Aha hypertension treatment guidelines pdf

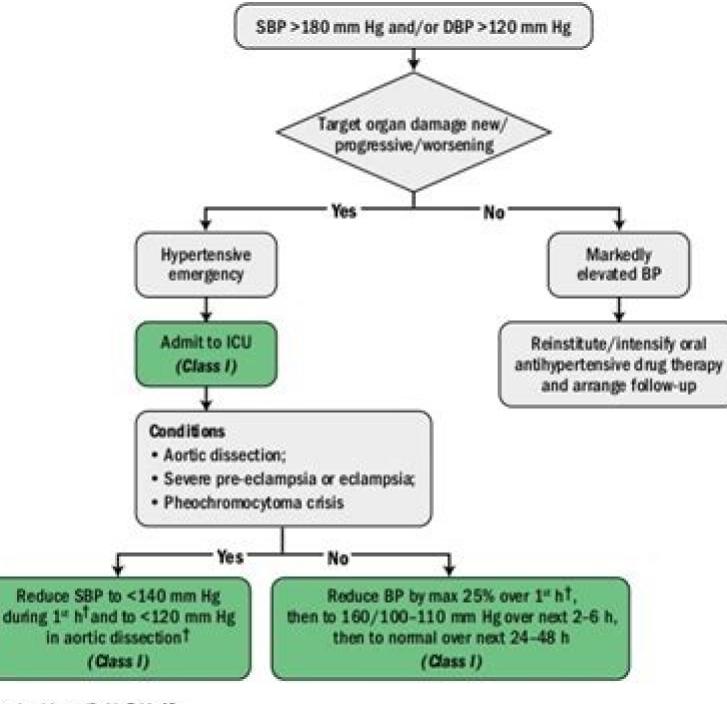
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GUIDELINES MADE SIMPLE

2017 Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults

# **Diagnosis and Management of a Hypertensive Crisis**



Use drug(s) specified in Table 19.

1ff other comorbidities are present, select a drug specified in Table 20. Figure 11



### 26

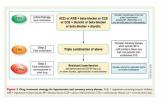
Topic	JNC 7	2014 Hypertension Guideline	
range of study designs input from methodology team Recommendations based on consensus Initial systematic review by meth evidence Subsequent review of RCT evide		Initial systematic review by methodologists restricted to RCT	
Definitions	Defined hypertension and prehypertension	Definitions of hypertension and prehypertension not addressed, but thresholds for pharmacologic treatment were defined	
Treatment goals	Separate treatment goals defined for "uncomplicated" hypertension and for subsets with various comorbid conditions (diabetes and CKD)	Similar treatment goals defined for all hypertensive populations except when evidence review supports different goals for a particu- lar subpopulation	
Lifestyle recommendations	Recommended lifestyle modifications based on literature review and expert opinion	Lifestyle modifications recommended by endorsing the evidence- based Recommendations of the Lifestyle Work Group	
Drug therapy	Recommended 5 classes to be considered as initial therapy but rec- ommended thiazide-type diuretics as initial therapy for most pa- tients without compelling indication for another class Specified particular antihypertensive medication classes for patients with compelling indications, ie, diabetes, CKD, heart failure, myocar- dial infarction, stroke, and high CVD risk Included a comprehensive table of oral antihypertensive drugs in- cluding names and usual dose ranges	Recommended selection among 4 specific medication classes (ACE1 or ARB, CCB or disretics) and doses based on RCT evidence Recommended specific medication classes based on evidence review for racial, CKD, and diabetic subgroups Panel created a table of drugs and doses used in the outcome trials	
Scope of topics	Addressed multiple issues (blood pressure measurement methods, patient evaluation components, secondary hypertension, adherence to regimens, resistant hypertension, and hypertension in special populations) based on literature review and expert opinion	Evidence review of RCTs addressed a limited number of questions, those judged by the panel to be of highest priority.	
Review process prior to publication	Reviewed by the National High Blood Pressure Education Program Coordinating Committee, a coalition of 39 major professional, pub- lic, and voluntary organizations and 7 federal agencies	Beviewed by experts including those affiliated with professional and public organizations and federal agencies; no official sponsorship by any organization should be inferred	

#### Recommendations and Practical Tips for Heart Failure with Preserved Ejection Fraction (HFpEF

Minimum effective diuretic dose to maintain euvolemia	In most cases, an indication for ACEi, ARB and/or BB is		
<ul> <li>Identification and treatment of underlying factors such as ischemia and valvular disease</li> </ul>	<ul> <li>Patients with atrial fibrillation should be anticoagulated un there is a contraindication</li> </ul>		
Treat hypertension according to current hypertension guidelines	<ul> <li>Individuals with HFpEF, serum potassium &lt; 5.0 mmol/L ar eGFR &gt;30mL/min, an MRA like spironolactone should be considered</li> </ul>		
<ul> <li>Usually loop diuretics are needed, renal function may be very volume dependant</li> </ul>			
Shortness of Breat	h and LVEF > 50%		
+	+		
Cardiac causes	Non-cardiac causes		
Heart Failure with preserved ejection fraction (HFpEF)     Other Cardiac Entities     Coronary artery disease     Valvet heart ficease	Lung disease     Hyperventilation     Pulmonary arterial hypertension     Extracardiae shunt		

## Table 1. Classification of Hypertension Based on Office Blood Pressure (BP

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Normal BP	<130	and	<85
High-normal BP	130–139	and/or	85-89
Grade 1 hypertension	140-159	and/or	90-99
Grade 2 hypertension	≥160	and/or	≥100



Acc/aha hypertension treatment guidelines 2019 pdf. Acc/aha hypertension treatment guidelines 2020. Acc/aha hypertension treatment guidelines 2019 pdf. Aha hypertension treatment guidelines 2021 pdf. 2017 acc/aha hypertension treatment guidelines 2020. Acc/aha hypertension treatment guidelines 2021. Aha hypertension treatment guidelines 2021.

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Heart Failure With Preserved Ejection Fraction e519.3.Chronic Kidney Disease e539.4.1.Acute Intracerebral Hemorrhage e549.4.2.Acute Intracerebral Hemorrhage e549.4.3.Secondary Stroke Prevention e569.5.Peripheral Artery Disease e579.6.Diabetes Mellitus e589.7.Metabolic Syndrome e599.8.Atrial Fibrillation e599.9.Valvular Heart Disease e609.10.Aortic Disease e6010.1.Race and Ethnicity e6010.1.Race and Ethnicity e6010.1.1.Racial and Ethnic Differences in Treatment e6110.2.2.Pregnancy e6210.3.1.Older Persons e6310.3.1.Older Persons e6310.3.2.Children and Adolescents e6411.Other Considerations e6411.1.Resistant Hypertension e6411.2.Hypertension e6411.2.Hypertension e6911.5.Patients Undergoing Surgical Procedures e6912.Strategies to Improve Hypertension Treatment and Control e7112.1.Adherence Strategies for Treatment of Hypertension e7112.1.1.Antihypertension e7112.1.2.Strategies e7112.1.2.Strategies to Promote Lifestyle Modification e7112.1.3.Improving Ouality of Care for Resource-Constrained Populations e7212.2.Structured, Team-Based Care Interventions for Hypertension Control e7312.3.Health Information Technology-Based Strategies to Promote Hypertension Control e7312.3.1.EHR and Patient Registries e7312.3.2.Telehealth Interventions to Improve Hypertension e7412.4.1.Performance Measures e7412.4.2.Quality Improvement Strategies e7412.5.Financial Incentives e7513.The Plan of Care for Hypertension e7513.1. Health Literacy e7613.2. Access to Health Insurance and Medication Assistance Plans e7613.3. Social and Community Services e7614. Summary of BP Thresholds and Goals for Pharmacological Therapy e7715. Evidence Gaps and Future Directions e77References e79Appendix 1: Author Relationships With Industry and Other Entities (Relevant) e108Appendix 2: Reviewer Relationships With Industry and Other Entities (Comprehensive) e110Since 1980, the American College of Cardiology (ACC) and American Scientific evidence into clinical practice guidelines) with recommendations to improve cardiovascular health. In 2013, the National Heart, Lung, and Blood Institute (NHLBI) Advisory Council recommended that the NHLBI focus specifically on reviewing the highest-quality evidence and partner with other organizations to develop recommendations.P-1,P-2 Accordingly, the ACC and AHA collaborated with the NHLBI and stakeholder and professional organizations to complete and publish 4 guidelines (on assessment of cardiovascular risk, lifestyle modifications to reduce cardiovascular risk, management of blood cholesterol in adults, and management of overweight and obesity in adults) to make them available to the widest possible constituency. In 2014, the ACC and AHA, in partnership with several other professional societies, initiated a guideline on the prevention, detection, evaluation, and management of high blood pressure (BP) in adults. Under the management of the ACC/AHA Task Force, a Prevention Subcommittee was appointed to help guide development of the suite of guidelines on prevention of cardiovascular disease (CVD). These guidelines, which are based on systematic methods to evaluate and classify evidence, provide a cornerstone for quality cardiovascular care. The ACC and AHA sponsor the development and publication of guidelines without commercial support, and members of each organization volunteer their time to the writing and review efforts. Guidelines are official policy of the ACC and AHA.Intended UsePractice quidelines provide recommendations applicable to patients with or at risk of developed in collaboration with other organizations can have a global impact. Although quidelines may be used to inform regulatory or payer decisions, they are intended to improve patients' quality of care and align with patients' interests. Guidelines are intended to define practices meeting the needs of patients in most, but not all, circumstances and should not replace clinical judgment. Clinical Implementation Management in accordance with guidelines are intended to define practices meeting the needs of patients' interests. recommendations is effective only when followed by both practitioners and patients. Adherence to recommendations can be enhanced by shared decision making between clinicians and patients, with patient engagement in selecting interventions on the basis of individual values, preferences, and associated conditions and comorbidities. Methodology and ModernizationThe ACC/AHA Task Force on Clinical Practice Guidelines (Task Force) continuously reviews, updates, and modifies guidelines from organizations, including the Institute of Medicine, P-3, P-4 and on the basis of internal reevaluation. Similarly, the presentation and delivery of guidelines are reevaluated and modified on the basis of evolving technologies and other factors to facilitate optimal dissemination of an evolved format of presenting guideline recommendations and associated text called the "modular knowledge chunk format." Each modular "chunk" includes a table of related recommendations, a brief synopsis, recommendation-specific supportive text, and when appropriate, flow diagrams or additionally, this format will facilitate seamless updating of guidelines with focused updates as new evidence is published, as well as content tagging for rapid electronic retrieval of related recommendations on a topic of interest. This evolved approach format that best suits the text as written. Future guidelines will fully implement this format, including provisions for limiting the amount of text in a guideline. Recognizing the importance of cost-value considerations in certain guideline. Recognizing the importance of cost-value considerations in certain guideline. methodology.P-5To ensure that guideline recommendations remain current, new data are reviewed on an ongoing basis, with full guideline revisions commissioned in approximately 6-year cycles. Publication of new, potentially practice-changing study results that are relevant to an existing or new drug, device, or management strategy will prompt evaluation by the Task Force, in consultation with the relevant guideline writing committee, to determine whether a focused update should be commissioned. For additional information and policies regarding guideline development, we encourage readers to consult the ACC/AHA guideline methodology manualP-6 and other methodology articles.P-7-P-10Selection of Writing Committee MembersThe Task Force strives to avoid bias by selecting experts from a broad array of backgrounds. Writing committee members represent different geographic regions, sexes, ethnicities, races, intellectual perspectives/biases, and scopes of clinical practice. The Task Force may also invite organizations and professional societies with related interests and expertise to participate as partners, collaborators, or endorsers. Relationships With Industry and other entities (RWI) policy can be found online. Appendix 1 of the present document lists writing committee members' relevant RWI. For the purposes of full transparency, writing committee members' comprehensive disclosure information is available online. Evidence Review CommitteesIn developing recommendations, the writing committee uses evidence-based methodologies that are based on all available data.P-6-P-9 Literature searches focus on randomized controlled trials (RCTs) but also include registries, nonrandomized comparative and descriptive studies, case series, cohort studies, systematic reviews, and expert opinion. Only key references are cited. An independent evidence review committee (ERC) is commissioned when there are 1 or more questions deemed of utmost clinical importance that merit formal systematic review. The systematic review will determine which patients are most likely to benefit from a drug, device, or treatment strategy and to what degree. Criteria for commissioning an ERC and formal systematic review, b) the feasibility of defining the benefit and risk in a time frame consistent with the writing of a guideline, c) the relevance to a substantial number of patients, and d) the likelihood that the findings can be translated into actionable recommendations. ERC members may include methodologists, healthcare providers, and biostatisticians. The recommendations developed by the writing committee on the basis of the systematic review are marked with "SR." Guideline-Directed Management and TherapyThe term guidelinedirected management and therapy (GDMT) encompasses clinical evaluation, diagnostic testing, and pharmacological and procedural treatments. For these and all recommended drug treatments and evaluate the treatment regimens, the reader should confirm the dosage by reviewing product insert material and evaluate the treatment regimens, the reader should confirm the dosage by reviewing product insert material and evaluate the treatment regimens, the reader should confirm the dosage by reviewing product insert material and evaluate the treatment regimens. interactions. The recommendation and Level of EvidenceThe Class of Recommendation, encompassing the estimated magnitude and certainty of benefit in proportion to risk. The Level of Evidence (LOE) rates the quality of scientific evidence that supports the intervention on the basis of the type, quantity, and consistency of data from clinical strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care\* (Updated August 2015)Glenn N. Levine, MD, FACC, FAHAChair, ACC/AHA Task Force on Clinical Practice Guidelines1. IntroductionAs early as the 1920s, and subsequently in the 1959 Build and Blood Pressure StudyS1.5-1 of almost 5 million adults insured between 1934 and 1954, a strong direct relationship was noted between level of BP and risk of clinical complications and death. In the 1960s, these findings were confirmed in a series of reports from the Framingham Heart Study.S1.5-2 The 1967 and 1970 Veterans Administration Cooperative guideline for detection, evaluation, and management of high BP was published in 1977, under the sponsorship of the NHLBI.S1.5-5 In subsequent years, a series of Joint National Community and improve prevention, awareness, treatment, and control of high BP.S1.5-5-S1.5-7 The present quideline updates prior JNC reports.1.1. Methodology and Evidence ReviewAn extensive evidence review, which included literature derived from research involving human subjects, published in English, and other selected databases relevanted from research involving human subjects. to this guideline, was conducted between February and August 2015. Key search words included but were not limited to the following: adherence; aerobic; alcohol intake; ambulatory care; antihypertensive: agents, drug, medication, therapy; beta adrenergic blockers; blood pressure: arterial, control, determination, devices, goal, high, improve, measurement, monitoring, ambulatory; calcium channel blockers; diet; diuretic agent; drug therapy; heart failure: diastolic, systolic; hypertension: white coat, prevention, therapy, treatment, control; intervention; lifestyle: measures, modification; office visits; patient outcome; performance measures; physical activity; potassium intake; renin inhibitor; risk reduction: behavior, counseling; screening; sphygmomanometers; spironolactone; therapy; treatment: adherence, compliance, efficacy, outcome, protocol, regimen; weight. Additional relevant studies published through June 2016, during the guideline writing process, were also considered by the writing committee and added to the evidence tables when appropriate. The final evidence used by the writing committee to formulate recommendations. As noted in the preamble, an independent ERC was commissioned to perform a formal systematic review of 4 critical clinical questions related to hypertension (Table 2), the results of which were considered by the writing committee members evaluated other published data relevant to the guideline. The findings of the ERC and the writing committee members were formally presented and discussed, and then guideline recommendations were developed. The systematic review report, "Systematic review report, "Systemati Adults," is published in conjunction with this guideline, S1.5-8 and its respective data supplements are available online. No writing committee member reported a RWI. Drs. Whelton, Wright, and Williamson had leadership roles in SPRINT (Systolic Blood Pressure Intervention Trial). Dr. Carey chaired committee discussions in which the SPRINT results were considered. Table 2. Systematic Review Questions on High BP in AdultsQuestion Number Question Section Number 1 is there evidence that self-directed monitoring of BP and/or ambulatory BP monitoring are superior to office-based measurement of BP by a healthcare worker for 1) preventing adverse outcomes for which high BP is a risk factor and 2) achieving better BP control?4.22What is the optimal target for BP lowering during antihypertensive therapy in adults?8.1.59.39.63In adults with hypertension, do various antihypertensive therapy in adults?8.1.59.39.63In adults with hypertension, do various antihypertensive therapy in adults?8.1.59.39.63In adults?8.1.59.39.63In adults with hypertensive therapy in adults?8.1.59.39.63In adults?8.1 pharmacological monotherapy versus initiating treatment with 2 drugs (including fixed-dose combination therapy), either of which may be followed by the addition of sequential drugs, differ in comparative benefits and/or harms on specific health outcomes?8.1.6.11.2. Organization of the Writing Committee Consisted of clinicians, cardiologists, epidemiologists, a neurologist, a neurologi College of Preventive Medicine (ACPM), American Geriatrics Society (AGS), American Society (AGS), American Society of Hypertension (APhA), American Society of Hypertension (ASH), American Society (AGS), American Society (A document was reviewed by 2 official reviewers nominated by the ACC and AHA; 1 reviewer each from the AAPA, ABC, ACPM, AGS, APhA, ASH, ASPC, NMA, and PCNA; and 38 individual content reviewers. Reviewers' RWI information was distributed to the writing committee and is published in this document (Appendix 2). This document was approved for publication by the governing bodies of the ACC, AHA, AAPA, ABC, ACPM, AGS, APhA, ASPC, NMA, and PCNA.1.4. Scope of the Guideline is intended to be a resource for the clinical and public health practice communities. It is designed to be a resource for the clinical and public health practice communities. It is designed to be a resource for the clinical and public health practice communities. prevention, detection, evaluation, and management of high BP. It is an update of the NHLBI publication, "The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure" (JNC 7).S1.5-7 It incorporates new information from studies of office-based BP-related risk of CVD, ambulatory blood pressure monitoring (ABPM), home blood pressure monitoring (HBPM), telemedicine, and various other areas. This guideline does not address the use of BP-lowering medications for the purposes of prevention of recurrent CVD events in patients with stable ischemic heart disease (SIHD) or chronic heart failure (HF) in the absence of hypertension; these topics are the focus of other ACC/AHA guidelines. S1.5-9, S1.5-10 In developing the present guidelines, evidence reviews, and related statements. Table 3 contains a list of publications and statements deemed pertinent to this writing effort and is intended for use as a resource, thus obviating the need to repeat existing guideline recommendations. Table 3. Associated Guidelines and Statements TitleOrganization Publication YearGuidelines Lower-extremity peripheral artery diseaseAHA/ACC2016S1.5-11 Management of primary aldosteronism: case detection, diagnosis, and treatmentEndocrine Society2016S1.5-11 12 Stable ischemic heart diseaseACC/AHA/AATS/PCNA/SCAI/STS2014S1.5-13 2012S1.5-9 Pheochromocytoma and paragangliomaEndocrine Society2014S1.5-16 Assessment of cardiovascular riskACC/AHA2013S1.5-17 Hypertension in pregnancyACOG2013S1.5-18 Heart failureACC/AHA2017S1.5-19 2013S1.5-20 Management of overweight and obesity in adultsAHA/ACC/TOS2013S1.5-22 ST-elevation myocardial infarctionACC/AHA2013S1.5-20 Management of arterial hypertensionESH/ESC2013S1.5-20 23 Treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adultsACC/AHA2013S1.5-25 Effectiveness-based guidelines for the prevention of cardiovascular diseases during pregnancyESC2011S1.5-26 Secondary prevention and risk-reduction therapy for patients with coronary and other atherosclerotic vascular diseaseAHA/ACC2011S1.5-27 Assessment of cardiovascular risk in asymptomatic adultsACC/AHA/AATS/ACR/ASA/SCA/SCA/SCA/SIR/STS/SVM2010S1.5-28 Thoracic aortic diseaseACC/AHA/AATS/ACR/ASA/SCA/SCA/SIR/STS/SVM2010S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, and treatment of high blood pressure in children and adolescentsNHLBI2004S1.5-29 Diagnosis, evaluation, ad 30Statements Salt sensitivity of blood pressureAHA2016S1.5-31 Cardiovascular team-based care and the role of advanced practice providersACC2015S1.5-33 Ambulatory blood pressure monitoring in children and adolescentsAHA2014S1.5-34 An effective approach to high blood pressure controlAHA/ACC/CDC2014S1.5-35 Ambulatory blood pressure monitoringESH2013S1.5-36 Performance measures for adults with coronary artery disease and hypertensionACC/AHA/AMA-PCPI2011S1.5-37 Interventions to promote physical activity and dietary lifestyle changes for cardiovascular risk factor reduction in adultsAHA2010S1.5-38 Resistant hypertension: diagnosis, evaluation, and treatmentAHA2008S1.5-391.5. Abbreviations and AcronymsAbbreviations and AcronymsAb pressureCCBcalcium channel blockerCHDcoronary heart diseaseCBDPdiastolic blood pressureDMdiabetes mellitusECGelectrocardiogramESRDend-stage renal diseaseGDMTguideline-directed management and therapyGFRglomerular filtration

rateHBPMhome blood pressure monitoringEHRelectronic health recordHFheart failure With preserved ejection fractionICHintracerebral hemorrhageJNCJoint National CommissionLVleft ventricularLVHleft ventricul imagingPADperipheral artery diseaseRAS renin-angiotensin systemRCTrandomized controlled trialSBPsystolic blood pressure (SBP) and CVD Risk2.1. Observational studies have demonstrated graded associations between higher systolic blood pressure (SBP) and diastolic blood pressure (DBP) and increased CVD risk.S2.1-1,S2.1-2 In a meta-analysis of 61 prospective studies, the risk of CVD increased in a log-linear fashion from BP levels 105 mm Hg.S2.1-1 In that analysis, 20 mm Hg higher SBP and 10 mm Hg higher DBP were each associated with a doubling in the risk of death from stroke, heart disease, or other vascular disease. In a separate observational study including >1 million adult patients ≥30 years of age, higher SBP and DBP were associated with increased risk of CVD incidence and angina, myocardial infarction (MI), HF, stroke, peripheral artery disease (PAD), and abdominal aortic aneurysm, each evaluated separately.S2.1-2 An increased risk of CVD associated with higher SBP and DBP has been reported across a broad age spectrum, from 30 years to >80 years older persons (≥65 years) given the higher absolute risk of CVD at an older age.S2.1-12.2. BP Components Epidemiological studies have evaluated associations of SBP and DBP, as well as derived components (including pulse pressure, mean BP, and mid-BP), with CVD outcomes (Table 4). When considered separately, higher levels of both SBP and DBP have been associated with increased CVD risk.S2.2-1,S2.2-2 Higher SBP has consistently been associated with increased CVD risk.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment or stratification, DBP has not been consistently associated with increased CVD risk.S2.2-1,S2.2-5 In contrast, after consideration of SBP through adjustment or stratification, DBP has not been consistently associated with CVD risk.S2.2-1,S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP through adjustment for, or within strata of, DBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP.S2.2-3-S2.2-5 In contrast, after consideration of SBP.S2.2-5 In contrast, after considera 6,S2.2-7 Although pulse pressure and mid-BP have been associated with increased CVD risk independent of SBP and DBP in some studies, SBP (especially) and DBP are prioritized in the present document because of the robust evidence base for these measures in both observational studies and clinical trials and because of their ease of measurement in practice settings.S2.2-8-S2.2-11Table 4. BP Measurement DefinitionsBP Measurement DefinitionsBP First Korotkoff sound\*DBPFifth Korotkoff sound\* and disability-adjusted life years worldwide.S2.3-1,S2.3-2 In the United States, hypertension (see Section 3.1 for definition) accounted for more CVD deaths than any other modifiable CVD risk factor and was second only to cigarette smoking as a preventable cause of death for any reason.S2.3-3 In a follow-up study of 23 272 US NHANES (National Health and Nutrition Examination Survey) participants, >50% of deaths from coronary heart disease (CHD) and stroke occurred among individuals with hypertension and its associated increased risk of CHD, stroke, and end-stage renal disease (ESRD), the population-attributable risk of these outcomes associated with hypertension is high.S2.3-4,S2.3-5 In the population-based ARIC (Atherosclerosis Risk in Communities) study, 25% of the cardiovascular events (CHD, coronary revascularization, stroke, or HF) were attributable to hypertension. In the Northern Manhattan study, the percentage of events attributable to hypertension was higher in women (32%) than in men (19%) and higher in blacks (36%) than in whites (21%).S2.3-6 In 2012, hypertension was the second leading assigned cause of ESRD, behind diabetes mellitus (DM), and accounted for 34% of incident ESRD cases in the US population.S2.3-72.4. Coexistence of Hypertension and Related Chronic ConditionsRecommendation for Coexistence of Hypertension and Related Chronic ConditionsReferences that support the recommendationIB-NR1.Screening for and management of other modifiable CVD risk factors are recommended in adults with hypertension.S2.4-1,S2.4-2SynopsisMany adult patients with hypertension have other CVD risk factors; a list of such modifiable and relatively fixed risk factors is provided in Table 5. Among US adults with hypertension between 2009 and 2012, 15.5% were obese, 63.2% had by a chronic kidney fixed risk factors is provided in Table 5. Among US adults with hypertension between 2009 and 2012, 15.5% were obese, 63.2% had by a chronic kidney disease (CKD; defined as estimated glomerular filtration rate [eGFR] 20%, 40.9% had a risk of 10% to 20%, and only 18.4% had a risk

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