Effective Health Care

Treating Hypertension

Results of Topic Selection Process & Next Steps

The nominator, the American Academy of Family Physicians (AAFP), is interested in identifying clear goals for the treatment of hypertension; this includes understanding at what baseline blood pressure(s) treatment is most effective and what achieved blood pressure(s) will be most health protective. The questions were found to be addressed by existing systematic reviews. Upon reviewing the identified reviews, the nominator determined the reviews addressed their needs, and withdrew their nomination from consideration for an AHRQ systematic review. No further activity on this topic will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: Treating Hypertension

Topic #: 0659

Nomination Date: 11/13/2015

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Conflicts of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

Summary of Key Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: The scope of the nomination was addressed by over 50 completed and in-process evidence reviews. Please see Table 2 for more details.

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Introduction

Hypertension is one of the most prevalent preventable and treatable health conditions in the United States affecting almost one-third of the adult population.[1] This condition may increase the risk for heart disease and stroke. High blood pressure does not typically present with any warning signs or symptoms, and many people may not know that they have it. High blood pressure costs the United States about $46 billion each year.[1] The most common risk factors for high blood pressure includes a high sodium and low potassium diet, physical inactivity, obesity, high alcohol use, tobacco use, a family history of high blood pressure and cardiovascular disease, and other factors.[1] Although there has been progress in the identification and treatment of hypertension, there is clinical disagreement and regarding the most effective medications and treatment goals.

Topic nomination #0659 was received on November 11, 2015. It was nominated by the American Academy of Family Physicians (AAFP). The questions for this nomination are:

Key Question 1. In adults with hypertension, at what blood pressure threshold does treatment improve outcomes?

a. In the general (younger and middle) adult population
b. In older adults (≥60)
c. In adults with mild hypertension (140–149/90–99)
d. In adults with a history of cardiovascular disease
e. In adults with diabetes
f. In adults with chronic kidney disease
g. In ethnic and racial minorities

Key Question 2. In adults with hypertension, treatment to what blood pressure goal improves outcomes?

a. In the general (younger and middle) adult population
b. In older adults (≥60)
c. In adults with mild hypertension (140–149/90–99)
d. In adults with a history of cardiovascular disease
e. In adults with diabetes
f. In adults with chronic kidney disease
g. In ethnic and racial minorities

Key Question 3. In adults with hypertension, what are the benefits and harms of various pharmacological interventions?

a. In the general (younger and middle) adult population
b. In older adults (≥60)
c. In adults with mild hypertension (140–149/90–99)
d. In adults with a history of cardiovascular disease
e. In adults with diabetes
f. In adults with chronic kidney disease
g. In ethnic and racial minorities

Key Question 4. In adults with hypertension, what are the comparative benefits and harms of various lifestyle and other non-pharmacological interventions (e.g., diet, physical activity, salt reduction, etc.)?

a. In the general (younger and middle) adult population
b. In older adults (≥60)
c. In adults with mild hypertension (140–149/90–99)
d. In adults with a history of cardiovascular disease
e. In adults with diabetes

f. In adults with chronic kidney disease
g. In ethnic and racial minorities

To define the inclusion criteria for the key questions we specify the population, interventions, comparators, outcomes, and timing (PICOTs) of interest. See Table 1.

Table 1. Key Questions and PICOTs

Key Questions	**1.** In adults with hypertension, at what blood pressure threshold does treatment improve outcomes? a. In the general (younger and middle) adult population b. In older adults (≥60) c. In adults with mild hypertension (140-149/90-99) d. In adults with a history of cardiovascular disease e. In adults with diabetes f. In adults with chronic kidney disease g. In ethnic and racial minorities	**2.** In adults with hypertension, at what blood pressure goal does treatment improve outcomes? a. In the general (younger and middle) adult population b. In older adults (≥60) c. In adults with mild hypertension (140-149/90-99) d. In adults with a history of cardiovascular disease e. In adults with diabetes f. In adults with chronic kidney disease g. In ethnic and racial minorities	**3.** What are the benefits and harms of pharmacological interventions for adults with hypertension? a. In the general (younger and middle) adult population b. In older adults (≥60) c. In adults with mild hypertension (140-149/90-99) d. In adults with a history of cardiovascular disease e. In adults with diabetes f. In adults with chronic kidney disease g. In ethnic and racial minorities	**4.** What are the benefits and harms of non-pharmacological interventions for adults with hypertension? a. In the general (younger and middle) adult population b. In older adults (≥60) c. In adults with mild hypertension (140-149/90-99) d. In adults with a history of cardiovascular disease e. In adults with diabetes f. In adults with chronic kidney disease g. In ethnic and racial minorities
Population	Adults with hypertension	Adults with hypertension	Adults with hypertension	Adults with hypertension
Interventions	Pharmacologic treatment of hypertension at specified thresholds	Pharmacologic treatment to specified targets or more vs. less intensive treatment	Pharmacologic treatment, not necessarily to specified targets (eg, ACEIs, ARBs, RAS inhibitors, CCBs, diuretics, beta blockers, renin inhibitors, alpha blockers, combined alpha and beta blockers, alpha-2-receptor agonists, central agonists, peripheral adrenergic inhibitors, vasodilators, combination therapy, etc.)	Non-pharmacologic interventions (e.g., diet, physical activity, salt reduction, etc.)
Comparators	Placebo, no treatment, other active treatment	Placebo, no treatment, other active treatment	Placebo, no treatment, other active treatment	Placebo, no treatment, other active treatment
Outcomes	Blood pressure, myocardial infarction, acute coronary syndrome, stroke, acute decompensated heart failure, CVD related mortality, all-cause mortality	Blood pressure, myocardial infarction, acute coronary syndrome, stroke, acute decompensated heart failure, CVD related mortality, all-cause mortality	Blood pressure, stroke, myocardial infarction, heart failure, end stage renal disease, hospitalization, CVD related mortality, all-cause mortality	Blood pressure, stroke, myocardial infarction, heart failure, end stage renal disease, hospitalization, CVD related mortality, all-cause mortality
Timing	Long term (≥6 months) outcomes	Long term (≥6 months) outcomes	Long term (≥6 months) outcomes	Long term (≥6 months) outcomes

Abbreviations: ACEI=Angiotensin Converting Enzyme Inhibitor; ARB=Angiotensin Receptor Blocker; CCB=Calcium Channel Blockers; CVD=Cardiovascular Disease; RAS=Renin-Angiotensin System

Methods

To assess topic nomination *#0659 Treating Hypertension,* for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of each step in our assessment determining the need for further evaluation of the next step. Details related to our assessment are provided in Appendix A.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance (see Appendix A).

Desirability of New Review/Duplication

We searched for high-quality, completed or in-process evidence reviews pertaining to the key questions of the nomination. Table 2 includes the citations for the reviews that were determined to address the key questions. Appendix B includes the list of the sources searched and potentially relevant titles identified by our research librarian.

Compilation of Findings

We constructed a table outlining the selection criteria as they pertain to this nomination (see Appendix A).

Results

Appropriateness and Importance

This is an appropriate and important topic. Hypertension is one of the most prevalent, preventable, and treatable health conditions in the US, affecting almost 13% of the adult population. See Appendix A for details.

Desirability of New Review/Duplication

Key Question 1 and 2, regarding BP thresholds and BP goals, is mostly covered by a 2016 Veterans Affairs Evidence-based Synthesis Program (VA ESP) report.[2] For key question 3, we found existing and in-process evidence reviews examining the benefits and harms of various pharmacological interventions for all subgroups of interest (general adult population [3a],[3-16] older adults [3b],[14,17] adult with mild hypertension [3c],[9] adults with a history of CVD [3d],[8,9,13,14,18,19] adults with diabetes [3e],[4,9,13] adults with CKD [3f],[4,9,13] and ethnic and racial minorities [3g][13,20]. For Key Question 4, we found existing and in-process evidence review examining non-pharmacological interventions in the general adult population (4a).[21-46]

Table 2. Key Questions from Nomination and Findings from Duplication and Feasibility Search

Key Question	Completed and In-Process Evidence Reviews (1/2011-1/2016)
KQ 1a: At what BP threshold does treatment improve outcomes in adults with hypertension?	Total number of completed or in-progress evidence reviews - 3[9,10,13] • Other – 3[9,10,13]

Key Question	Completed and In-Process Evidence Reviews (1/2011-1/2016)
KQ 1b: At what BP threshold does treatment improve outcomes in adults >60?	Total number of completed or in-progress evidence reviews – 1[13] • Other – 1[13]
KQ 1c: At what BP threshold does treatment improve outcomes in adults with mild hypertension?	Total number of completed or in-progress evidence reviews – 4[9,10,13,47] • Cochrane – 1[47] • Other – 3[9,10,13]
KQ 1d: At what BP threshold does treatment improve outcomes in adults with a history of CVD?	Total number of completed or in-progress evidence reviews – None identified.
KQ 1e: At what BP threshold does treatment improve outcomes in adults with hypertension and comorbid diabetes?	Total number of completed or in-progress evidence reviews – 2[8,48] • Other – 2[8,48]
KQ 1f: At what BP threshold does treatment improve outcomes in adults with hypertension and CKD?	Total number of completed or in-progress evidence reviews – None identified.
KQ 1g: At what BP threshold does treatment improve outcomes in adults with hypertension in racial and ethnic minorities?	Total number of completed or in-progress evidence reviews – None identified.
KQ 2a: At what BP goal does treatment improve outcomes in adults with hypertension?	Total number of completed or in-progress evidence reviews – 4[9,10,13,49] • Other – 3[9,10,13] • Protocol – 1[49]
KQ 2b: At what BP goal does treatment improve outcomes in adults >60?	Total number of completed or in-progress evidence reviews – 3[2,13,50] • VA ESP– 1[2] • Other – 1[13] • Cochrane Protocol – 1[50]
KQ 2c: At what BP goal does treatment improve outcomes in adults with mild hypertension?	Total number of completed or in-progress evidence reviews – None identified.
KQ 2d: At what BP goal does treatment improve outcomes in adults with hypertension and a history of CVD?	Total number of completed or in-progress evidence reviews – None identified.
KQ 2e: At what BP goal does treatment improve outcomes in adults with hypertension and comorbid diabetes?	Total number of completed or in-progress evidence reviews – 3[8,13,51] • Cochrane– 1[51] • Other – 2[8,13]
KQ 2f: At what BP goal does treatment improve outcomes in adults with hypertension and CKD?	Total number of completed or in-progress evidence reviews – 1[13] • Other – 1[13]
KQ 2g: At what BP goal does treatment improve outcomes in racial and ethnic minorities?	Total number of completed or in-progress evidence reviews – None identified.
KQ 3a: What are the benefits and harms of pharmacological interventions for adults with hypertension?	Total number of completed or in-progress evidence reviews – 14[3-16] • Cochrane– 5[3-7] • Other – 6[8-13] • Cochrane Protocol – 1[14] • Other Protocol – 1[15] • AHRQ Archived – 1[16]
KQ 3b: What are the benefits and harms of pharmacological interventions for adults >60 with hypertension?	Total number of completed or in-progress evidence reviews – 2[14,17] • Other – 1[17] • Cochrane Protocol – 1[14]

Key Question	Completed and In-Process Evidence Reviews (1/2011-1/2016)
KQ 3c: What are the benefits and harms of pharmacological interventions for adults with mild hypertension?	Total number of completed or in-progress evidence reviews – 1[9] • Other – 1[9]
KQ 3d: What are the benefits and harms of pharmacological interventions for adults with hypertension and a history of CVD?	Total number of completed or in-progress evidence reviews – 3[8-10] • Other – 3[8-10]
KQ 3e: What are the benefits and harms of pharmacological interventions for adults with hypertension and diabetes?	Total number of completed or in-progress evidence reviews – 6[8,9,13,14,18,19] • Other – 5[8,9,13,18,19] • Cochrane Protocol – 1[14]
KQ 3f: What are the benefits and harms of pharmacological interventions for adults with hypertension and CKD?	Total number of completed or in-progress evidence reviews – 3[4,9,13] • Cochrane– 1[4] • Other – 2[9,13]
KQ 3g: What are the benefits and harms of pharmacological interventions for racial and ethnic minority adults with hypertension?	Total number of completed or in-progress evidence reviews – 2[13,20] • Other – 2[13,20]
KQ 4a: What are the benefits and harms of non- pharmacological interventions for adults with hypertension?	Total number of completed or in-progress evidence reviews – 26[21-46] • Cochrane– 8[21-28] • Other – 14[29-42] • Cochrane Protocol – 3[43-45] • Other Protocol – 1[46]
KQ 4b: What are the benefits and harms of non-pharmacological interventions for adults >60 with hypertension?	Total number of completed or in-progress evidence reviews – 3[22,42,45] • Cochrane– 1[22] • Other – 1[42] • Cochrane Protocol – 1[45]
KQ 4c: What are the benefits and harms of non-pharmacological interventions for adults with mild hypertension?	Total number of completed or in-progress evidence reviews – 5[24,30,38,44,45] • Cochrane– 1[24] • Other – 2[30,38] • Cochrane Protocol – 2[44,45]
KQ 4d: What are the benefits and harms of non-pharmacological interventions for adults with hypertension and a history of CVD?	Total number of completed or in-progress evidence reviews – None identified.
KQ 4e: What are the benefits and harms of pharmacological interventions for adults with hypertension and diabetes?	Total number of completed or in-progress evidence reviews – 1[42] • Other – 1[42]
KQ 4f: What are the benefits and harms of non-pharmacological interventions for adults with hypertension and CKD?	Total number of completed or in-progress evidence reviews – 2[52,53] • Cochrane– 1[52] • Other – 1[53]
KQ 4g: What are the benefits and harms of non-pharmacological interventions for racial and ethnic minority adults with hypertension?	Total number of completed or in-progress evidence reviews – 2[23,27] • Cochrane– 2[23,27]

Abbreviations: AHRQ=Agency for Healthcare and Research Quality; BP=Blood Pressure; CKD=Chronic Kidney Disease; CVD=Cardiovascular Disease; KQ=Key Question; n-RCT=non-Randomized Controlled Trial; RCT=Randomized Controlled Trial; VA ESP=Veteran Affairs Evidence-Based Synthesis Program

Summary of Findings

- Appropriateness and importance: The nomination is both appropriate and important.
- Duplication: The scope of the nomination was addressed by over 50 completed and in-process evidence reviews.

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Appendices

Appendix A: Selection Criteria Summary

Appendix B: Search for Systematic Reviews (Duplication)

Appendix A. Selection Criteria Summary

Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this topic represents a health care drug and intervention available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this topic is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	The focus of this review is on effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, it is biologically plausible. Yes, it is consistent with what is known about the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, this topic represents a significant burden. The AAFP states that hypertension is one of the most prevalent, preventable, and treatable health conditions in the US, affecting almost 13% of the adult population.
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, this topic affects heath care decisions for a large, vulnerable population and there is not a clearly established indication for treatment.
2c. Represents important uncertainty for decision makers	Yes, this topic represents important uncertainty for decision makers.
2d. Incorporates issues around both clinical benefits and potential clinical harms	Yes, this nomination addresses both the benefits and harms of various treatments for hypertension.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes, this topic represents a common affliction, and the increasing medical care costs of its treatments.
3. Desirability of a New Evidence Review/Duplication	
3. Would not be redundant (i.e., the proposed topic is not already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	For Key Question 1, we found existing and in-process evidence reviews addressing the blood pressure threshold at which treatment improves outcomes for the general adult population (1a)[9,10,13], in adults with mild hypertension (1c)[9,10,13,47], and in adults with diabetes (1e)[8,48]. For Key Question 2, we found existing and in-process evidence reviews addressing to what blood pressure goal that treatment improves outcomes in the general adult population (2a)[9,10,13,49], in older adults (2b)[2,13,50], and in adults with diabetes (2e).[8,13,51] For key question 3, we found existing and in-process evidence reviews examining the benefits and harms of various pharmacological interventions for all subgroups of interest (general adult population [3a],[3-16] older adults [3b],[14,17] adult with mild hypertension [3c],[9] adults with a history of CVD [3d],[8,9,13,14,18,19] adults with diabetes [3e],[4,9,13]

	adults with CKD [3f],[4,9,13] and ethnic and racial minorities [3g][13,20]). For Key Question 4, we found existing and in-process evidence review examining non-pharmacological interventions in the general adult population (4a).[21-46]

Abbreviations: AAFP=American Academy of Family Physicians; AHRQ=Agency for Healthcare and Research Quality; CKD=Chronic Kidney Disease; CVD=Cardiovascular Disease; RCT=Randomized Controlled Trial; US=United States

Appendix B. Search for Systematic Reviews (Duplication)

Listed below are the sources searched and results of our search for existing guidance. A research librarian conducted the search and selected potentially relevant evidence based on the key question in the nomination and the associated PICOTS. An investigator reviewed each of the links to evidence below for inclusion. The links below do not represent the evidence selected for inclusion (see main topic brief).

Source	Evidence
AHRQ and Other Federal Products	
AHRQ: Evidence reports and technology assessments, USPSTF recommendations, and related DEcIDE projects, and Horizon Scan	Pulmonary Arterial Hypertension: Screening, Management, and Treatment http://www.ncbi.nlm.nih.gov/books/NBK143034/
VA Products: PBM, and HSR&D (ESP) publications, and VA/DoD EBCPG Program	Benefits and Harms of Treating Blood Pressure in Older Adults PROSPERO registration number: CRD42015017677 http://www.hsrd.research.va.gov/publications/esp/in_progress.cfm#bloodpressure
CMS Policies http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx	None.
Cochrane Systematic Reviews and Protocols http://www.cochranelibrary.com/	Reduced dietary salt for the prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009217.pub3/abstract Omega 6 fatty acids for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011094.pub2/abstract Blood pressure targets for hypertension in people with diabetes mellitus http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008277.pub2/abstract Interventions for deliberately altering blood pressure in acute stroke http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000039.pub3/abstract Fish oil supplements for the prevention and treatment of hypertension in adults http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010021/abstract Calcium supplementation for prevention of primary hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010037.pub2/abstract

	Fixed-dose combination therapy for the prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009868.pub2/abstract Beta-blockers for preventing stroke recurrence http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007890.pub3/abstract Pharmacotherapy for mild hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006742.pub2/abstract Multiple risk factor interventions for primary prevention of coronary heart disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001561.pub3/abstract Monotherapy versus combination therapy used as first-line therapy for primary hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010316/abstract Blood pressure targets for hypertension in older adults http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011575/abstract Blood pressure targets for the treatment of patients with hypertension and cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010315/abstract Effects of low sodium diet versus high sodium diet on blood pressure, renin, aldosterone, catecholamines, cholesterol, and triglyceride http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004022.pub3/abstract Yoga for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010072.pub2/abstract Green and black tea for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009934.pub2/abstract Tai chi for primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010366.pub2/abstract Increased consumption of fruit and vegetables for the primary prevention of cardiovascular diseases http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009874.pub2/abstract Qigong for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010390.pub2/abstract Transcendental meditation for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010359.pub2/abstract

	Dietary fibre for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011472.pub2/abstract Effect of longer-term modest salt reduction on blood pressure http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004937.pub2/abstract Exercise training for adults with chronic kidney disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003236.pub2/abstract Reduced or modified dietary fat for preventing cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002137.pub3/abstract Creatine and creatine analogues in hypertension and cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005184.pub2/abstract Ganoderma lucidum mushroom for the treatment of cardiovascular risk factors http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007259.pub2/abstract Angiotensin converting enzyme (ACE) inhibitors versus angiotensin receptor blockers for primary hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009096.pub2/abstract Antiplatelet agents and anticoagulants for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003186.pub3/abstract Antihypertensive agents for preventing diabetic kidney disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004136.pub3/abstract Non-pharmacological interventions for preventing secondary vascular events after stroke or transient ischemic attack http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008656.pub2/abstract Nut consumption for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011583.pub2/abstract Altered dietary salt intake for people with chronic kidney disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010070.pub2/abstract Organisational interventions for improving control of blood pressure in individuals with hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011500/abstract Alcohol intake reduction for controlling hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD010022/abstract

	'Mediterranean' dietary pattern for the primary prevention of cardiovascular disease http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009825.pub2/abstract First-line diuretics versus other classes of antihypertensive drugs for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008161.pub2/abstract Effect of cocoa on blood pressure http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008893.pub2/abstract Exercise for people with high cardiovascular risk http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009387.pub2/abstract Long-term effects of weight-reducing diets in hypertensive patients http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008274.pub2/abstract Long-term effects of weight-reducing drugs in hypertensive patients http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007654.pub3/abstract Garlic for the prevention of cardiovascular morbidity and mortality in hypertensive patients http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007653.pub2/abstract Antihypertensive pharmacotherapy for prevention of sudden cardiac death in hypertensive individuals http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD011745/abstract Fermented milk for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008118.pub2/abstract Tai Chi for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009349/abstract Eplerenone for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008996/abstract Beta-blockers for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002003.pub4/abstract First-line drugs inhibiting the renin angiotensin system versus other first-line antihypertensive drug classes for hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008170.pub2/abstract Tianma Gouteng Yin Formula for treating primary hypertension http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008166.pub2/abstract Achievement and safety of a low blood pressure goal in chronic renal disease. The Modification of Diet in Renal Disease Study Group http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/856/CN-00136856/frame.html

	Safety and feasibility of achieving lower systolic blood pressure goals in persons with type 2 diabetes: the SANDS trial http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/015/CN-00731015/frame.html Antihypertensive treatment: is blood pressure-lowering the only goal? http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/045/CN-00084045/frame.html The Effect of Different Blood Pressure Goals and Antihypertensive Drug Regimes on Change in Proteinuria: Results from the African-American Study of Kidney Disease http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/772/CN-00446772/frame.html Intervention at lower blood pressure levels to achieve target goals in type 2 diabetes: PRADID (PResión Arterial en DIabéticos tipo Dos) study http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/421/CN-00489421/frame.html Is blood pressure reduction a valid surrogate endpoint for stroke prevention? An analysis incorporating a systematic review of randomised controlled trials, a by-trial weighted errors-in-variables regression, the surrogate threshold effect (STE) and the Biomarker-Surrogacy (BioSurrogate) Evaluation Schema (BSES) (Provisional abstract) http://onlinelibrary.wiley.com/o/cochrane/cldare/articles/DARE-12012047851/frame.html
PubMed Health	Optimal blood pressure targets in 2014 - Does the guideline recommendation match the evidence base? http://www.ncbi.nlm.nih.gov/pubmed/26179968 High blood pressure in type 2 diabetes: Does lowering blood pressure to especially low levels have any advantages? http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072689/ Benefit assessment of long-term blood pressure reduction to levels in the lower normal range in patients with diabetes mellitus http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0065180/
HTA (CRD database): Health Technology Assessments http://www.crd.york.ac.uk/crdweb/	Systematic review: blood pressure target in chronic kidney disease and proteinuria as an effect modifier http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?AccessionNumber=12011002403&UserID=0
PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospero/	Yang Xia, Chen Ken, Liu Wei, Zhai Suodi. The optimal goal of blood pressure: a system review of cohort studies. PROSPERO 2015:CRD42015029545 Available from http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42015029545 Mark Huffman, Kunal Karmali, Mark Berendsen, David Goff, Donald Lloyd-Jones. Drugs for primary prevention of atherosclerotic cardiovascular diseases: an overview of reviews and systematic review of combinations. PROSPERO 2015:CRD42015023444 Available from http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42015023444 Khai Ping Ng, Charles Ferro. Protocol: systematic review of cardiovascular effects of mineralocorticoid receptor antagonist in chronic kidney disease. PROSPERO 2013:CRD42013006795 Available from http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42013006795

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