Blood pressure goals should be defined individually

What are the current blood pressure targets?

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Recommendations for blood pressure (BP) targets of hypertensive subjects undergoing antihypertensive treatment have become confusing in recent years according to official guidelines. Things were much simpler in the 1970s, when the Joint National Committee (JNC) on Detection, Evaluation and Treatment of High Blood Pressure released its first report JNC-1 and recommended that only individuals with a diastolic blood pressure (DBP) ≥120 mm Hg should receive prompt evaluation and treatment [1]. Ten years ago, the situation was still simple, with most relevant societies and their guidelines recommending BP goals of <140/90 mm Hg for the general population and <130/80 mm Hg for patients with diabetes and/or chronic kidney disease. Things have become more complicated

Abbreviations
ASH = American Society of Hypertension
DBP = diastolic blood pressure
ESC = European Society of Cardiology
ESH = European Society of Hypertension
ISH = International Society of Hypertension
JNC = Joint National Committee
NICE = National Institute for Health and Care Excellence
SBP = systolic blood pressure.

Table 1: Blood pressure targets according to current guidelines.

Guideline, year, region of origin	Recommendations	Reference
ESH/ESC Guideline, 2013, Europe	A SBP goal <140 mm Hg is recommended in patients at low-moderate cardiovascular risk and in patients with diabetes, and should be considered in patients with previous stroke, coronary artery disease or chronic kidney disease. In elderly hypertensive patients less than 80 years old and with SBP ≥160 mm Hg there is solid evidence to recommend reducing SBP to between 150 and 140 mm Hg. In individuals older than 80 years and with initial SBP ≥160 mm Hg, a reduction in SBP to between 150 and 140 mm Hg is recommended provided the patient is in good physical and mental conditions. A DBP target of <90 mm Hg is always recommended, except in patients with diabetes, in whom values <85 mm Hg are recommended.	[2]
JNC 8 Guideline, 2014, United States	In the general population <60 years, initiate pharmacological treatment at SBP ≥140 mm Hg and treat to a goal SBP <140 mm Hg, and at DBP ≥90 mm Hg and treat to a goal DBP <90 mm Hg. In the general population aged ≥60 years, initiate pharmacological treatment at SBP ≥150 mm Hg or DBP ≥90 mm Hg and treat to a goal SBP <150 mm Hg and goal DBP <90 mm Hg. If pharmacological treatment for high BP results in lower achieved SBP (e.g., <140 mm Hg) and treatment is well tolerated and without adverse effects on health or quality of life, treatment does not need to be adjusted. In the population aged ≥18 years with chronic kidney disease or diabetes, initiate pharmacological treatment at SBP ≥140 mm Hg or DBP ≥90 mm Hg and treat to goal SBP <140 mm Hg and goal DBP <90 mm Hg.	[3]
NICE Guideline, 2011, Great Britain	Aim for target clinic blood pressure: <140/90 mm Hg in people aged under 80 years and <150/90 mm Hg in people aged 80 years and over. Aim when using home blood pressure measurements to monitor the response to treatment: <135/85 mm Hg for people aged under 80 years and <145/85 mm Hg in people aged over 80 years and over.	[4]
ASH/ISH Guideline, 2014, United States/ International	For hypertension, the treatment goal for SBP usually is <140 mm Hg and for DBP <90 mm Hg. In the past, guidelines have recommended treatment values of <130/80 mm Hg for patients with diabetes, chronic kidney disease, and coronary artery disease. However, evidence to support this lower target in patients with these conditions is lacking, so the goal of <140/90 mm Hg should generally be used, although some experts still recommend <130/80 mm Hg if albuminuria is present in patients with chronic kidney disease. In people aged 80 or more, achieving a SBP of <150 mm Hg is associated with strong cardiovascular and stroke protection, and so a target of <150/90 mm Hg is now recommended for patients in this age group (unless these patients have chronic kidney disease or diabetes, when <140/90 mm Hg can be considered).	[5]

during the last five years with the advent of updated guidelines by most national and international societies [2–6]. Table 1 lists a summary of current guideline recommendations for BP targets.

We perceive a trend in recent guidelines toward abandonment of the lower BP targets of <130/80 mm Hg for patients with diabetes or chronic kidney disease in favour of <140/90 mm Hg because of lacking evidence. However, some experts still recommend BP <130/80 mm Hg in patients with chronic kidney disease if albuminuria is present.

We also perceive increasing uncertainty about appropriate BP targets in older hypertensive patients. In most recent guidelines, the target systolic BP in old hypertensive patients now increased to <150 mm Hg. However, criteria for the "old" patient seem vaguely defined in all guidelines. All guidelines use the calendric age as a criterion, but there is no consensus across guidelines as to what the cut-off age should be. Furthermore, it is well known that calendric age is inappropriate to guide treatment decisions in older patients as biological diversity increases with age. In our opinion, a differentiated approach in older hypertensive patients based on biological rather than on calendric age would be more suitable. Of course, this requires a more thorough assessment of the older hypertensive patient. For example, cognitive function should be evaluated before and after start of antihypertensive treatment and orthostatic hypotension should be ruled out.

In conclusion, it is important to note that BP goals should be defined individually, although guidelines define strict cut-off levels. As long as a lower BP is presumably beneficial, BP should be lowered below BP targets recommended by the guidelines. However, if risk increases with lower BP (e.g., cognitive impairment, renal failure, increased risk of falls), BP levels above the recommended BP targets may be acceptable. It is also important to realise that noncompliance with the prescribed antihypertensive drug regimen is often triggered by hypotensive symptoms. BP levels above the recommended BP targets may therefore be advisable in some patients to ensure adherence to the drug regimen.

Currently, we measure BP peripherally. New BP devices have been recently introduced that measure central BP, pulse wave velocity (PWV), and arterial stiffness in addition to peripheral BP. Potentially, these new measures might help to estimate better the risks with antihypertensive drugs and to individualise antihypertensive treatment. However, these new devices must prove their usefulness in daily care before they can be recommended for clinical routine. Potentially, future guideline recommendations might be based not solely on peripheral BP levels, but also rely on these new measures.

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