

Tip 16 (February 2010)

Accurate Blood Pressure Measurement

Hypertension is the most prevalent, and most important, adult chronic disease managed by general practitioners. Diagnosis of hypertension, and monitoring of treated hypertension is critically dependent on accurate blood pressure measurement. Nevertheless, few (if any) GP's measure blood pressure correctly. The correct technique for office blood pressure measurement (transcribed directly from the 2003 JNC-7 Guideline¹) is as follows:

"Accurate Blood Pressure Measurement in the Office

The accurate measurement of BP is the sine qua non for successful management. The equipment—whether aneroid, mercury, or electronic—should be regularly inspected and validated. The operator should be trained and regularly retrained in the standardized technique, and the patient must be properly prepared and positioned. The auscultatory method of BP measurement should be used. Persons should be seated quietly for at least 5 minutes in a chair (rather than on an exam table), with feet on the floor, and arm supported at heart level. Caffeine, exercise, and smoking should be avoided for at least 30 minutes prior to measurement. Measurement of BP in the standing position is indicated periodically, especially in those at risk for postural hypotension, prior to necessary drug dose or adding a drug, and in those who report symptoms consistent with reduced BP upon standing. An appropriately sized cuff (cuff bladder encircling at least 80 percent of the arm) should be used to ensure accuracy. At least two measurements should be made and the average recorded. For manual determinations, palpated radial pulse obliteration pressure should be used to estimate SBP—the cuff should then be inflated 20–30 mmHg above this level for the auscultatory determinations; the cuff deflation rate for auscultatory readings should be 2 mmHg per second. SBP is the point at which the first of two or more Korotkoff sounds is heard (onset of phase 1), and the disappearance of Korotkoff sound (onset of phase 5) is used to define DBP. Clinicians should provide to patients, verbally and in writing, their specific BP numbers and the BP goal of their treatment."

Clearly, this procedure is somewhat laborious and time-consuming, and really incompatible with a 15-minute GP consultation in which blood pressure may be only one of a number of issues requiring review. My advice is not to take blood pressure yourself;- teach your practice nurse the correct technique and get the patient to come in 15-20 minute before your appointment for an accurate blood pressure recording in the nurse's room. Even this though will not overcome all the pitfalls of office blood pressure measurement particularly the "white coat" effect (although less likely with nurse than with doctor-measured blood pressure).

If in doubt, 24 hour ambulatory blood pressure monitoring is the "gold-standard" for diagnosing hypertension and home blood pressure monitoring (in selected individuals) is also an excellent tool for diagnosing hypertension and monitoring treated hypertension².

24-h ABPM though is costly and impractical for very widespread use, and home blood pressure monitors (though relatively cheap) are not suitable for all (particularly very anxious individuals). The way of the future is likely to be "Ambulatory Office Blood Pressure Monitoring" (AOBP). This involves the use of a fully automated, oscillometric sphygmomanometer, to obtain multiple BP readings while the patient rests alone in a quiet room. A number of these devices have been validated for clinical use and studies in community-based primary care settings have shown that AOBP can virtually eliminate the white coat response and that average readings obtained equate to the "awake average" blood pressure obtained with 24-ABPM.

We are using one of these devices at my private and North Shore Hospital Hypertension Clinics, and if anyone want further information on these, please get in touch with me.

1. JNC-7(2003) <http://www.nhlbi.nih.gov/guidelines/hypertension/jnc7full.htm>

2. Tip 8 (Nov.2009)[Your Link](#)

3. "Why Automated Office Blood Pressure Should Now Replace the Mercury Sphygmomanometer. Myers MG. J.Clin.Hypertens.2010;12:478-480.

4. Microlife Systems Website. <http://www.watchbp.com/contact/contact-us/?L=en>