

Call to action: British and Irish hypertension society position statement on blood pressure treatment thresholds and targets.

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this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. In this position statement the British and Irish Hypertension Society (BIHS) present a review of the current evidence for blood pressure (BP) treatment thresholds and targets. The BIHS recommend initiating pharmacological antihypertensive therapy, irrespective of cardiovascular disease risk, following a confirmed diagnosis of hypertension (sustained out-of-office BP $\geq 135/85$ mmHg despite diet and lifestyle advice). The BIHS recommend an on-treatment BP target $< 130/80$ mmHg or as low as reasonably achievable without causing unacceptable side-effects, within 6-months of initiating treatment, for all adults. Possible subgroups to whom this may not apply are those who are frail and/or have limited life expectancy where higher targets may be appropriate based on clinical judgement and the individuals' tolerance to treatment. The BIHS believe that this simple 2-step approach will facilitate practitioners deliver evidence-based best practice, discourage therapeutic inertia around BP lowering and improve health outcomes for all adults living with high BP.

High blood pressure (BP) is the leading modifiable risk factor for premature morbidity and mortality from cardiovascular disease (CVD) worldwide, and significantly contributes to chronic kidney disease, heart failure and dementia [1 , 2].

Epidemiological studies demonstrate a continuous positive association between BP and major adverse cardiovascular events (MACE) [3 – 5]. Observational data are supported by randomized clinical trials, demonstrating the benefits of antihypertensive drug treatment in reducing MACE [6 , 7]. The Blood Pressure Lowering Treatment Trialists' Collaboration reported that the reduction in MACE was proportional to the magnitude of the fall in SBP down to at least 120 mmHg in those aged < 75 years, with and without prior cardiovascular disease [6 , 7]. Overall, MACE was reduced by 10% per 5 mmHg reduction in Systolic BP (SBP), with a greater effect in younger (age < 55 years: HR 0.82 [95% CI: 0.76–0.88]) compared with older individuals (age 65–74 years: HR 0.91 [95%CI: 0.87–0.96]) [6 , 7].

Over the last 15 years, several large outcome trials have been conducted to specifically compare aiming for an intensive BP treatment target (e.g. SBP < 120 mmHg) with a less intensive target (e.g. SBP < 140 mmHg) among men and women, with and without pre-existing CVD and diabetes [8 – 14]. These trials consistently demonstrate that aiming for an SBP treatment target < 120 mmHg resulted in a greater reduction in MACE compared with an SBP target < 140 mmHg, with no increase in all-cause mortality [Table 1] [8 – 14]. There was no overall significant difference in reported serious adverse events between treatment groups [Table 1] [8 – 14]. Table 1 Summary of trials comparing intensive vs standard systolic blood pressure targets.

Primary outcome was recurrence of stroke.

Primary outcome was recurrence of stroke. Trial terminated early.

23 (0.40% per patient-year) vs 15 (0.26% per patient-year)

BP blood pressure, CVD cardiovascular disease, HR hazard ratio, SBP systolic blood pressure, T2DM type 2 diabetes mellitus.

Results were consistent across these trials whether BP was measured by attended or unattended office readings or home BP measurements (HBPM) [8 – 14]. This aligns with a UK study by McManus and colleagues which demonstrated that at lower levels of BP the difference between office and HBPM was small [15]. Based on this evidence, the British and Irish Hypertension Society (BIHS) recommend that BP targets remain the same whether BP is measured in the office, by 7-day average HBPM [Fig. 1] or day-time average ambulatory BP measurement (ABPM). Fig. 1

BIHS Guide to Home Blood Pressure Measurement.

The current National Institute of Clinical Excellence (NICE) Adult Hypertension Guideline NG136, recommended antihypertensive treatment to be initiated based on a combination of BP-level and 10-year CVD risk [16]. This approach targets treatment to those at highest short-term absolute risk. In light of the continuing excess of premature morbidity and mortality from BP-related diseases [1 , 2], the BIHS questions the ethics of waiting until sufficient irreversible damage has been done to meet an arbitrary risk threshold, before cheap, safe and effective antihypertensive treatment (both lifestyle and pharmacological) is initiated.

Current NICE BP treatment targets for people aged under 80 years are <140/90 mmHg, with <130/80 mmHg only recommended in specific clinical situations (e.g. some patients with diabetes and chronic kidney disease) [16]. The BIHS believes there is now sufficient new evidence to recommend one consistent BP target of <130/80 mmHg or as low as reasonably achievable (ALARA) without causing unacceptable side-effects within 6-months of initiating treatment, among all adults with a confirmed diagnosis of hypertension. Possible subgroups to whom this may not apply are those who are frail and/or have limited life expectancy where higher targets may be appropriate based on clinical judgement and the individuals' tolerance to treatment.

Thus, based on current evidence, the BIHS calls for NICE to update its guidance in NG136 “Hypertension in adults: diagnosis and management” [16] in line with current recommendations from Europe and the United States of America [17 – 20] as follows:

Following a confirmed diagnosis of hypertension (sustained BP $\geq$ 135/85 mmHg based on 7-day average HBPM or day-time average ABPM despite diet and lifestyle advice) starting BP-lowering treatment with pharmacological therapy on top of diet and lifestyle interventions is recommended irrespective of CVD risk. We recommend the BIHS algorithm in “Adult Hypertension Referral Pathway and Therapeutic Management: British and Irish Hypertension Society Position Statement” for a titration protocol and exemplar therapeutic options within the NICE treatment pathway [21].

On treatment BP target < 130/80 mmHg (measured by 7-day average HBPM or day-time average ABPM or office BP*) or ALARA without causing unacceptable side-effects, and within 6-months of initiating treatment, for all adults. Possible subgroups to whom this may not apply are those who are frail and/or have limited life expectancy where higher targets may be appropriate based on clinical judgement and the individuals' tolerance to treatment.

* Among people with diagnosed white-coat hypertension out-of-office measurements should always be used to evaluate treatment.

The BIHS believe that this simple 2-step approach will facilitate practitioners deliver evidence-based best practice, discourage therapeutic inertia around BP lowering and improve health outcomes for all adults living with high BP.

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