used for ABPM, HBPM can also be subject to patient bias, wherein preferred BP levels are recorded and others discarded. However, this selection bias can be reduced by employing devices with internal memory. A comparison of patient logbooks and device memory found that 90% of readings were recorded by the patient, and the difference between all readings and those recorded by the patient was minimal. However, fictional data were found in 16% of patient logbooks, indicating that HBPM results will be more accurate if devices with memory are used. Clear patient instructions are also very important.

Comparison of values and diagnostic thresholds

Studies comparing ABPM and HBPM show that values from the latter are on average 5 mmHg lower for systolic BP, but diastolic BP values are similar between the two methods. It could be suggested that the difference in systolic BP for HBPM is attributable to the selection of specific timepoints (morning and evening) when BP would be expected to be lower based on its pattern of changes over a 24-hour period. However, careful comparison from studies where both HBPM and ABPM were performed suggests that the average morning and evening systolic BP levels are similar to the overall daytime average systolic BP level (Figure).

Any differences between ABPM daytime values and HBPM values have largely been ignored for setting the threshold for diagnosis of hypertension. The consensus from most major international hypertension guideline bodies, in Australia, Europe, the UK, Japan, USA and Canada, is that the threshold for diagnosis of hypertension should be set at 135/85 mmHg for both ABPM and HBPM. A study that used a device in dual mode for both ABPM and HBPM found no clinically meaningful difference between ABPM daytime values and HBPM values. Thus, in practice, it is reasonable to consider the daytime ABPM and average HBPM values to be numerically equivalent.

Diagnostic and prognostic value

Although one of the main reasons for using out-of-office measurements has been to detect white-coat and masked hypertension, the ability of the two methods to detect these conditions is not the same. HBPM has lower sensitivity but higher specificity compared with ABPM, and therefore has low positive and high negative predictive values for detecting white-coat, masked and sustained hypertension. This means that, compared with ABPM, more than half of patients with white-coat hypertension are not accurately detected with HBPM. Using HBPM instead of ABPM can lead to missing the correct diagnosis in 25% of patients.

However, it is incorrect to assume that ABPM is ‘perfect’ in detecting white-coat or masked hypertension. For confirming a diagnosis of white-coat hypertension, it is recommended that ABPM be performed a second time. With use of an incorrect (too small) cuff size, both ABPM and HBPM can underestimate the number of patients with white-coat hypertension and overestimate those with masked hypertension.

Both ABPM and HBPM have been found to be superior to clinic BP measurement for risk prediction, but there have been too few studies to clearly decide between the two...