



## Low-tech tools, high-pressure stakes

In this high-tech age, the physical examination may seem an anachronous component of routine medical care. While I strongly disagree, it is generally true that we often confirm or further define abnormal physical findings with other “objective” tests. Finding crackles on chest auscultation prompts a chest radiograph, computed tomographic scan, or pulmonary function tests, and hearing a cardiac gallop prompts an electrocardiogram, chest radiograph, echocardiogram, or all of the above.

But measurement of the blood pressure often stands alone, a physical measurement that may directly prompt therapy. We may listen for abdominal bruits, check the eye grounds, review an electrocardiogram, and measure electrolyte and creatinine levels looking for a cause of secondary hypertension or for end-organ damage. But in most cases, therapy ensues (or doesn’t) on the basis of readings from a low-tech sphygmomanometer.

We are often casual with how we measure blood pressure, despite its importance. For efficiency, in many offices, physician-extenders obtain a (single) measurement as the patient is being rushed into the examination room. We may recheck the pressure ourselves, but my conversations with many patients indicate that there is enormous variability in how the blood pressure is actually measured. Sometimes, the cuff is placed over a shirt, a large cuff is not appropriately used for a large arm, the cuff is not firmly inflated, or the pressure is not confirmed by dual measurement or checked in the contralateral arm or by palpation of the radial pulse. We should reflect upon the potential impact of these shortcuts.

Surprisingly, despite the many ways to introduce inaccuracies in low-tech cuff measurement of blood pressure, the benefits of treating high blood pressure diagnosed by these office measurements can be great. An excess of cardiovascular events can be linked to an elevation of even a few millimeters in the pressure. The benefit is even more surprising when we consider that intermittent office measurements do not tell us anything about the lability of the blood pressure or its circadian patterns, including during sleep.

In this issue of the *Journal* (page 657), Dr. Mohammad Rafey discusses alternative ways to measure the blood pressure, their strengths and their limitations. The concepts of abnormal “nocturnal dipping” and morning hypertensive surges will warrant far more attention as we use ambulatory 24-hour measurements and other techniques more frequently to augment the low-tech blood pressure check in the office.

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doi:10.3949/ccjm.76a.11001