Hypertension in adults: diagnosis and management (update)

Consultation on draft scope
Stakeholder comments table

16/02/2021 – 16/03/2021

Stakeholder	Page no.	Line no.	Comments	Developer's response
British and Irish Hypertension Society	001	019	Consider prioritising different antihypertensives after ischaemic stroke as there is evidence some are possibly harmful (CCBs) and others ineffectual (ARBs/ACEIs), similarly newer agents (qv) need positioning in type 2 diabetes mellitus (T2DM) and there is reason to vary treatment order for people with Heart Failure with preserved Ejection Fraction (HFpEF).	Thank you for your comment. The scope has been amended to clarify that for choosing antihypertensive drug treatment the existing evidence reviews will be examined for inclusion of people with cardiovascular disease to enable the committee to develop recommendations for this population.
British and Irish Hypertension Society	001	021	Frailty is increasingly featuring in trials, although the definition and hence its measurement are not fully-agreed. Suggest adding amending 'multimorbidity' to 'multimorbidity and frailty'.	Thank you for your comment. We are aware that there are varying definitions of frailty. This will be considered when reviewing evidence and making recommendations alongside considerations for people with multimorbidity.
British and Irish Hypertension Society	003	004	Add in another line: People with orthostatic hypotension. These are particularly hard to treat properly. Recent SIGN guidelines have dealt with the issue. Add in a line or qualify the line for those people 80 years and older to specifically evaluate evidence with moderate and with severe frailty. Finally, add a line to evaluate evidence for those with (HFpEF). Evidence is accruing for earlier use of mineralocorticoid receptor antagonists.	Thank you for your comment. This list details groups which may require different recommendations or considerations when undertaking the majority of evidence reviews. Specific subgroups can be agreed when setting the review protocols for the specific questions.
British and Irish Hypertension Society	003	010	Consider type 1 diabetes mellitus (T1DM) also, as it is confusing to have varying target BPs for T1 and T2DM. The two conditions are inadequately separated in trial evidence.	Thank you for your comment. We note that these are covered in separate NICE guidelines, however it was agreed that type 1 and type 2 diabetes require separate considerations and type 1 diabetes is not within the remit of this guideline scope.
British and Irish Hypertension Society	004		**Table: 1.4** Include T1DM, not just T2DM. Choosing antihypertensive drugs treatments for people with or without DM and post-stroke. How would Sodium-Glucose Transport Protein 2 inhibitors (SGLT2-inhibitors) be positioned in people with T2DM? New evidence is to be published in the Summer.	Thank you for your comment. Blood pressure management for people with type 1 diabetes is included within the NICE guideline for Type 1 diabetes in adults NG17. Thank you for the information about the new evidence due to be published in the summer regarding type 2 diabetes. This will be considered during development if relevant to the review question being updated.

British and Irish Hypertension Society	004		**Table 1.4** Change the statement to 'Choosing antihypertensive drugs for non-diabetic patients with no end-organ damage'. Add in another new area: New evidence to consider treatment choices for people with T2DM and position of SGLT-2 inhibitors, for people with HFpEF and after ischaemic stroke.	Thank you for your comment. This table details the areas included in NG136 and how they will be considered in the update, therefore this text cannot be amended.
British and Irish Hypertension Society	006	026	After this line, insert an extra outcome measure: modified Rankin Scale (mRS)-post stoke also a further line of falls and standing systolic blood pressure (in frail people and those with orthostatic hypotension).	Thank you for your comment. The outcomes listed in the scope are those that are expected to be relevant to the majority of review questions. The committee will define outcomes relevant to the specific review questions when agreeing the protocols.
British Cardiovascular Societies (BCS)	General	General	BCS welcome this focussed update of the adult hypertension guidelines and would feel that it is valuable to address the specific question asked. "What are the optimum blood pressure targets for adults with established cardiovascular disease?". We have no other specific questions and look forward to being involved as a stakeholder in the later stages of the process.	Thank you for your comment.
British Geriatrics Society	001	012 - 016	The focus of the update is noted to relate to those with established cardiovascular (CV) disease. It is important to note however that older adults often have covert established cardiovascular disease (CVD). By the age of 75, CV risk is overwhelmingly driven by age alone.	Thank you for your comment. This information will be taken into consideration when reviewing the evidence and drafting recommendations. Age is included as one of the subgroups that will be given particular consideration in terms of equalities in the scope. Cardiovascular risk assessment will be a consideration as part of the update of the NICE guideline for cardiovascular disease (CG181).

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

				Acknowledgement of this has been included within the equalities impact assessment that accompanies the scope.
British Geriatrics Society	001	021	Consideration should be given to the presence of frailty. Multimorbidity is not the same as frailty	Thank you for your comment. The NICE guideline for Multimorbidity (NG56) includes recommendations for how to assess frailty in people with multimorbidity. When developing recommendations this will also be a consideration within people with multimorbidity.
British Geriatrics Society	002	018	Again consideration should be given to including the concept of frailty	Thank you for your comment. Considerations for frailty will be made when considering if separate recommendations are required for those aged over 80.
British Geriatrics Society	003	003	**(1.3)** The evidence of the role of CV risk scoring in those aged 80 or more older adults could be considered given the prevalence of covert disease	Thank you for your comment. The NICE guideline for Cardiovascular disease: risk assessment and reduction, including lipid modification (NICE CG181) is also planned to be updated. The point you raise will be noted for consideration when the scoping for that topic begins.
British Geriatrics Society	003	021	See comments above re covert established CVD	Thank you for your comment. Please see above response.
British Geriatrics Society	004	003	**(1.1)** A review of the measurement of blood pressure in the presence of atrial fibrillation which can affect up to 10% of those aged 80 or more Also consideration should be given to optimal blood pressure measurement in this age group given the increase in blood pressure variability and increase prevalence of white coat hypertension	Thank you for your comment. We are not aware of new evidence that would change the recommendations on measurement of blood pressure, and therefore this section is not planned to be updated at this time. The current recommendations include considerations for measurement if there is pulse irregularity (for example, due to atrial fibrillation) and there are considerations for monitoring blood pressure in people identified as having a white-coat effect.
British Geriatrics Society	006	021 - 029	Should dementia be considered with regard to outcomes	Thank you for your comment. The outcomes listed in the scope are those that are expected to be relevant to the majority of review questions. The committee will define

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

				outcomes relevant to the specific review questions when agreeing the protocols.
Chelsea and Westminster Hospital NHS Foundation Trust	General	General	I had a thorough look thorough What I would like to see included in the guidelines is a sample of a monitoring tool where patients are given their blood pressure targets and a table to record their home monitored blood pressure readings. I have tried this in the past and patients have found it empowering and very useful.	Thank you for your comment. Monitoring is not an area that has been proposed for update in this iteration of the guideline, therefore consideration of tools to support monitoring will not be included at this time.
CVRx (submitted via MedTech Consulting Ltd)	General	General	We commend NICE for having the foresight to already be preparing to update the 2019 NICE Guideline 136, and think that the scope is well drafted, however we feel that it should be more comprehensive with the reach of its advice. It is encouraging to see that resistant hypertension is well defined, which is a significant improvement on hypertension guidelines of the past, and also that the guidelines suggest such patients be referred to a hypertension specialist. However, we feel that the NICE guideline for "Hypertension in Adults: Diagnosis and Management" should also include treatment options for the **resistant hypertension** patient who has been referred to the hypertension specialist. Currently there is no advice given for the management of these patients who are diagnosed with having resistant hypertension once they are referred to a specialist. When a patient is diagnosed as having resistant hypertension, according to the existing guidelines, at which point pharmacology is proven to be insufficiently effective for that patient, no guidance is offered, after the referral to the specialist, in terms of potential next treatment options for	Thank you for your comment. The guideline does include some recommendations for management of resistant hypertension. The use of device based treatment for specialist management is considered within NICE interventional procedure guidance: IPG 418 Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension, and IPG 533 Implanting a baroreceptor stimulation device for resistant hypertension. New evidence on this topic would need to be considered by this existing guidance. These have been added to the list of related NICE guidance in the scope.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			blood pressure reduction and associated cardiovascular risk reduction. The scope states the intended audience for the guideline as being healthcare professionals, commissioners or healthcare providers, and adult patients their families and carers. It is vital for all of the above to be appropriately informed as to the blood pressure reduction potential that device-based management offers this particular patient group. There is a rapidly increasing wealth of data regarding device-based therapies for resistant hypertension, with a raft of publications existing and imminent. Over the last ten years device-based therapy adoption has continued to increase globally, with in excess of 10,000 patients benefiting from such procedures. It would be remiss for a hypertension guideline to be unable to offer appropriately informed judgements on patient treatment options, by failing to include an evidence review within its scope. To be clear, we are not suggesting a recommendation for device-based therapies to be made available, but rather that the scope needs to include an evidence review in order to subsequently take such a decision from an appropriately informed position. In conclusion therefore, an evidence review of available device-based therapies is critical to be included within scope, so as to properly inform healthcare professionals in terms of whether they should use them, commissioners and healthcare providers in terms of whether they should pay for them, and patients their families and carers in terms of whether they might benefit from them.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

Fair Treatment for the Women of Wales	002	012	With regards to Equality Issues, we would ask that consideration be given to the particular issues experienced by women, most especially post-menopause and not least with regards to missed opportunities to prevent development or escalation of cardio-vascular disease. We are particularly concerned that diagnostic delays in females persist because there is an assumption on the part of the public, and in some healthcare settings, that women are at lesser risk of developing cardiovascular disease or experiencing cardiovascular events. As a consequence, hypertension and associated cardiovascular disease may be more established and, as evidenced by the British Heart Foundation's 2019 publication, 'Bias and Biology', outcomes poorer. Additionally, diagnostic tools and symptom / disease management options may not always adequately reflect differences in etiology or needs / choices of women.	Thank you for your comment. Diagnosing hypertension is not an area of the guideline that is prioritised for this update. The equalities impact assessment that accompanies the scope details how equality issues are taken into account, and this will be added there, but it is not expected different recommendations will be required for this group for the area being updated.
Fair Treatment for the Women of Wales	002	026	We would urge the Committee to include women in those groups requiring specific consideration. The Royal College of Obstetricians & Gynaecologists' 'Better for Women' strategy calls for a joined-up approach in women's health, where those who develop pre-eclampsia / eclampsia during pregnancy are informed of (and monitored for) their higher risk of high blood pressure, cardio-vascular disease, and related events in later years. We would argue that this should be made clear to women at various stages in their lives and healthcare journeys so as to ensure informed decision-making, for example if considering medical and / or	Thank you for your comment. The NICE guideline for Cardiovascular disease: risk assessment and reduction, including lipid modification (CG181) is also planned to be updated. The points you raise will be noted for consideration when the scoping for that topic begins.

			surgical menopause, or during and after natural menopause. Loss of ovarian function and diminished oestrogen have pronounced implications for women's cardiovascular health. As an unavoidable life-event for some 51% of the population, menopause should be seen as something for which women and their healthcare professionals are prepared both in terms of prevention and in ensuring optimal use of hormone-replacement therapy (HRT). Whilst both pregnancy and menopause are covered in separate NICE guidelines, we would urge the Committee to consider making the needs of this particular population explicit in the Diagnosis and Management of Hypertension guideline to ensure that healthcare professionals, patients, and service-providers are sufficiently aware of the cross-over, not least to ensure a robust multi-disciplinary approach to care of this population.	
Fair Treatment for the Women of Wales	004		**Table 1.4** We would ask that be some consideration of the role and usefulness of HRT in this section.	Thank you for your comment. This table details the areas included in NG136 and how they will be considered in the update, therefore this text cannot be amended.
Hyperparathyroid UK Action4Change	002	012	We believe this insertion should be added between lines 12 and 19; 'adults diagnosed with, or suspected to have any classification of primary hyperparathyroidism (PHPT)' as hypertension and cardiovascular disease are both associated with PHPT. For the benefit of the patient, PHPT should be ruled out or confirmed as a cause. Please read and consider the following studies;	Thank you for your comment. The NICE guideline for Hyperparathyroidism NG132 includes recommendations for screening. The hypertension guideline also includes a recommendation to consider specialist investigations in people signs and symptoms suggesting a secondary cause of hypertension. This recommendation will be retained in this update.

			https://academic.oup.com/eurheartj/article/25/20/1776/497057 https://pubmed.ncbi.nlm.nih.gov/32206606/ https://www.hyperparathyroidmd.com/hyperparathyroidism-and-cardiovascular-disease/	
Hyperparathyroid UK Action4Change	003	001	We feel the following insertion should be added; 'people with hypertension and primary hyperparathyroidism' as they will not have been included in the 2019 guideline. Hypertension is common with Primary Hyperparathyroidism. It is often relieved after surgery to correct Primary Hyperparathyroidism (a parathyroidectomy), so consequently we feel it is an appropriate inclusion.	Thank you for your comment. The NICE guideline for Hyperparathyroidism (NG132) includes recommendations for screening. The hypertension guideline also includes a recommendation to consider specialist investigations in people signs and symptoms suggesting a secondary cause of hypertension. This recommendation will be retained in this update.
Hyperparathyroid UK Action4Change	003	007	If you do not agree to our comment number two, we feel it should at least be listed before 'tumours' as 'parathyroid adenomas' to highlight an association between primary hyperparathyroidism (benign parathyroid tumours) hypertension and cardiovascular disease.	Thank you for your comment. This list is not intended to include all of the possible secondary causes of hypertension, but lists some of the most common secondary causes only.
Hyperparathyroid UK Action4Change	003	024	We believe caution should be noted against prescribing thiazide diuretics such as bendroflumethiazide for hypertension, until hypercalcemia or primary hyperparathyroidism has been ruled out as a cause for hypertension. We have seen cases where this has not been noted and patients have become very unwell requiring A&E admission for cardiac episodes and excessive hypercalcemia. https://academic.oup.com/jcem/article/101/3/1166/2804903	Thank you for your comment. The guideline includes a recommendation to consider specialist evaluation of secondary causes of hypertension. Further recommendations of what treatment considerations need to be made for these groups is not within the remit of this guideline as this should be guided by specialist review.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

Hypertension in adults: diagnosis and management (update)

Consultation on draft scope
Stakeholder comments table

16/02/2021 – 16/03/2021

Hyperparathyroid UK Action4Change	003	024	Having been prescribed bendroflumethiazide for over four years for hypertension, with undetected hypercalcemia, I developed sugar intolerance, and increased levels of calcium in my blood which remained undetected despite consultations at A&E and with a cardiologist. I was extremely unwell during those four years. Please do not ignore the evidence in the links we are providing. We know this is not a primary hyperparathyroidism guideline, but we believe very strongly from patient experience that PHPT must be eliminated as a cause of hypertension, before issuing a thiazide drug which appears to be common practice; https://pubmed.ncbi.nlm.nih.gov/20068444/ https://www.endocrineweb.com/professional/hyperparathyroidism/thiazides-viable-treatment-primary-hyperparathyroidism	Thank you for your comment. As stated above, the guideline includes a recommendation to consider specialist evaluation of secondary causes of hypertension. Further recommendations of what treatment considerations need to be made for these groups is not within the remit of this guideline as this should be guided by specialist review.
Hyperparathyroid UK Action4Change	004	003	1.3 reads; No evidence review: retain recommendations from existing guideline. We are asking you to consider the information provided in comments 1 to 5. Please do not dismiss. We are not raising these issues lightly. We have seen the serious consequences of doctors failing to diagnose PHPT as a cause for hypertension.	Thank you for your comment. As stated in previous responses, the NICE guideline for Hyperparathyroidism (NG132) includes recommendations for screening. The hypertension guideline also includes a recommendation to consider specialist investigations in people signs and symptoms suggesting a secondary cause of hypertension. This recommendation will be retained in this update.
Hyperparathyroid UK Action4Change	004	003	1.4: 'New evidence review to identify blood pressure targets for adults with established cardiovascular disease.' Please review and include the evidence we have supplied in above comments	Thank you for your comment. As detailed above, the management of secondary causes of hypertension is outside the scope for the guideline, but recommendations do include a recommendation to consider specialist

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

				investigations for people with signs and symptoms suggesting a secondary cause.
Hyperparathyroid UK Action4Change	005	001 - 020	Please insert the following NICE guideline published 23/05/19: https://www.nice.org.uk/guidance/NG132 (please note we are currently asking for this guideline to be updated with some urgency)	Thank you for your comment. This list includes only those guidelines most closely related to this guideline, therefore NG132 has not been added.
Hyperparathyroid UK Action4Change	006	008	We hope your committee will take our recommendations into account economically considering that patients with hypertension and cardiovascular complications of Primary hyperparathyroidism, will likely be relieved of both complications once treated surgically for PHPT (parathyroidectomy) greatly reducing the risk of serious cardiac events.	Thank you for your comment. Please see our responses in your comments above.
Hyperparathyroid UK Action4Change	006	021 - 029	3.6;' The main outcomes that may be considered when searching for and assessing the evidence are' We believe 'coexistence of hypercalcemia or primary hyperparathyroidism' should be added to the options here.	Thank you for your comment. The outcomes listed in the scope are those that are expected to be relevant to the majority of review questions. The committee will define outcomes relevant to the specific review questions when agreeing the protocols.
Hyperparathyroid UK Action4Change	007	005	We believe our comments will also apply to • Hypertension in adults (2013) NICE quality standard QS28	Thank you for your comment. Please see our responses to your comments above.
Hyperparathyroid UK Action4Change	007	009	*'When this guideline is published, we will update the existing NICE Pathway on 8 hypertension. NICE Pathways bring together everything NICE has said on a 9 topic in an interactive flowchart'.* We believe our comments should also be applied to the interactive flowchart for hypertension	Thank you for your comment. Please see our responses to your comments above.

Medtronic	General	General	Medtronic would like to thank NICE for the opportunity to comment on the draft scope and note our support in updating this guideline. We agree with why the update is needed, who the guideline is for, and the equality considerations. However, given the developments in the management of hypertension which have resulted in the publication of substantial clinical trial data, we strongly recommend the final scope of this guideline is expanded to review and consider updating the existing recommendations related to section 1.4 of the current guidelines – *treating and monitoring hypertension*. Specifically, we would like to draw your attention to the following literature relating to renal denervation therapy for the treatment of hypertension: **<u>Sham-controlled randomised controlled trials (RCTs)</u>** • Azizi M, Schmieder RE, Mahfoud F, Weber MA, Daemen J, Davies J, Basile J, Kirtane AJ, Wang Y, Lobo MD, Saxena M. Endovascular ultrasound renal denervation to treat hypertension (RADIANCE-HTN SOLO): a multicentre, international, single-blind, randomised, sham-controlled trial. The Lancet. 2018 Jun 9;391(10137):2335-45. • Bhatt DL, Kandzari DE, O'Neill WW, D'Agostino R, Flack JM, Katzen BT, Leon MB, Liu M, Mauri L, Negoita M, Cohen SA. A controlled trial of renal denervation for resistant hypertension. N Engl J Med. 2014 Apr 10;370:1393-401.	Thank you for your comment. The use of device based treatment (specifically renal denervation therapy) for hypertension is considered within NICE interventional procedure guidance: IPG 418 Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension, and IPG 533 Implanting a baroreceptor stimulation device for resistant hypertension. New evidence on this topic would need to be considered by this existing guidance. These have been added to the list of related NICE guidance in the scope.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Böhm M, Kario K, Kandzari DE, Mahfoud F, Weber MA, Schmieder RE, Tsioufis K, Pocock S, Konstantinidis D, Choi JW, East C. Efficacy of catheter-based renal denervation in the absence of antihypertensive medications (SPYRAL HTN-OFF MED Pivotal): a multicentre, randomised, sham-controlled trial. The Lancet. 2020 May 2;395(10234):1444-51. • Desch S, Okon T, Heinemann D, Kulle K, Röhnert K, Sonnabend M, Petzold M, Müller U, Schuler G, Eitel I, Thiele H. Randomized sham-controlled trial of renal sympathetic denervation in mild resistant hypertension. Hypertension. 2015 Jun;65(6):1202-8. • Kandzari DE, Böhm M, Mahfoud F, Townsend RR, Weber MA, Pocock S, Tsioufis K, Tousoulis D, Choi JW, East C, Brar S. Effect of renal denervation on blood pressure in the presence of antihypertensive drugs: 6-month efficacy and safety results from the SPYRAL HTN-ON MED proof-of-concept randomised trial. The Lancet. 2018 Jun 9;391(10137):2346-55. • Peters CD, Mathiassen ON, Vase H, Bech Nørgaard J, Christensen KL, Schroeder AP, Rickers HJ, Opstrup UK, Poulsen PL, Langfeldt S, Andersen G. The effect of renal denervation on arterial stiffness, central blood pressure and heart rate variability in treatment resistant essential hypertension: a substudy of a randomised sham-controlled double-blinded trial (the ReSET trial). Blood pressure. 2017 Nov 2;26(6):366-80. • Weber MA, Kirtane AJ, Weir MR, Radhakrishnan J, Das T, Berk M, Mendelsohn F, Bouchard A, Larrain G, Haase M, Diaz-Cartelle J. The REDUCE HTN:	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			REINFORCE: randomised, sham-controlled trial of bipolar radiofrequency renal denervation for the treatment of hypertension. Cardiovascular Interventions. 2020 Feb 24;13(4):461-70. **<u>Systematic Reviews/Meta-analyses</u>** • Agasthi P, Shipman J, Arsanjani R, Ashukem M, Girardo ME, Yerasi C, Venepally NR, Fortuin FD, Mookadam F. Renal Denervation for Resistant Hypertension in the contemporary era: A Systematic Review and Meta-analysis. Scientific reports. 2019 Apr 17;9(1):1-9. • Cheng X, Zhang D, Luo S, Qin S. Effect of catheter-based renal denervation on uncontrolled hypertension: A systematic review and meta-analysis. InMayo Clinic Proceedings 2019 Sep 1 (Vol. 94, No. 9, pp. 1695-1706). Elsevier. • Coppolino G, Pisano A, Rivoli L, Bolignano D. Renal denervation for resistant hypertension. Cochrane Database of Systematic Reviews. 2017(2). • Dahal K, Khan M, Siddiqui N, Mina G, Katikaneni P, Modi K, Azrin M, Lee J. Renal denervation in the management of hypertension: A meta-analysis of sham-controlled trials. Cardiovascular Revascularization Medicine. 2020 Apr 1;21(4):532-7. • Fadl Elmula FE, Feng YM, Jacobs L, Larstorp AC, Kjeldsen SE, Persu A, Staessen JA, European Network COordinating research on Renal Denervation (ENCOReD). Sham or no sham control: that is the question in trials of renal denervation for resistant	

			hypertension. A systematic meta-analysis. Blood pressure. 2017 Jul 4;26(4):195-203. • Kwok CS, Loke YK, Pradhan S, Keavney B, El-Omar M, Mamas MA. Renal denervation and blood pressure reduction in resistant hypertension: a systematic review and meta-analysis. Open heart. 2014 Aug 1;1(1):e000092. • Liu LY, Lin PL, Liao FC, Lin SI, Chiou WR, Wu YJ, Lee YH. Effect of radiofrequency-based renal denervation: the impact of unplanned medication change from a systematic review and meta-analysis. Acta Cardiologica Sinica. 2019 Mar;35(2):144. • Makai P, IntHout J, Deinum J, Jenniskens K, van der Wilt GJ. A network meta-analysis of clinical management strategies for treatment-resistant hypertension: making optimal use of the evidence. Journal of general internal medicine. 2017 Aug;32(8):921-30. • Pancholy SB, Shantha GP, Patel TM, Sobotka PA, Kandzari DE. Meta-analysis of the effect of renal denervation on blood pressure and pulse pressure in patients with resistant systemic hypertension. The American journal of cardiology. 2014 Sep 15;114(6):856-61. • Pappaccogli M, Covella M, Berra E, Fulcheri C, Di Monaco S, Perlo E, Burrello J, Monticone S, Rossato D, Rabbia F, Veglio F. Effectiveness of renal denervation in resistant hypertension: a meta-analysis of 11 controlled studies. High Blood Pressure & Cardiovascular Prevention. 2018 Jun;25(2):167-76.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Persu A, Gordin D, Jacobs L, Thijs L, Bots ML, Spiering W, Miroslawska A, Spaak J, Rosa J, De Jong MR, Berra E. Blood pressure response to renal denervation is correlated with baseline blood pressure variability: a patient-level meta-analysis. Journal of hypertension. 2018 Feb 1;36(2):221-9. • Sardar P, Bhatt DL, Kirtane AJ, Kennedy KF, Chatterjee S, Giri J, White WB, Aronow HD. Catheter-based renal denervation in patients with hypertension: a meta-analysis of Sham-controlled randomised trials. • Sun D, Li C, Li M, Liu J, Wen S. Renal Denervation vs Pharmacotherapy for Resistant Hypertension: A Meta-Analysis. The Journal of Clinical Hypertension. 2016 Aug;18(8):733-40. • Townsend RR, Walton A, Hettrick DA, Hickey GL, Weil J, Sharp AS, Blankenstijn PJ, Böhm M, Mancia G. Incidence of renal artery damage following percutaneous renal denervation with radio frequency renal artery ablation systems: Review and Meta-Analysis of published reports. EuroIntervention: journal of EuroPCR in collaboration with the Working Group on Interventional Cardiology of the European Society of Cardiology. 2020 Feb 11. • Vogiatzakis N, Tsioufis C, Georgiopoulos G, Thomopoulos C, Dimitriadis K, Kasiakogias A, Konstantinidis D, Kalos T, Mahfoud F, Doumas M, Papademetriou V. Effect of renal sympathetic denervation on short-term blood pressure variability in resistant hypertension: a meta-analysis. Journal of hypertension. 2017 Sep 1;35(9):1750-7.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Yao Y, Zhang D, Qian J, Deng S, Huang Y, Huang J. The effect of renal denervation on resistant hypertension: meta-analysis of randomised controlled clinical trials. Clinical and Experimental Hypertension. 2016 Apr 2;38(3):278-86. • Zhang X, Wu N, Yan W, Zhou C, Guo H. The effects of renal denervation on resistant hypertension patients: a meta-analysis. Blood pressure monitoring. 2016 Aug 1;21(4):206-14. **Other RCTs** • Azizi M, Sapoval M, Gosse P, Monge M, Bobrie G, Delsart P, Midulla M, Mounier-Véhier C, Courand PY, Lantelme P, Denolle T. Optimum and stepped care standardised antihypertensive treatment with or without renal denervation for resistant hypertension (DENERHTN): a multicentre, open-label, randomised controlled trial. The Lancet. 2015 May 16;385(9981):1957-65. • de Jager RL, de Beus E, Beeftink MM, Sanders MF, Vonken EJ, Voskuil M, van Maarseveen EM, Bots ML, Blankestijn PJ. Impact of medication adherence on the effect of renal denervation: the SYMPATHY trial. Hypertension. 2017 Apr;69(4):678-84. • Fengler K, Rommel KP, Blazek S, Besler C, Hartung P, von Roeder M, Petzold M, Winkler S, Höllriegel R, Desch S, Thiele H. A three-arm randomized trial of different renal denervation devices and techniques in patients with resistant hypertension (RADIOSOUND-HTN). Circulation. 2019 Jan 29;139(5):590-600.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Jacobs L, Persu A, Huang QF, Lengele JP, Thijs L, Hammer F, Yang WY, Zhang ZY, Renkin J, Sinnaeve P, Wei FF. Results of a randomised controlled pilot trial of intravascular renal denervation for management of treatment-resistant hypertension. Blood pressure. 2017 Nov 2;26(6):321-31. • Kario K, Ogawa H, Okumura K, Okura T, Saito S, Ueno T, Haskin R, Negoita M, Shimada K, SYMPLICITY HTN-Japan Investigators. SYMPLICITY HTN-Japan–First Randomized Controlled Trial of Catheter-Based Renal Denervation in Asian Patients–. Circulation Journal. 2015:CJ-15. • Oliveras A, Armario P, Clarà A, Sans-Atxer L, Vázquez S, Pascual J, De la Sierra A. Spironolactone versus sympathetic renal denervation to treat true resistant hypertension: results from the DENERVHTA study–a randomised controlled trial. Journal of hypertension. 2016 Sep;34(9):1863. • Rosa J, Widimský P, Toušek P, Petrák O, Čurila K, Waldauf P, Bednář F, Zelinka T, Holaj R, Štrauch B, Šomlóová Z. Randomized comparison of renal denervation versus intensified pharmacotherapy including spironolactone in true-resistant hypertension: six-month results from the Prague-15 study. Hypertension. 2015 Feb;65(2):407-13. • Symplicity HTN-2 Investigators. Renal sympathetic denervation in patients with treatment-resistant hypertension (The Symplicity HTN-2 Trial): a randomised controlled trial. The Lancet. 2010 Dec 4;376(9756):1903-9.	

			• Undrum Bergland O, Larstorp AC, Lund Søraas C, Høieggen A, Rostrup M, Norheim Kjaer V, Godang K, Sevre K, Fadl Elmula FE. Changes in sympathetic nervous system activity after renal denervation: results from the randomised Oslo RDN study. Blood Pressure. 2020 Dec 24:1-1. • Warchol-Celinska E, Prejbisz A, Kadziela J, Florczak E, Januszewicz M, Michalowska I, Dobrowolski P, Kabat M, Sliwinski P, Klisiewicz A, Topor-Madry R. Renal denervation in resistant hypertension and obstructive sleep apnea: randomized proof-of-concept phase II trial. Hypertension. 2018 Aug;72(2):381-90. **Other Clinical Trials** • Brandt MC, Mahfoud F, Reda S, Schirmer SH, Erdmann E, Böhm M, Hoppe UC. Renal sympathetic denervation reduces left ventricular hypertrophy and improves cardiac function in patients with resistant hypertension. Journal of the American College of Cardiology. 2012 Mar 6;59(10):901-9. • Brandt MC, Reda S, Mahfoud F, Lenski M, Böhm M, Hoppe UC. Effects of renal sympathetic denervation on arterial stiffness and central hemodynamics in patients with resistant hypertension. Journal of the American College of Cardiology. 2012 Nov 6;60(19):1956-65. • Denegri A, Naduvathumuriyil T, Lüscher TF, Sudano I. Renal nerve ablation reduces blood pressure in resistant hypertension: Long-term clinical outcomes in a single-center experience. The Journal of Clinical Hypertension. 2018 Apr;20(4):627-33.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Dörr O, Liebetrau C, Möllmann H, Mahfoud F, Ewen S, Gaede L, Troidl C, Hoffmann J, Busch N, Laux G, Wiebe J. Beneficial effects of renal sympathetic denervation on cardiovascular inflammation and remodeling in essential hypertension. Clinical research in cardiology. 2015 Feb;104(2):175-84. • Ewen S, Cremers B, Meyer MR, Donazzan L, Kindermann I, Ukena C, Helfer AG, Maurer HH, Laufs U, Grassi G, Böhm M. Blood pressure changes after catheter-based renal denervation are related to reductions in total peripheral resistance. Journal of hypertension. 2015 Dec 1;33(12):2519-25. • Fengler K, Ewen S, Höllriegel R, Rommel KP, Kulenthiran S, Lauder L, Cremers B, Schuler G, Linke A, Böhm M, Mahfoud F. Blood pressure response to main renal artery and combined main renal artery plus branch renal denervation in patients with resistant hypertension. Journal of the American Heart Association. 2017 Aug 10;6(8):e006196. • Hamza M, Khamis H. Renal sympathetic denervation for treatment of resistant hypertension: Egyptian experience. Journal of interventional cardiology. 2014 Aug;27(4):423-7. • Hering D, Marusic P, Walton AS, Lambert EA, Krum H, Narkiewicz K, Lambert GW, Esler MD, Schlaich MP. Sustained sympathetic and blood pressure reduction 1 year after renal denervation in patients with resistant hypertension. Hypertension. 2014 Jul;64(1):118-24. • Krum H, Schlaich M, Whitbourn R, Sobotka PA, Sadowski J, Bartus K, Kapelak B, Walton A, Sievert H,	

			Thambar S, Abraham WT. Catheter-based renal sympathetic denervation for resistant hypertension: a multicentre safety and proof-of-principle cohort study. The Lancet. 2009 Apr 11;373(9671):1275-81. • Mahfoud F, Ukena C, Schmieder RE, Cremers B, Rump LC, Vonend O, Weil J, Schmidt M, Hoppe UC, Zeller T, Bauer A. Ambulatory blood pressure changes after renal sympathetic denervation in patients with resistant hypertension. Circulation. 2013 Jul 9;128(2):132-40. • Naduvathumuriyil T, Held U, Steigmiller K, Denegri A, Cantatore S, Obeid S, Flammer AJ, Ruschitzka F, Lüscher TF, Sudano I. Clinical benefits and safety of renal denervation in severe arterial hypertension: A long-term follow-up study. The Journal of Clinical Hypertension. 2020 Oct;22(10):1854-64. • Pekarskiy SE, Baev AE, Mordovin VF, Semke GV, Ripp TM, Falkovskaya AU, Lichikaki VA, Sitkova ES, Zubanova IV, Popov SV. Denervation of the distal renal arterial branches vs. conventional main renal artery treatment: a randomised controlled trial for treatment of resistant hypertension. Journal of hypertension. 2017 Feb 1;35(2):369-75. • Petrov I, Tasheva I, Garvanski I, Stankov Z, Simova I. Comparison of standard renal denervation procedure versus novel distal and branch vessel procedure with brachial arterial access. Cardiovascular Revascularization Medicine. 2019 Jan 1;20(1):38-42. • Prochnau D, Lucas N, Kuehnert H, Figulla HR, Surber R. Catheter-based renal denervation for drug-resistant hypertension by using a standard electrophysiology	

			catheter. EuroIntervention: journal of EuroPCR in collaboration with the working group on interventional cardiology of the European Society of Cardiology. 2012 Jan 1;7(9):1077-80. • Schmid A, Ditting T, Sobotka PA, Veelken R, Schmieder RE, Uder M, Ott C. Does renal artery supply indicate treatment success of renal denervation?. Cardiovascular and interventional radiology. 2013 Aug 1;36(4):987-91. • Sievert H, Schofer J, Ormiston J, Hoppe UC, Meredith IT, Walters DL, Azizi M, Diaz-Cartelle J. Bipolar radiofrequency renal denervation with the Vessix catheter in patients with resistant hypertension: 2-year results from the REDUCE-HTN trial. Journal of human hypertension. 2017 May;31(5):366-8. • Sitkova ES, Mordovin VF, Ripp TM, Pekarskii SE, Ryabova TR, Lichikaki VA, Falkovskaya AY, Mochula OV, Usov VY, Baev AE. Positive effects of renal denervation on left ventricular hypertrophy and subendocardial damage. " Arterial'naya Gipertenziya"(" Arterial Hypertension"). 2019 Mar 29;25(1):46-59. • Verheye S, Ormiston J, Bergmann M, Sievert H, Schwindt A, Werner N, Vogel B, Colombo A. Twelve-month results of the Rapid Renal Sympathetic Denervation for Resistant Hypertension Using the OneShot™ Ablation System (RAPID) study. EuroIntervention. 2015 Feb 1;10(10):1221-9. **Registries**	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• Mahfoud F, Böhm M, Schmieder R, Narkiewicz K, Ewen S, Ruilope L, Schlaich M, Williams B, Fahy M, Mancia G. Effects of renal denervation on kidney function and long-term outcomes: 3-year follow-up from the Global SYMPLICITY Registry. European Heart Journal. 2019 Nov 1;40(42):3474-82. • Mahfoud F, Mancia G, Schmieder R, Narkiewicz K, Ruilope L, Schlaich M, Whitbourn R, Zirlik A, Zeller T, Stawowy P, Cohen SA. Renal denervation in high-risk patients with hypertension. Journal of the American College of Cardiology. 2020 Jun 16;75(23):2879-88. • Sharp AS, Davies JE, Lobo MD, Bent CL, Mark PB, Burchell AE, Thackray SD, Martin U, McKane WS, Gerber RT, Wilkinson JR. Renal artery sympathetic denervation: observations from the UK experience. Clinical Research in Cardiology. 2016 Jun;105(6):544-52. **Cost-effectiveness Analyses** • Gladwell D, Henry T, Cook M, Akehurst R. Cost effectiveness of renal denervation therapy for the treatment of resistant hypertension in the UK. Applied health economics and health policy. 2014 Dec;12(6):611-22. Moreover, there is emerging evidence with expected trial results soon, which will add to the existing evidence relating to renal denervation therapy in hypertension. For more information on these trials, please refer to:	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• https://clinicaltrials.gov/ct2/show/NCT02439775, and • https://clinicaltrials.gov/ct2/show/NCT02649426 Consequently, to ensure that all NHS patients have equitable access to the most clinically and cost-effective treatments available, we propose that additional evidence-based antihypertensive treatment options, such as renal denervation therapy, are considered for inclusion in the final scope of this guideline update.	
Medtronic	003	017	Medtronic kindly ask that a review of the current evidence relating to antihypertensive treatments, such as renal denervation, is also considered as a key area in the final scope of this guideline update.	Thank you for your comment. The use of device based treatment for specialist management is considered within NICE interventional procedure guidance: IPG 418 Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension, and IPG 533 Implanting a baroreceptor stimulation device for resistant hypertension. New evidence on this topic would need to be considered by this existing guidance. These have been added to the list of related NICE guidance in the scope.
Medtronic	004	004	In the proposed outline of the guideline, in section 1.4 – *treating and monitoring hypertension*, it is not explicit from the table whether NICE plan to conduct an evidence review before retaining the recommendations for *lifestyle interventions, starting antihypertensive drug treatment, monitoring treatment and blood pressure targets, and choosing antihypertensive drug treatment (for people with or without type 2 diabetes)*.	Thank you for your comment. The table has been amended to clarify which areas will have a new evidence review as part of the update.

Medtronic	005	001	Medtronic would like to highlight the following NICE interventional procedure guidance (IPG) and kindly request it is added to the list of related NICE guidance as it relates to the management of hypertension: Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension (2012) NICE IPG418	Thank you for your comment. This has been added to the list of related NICE guidance.
Medtronic	006	009	Medtronic would like to see a key issue and draft question about choosing antihypertensive treatments, such as renal denervation therapy. The draft question we propose would be: What is the most clinically and cost-effective sequence of antihypertensive treatment, including renal denervation therapy?	Thank you for your comment. The use of device based treatment for specialist management is considered within NICE interventional procedure guidance: IPG 418 Percutaneous transluminal radiofrequency sympathetic denervation of the renal artery for resistant hypertension, and IPG 533 Implanting a baroreceptor stimulation device for resistant hypertension. New evidence on this topic would need to be considered by this existing guidance. These have been added to the list of related NICE guidance in the scope.
Medtronic	006	018	Recognising that blood pressure is considered an accepted example of a valid surrogate endpoint, Medtronic would like to propose that blood pressure is added to the main outcomes considered when searching for and assessing the evidence.	Thank you for your comment. Surrogate outcomes are not prioritised as main outcomes where direct outcomes of importance to the review questions are available.
NHS England and NHS Improvement	General	General	What about deprivation and health inequalities linked to hypertension (NP)	Thank you for your comment. Health inequalities will be considered by the committee when forming recommendations. The equalities impact assessment that accompanies the scope, and guideline, will also detail how equalities issues have been considered. This has now been added to that document.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

NHS England and NHS Improvement	General	General	Frequency of monitoring for people close to 140/90 level but not diagnosed as hypertensive suggest a time frame be specified. (NP)	Thank you for your comment. The guideline provides recommendations for review of diagnosis, and recommends that there may need to be more frequent review for people close to 140/90. We are not aware of evidence that would enable a more specific recommendation to be made for this cohort of people and therefore this topic is not due to be included in the update at this time.
NHS England and NHS Improvement	General	General	We welcome the update and particularly support the inequality considerations on page two. (MJ)	Thank you for your comment.
NHS England and NHS Improvement	004		**Table 1.4** Treating and monitoring hypertension – Lifestyle interventions –should management of obesity be included not just prevention as referred to in guideline 136 (NP)	Thank you for your comment. We are not aware of new evidence to change these recommendations and therefore lifestyle interventions is not included as an area to update at this time.
NHS England and NHS Improvement	004	004	**(section 1.4 in table)** In terms of monitoring hypertension, in the 2019 guidelines, the primary recommendation is to "use clinic blood pressure measurements to monitor …". NICE should consider whether to place more emphasis on home blood pressure monitoring with electronic input into the patient's record, particularly with the ongoing COVID-19 pandemic and the increased use of remote digital monitoring. (NL)	Thank you for your comment. The guidelines is intended for use long term. The scope sets out the key areas that will be considered in the update of this guideline. Whilst the current context and its impact will be a consideration when drafting recommendations, COVID-19 does not need to be specified as a key area to consider in the scope. We are aware that the pandemic has meant that service delivery has adjusted in some cases. Telemonitoring was not identified for update at this time but we have logged as an area for monitoring the evidence base, and have passed to the NICE Surveillance team for consideration in future updates.
NHS England and NHS Improvement	004	General	To reflect and support the increasing use of remote consultations, video-consultations and e-consultations, it would be useful to include recommendations on remote methods for safe measurement, treatment and monitoring of Hypertension. (MJ)	Thank you for your comment. Telemonitoring was not identified for update at this time but we have logged it as an area for monitoring the evidence base, and have passed to the NICE Surveillance team for consideration in future updates.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

Royal College of Nursing	General	General	The Royal College of Nursing (RCN) welcome the proposal to develop NICE guidance for Hypertension in adults: diagnosis and management (update). The RCN invited members who work with people in these setting to review and comment on the draft scope. The comments below, reflect the views of our reviewers.	Thank you for your comment.
Royal College of Nursing	General	General	There is nothing on physical exercise re signposting or raising awareness and understanding of diabetes in BAME Communities	Thank you for your comment. The existing recommendations (including those on lifestyle interventions) apply to all people with hypertension and type II diabetes. We are not aware of new evidence to change these recommendations and therefore lifestyle factors is not included as an area to update at this time.
Royal College of Nursing	General	General	Will this guidance reflect Integrated Care Services (ICS)	Thank you for your comment. Current context and service configuration will be taken into account when drafting the recommendations.
Royal College of Nursing	General	General	Does the draft scope need to reference COVID-19 and its impact?	Thank you for your comment. The guideline is intended for use long term. The scope sets out the key areas that will be considered in the update of this guideline. Whilst the current context and its impact will be a consideration when drafting recommendations, COVID-19 does not need to be specified as a key area to consider in the scope.
Royal College of Nursing	EIA		EIA 1.2 Equality Impact Assessment: Should this state: South Asian, Black African and Black African Caribbean populations	Thank you for your comment. The evidence for difference in incidence of hypertension, risk of stroke or heart failure and different response to some anti-hypertensive therapies relates specifically to the populations as described in the scope and the wording therefore remains as stated.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

Royal College of Nursing	EIA		EIA 1.2 Equality impact assessment: Socio-economic aspects – it states "no issue identified" - we know that people from Black Asian and Minority Ethnic (BAME) backgrounds are much more likely to face socio-economic problems and this can have an impact on health outcomes. For example, the most deprived people in the UK are over two and half times more likely to develop diabetes than the rest of the population. Moreover, the complications of diabetes, such as heart disease, stroke and kidney failure, are three and half times higher in lower socio-economic groups. All Party Parliamentary Group (APPG) Diabetes 2017	Thank you for your comment. These considerations have now been detailed in the equality impact assessment.
Royal College of Physicians	General	General	The RCP is grateful for the opportunity to respond to the above consultation. We would like to endorse the brief response submitted by the BCS and also endorse the response submitted by the British and Irish Hypertension Society (BIHS).	Thank you for your comment.
Royal College of Physicians	General	General	Further to the below could we please also endorse the response submitted by the British and Irish Hypertension Society (BIHS).	Thank you for your comment.
Stroke Association	General	General	The Stroke Association welcomes the opportunity to provide comment on the scope to update the existing guideline for hypertension in adults: diagnosis and management.	Thank you for your comment and for the information provided.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			We have previously provided comments on NICE's update the guideline in 2019, and this response builds upon those comments.[1] High blood pressure contributes to around half of all strokes, making it one of the biggest risk factors for stroke. However, up to 90% of all strokes are preventable by improving the management of key risk factors such as hypertension. Yet too many people are living with undetected or poorly managed hypertension. A systematic review found that every 10mHgg reduction in blood pressure significantly reduces the risk of cardiovascular disease and death, including reducing the risk of stroke by 27%.[2] Moreover, a 15% increase in the number of adults diagnosed and managed with high blood pressure in England could reduce health and social care costs by £120m over ten years.[3] However, research around target levels for those with established cardiovascular disease, including stroke, remains conflicted.[4] To meet the ambitions for stroke set out in the Long Term Plan, NHS England and Improvement and the Stroke Association, in consultation with clinical experts and people	

[1] NICE, Stroke Association's comments on the update to the hypertension guideline, 2019. Available: https://www.nice.org.uk/guidance/ng136/documents/consultation-comments-and-responses-3
[2] Ettehad, D. et al. (2016). 'Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis'. *Lancet,* (387), pp. 957-67.
[3] Public Health England. (2017). *Health Matters: Combating High Blood Pressure.* Available at: https://www.gov.uk/government/publications/health-matters-combating-high-blood-pressure/health-matters-combating-high-blood-pressure (last accessed 11 January 2021).
[4] Barrios, V and Escobar, C. New Targets in Arterial Hypertension, Are They Justified? Revista Española de Cardiología 2018, Vol. 71 Issue 8 pp.608-611 Available: https://www.revespcardiol.org/en-new-targets-in-arterial-hypertension-articulo-S1885585718301385 Accessed 04 March 2021

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			affected by stroke, developed the National Stroke Programme. One of the aims of the Programme is to achieve 3.6m patients with improved management of hypertension and cholesterol over the course of the Long Term Plan. We need a coordinated and whole system approach to improve the detection, treatment and management of high blood pressure in order to prevent strokes. And we welcome the update to this guideline to help contribute to this ambition.	
Stroke Association	General	General	In our response to the 2019 update to the hypertension guideline, we supported the decision to keep the target blood pressure at the same level as the 2011 guideline, diagnosing hypertension at 140/90. We acknowledged the limitations of the SPRINT trial particularly around the applicability to the UK and applicability of the population, for example, as set out in NICE guideline, that the participants had high cardiovascular risk levels including many with pre-existing cardiovascular disease or renal impairment and were already receiving treatment before the study started. Similarly, with the 'SPRINT trial, although an SPB target of <120mmHg (vs <140mmHg) was associated with a reduction in cardiovascular events, the study did not include important subgroups of patients, such as those with	Thank you for your comment.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			diabetes or a history of stroke, and only 20% of the participants had cardiovascular disease'.[5] Currently, 40% of people are not optimally treated to the current 140/90 target. Therefore, it is important to focus on efforts to that help patients are treated to bring their blood pressure to this such as the RightCare CVD prevention pathway, which uses the 140/90 target. This pathway provides local areas with information on the case for change and best practice for conditions alongside real world case studies. It is vital that GPs, pharmacists and voluntary sector staff use these targets for diagnosing, monitoring and where appropriate treating those with hypertension. Consistent messaging for the public on what level of blood pressure is safe, and when they should seek further information, guidance and treatment is important to improve public awareness of hypertension and treatment options. However, we do welcome that NICE continue to monitor evidence on the benefits of lowering the target blood pressure and review targets as necessary.	
Stroke Association	General	General	**Are there any cost saving interventions or examples of innovative approaches that should be considered for inclusion in this guideline?** **Canadian Hypertension Education Program (CHEP)**	Thank you for this information. NICE guidelines have an ongoing surveillance process that regularly checks whether updates are required. Quality standards are used to aid implementation of priority recommendations and may be updated following guidelines updates. NICE will also

[5] Barrios, V and Escobar, C. New Targets in Arterial Hypertension, Are They Justified? Revista Española de Cardiología 2018, Vol. 71 Issue 8 pp.608-611 Available: https://www.revespcardiol.org/en-new-targets-in-arterial-hypertension-articulo-S1885585718301385 Accessed 04 March 2021

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			Achievements in recent years in countries such as Canada and the US show that there is huge potential for the UK to improve how high blood pressure is detected, treated and managed. Over the past few decades, there have been unprecedented advances in the treatment of hypertension and the reduction of related diseases like stroke in Canada. This is primarily due to the Canadian Hypertension Education Program (CHEP) which is made of up of various organisations and experts representing primary care, government and the third sector. CHEP includes a recommendations taskforce who contribute to the development of evidence-based guidelines on hypertension management, an implementation taskforce who are responsible for ensuring recommendations and guidelines are adopted into clinical practice, and an outcomes research taskforce who critically evaluate the impact of CHEP on outcomes.[6] A unique feature of CHEP is annual updates to Canadian hypertension guidelines so as to keep abreast of the evolving literature base on hypertension and to keep the issue 'on the radar' for healthcare providers, policy makers, and the general public.[7]	consider other implementation activities following guideline development. Telemonitoring was not identified for update at this time but we have logged it as an area for monitoring the evidence base, and have passed to the NICE Surveillance team for consideration in future updates. The guidelines is intended for use long term. The scope sets out the key areas that will be considered in the update of this guideline. Whilst the current context and its impact will be a consideration when drafting recommendations, COVID-19 does not need to be specified as a key areas to consider in the scope.

[6] Feldman, R.D. et al. (2008). 'Canadian Hypertension Education Program: The evolution of hypertension management guidelines in Canada'. *The Canadian Journal of Cardiology, 24(6),* pp. 477-481.
[7] McAlister, F.A. et al. (2009). 'The impact of the Canadian Hypertension Education Program in its first decade'. *European Heart Journal, 30(12),* pp. 1434-39.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			Some of the main achievements of CHEP to date include: • An increase in the prescription of antihypertensive medications; • Reductions in hospitalisations for stroke and stroke mortality; and • An unprecedented increase in blood pressure control rates to levels that far surpass those of any other jurisdiction.[8] For example, in Canada 65% of adults with high blood pressure are diagnosed and treated to recommended levels, compared to only 35% in England. The target levels in Canada can be found in the latest guidance, which states that 'patients with existing cardiovascular disease or with elevated cardiovascular risk should be considered for intensive SBP targets (ie, SBP ≤ 120 mm Hg)'.[9] For stroke survivors, 'after the acute phase of a stroke, BP-lowering treatment is recommended to a target of consistently < 140/90 mm Hg'. Hypertension Canada's 2020 Comprehensive Guidelines for the Prevention, Diagnosis, Risk Assessment, and Treatment of Hypertension in Adults and Children also	

[8] Feldman, R.D. et al. (2008). 'Canadian Hypertension Education Program: The evolution of hypertension management guidelines in Canada'. *The Canadian Journal of Cardiology, 24(6),* pp. 477-481.
[9] https://www.onlinecjc.ca/article/S0828-282X(20)30191-4/fulltext#secsectitle1210

			includes tools to assist in shared decision-making on BP target selection. **Scale-Up BP (Scotland)** Scale-Up BP (blood pressure) is part of the Technology Enabled Care (TEC) programme funded by the Scottish Government. Patients are given an approved blood pressure machine and prompted regularly to check their blood pressure. They are asked to text their blood pressure reading through a system called Florence, which will immediately tell them if their blood pressure is on target or if they need to contact a doctor or nurse. Each month GPs and nurses in the participating practices will receive a report of all patients' blood pressure readings which will show the pattern of readings and give a clear indication if a change in treatment needs to be considered. In addition, patients are also given advice on lifestyle changes and how to manage their blood pressure. An evaluation of the programme in Lothian, Scotland suggests that introducing tele-monitoring to primary care at scale is feasible and that it does not add to GPs workload. The evaluation also showed that the programme led to improvements in blood pressure control among patients.	

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			For more information of Scale-Up BP, see: https://www.bhf.org.uk/for-professionals/healthcare-professionals/blog/2018/digital-bp-self-monitoring-project-to-reduce-demands-on-general-practice **Rightcare CVD prevention pathway** NHS RightCare have produced a CVD Prevention Pathway which aims to provide local health economies 'best practice case studies for elements of the pathway demonstrating what to change, how to change and a scale of improvement'.[10] The pathway includes a section on high BP detection and treatment. **Hypertension management during the Covid-19 pandemic** GIRFT and Oxford AHSN have produced a practical guide for CVD prevention during the COVID-19 pandemic for primary care teams, which also includes case studies on ways teams have adapted.	
Stroke Association	General	General	The following research may be of interest to the update: • OPTMISE - effect of reduction of BP medication • IPCAS - (ongoing) primary care intervention for self-management • TASMINH4 - completed self-management intervention trial	Thank you for your comment and this information. These references will be considered if relevant when undertaking the evidence review in the update.

[10] NHS England and Improvement, NHS Rightcare CVD prevention pathway, Available: https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2018/02/cvd-pathway.pdf

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			• PROOF-BP - role of paramedics in monitoring BP • Risk factors and mortality associated with multimorbidity in people with stroke or transient ischaemic attack: a study of 8,751 UK Biobank participants. (2018) http://eprints.gla.ac.uk/157275/ • Examining patterns of multimorbidity, polypharmacy and risk of adverse drug reactions in chronic obstructive pulmonary disease: a cross-sectional UK Biobank study (2018) http://eprints.gla.ac.uk/152751/	
Stroke Association	002	007	We are pleased that the draft scope includes a focus on inequalities relating to people of West African or Caribbean family origin in the context of hypertension and increased risk of stroke. We know that stroke does not affect everyone equally, and any update to the NICE guideline must consider how to reduce inequalities in hypertension management and treatment as a key focus of activity.	Thank you for your comment. Equality considerations will be taken into account when developing recommendations and are also detailed in the equalities impact assessment form.
Stroke Association	004	001	We would suggest that there is an evidence review into measuring blood pressure and diagnosing hypertension, given the impact the Covid-19 pandemic has had on both of these issues – and is likely to continue to have moving forward. The guideline should be updated to reflect this and the measures that will need to be taken. Poor adherence to medication is a major challenge in managing blood pressure. It’s estimated that anywhere between 25% and 47% of patients with high blood pressure do not fully adhere to their prescribed and recommended	Thank you for your comment. The guideline is intended for use long term. The scope sets out the key areas that will be considered in the update of this guideline. Whilst the current context and its impact will be a consideration when drafting recommendations, COVID-19 does not need to be specified as a key area to consider in the scope. We are aware that the pandemic has meant that service delivery has adjusted in some cases. Home monitoring was not identified for update at this time but we have logged as an area for monitoring the evidence base, and have passed

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			medical treatment.[11][12] Support for patients to self-monitor and manage their blood pressure is needed to help them take more control of their own health. Moreover, the current targets levels are not being met. We know that optimally treating diagnosed hypertensives could prevent 14,500 strokes and save up to £201.7m over three years in England.[13] However, according to the British Heart Foundation, one in three people with diagnosed hypertension in England are not treated to target levels, showing that there is much room for improvement.[14] There are about 9.5 million people with a diagnosis of high blood pressure in the UK. However, as the condition often has no symptoms, too many people are living with undetected high blood pressure. It's estimated that for every 10 people diagnosed with hypertension, another seven don't know they have it. That is more than 5.5 million people living with untreated high blood pressure in England alone. The Covid-19 pandemic has further impacted this, with 470,000 fewer new prescriptions of preventative cardiovascular drugs last year.[15] Analysis suggests that due	to the NICE Surveillance team for consideration in future updates.

[11] Strauch, B. et al. (2013). 'Precise assessment of noncompliance with the antihypertensive therapy in patients with resistant high blood pressure using toxicological serum analysis'. *Journal of Hypertension, 31 (12)*, pp. 2455-61.
[12] Tomaszewski, M. et al. (2014). 'High rates of non-adherence to antihypertensive treatment revealed by high-performance liquid chromatography-tandem mass spectrometry (HP LC-MS/MS) urine analysis'. *Heart, 100 (11)*, pp. 855-61.
[13] NHS England. (2017). *The Size of the Prize in cardiovascular Disease Prevention – England.* Available at: https://www.healthcheck.nhs.uk/commissioners-and-providers/data/size-of-the-prize-and-nhs-health-check-factsheet/
[14] British Heart Foundation. (2018). *High Blood Pressure: How can we do better?* Available at: https://www.bhf.org.uk/bp-better
[15] IPPR, Without skipping a beat - The case for better cardiovascular care after coronavirus - Publication: March, 2021

			to 'missed prescriptions alone – if these people are not found, diagnosed and commenced on treatment – will lead to an additional 12,000 heart attacks and strokes in the next five years'.[16] The guideline should consider the role for increasing well evaluated digital interventions, such as home blood pressure monitoring.[17] This is particularly an opportunity that's become important through the pandemic, and could help support patient choice and self-management without people needing to go to GPs or pharmacies. NICE should update the guideline to reflect the impact the pandemic has had on people diagnosed with hypertension and those that have been missed due to the pandemic, and add specific recommendations. Every person with diagnosed hypertension in England should have their condition optimally treated to target. To achieve this, local health and social care systems should undertake systematic audits across GP practices to identify patients who are not treated to the current target and identify those patients that have been missed due to the Covid-19 pandemic. Promotion of closer collaboration between primary care and community pharmacy should also be encouraged to ensure more people with	

[16] Ibid
[17] NHS England, Home blood pressure monitoring. Available: https://www.england.nhs.uk/ourwork/clinical-policy/cvd/home-blood-pressure-monitoring/

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			hypertension are referred to community pharmacy medicine optimisation services.	
Stroke Association	004	005	We welcome that the guideline will be edited to update and reflect current policy and practice. The role of Integrated Stroke Delivery Networks (ISDNs) in hypertension management should be included. ISDNs have been tasked with improving stroke care in their local population across the whole pathway from prevention to long term support and help deliver the stroke ambitions in the NHS Long Term Plan. ISDNs will be able to set their own local priorities in accordance to local need. The National Stroke Programme will use markers to measure improvement and monitor success of the ISDNs across the whole pathway. Included within the essential priorities for ISDNs is a stroke prevention strategy with clear milestones and a health inequalities plan with clear deliverables. Any update to the hypertension guideline should include reference to the role of ISDNs, in order to coordinate and join up efforts to improve the management of hypertension and ensure that whichever targets are set are met.	Thank you for your comment and for this information. Current context and service configuration will be taken into account when drafting the recommendations.
Stroke Association	006	012	We welcome the draft question and the update to the guideline to review the available evidence. However, it is important that the evidence review includes research that looks at those with history of stroke.	Thank you for your comment, and for providing these references which will be considered when undertaking the evidence review.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			In September 2020, Saiz et al, in their research article *Blood pressure targets for the treatment of people with hypertension and cardiovascular disease,* an update to their initial review in 2017, looked to 'determine if lower blood pressure targets (135/85 mmHg or less) are associated with reduction in mortality and morbidity as compared with standard blood pressure targets (140 to 160/90 to 100 mmHg or less) in the treatment of people with hypertension and a history of cardiovascular disease (myocardial infarction, angina, stroke, peripheral vascular occlusive disease)'.[18] They concluded that: 'There is probably little to no difference in total mortality and cardiovascular mortality between people with hypertension and cardiovascular disease treated to a lower compared to a standard blood pressure target. There may also be little to no difference in serious adverse events or total cardiovascular events. This suggests that no net health benefit is derived from a lower systolic blood pressure target. We found very limited evidence on withdrawals due to adverse effects, which led to high uncertainty. At present, evidence is insufficient to justify lower blood pressure targets (135/85 mmHg or less) in people with hypertension and established cardiovascular disease. Several trials are	

[18] Saiz LC, Gorricho J, Garjón J, Celaya MC, Erviti J, Leache L. Blood pressure targets for the treatment of people with hypertension and cardiovascular disease. Cochrane Database of Systematic Reviews 2020, Issue 9. Art. No.: CD010315. DOI: 10.1002/14651858.CD010315.pub4. Accessed 04 March 2021

			still ongoing, which may provide an important input to this topic in the near future'.[19] Research remains conflicted. Ettehad et al. in *Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis* conclude that 'our results provide strong support for lowering blood pressure to systolic blood pressures less than 130 mm Hg and providing blood pressure lowering treatment to individuals with a history of cardiovascular disease, coronary heart disease, stroke, diabetes, heart failure, and chronic kidney disease'.[20] Therefore, we welcome the evidence review into this issue.	
The Pharmacists' Defence Association	General	General	The English NHS is undergoing another substantial change with the creation of statutory ICSs and joined up pathways to health and social care. Multidisciplinary teams working seamlessly to provide care should enhance both patient care and patient outcomes. Community pharmacies are an integral part of primary care but are often overlooked when local commissioning takes place. NG5 ("Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes") already	Thank you for your comment. The current context and configuration of the NHS will be taken into account when drafting recommendations. A pharmacist has also been included as a required post on the committee to develop the guideline.

[19] Saiz LC, Gorricho J, Garjón J, Celaya MC, Erviti J, Leache L. Blood pressure targets for the treatment of people with hypertension and cardiovascular disease. Cochrane Database of Systematic Reviews 2020, Issue 9. Art. No.: CD010315. DOI: 10.1002/14651858.CD010315.pub4. Accessed 04 March 2021
[20] Ettehad, D. et al. (2016). 'Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis'. *Lancet,* (387), pp. 957-67.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			recognises the role of pharmacists in local settings. Updates to NG136 should consider how this role could be embedded within care pathways for the management of hypertensive patients.	
The Pharmacists' Defence Association	002	012	The update to the guideline is welcome in light of the recommendations made by the recent report regarding the disproportional impact of Covid-19 on BAME communities which noted the need for "…improving management of common conditions including hypertension…" https://www.gov.uk/government/publications/covid-19-understanding-the-impact-on-bame-communities. This report also noted the need to "…target culturally competent health promotion and disease prevention programmes …"	Thank you for your comment.
The Pharmacists' Defence Association	003	013	This care pathway should consider the role of community pharmacists and the setting of a community pharmacy in managing long term conditions such as hypertension and especially in helping patients that may be harder to engage with (such as older or BAME patients). There is significant evidence which supports the more extensive role which could be played by community pharmacists. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/743124/PV_Blood_Pressure_Report.pdf	Thank you for your comment. The current context and configuration of the NHS will be taken into account when drafting recommendations. A pharmacist has also been included as a required post on the committee to develop the guideline.

The Pharmacists' Defence Association	005	022, 028, 030	The update to NG5,NG136 and NG76 in light of the final recommendations for this update should specifically consider the benefits of the community pharmacy setting for supporting patients in reaching and maintaining the requisite target blood pressure. This may be especially important as the equality impact assessment identified groups (such as persons over the age of 80) that may find the pharmacy setting especially accessible.	Thank you for your comment. The current context and configuration of the NHS will be taken into account when drafting recommendations. A pharmacist has also been included as a required post on the committee to develop the guideline.
The University of Edinburgh	004	003	The ongoing pandemic has shown us the value of home monitoring and, in particular telemonitoring, of people with high blood pressure. Patients who have been telemonitoring have continued their routine care while for those being traditionally managed care has been almost completely suspended. The advantages for those who have to self-isolate for whatever reason and in reducing nosocomial infection should be acknowledged. NHS England is now recommending this approach (1) and this has been underlined by recent evidence demonstrating the impact of telemonitoring on BP control (2) and, that when used in routine practice, reduces face to face contacts. (3) 1. NHS England. Home blood pressure monitoring. https://www.england.nhs.uk/ourwork/clinical-policy/cvd/home-blood-pressure-monitoring/ 2. McManus R J, Little P, Stuart B, Morton K, Raftery J, Kelly J et al. Home and Online Management and Evaluation of Blood Pressure (HOME BP) using a digital intervention in poorly controlled hypertension:	Thank you for your comment. We are aware that the pandemic has meant that service delivery has adjusted in some cases. Telemonitoring was not identified for update at this time but we have logged as an area for monitoring the evidence base, and have passed to the NICE Surveillance team for consideration in future updates.

Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how recommendations are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its officers or advisory committees.

			randomised controlled trial BMJ 2021; 372 :m4858 doi:10.1136/bmj.m4858 Hammersley V, Parker R, Paterson M, et al. Telemonitoring at scale for hypertension in primary care: An implementation study. PLoS Med. 2020;17(6):e1003124. Published 2020 Jun 17. doi:10.1371/journal.pmed.1003124	