



Letter to the editor: The Pundit Speaks
By Randolph M. Howes, M.D., Ph.D.
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"Blood Pressure Readings Are Commonly Wrong"

Blood pressure determination is one of the most important measurements in all of clinical medicine and is still one of the most inaccurately performed. Hypertension (abnormally high blood pressure) is a major risk factor for coronary heart disease, stroke, and renal failure, and affects approximately one-third of the American population. Increasingly, it is recognized that clinic office blood pressure measurements correlate poorly with blood pressure measured in other settings, and that they can be made more accurate by self-measured readings taken with validated devices at home. Home readings can help predict cardiovascular events and are particularly useful for monitoring the effects of treatment for hypertension. The gold standard for clinical blood pressure measurement has always been readings taken by a trained health care provider using a mercury sphygmomanometer and the Korotkoff sound technique, but evidence shows that this procedure may lead to the misclassification of large numbers of individuals as hypertensive and also to a failure to diagnose blood pressure that may be normal in the clinic setting but elevated at other times in some individuals. There are 3 main reasons for this: (1) inaccuracies in the methods, some of which are avoidable; (2) the inherent variability of blood pressure; and (3) the tendency for blood pressure to increase in the presence of a physician (the so-called white coat effect). According to the American Heart Association (AHA), numerous surveys have shown that physicians and other health care providers rarely follow established guidelines for blood pressure measurement. In December of 2011, investigators compared the blood pressure readings of 40 patients obtained by the traditional method routinely used in clinics, as well as by the AHA-recommended method. Alarming, the two measurements were different for as many as 93% of the patients. Out of 10 possible errors as defined by the AHA, the average number of errors per patient during blood pressure measurements at clinics was four. They estimated that that 45% of the patients would have received different treatments based on the two different blood pressure measurements. The study appeared online in the *Journal of General Internal Medicine*. The most common error was not taking readings from both arms. Body position, arm position, differences between arms, and blood pressure cuff size and placement can all affect the measurements. And, the target blood pressure for patients using antihypertensive treatment has recently been lowered for those with diabetes, renal disease and so-called "pre-hypertension."

In the America that I love, we realize that inaccurate measurements will lead to inaccurate diagnoses and inappropriate or unnecessary treatments. Clinic staff must be educated on the AHA recommendations. Accurate blood pressure measurement leads to improved hypertension-management decisions and avoidance of potentially dangerous medications. Always read the instructions on home devices.

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