

Measuring Blood Pressure: Once Is Not Enough

The optimal number of readings was four or five.

Although patients often use home blood pressure (BP) monitors, hypertension treatment decisions generally are based on BP measurements obtained in our offices. One goal of this study was to determine the optimal setting for, and optimal number of, BP measurements for clinical decision making. Researchers compared systolic BP measurements obtained repeatedly during 18 months for 444 patients (92% men) at a Veterans Affairs medical center; readings were obtained concurrently in three ways: during routine outpatient clinic visits, from electronic home monitors, and as part of a research protocol (obtained by research staff) at 6-month intervals. Systolic BP was deemed controlled if clinic or research-based readings were <140 mm Hg and if home-based readings were <135 mm Hg.

The proportion of patients whose systolic BP was identified as controlled in the first 30 days varied by measurement type: 28% for clinic readings, 47% for home readings, and 68% for research-based readings. Regardless of the setting, averaging the measurements from multiple readings decreased within-patient variability; the optimal number of readings was approximately four to five. The intervals between readings differed for each group: three times weekly for home monitoring readings, two readings every 6 months for the research readings, and variable intervals for outpatient routine clinic visits.

Comment: In this study, BP readings varied substantially when measured at home, in a clinic, or as part of a research protocol. Although we don't clearly know which approach to measuring BP correlates best with cardiovascular outcomes, the data convincingly demonstrate that a single BP measurement is inadequate.

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