

# Thai Physicians' Opinions about the Use of Home Blood Pressure Monitoring

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Hypertension is a powerful modifiable risk factor for cardiovascular disease. The prevalence of hypertension in Thailand is increasing progressively. Patients with hypertension are usually asymptomatic, and thus proper blood pressure measurement is required to diagnose and assess the blood pressure control. Home blood pressure monitoring (HBPM) is recognized as a useful tool in hypertension management and is recommended by many organizations<sup>(1-4)</sup>, including the Thai Hypertension Society<sup>(5)</sup>. The proven benefits of HBPM beyond the usual clinic measurement is that it allowed detection of white-coat hypertension and masked hypertension<sup>(1-4)</sup>, better prediction of cardiovascular events<sup>(6)</sup>, better assessment of the status of blood pressure control, and improved treatment compliance. Despite these benefits, the use of HBPM has remained low in many countries. The Asia HBPM Survey is a collaborative study of participants from 11 countries in Asia. The present study aimed to investigate physicians' rationale, challenges, and attitudes toward

the use of HBPM for hypertensive patients. Herein, the authors report Thai physicians' responses in the Asia HBPM Survey.

Among the survey respondents, there were 642 Thai respondents, of which 55.5% were male, 38.5% were aged between 30 to 39 years old, 64.2% were internal medicine physicians including 25.5% internists and 20.4% cardiologists, and 92.2% worked in hospitals and treated on average, 43.6 hypertensive patients per week.

The main benefits of HBPM recognized by the respondents were it allowed diagnosis of masked hypertension (76.3%), raised awareness of hypertension in patients (69.3%), helped in hypertension management (67.1%), allowed evaluation of the efficacy of antihypertensive treatment (64.3%), evaluated the blood pressure variation (58.6%), diagnosed resistant hypertension (55.1%) and white-coat hypertension (54.7%), and led to an improvement in drug compliance (55.1%). Only 31.8% of the physicians realized that HBPM can be used to evaluate patients' CVD risk.

Around 91% of the respondents recommended HBPM to their patients with hypertension. Among those doctors recommending HBPM, 50.3% recommended it to all patients and 48.0% recommended to patients on drug treatment. The main reasons for the doctors who did not recommend HBPM to their patients were the high cost of the devices (81.5%), concern about the reliability and accuracy of HBPM devices (75.9%), lack of reimbursement for HBPM (57.4%), and lack of understanding (55.6%) and skepticism (55.6%) about HBPM.

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Regarding the devices and the instructions given to the patients, the answers could be summarized as followed. A huge majority of the respondents (97%) recommended the use of an automatic electrical device, while none recommended a mercury sphygmomanometer to their patients. Upper arm cuff devices and wrist devices were introduced in 95% and 1.6% of the patients, respectively. The recommendation to measure blood pressure three days per week was delivered to 31% of the patients, or to measure blood pressure every day of the week to 31% of the patients. In each measurement session, 24% of the doctors suggested to their patients to record the average of all the measurements, while 35% suggested to record all the individual blood pressure levels obtained. However, 45% of the physicians evaluate both the average and the individual value of the blood pressure in their management. Almost 90% of the respondents instructed their patients to measure blood pressure in the sitting position while 2% instructed them to do so in the recumbent position. Around 80% of the doctors had taught their patients to take at least five minutes rest before the measurement. For blood pressure measurement in the morning, around half the doctors advised their patients to do it before breakfast and before taking antihypertensive agents. Interestingly, 24% suggested their patients should perform the measurement after ingesting antihypertensive drugs. There was more variety in the measurement in the evening. The recommendations were to do it before dinner, after dinner, before bedtime, or no specific instruction was given in 14%, 12%, 47%, and 19%, respectively. In addition, 70% of the physicians thought that both morning and evening blood pressure were equally important in hypertension management.

The reference values of hypertension accepted by the respondents were for home blood pressure, 130/80 mmHg (18.2%), 135/85 mmHg (27.9%), 140/90 mmHg (24.5%), and for office blood pressure, 130/80 mmHg (14.2%), 135/85 mmHg (2.8%), 140/90 mmHg (61.7%).

The respondents reported that 30.9% of their patients measured their own BP and 28.3% of the patients had their own devices.

Overall, 53% and 25.1% of respondents thought that the significance of HBPM was only moderately or poorly recognized by their patients, respectively. The main possible reasons for the lack of awareness of HBPM were the high cost of the devices (65.9%), lack of understanding of HBPM (65.5%), or as no recommendation was given by the physician

(62.3%). Almost 60% of the doctors also moderately or poorly appreciated the significance of HBPM. The leading causes of this low appreciation were lack of knowledge on HBPM (54%), the high cost of the devices (52%), and concern about the reliability of the devices (47%). These obstacles could be eliminated by a national policy.

In summary, most Thai physicians who took part in the Asia HBPM Survey, comprising mostly internists, recommended the use of HBPM to their patients and recognized the benefits of HBPM. Most Thai physicians use the information from HBPM in their clinical management. Only around one-third of the patients had their own devices and measured their BP regularly. The recommendations given to the patients by the physicians and the reference values perceived by the physicians to indicate hypertension varied. The cost of the devices was the major barrier for those physicians who did not yet recommend HBPM to their patients. However, the physicians' lack of knowledge of HBPM and concern about the reliability of the devices were also identified as etiologies for not using HBPM in their clinical practice. Those etiologies also accounted for the poor appreciation of the significance of HBPM in hypertension management, even though 91% of the physicians in the present survey stated they would recommend HBPM to their patients. Therefore, improvement in physicians' understanding of the HBPM concept in hypertension management, clarification of the reliability of the blood pressure measurement devices, and financial support for purchasing the devices would support the better use of HBPM in Thailand, which would further lead to more appropriate management and greater cardiovascular benefits being observed in the treatment of hypertensive patients in Thailand.

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