

# Early diagnosis saves lives: focus on patients with hypertension

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**It is estimated that one out of three adults has hypertension and that more than 50% of them are unaware of this condition. Blood pressure screening can facilitate early diagnosis and reduce the risk of further complications associated with hypertension. However, disagreement between credible guidelines on major topics like diagnosis of hypertension and the threshold blood pressure values for treatment initiations caused confusion and inaction among physicians.**

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Consider a 55-year-old woman who presents to her primary care physician with a chief complaint of itching on her hands. Let us say she has hand eczema. What is the chance of this lady to have accompanying raised blood pressure (BP)? The answer is 50–60%, according to the prevalence of hypertension data in Turkey.<sup>1</sup> Assuming that she has raised BP, what are the odds that she is unaware of this fact? The answer is 60%, on the basis of awareness data.<sup>1</sup> Finally, what is the possibility that a primary care physician measures the BP of a lady who presents to clinic for itchy hands? The answer is <5% according to the results of a recent poll, answered by Turkish primary care physicians. They declare that they do not measure BP in patients having complaints not attributable to hypertension and/or cardiovascular diseases.

It is estimated that one out of three adults in Turkey has raised BP and that more than 50% of them are unaware of their condition,<sup>1</sup> which causes around half of all deaths from stroke and heart disease globally.<sup>2</sup> It is reasonable, therefore, to assume that regular BP screening can facilitate early diagnosis and reduce the risk of further complications associated with hypertension. On the other hand, screening may have potential harms as well (e.g., false positives, false negatives, anxiety, psychological impacts, and economic costs).<sup>3</sup> Canadian Task Force on Preventive Health Care<sup>4</sup> concluded that screening for hypertension has more benefits than harms. This conclusion is based on direct evidence from a randomized controlled trial that demonstrated that a community-based screening program that included a comprehensive cardiovascular risk assessment and education session reduced cardiovascular mortality compared with usual practice.<sup>5</sup> Accordingly, they recommend BP measurement at all appropriate primary care visits (Appropriate visits may include periodic health exams, medication renewal visits, and other visits where the primary care practitioner deems it an appropriate opportunity to monitor BP.) To support the adoption of their guidelines into clinical practice and to facilitate quality improvement, the Canadian Task Force identified a small set of standardized key quality indicators. These quality indicators were designed and intended for individual practitioners to monitor their compliance and performance for hypertension screening (Table 1). It is clear that such efforts regarding the education and motivation of primary care physicians for screening of BP are very valuable to improve the awareness of hypertension.

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**Table 1 | Suggested performance measures for implementation of recommendations<sup>4</sup>**

Performance indicator	Inclusion
1. The proportion of patients aged 18 years and older in a primary care practice that have at least one documented blood pressure measurement in the past 24 months	Include: <ul style="list-style-type: none"> <li>● Age <math>\geq</math> 18 years old</li> <li>● Patients with normal BP and those with previous history of elevated blood pressure</li> </ul> Exclude: <ul style="list-style-type: none"> <li>● Patients with previously diagnosed hypertension</li> </ul>
2. The proportion of patients aged 18 years and older with an elevated blood pressure on screening who have documentation of further assessment to determine whether the patient meets the diagnostic criteria for hypertension as defined in the most current CHEP recommendations for assessment and diagnosis of hypertension	Include: <p>All patients with a documented elevated blood pressure who have not been formally diagnosed with hypertension</p> Exclude: <ul style="list-style-type: none"> <li>● Patients with normal blood pressure</li> <li>● Patients with previously diagnosed hypertension</li> </ul>
3. The proportion of the population with a new diagnosis of hypertension in the past 24 months	Include: <ul style="list-style-type: none"> <li>● Age <math>\geq</math> 18 years old</li> <li>● Patients with normal BP and those with previous history of elevated blood pressure</li> </ul> Exclude: <ul style="list-style-type: none"> <li>● Patients with diagnosis of hypertension made outside the designated 24 months time frame</li> </ul>

Abbreviations: BP, blood pressure; CHEP, Canadian Hypertension Education Program.

Countries that do not have national screening policies may benefit from such guidelines to construct their own models.

Although BP screening is *sine qua non* for the early diagnosis of hypertension, we should keep in mind that diagnosis process is much more complex than it looks. Let us be optimistic for a moment and assume that almost all adults in the world have been screened for their BP and substantial numbers of them were found to have BP values of  $\geq$  140/90 mm Hg. Are these people hypertensive? Indeed, confirmation of the initial BP by subsequent measurement(s) is needed before a patient can be diagnosed as hypertensive. According to the seventh report of the Joint National Committee (JNC-7, 2003) and the European Hypertension Guidelines (developed by the European Society of Cardiology in collaboration with the European Society of Hypertension-ESC/ESH, 2007), BP classification should be based on the average of at least two properly measured, seated BP readings on each of at least two office visits. However, according to the Canadian Hypertension Education Program (CHEP, 2012), systolic BP averages  $\geq$  140 mm Hg or the diastolic BP averages  $\geq$  90 mm Hg averaged across five visits are needed to label a patient as hypertensive. In countries like Turkey, it is not realistic to expect from an asymptomatic person to make five visits to clarify whether he/she is hypertensive or not. Presumably, he/she would give up after the second or the third visit, if not after the first. Recently, the British guidelines developed by the National Institute for Health and Clinical Excellence (NICE, 2011) came up with the recommendation that hypertension should not be diagnosed by office measurements. When clinic BP is measured to be  $\geq$  140/90 mm Hg, NICE asks physicians to perform ambulatory BP monitoring (ABPM) to confirm the diagnosis of hypertension. If a person is unable to tolerate ABPM, home BP monitoring (HBPM) of at least 4 days is recommended as a suitable alternative to confirm the diagnosis of hypertension.

However, NICE does not have any recommendations about how to diagnose hypertension in places where widespread use of ABPM and HBPM is not possible. Ironically, NICE recommendations for the use of antihypertensive drugs are mostly based on clinical trials where hypertension had been diagnosed by office measurements.

Incoherency between different hypertension guidelines is not merely limited to diagnosis but treatment as well. Consider a 55-year-old asymptomatic man at low or moderate cardiovascular risk. Let us say his (confirmed) BP is 155/95 mm Hg. For this patient, all hypertension guidelines unanimously recommend healthy lifestyle modification (keeping body weight within acceptable limits, eating a well-balanced diet, reducing the amount of sodium in the diet, exercising regularly, not smoking, and limiting the daily consumption of alcohol). This recommendation is based on clinical trials showing that the blood pressure-lowering effects of lifestyle modification can be equivalent to drug monotherapy.<sup>6</sup> On the other hand, it is well known that adherence to lifestyle changes is very poor.<sup>7</sup> What then should be the next step if blood pressure remains high after giving a chance for lifestyle modification? JNC-7 and ESC/ESH guidelines recommend starting drug treatment. In contrast, NICE and CHEP do not recommend antihypertensive medication for such a patient even after life style modification fails. In these guidelines, antihypertensive treatment for grade 1 hypertension (systolic BP: 140–159 mm Hg and/or diastolic BP: 90–99 mm Hg) is indicated only if the patient is at high cardiovascular risk and/or has evidence of target organ damage. They argue that there is no hard end point data suggesting that drug treatment improves prognosis in grade 1 hypertension, unless the patient is at high risk. Interestingly, they do not hesitate to recommend adding second, third, or even fourth drug until reaching the goal of  $<$  140/90 mm Hg, when the patient is already taking one or more antihypertensive drugs.

Can we say ‘early diagnosis save lives’ even though there is no consensus regarding how to diagnose hypertension and threshold BP values for treatment initiation is still controversial? If office BP measurement, for instance, is not valid for accurate diagnosis, then there must be millions of normotensive people all around the world who have been incorrectly labeled as hypertensive. Likewise, if starting antihypertensive drug to a patient with grade 1 hypertension is useless, then there must be millions of people taking unnecessary medication.

Guidelines like JNC, ESC/ESH, CHEP, and NICE are recognized by many physicians from different countries who do not have their own national guidelines. It should be noted that these physicians feel confused, disappointed, and unmotivated because of the disagreements between credible guidelines on major topics affecting daily practice. As one of these physicians, I wish developers of these guidelines would cooperate and make a consensus paper regarding these issues.

#### DISCLOSURE

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