10.1161/CIRCRESAHA.121.318083.